



Part 4: DAC class 743-115 programming instructions

Program version 743-115-1012

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1. General

This manual contains important information on the safe, correct and economical use of the new-generation "**DAC**" (Dürkopp Adler Control) controller.

Screen images in this brief description

The symbol display on the various screens depends on the sewing machine's equipment and settings.

The screen images illustrated in this brief description may therefore not always correspond exactly with the screens appearing in the controller display.

Operating terminal with graphic user guide

The operating terminal is fitted with an LCD display and a keyboard. The user guide employs only internationally intelligible symbols. The various symbols are arranged in groups in the menu structure of the sewing and test programs.

Simplicity of operation ensures rapid familiarisation.

Ease of programming

92 freely programmable sewing programs and 50 retrievable sequences are available to the user.

Each sequence can consist of a maximum of 2 sewing programs in any order.

Setting and test programs

The **MULTITEST** comprehensive testing and monitoring system is integral to the **DAC**.

A microcomputer carries out the control functions, monitors the sewing process and displays incorrect operations and faults.

Errors and test results are shown in the LCD display.

If the machine is operating normally the display shows information relating to operation and sewing.

In the event of an operating error or fault the function sequence is interrupted. The display indicates the cause by means of the appropriate error symbol.

In most cases the error symbol disappears once the error has been rectified.

In some cases the main switch must be switched off for safety reasons when the error is rectified.

Some error messages are only intended for maintenance personnel.

Special programs facilitate mechanical settings and enable receiver and transmitter elements to be rapidly tested without additional measuring devices.

RAM memory card

The RAM memory card is a long-term storage medium for all programmed data.

It enables data to be transferred to other sewing machines.

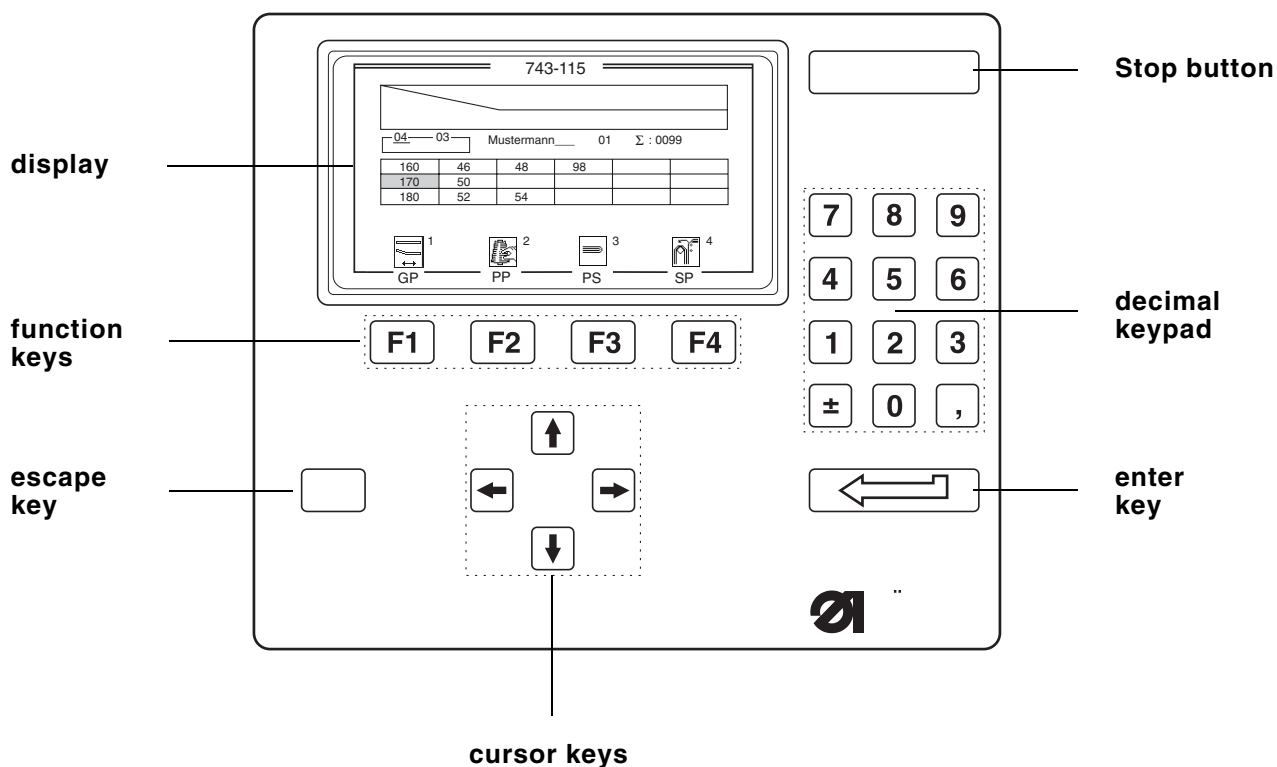
The controller transfers the data onto the memory card.

Stored data can be loaded from the memory card into a **DAC** controller. This procedure can be repeated an unlimited number of times within the memory card's lifetime (approx. 4 years).



2. Operating terminal

Data is input and output via an operating terminal with an LCD display and a multipurpose keyboard.

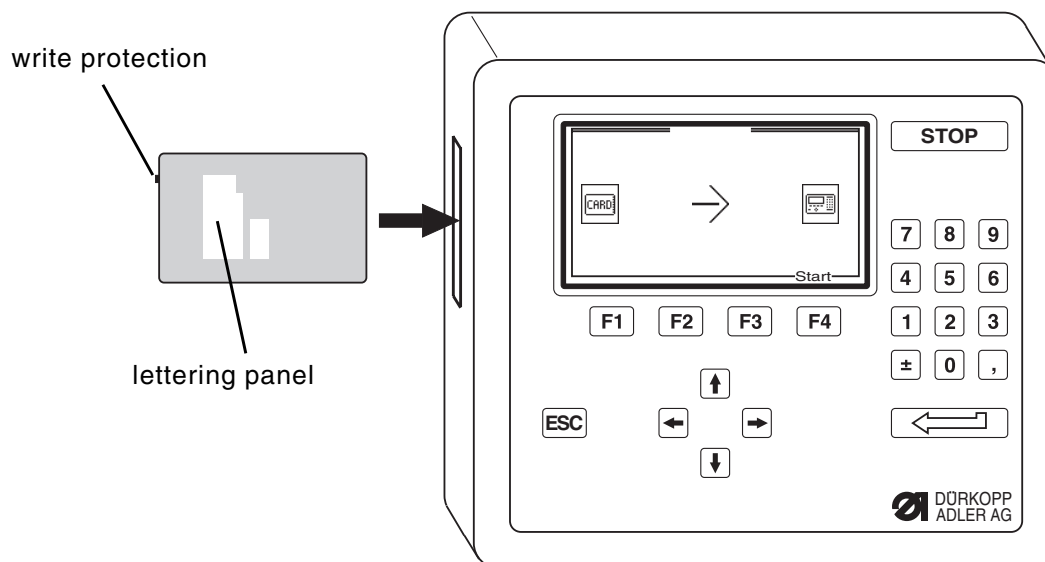


Key/key group	function
Function keys	Call the sewing-program parameter screens (from the main screen). Call test programs (while the logo is displayed). Switch functions on and off. Leave test programs and parameter screens (F1).
Cursor keys	change parameter values. ⇐, ⇒: select the symbol of the required parameter ↑, ↓: switch the parameter on and off, select the previous/next parameter-value stage, activate the test program
Decimal keypad	enter parameter values. ±: change the parameter-value sign
Escape key	display the old parameter value again.
Enter key	open window to set the selected parameter. accept the set parameter value.
Stop button	leave machine program. Halt current program.

3. Memory card


3.1 Saving and loading programs


The memory card (RAM card) is a long-term storage medium for sewing programs. It enables sewing-program data, seams and machine parameters to be transferred to other sewing machines.



3.1.1 Transferring data to the memory card

- When the main screen is displayed insert the memory card in the side of the controller in the direction of the arrow. The panel with lettering must be towards the operator.
- The controller switches to save mode. The arrow in the centre of the display indicates the direction of transfer:


load data from the memory card into the controller


save data from the controller to the memory card (NB write protection)

- Set the required direction of transfer. Save data: Press cursor key "↔".
- Press function key **F4** (start). An hour-glass appears while the memory card is formatted. Data transfer begins. Display >>>> When the transfer is complete the transfer arrows are switched off.
- Remove the memory card.
- Press the **stop** button.



3.1.2 Transferring data from the memory card to the controller



CAUTION:

The sewing machine must not be switched off during the transfer of data to the controller.

- When the main screen is displayed insert the memory card in the side of the controller in the direction of the arrow. The panel with lettering must be towards the operator.
- The controller switches to save mode. The arrow in the centre of the display indicates the direction of transfer:



load data from the memory card into the controller



save data from the controller to the memory card (NB write protection)

- Set the required direction of transfer.
Load data: Press cursor key "⇌".
- Press function key **F4** (start).
Data transfer begins.
Transfer arrows appear above the arrow in the centre of the display.
When data transfer is complete the transfer arrows disappear and the instruction "switch the sewing machine off" appears.



- Switch the sewing machine off.
- Remove the memory card.
- Switch the sewing machine back on.

3.2 Changing the memory-card battery

Memory-card retention period with no change of battery: approx. 4 years.



CAUTION:

Programs stored on the memory card will be erased when the battery is changed.
Load programs into a controller before changing the battery.

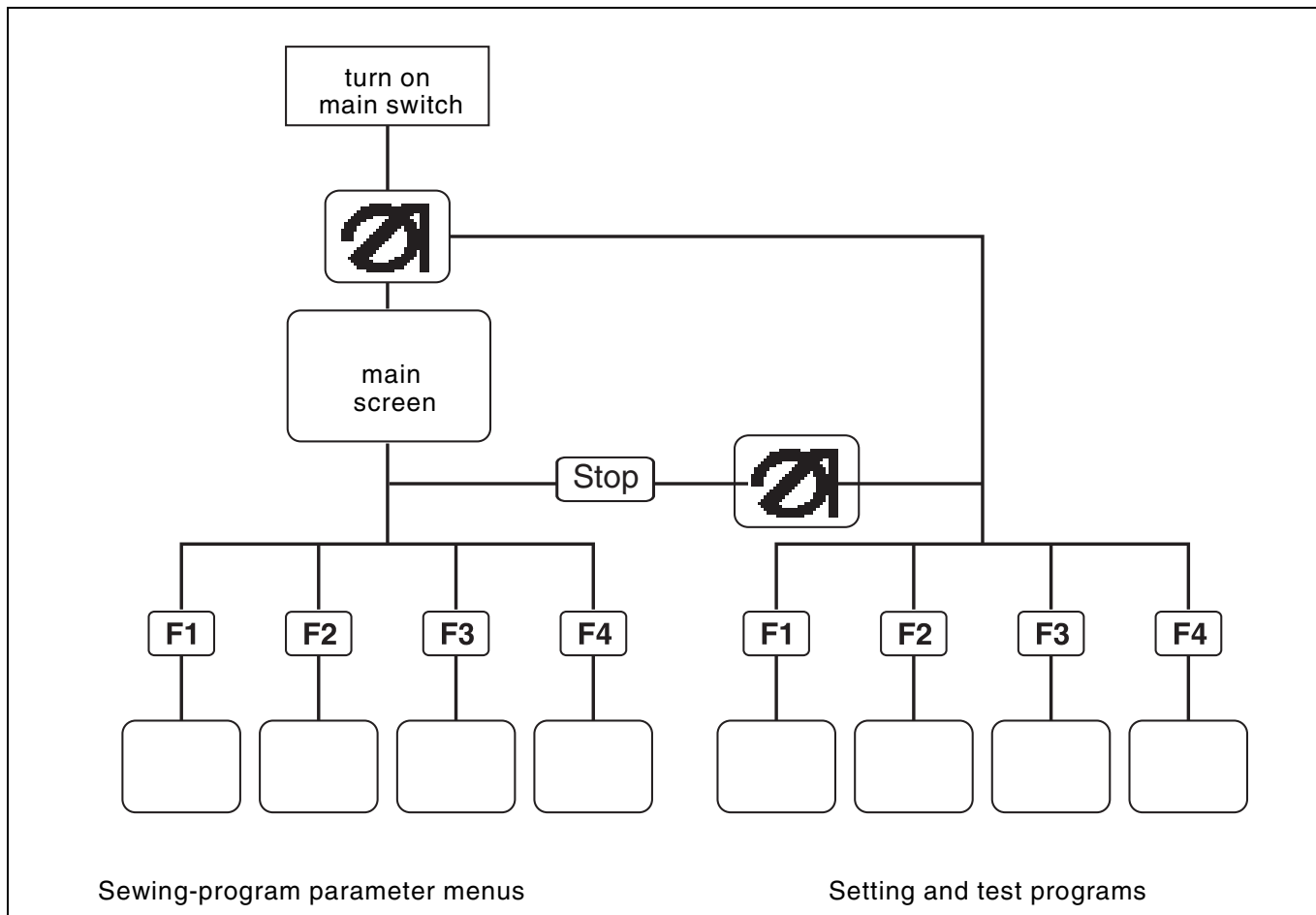


4. User interface

4.1 Sewing and test programs: menu structure

The user interface exclusively employs internationally intelligible symbols.

The individual parameters and setting and test programs are arranged in various groups.



Calling sewing programs

- Turn on the main switch.
The controller is initialised.
The DÜRKOPP-ADLER logo briefly appears in the display.
- The display switches to the main screen.
Sewing-program parameter menus are called by pressing one of the function keys **F1** to **F3**.

Calling the setting and test programs

- Turn on the main switch.
The controller is initialised.
The DÜRKOPP-ADLER logo briefly appears in the display.
- **While the logo is being displayed** press the "**Stop**" key and then one of the function keys **F1** to **F4**.
The display switches to the corresponding group of setting or test programs.

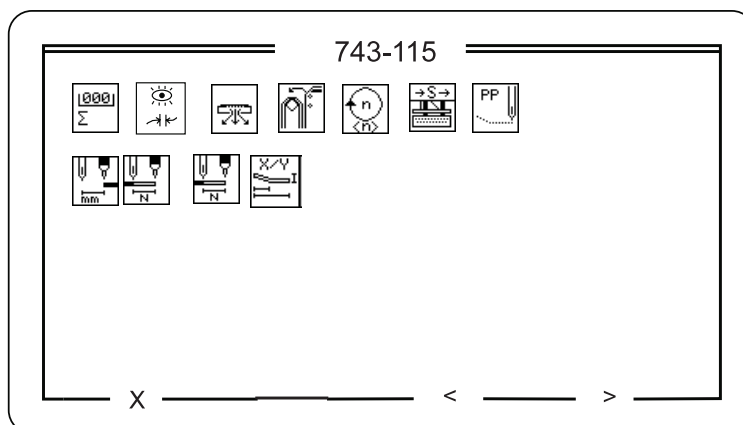
With the sewing machine switched on

- press the "**Stop**" key.
While the logo is being displayed press one of the function keys **F1** to **F4**.



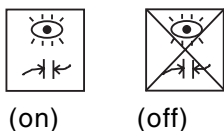
4.2 Changing parameter values

The parameter values are changed in the individual parameter screens.



- Select the required parameter with cursor keys "←" or "→".
The symbol of the selected parameter appears in reverse video.
- Press Enter.
The settings window appears with the current values or to enable values to be entered.
- Change the parameters as described under 1 to 4.
- Press Enter.
The new parameter settings are saved.

When changing parameter values we must distinguish among four groups of parameters:



1. Functions that are switched on and off

- Switch the parameter function on and off with cursor keys "↑" or "↓".

2. Parameters with various functions

- Set the required parameter function with cursor keys "↑" or "↓".



3. Parameter whose values are entered with the decimal keypad



entry: 100 - 4800

- Enter the required parameter value on the decimal keypad.
Caution:
The value must be within the set limits.
If the value entered is too large or too small, the upper or lower limit is displayed when the Enter key is pressed.
- If a plus or minus sign appears in front of the parameter value, it can be changed with the "±" key.



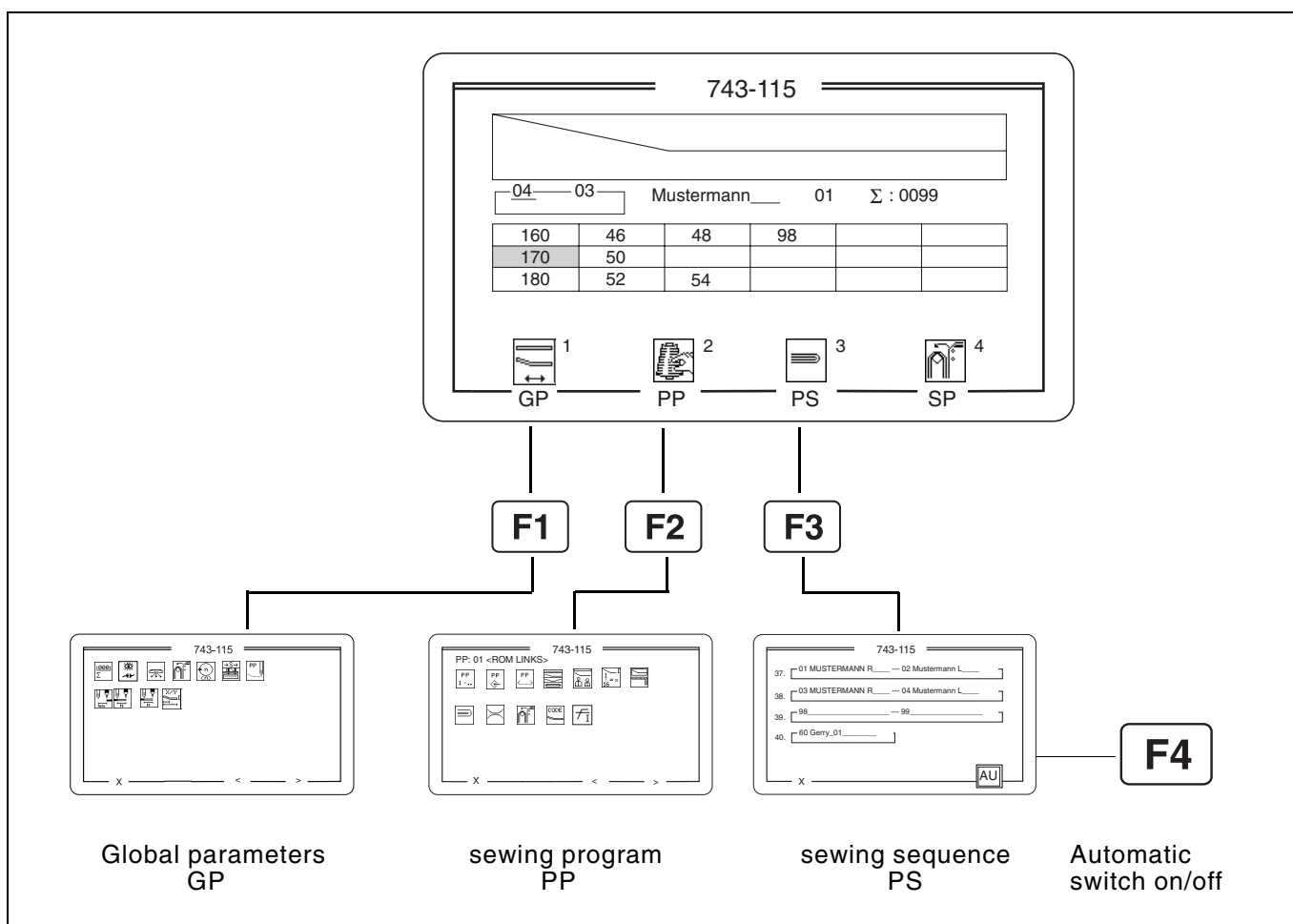
5. Sewing programs

The **743-115** can run 99 different sewing programs, 92 of which are freely programmable.

50 independent memory locations are available for sewing program sequences. Each individual memory location can consist of up to 2 sewing programs in any order.

5.1 Calling the sewing-program parameter screens

You can switch from the main screen to the various sewing-program parameter screens with function keys **F1** to **F3**.



Sewing-program parameter screens

- Global parameters (GP): parameters valid for all sewing programs
- Dart program (PP): parameters to program the seam and the associated additional functions
- Dart sequence (PS): programming sewing sequences



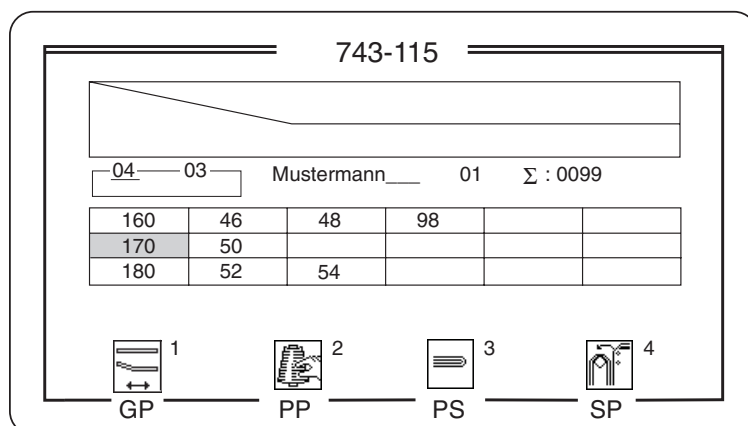
5.2 Starting the machine program

- Turn on the main switch.
The controller is initialised.
- The DÜRKOPP-ADLER logo briefly appears in the display.
If one of the function keys **F1** to **F4** is pressed while the logo is being displayed, the display switches to the corresponding group of setting or test programs.
- The material guide-rail executes its reference travel.
- The display switches to the main screen.
You can switch from the main screen to the various sewing-program parameter screens with function keys **F1** to **F3**.
- Press the "**STOP**" key to leave the machine program.
The controller is initialised.



5.3 Main screen

The main screen displays the seam image, sewing program and program sequence, program name and the dart lengths with their allocated sizes.



Seam image

The upper part of the main screen displays the contours of the selected seam image.

Below the seam image an information line appears with the following information:

01—02

>01—>02

01—02

Program number and program sequence (see also section 5.6)

The selected sewing program or program sequence appears in the upper left-hand corner of the display. The program currently selected is underlined.

If the automatic sewing-program switch is on, sequence arrows are displayed between the individual sewing programs.

- Switch programs or program sequences with cursor keys "↑" or "↓":
- the "↑" key selects the previous program sequence
- the "↓" key selects the next program sequence.

Selecting a sewing program in the current program sequence

In the program sequence a bar identifies the sewing program selected.

- Switch sewing programs with cursor keys "←" or "→".
- the "←" key selects the previous sewing program
- the "→" key selects the next sewing program.

Program name

Here the program name of the current sewing program is displayed.

Mustermann

01

Guide-rail code

Each material guide-rail has its own code which is read by the controller.



Σ : 0099

Piece counter

The current piece-counter reading is displayed on the right (e.g. "Σ : 0099").

The piece counter shows the number of pieces completed since the last time the counter was reset.

The piece counter is reset under "Global parameters" (function key **F1**).

Dart-length table

The table of dart lengths with their allocated sizes displays the dart length currently set in reverse video in the middle of the corresponding window. The minimum and maximum dart lengths are exceptions.

Examples:

Representation of the minimum dart length:

180	22	23	24		
190	25	26	27	28	
200	30	31	32	33	34

Representation of the dart length:

250	56	56	58	60	
260	62	64	66	94	98
270	102	106			

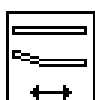
Representation of the maximum dart length:

310	54	56	58		
320	64	66	102	106	
330	110	114	118		



Changing parameters

The icons in the lower display area allow fast access to the four most important menus of the current sewing program.



1: change rail



2: change thread



3: select fabric thickness



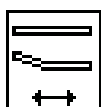
4: stack time []

The functions and settings of the individual parameters are described in more detail in sections 5.4 ("Global parameters") and 5.5 ("sewing program").

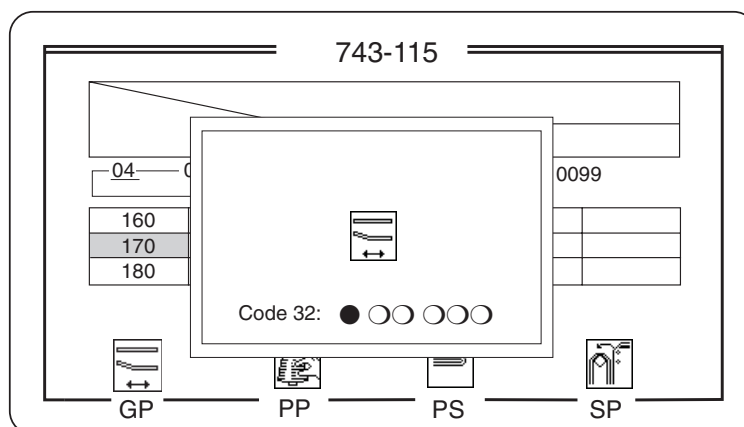


5.3.1 Main-screen messages

"Rail change required" message



If a sewing-program change necessitates a guide-rail change, a warning message automatically appears on the screen and an acoustic signal sounds.



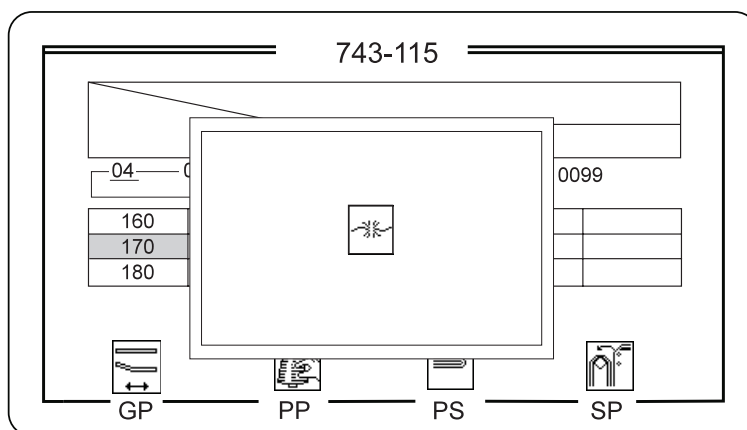
- Press Enter.
The guide-rail change menu is called.
- or
- Press the Escape button.
The message disappears.
- Select a different sewing program or call the rail change with the rail-change menu item *



"Thread break" message



If a thread break occurs during sewing, a message to that effect appears at the end of the sewing cycle.



When a thread-change is carried out, the required steps are shown on the screen.

The thread-break message can be cleared with the "ESC" key.

- Press Enter.
The instruction "raise protective hood" appears.



-

- Raise the protective hood.
The instruction "open slide-plate lock" appears.



-

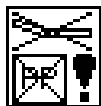
- Open the slide-plate lock and push the slide plate fully to the right.
The instruction "switch the sewing machine off" appears.



- Switch the sewing machine off.
For subsequent procedure see Operating instructions, section 3.2.

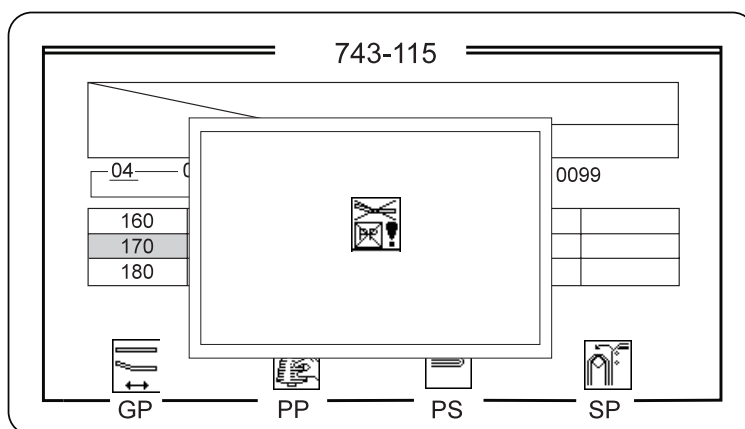


"Cannot be sewn" message



After a change of sewing program or material-guide rail or the amendment of a sewing program a plausibility check is automatically carried out by the controller.

If the check identifies an error, the following message appears on the main screen.

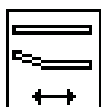


The sewing machine is blocked for further operation.

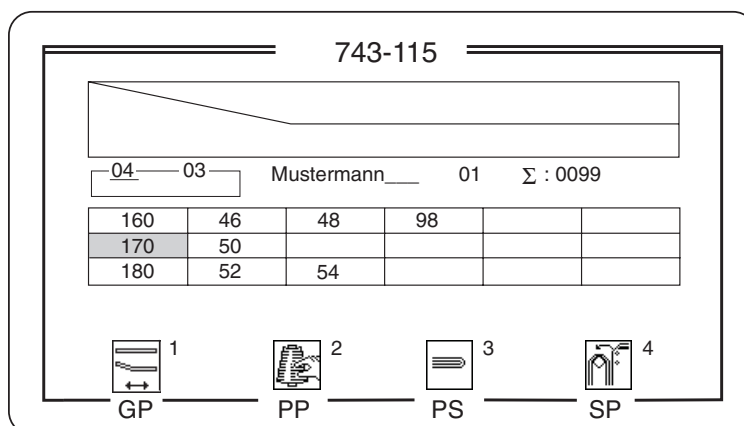
- Check the sewing program.
- Press Enter.
The message disappears.
- Check the sewing program and rail code.



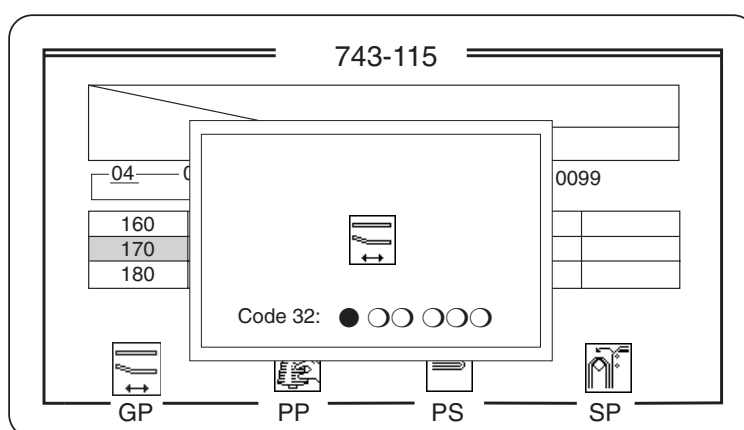
"Rail change required" message



This menu prepares for the rail change.



- Press key 1 on the decimal keypad.
The rail moves to the left.
The rail change menu is called.



- Changing the material-guide rail.
See Operating instructions, section 4.7.
- Press Enter.
The material-guide rail moves to its basic position.

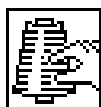


CAUTION:

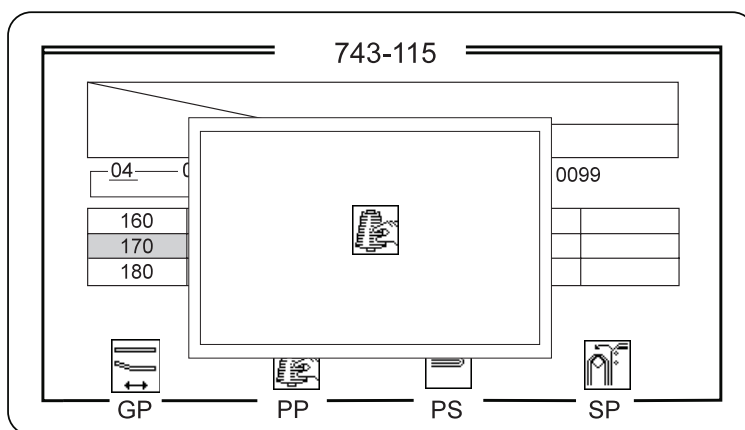
If the rail code does not match the code of the guide rail assigned to the sewing program, sewing is blocked and the message "rail change required" re-appears.



"Change thread" message



This menu prepares for a thread change.



- Press key 2 on the decimal keypad.
The material-guide rail moves to the left and the "change thread" screen appears.

When a thread-change is carried out, the required steps are shown on the screen.

- Press Enter.
The instruction "raise protective hood" appears.



- Raise the protective hood.
The instruction "open slide-plate lock" appears.



- Open the slide-plate lock and push the slide plate fully to the right.
The instruction "switch the sewing machine off" appears.



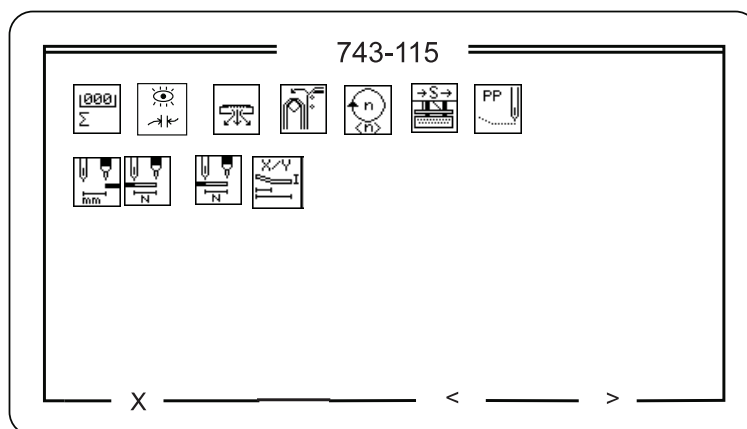
- Switch the sewing machine off.
- Carry out the thread change.
See Operating instructions, section 3.2.
- Push the slide plate to the left and engage.
- Lower the protective hood.
- Switch the sewing machine back on.



5.4 Global parameters (GP) F1

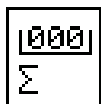
Global parameters are parameters that are valid for **all** sewing programs.

Example: If the stacker is switched on, **all** pieces are deposited in the stacker.



F1

- When the main screen is displayed press function key **F1**. The display switches to the global parameters screen.
- Select the required parameter with cursor keys "←" or "→". The symbol of the selected parameter appears in reverse video.
- Alter the selected parameter as described in section 4.2.
- Press function key **F1** to switch the display back to the main screen.



Piece counter

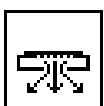
The piece counter displays the number of pieces completed since the last time the counter was reset.

Entry: 0...9999



Switching the thread monitor on and off

Entry: on/off



Switching the vacuum on and off

Entry: on/off



Switching the stacker on and off

Entry: on/off



Sewing speed

Entry: 100 to 4800 rpm

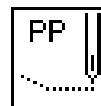


Single step

This parameter is used to test and adjust the sewing machine quickly. Sewing is halted at pre-set items.

Processing can be halted at any individual step by pressing the Stop button.

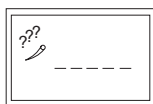
Entry: on/off



Test seam

Entry: on/off

- Select test seam with the Enter key. The prompt to enter the code number appears in the display.
- Enter the code number "29801" on the decimal keypad.
- Once the correct number has been entered the test seam can be switched on.



Side-seam commencement correction value

(only in the side-seam program)

This parameter equalises the distance from the centre of the needle to the light barrier U1.

Entry: 0.0 mm - 25.0 mm



Side-seam end correction value

Jacket-breast dart seam-end correction value

This parameter indicates how many stitches are sewn after the light-barrier signal.

Entry: 0 - 10 stitches



Dart-end correction value (type 006 only)

This parameter indicates how many stitches are sewn after the light-barrier signal.

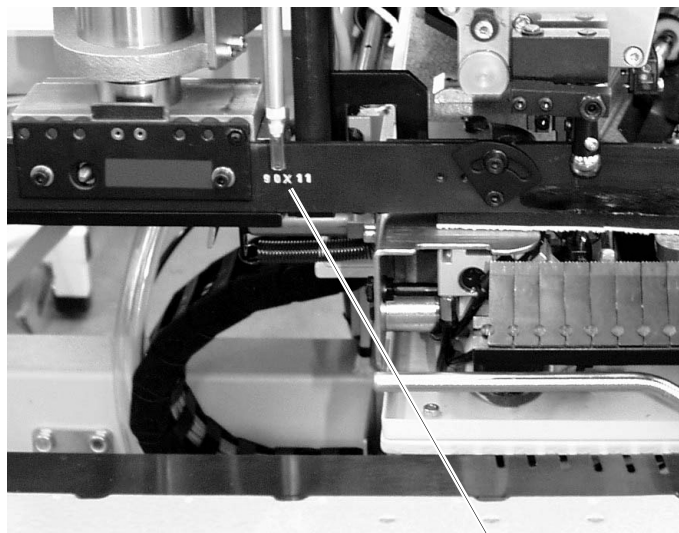
Entry: 0 - 10 stitches



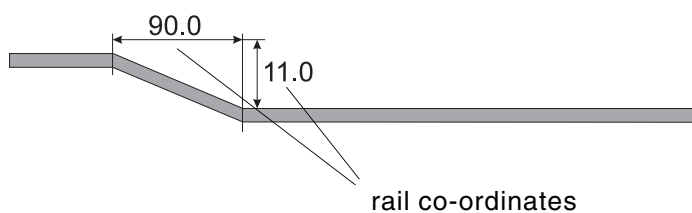
Rail code

Entry: rail code in the X and Y directions

The guide-rail co-ordinates are impressed on each rail. Tolerances when the rail bends may make it necessary to adjust these values (see Servicing instructions, section 3.3.7: adapting the rail code).



indication of rail co-ordinates



Procedure

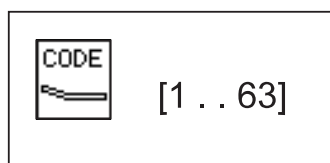
- When the main screen is displayed press function key **F1**. The display switches to the "Global parameters" screen.
- Select the "**rail code**" parameter with cursor keys



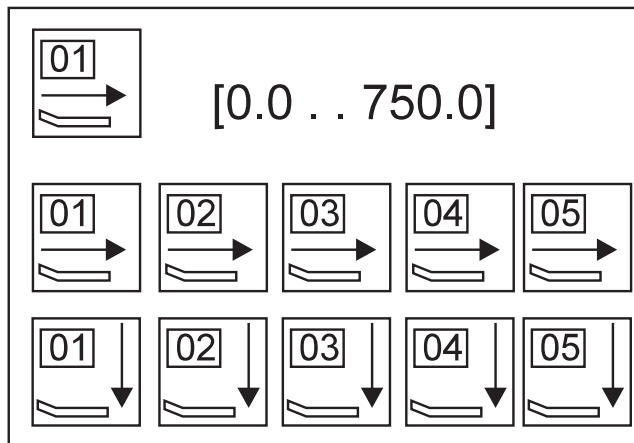
"←" or "→".

The symbol of the selected parameter appears in reverse video.

- Press Enter. The entry window for the material-guide rail number appears.



- Enter the rail number (example no. 1). For establishing the rail number see section 5.5 Program parameters, rail code.
- Press Enter.



- Select the required co-ordinate point with cursor keys "←" or "→".
The parameter symbol appears in reverse video.
- Press Enter.
- Enter value.
- Press Enter.
The value entered is saved.
- Press key **F1** to leave the menu.

Example

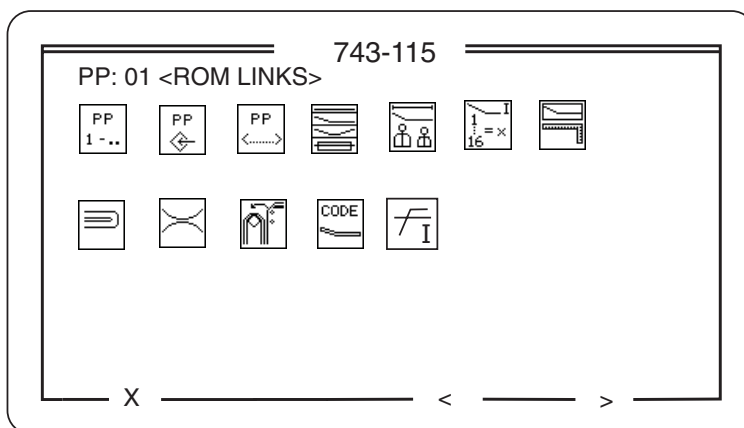
01 →	02 →	03 →	04 →	05 →
91	750	750	750	750
01↓	02↓	03↓	04↓	05↓
11	11	11	11	11



5.5 Program parameters (PP) F2

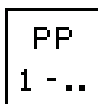
Parameters for programming the various sewing programs are arranged under this menu item.

These parameters enable the seams and their associated additional functions to be freely programmed.



- When the main screen is displayed press function key **F2**. The display switches to the sewing-program screen.
- The sewing program currently selected (e.g. "PP : 01") is displayed in the upper left display line. If available, the program name (e.g. "<ROM LINKS>") appears behind it.
- Select the required parameter with cursor keys "←" or "→". The symbol of the selected parameter appears in reverse video.
- Alter the selected parameter as described in section 4.2.
- Pressing function key **F1** switches the display back to the first screen page or to the main screen.

Sewing-program number



This parameter is used to select the sewing program to be changed. When the entry is complete the new sewing program and its program name appear in the upper left-hand corner of the display.

Entry: 1...99

Copy sewing program



This parameter can be used to copy the selected sewing program into a different program.

The number to be entered is that of the sewing program into which the selected program is to be copied.

When the entry is complete the number of the new sewing program appears in the upper left-hand corner of the display.

Entry: 8...99

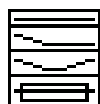


Enter program name

This parameter can be used to assign a program name to each sewing program.

The program name must consist of a maximum of 16 letters.

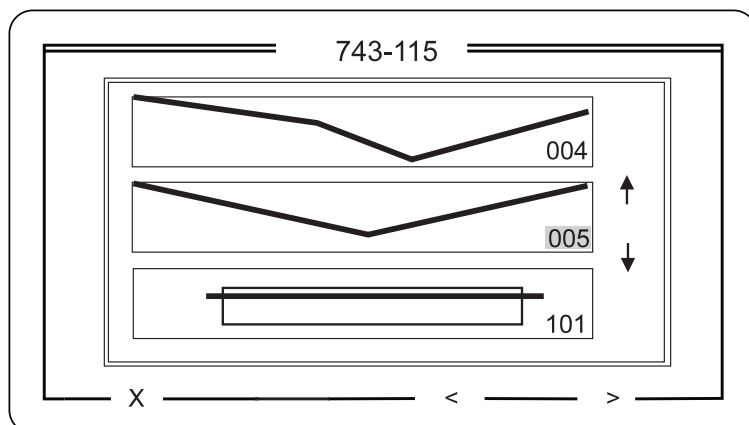
Example: "ROMLINKS"

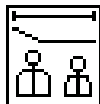


Seam type

This parameter is used to enter the seam type.

The required type is selected with the cursor keys.






Assign dart-length sizes

This parameter is used to assign dart-length sizes. Up to 5 sizes can be entered for each dart length.

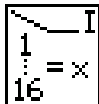
180	36				
190	38				
200	40				
210	42	4			
220					
230	50	52	54	102	
240					
260					
270					
280					

Procedure

- When the main screen is displayed press function key **F2**. The display switches to the "sewing program" screen.
-  Select the "**size assignment**" parameter with cursor keys " \updownarrow " or " \Rightarrow ". The symbol of the selected parameter appears in reverse video.
- Press Enter. The dart-length window appears.

180	36				
190	38				
200	40				
210	42	4			
220					
230	50	52	54	102	
240					
260					
270					
280					

- Select the required dart length with cursor keys " \updownarrow " or " \Rightarrow ".
- Press Enter. The first size window appears in reverse video.
- Enter the size (e.g. size 52).
- Press Enter. The size entered is saved in the table.
- Select the next size window with the cursor key " \Rightarrow ".
- Press Enter. The second size window appears in reverse video.
- If required, enter the next two sizes as described above.
- Press the **F1** key to leave the assignment menu.
- Press the **F1** key to leave the program-parameter menu.



Variable dart depth ON/OFF

This parameter determines whether the same dart depths are set for all dart lengths when dart lengths are programmed or whether they can be programmed separately for each dart.

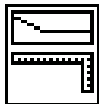
Entry: on/off



same dart depth for all dart lengths



dart depth separately programmable for each dart length.





Program dart form

This is where the dart-length co-ordinates are programmed.

You are prompted to enter only the co-ordinates required for the seam type in question.

Entry: select the dart length with the cursor keys.

Procedure

- When the main screen is displayed press function key **F2**.
The display switches to the "sewing program" screen.
-  Select the "**dart depth**" parameter with cursor keys "←" or "→".
The parameter symbol appears in reverse video.
- Press Enter.
The dart-depth window appears.
Select the "**same dart depth for all**" parameter with the cursor keys "←" or "→".
The parameter symbol appears in reverse video.
- Press Enter.
-  Select the "**dart form**" parameter with cursor keys "←" or "→".
The parameter symbol appears in reverse video.
- Press Enter.
- A table of all the dart lengths appears.

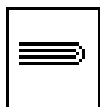
180	190	200	210
220	230	240	250
260	270	280	290
300	310	320	330

- Select the required dart length with cursor keys "←" or "→"
(example: dart length 270).
The dart length appears in reverse video.

180	190	200	210
220	230	240	250
260	270	280	290
300	310	320	330

- Press Enter.
- Select and enter values for the individual coordinates.
- Example (type 004)

Y01 = 4.0, X01 = 200.0, Y02 = 10.0, Y02 = 150.0, Y03 = 8.0



Select fabric thickness



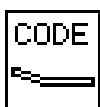
thin fabric



medium fabric



thick fabric



Rail code

A sewing program can be assigned to a particular material-guide rail.

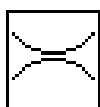
Entry: jacket-breast dart rail 1 to 31
 side-seam rail 32 to 63



Stack time

Entry: 1 to 150

4



Edges with identical or different contours
(only selectable in the side-seam program)



side-seam insertion cycle with identical edges



side-seam insertion cycle with different edges



Correction value for two-point darts

(type 005 only)

Entry: 0 - 20



5.6 Program sequences (PS)

F3

Individual sewing programs or program sequences are grouped together under this menu item.

A total of 50 independent program locations is available.

A program sequence may consist of a maximum of two sewing programs in any order.

The screenshot shows a screen with the title "743-115" at the top. Below the title, there is a list of program locations, each with a number and a description:

- 37. 01 MUSTERMANN R --- 02 Mustermann L
- 38. 03 MUSTERMANN R --- 04 Mustermann L
- 39. 98 --- 99
- 40. 60 Gerry_01

 At the bottom of the screen, there is a line with an "X" on the left and a button labeled "AU" on the right.

Program a program or program sequence

- When the main screen is displayed press function key **F3**.
The display switches to the program-location screen.
Four program locations appear in the display.
- Move the cursor to the required program location with cursor keys "↑" or "↓" or select a program location on the decimal keypad.
The number of the selected program location appears in reverse video.
- Press Enter.
The program location is selected.

Program a program.

- Press Enter.
The program location is selected.
- Enter the number (01...99) of the required sewing program on the decimal keypad.
Single-digit sewing-program numbers must be preceded by a "0".
- Press Enter.
The sewing program is saved.
Pressing the "**ESC**" key during the programming process restores the old sewing sequence.
- Pressing function key **F1** switches the display back to the main screen.

Program a program sequence.

- Press Enter.
The program location is selected.
- Enter the number (01...99) of the second required sewing program on the decimal keypad.
The sewing program is saved.



Turning the automatic sewing-program switch on and off

If this function is on, then when one sewing program has been completed the controller automatically switches to the next sewing program in the sewing sequence.

Pressing function key **F4** turns off the automatic sewing-program switch.

When the automatic switch is on, arrows appear in the display between the individual sewing programs of the sewing sequences.

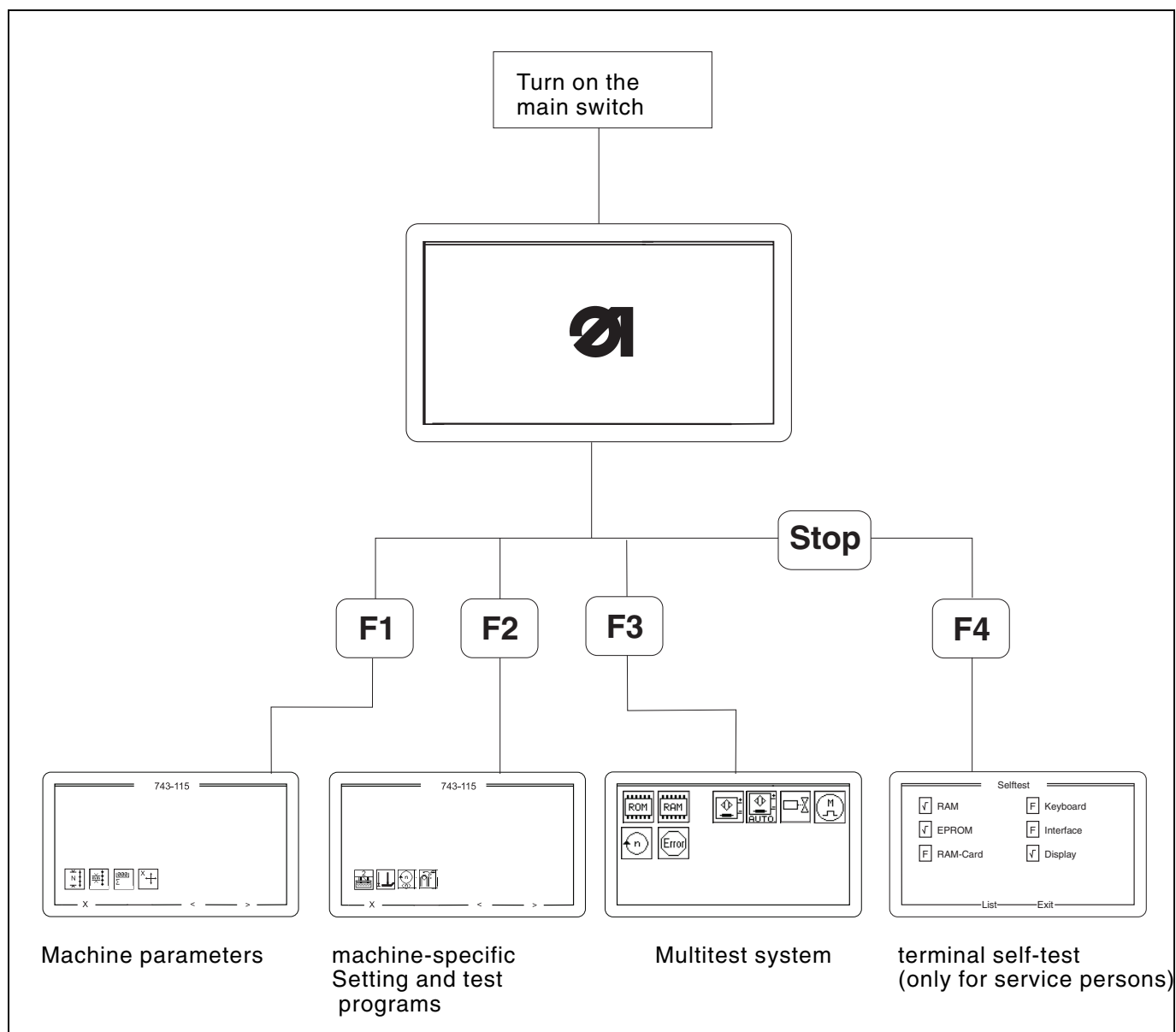


6. Settings and test programs

The machine software includes various machine-specific settings and test programs, as well as the well-known Multitest system. A terminal self-test checks the individual components of the operating terminal.

6.1 Calling the setting and test programs

Once the sewing machine has been switched on, pressing function keys **F1** to **F4** switches to the various groups of setting and test programs.



- Turn on the main switch.
The controller is initialised.
The DÜRKOPP-ADLER logo briefly appears in the display.
- While the logo is being displayed press the "**Stop**" key, then one of the function keys **F1** to **F3**.
The display switches to the corresponding group of setting and test programs.



6.2 Machine parameters (**STOP** + **F1**)

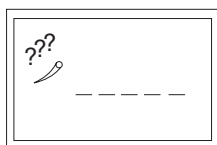
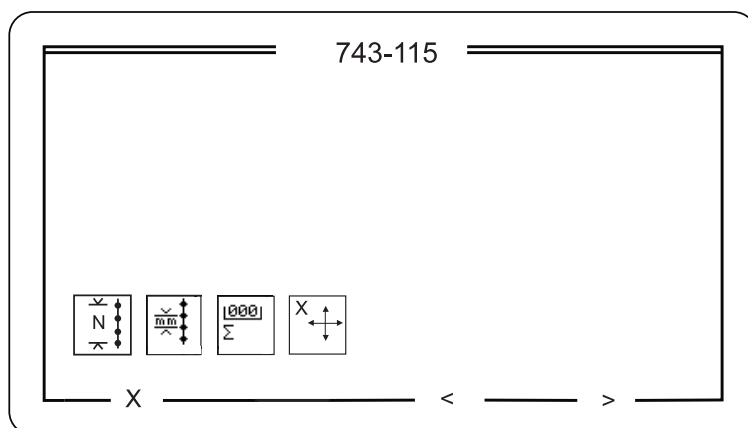
The machine parameters describe the technical version of the sewing machine, as well as the machine settings and their correction values.



CAUTION:

Changing the machine settings generally requires mechanical conversion to be carried out.

This part of the program is therefore accessible only after the code number "29801" has been entered.

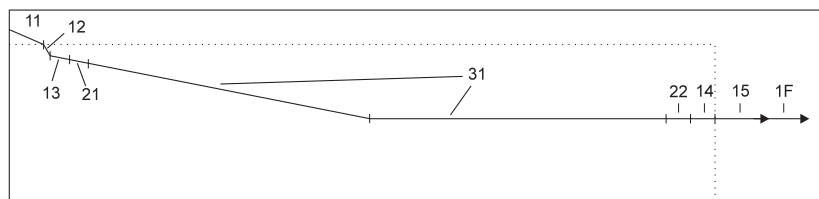


- During the display of the DÜRKOPP-ADLER logo press the "**STOP**" key, followed by function key **F1**.
The prompt for the code-number entry appears in the display.
- Enter code number "**29801**" on the decimal keypad.
- Once the correct code number has been entered the display switches to the machine-parameter screen.
If an incorrect code number is entered the display switches to the main screen.
- Select the required parameter with cursor keys "⇐" or "⇒".
The symbol of the selected parameter appears in reverse video.
- Alter the selected parameter as described in section 4.2.
- Press the "**STOP**" key to leave the machine parameters.



Number of stitches

The number of stitches for the individual regions of the dart or the side-seam is entered separately for the three different fabric thicknesses.



The dart or side-seam is divided into different vectors.

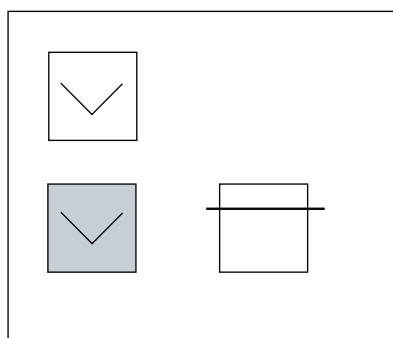
The required number of stitches can be entered for the following vectors:

vector	description
--------	-------------

12	opening seam
13	front transition region
21	front compression
31	seam
22	back compression
14	back transition region
15	closing seam (only possible with type 005)
1F	run-out

Procedure

- Select the "**number of stitches**" parameter with the cursor keys.
- Press Enter.
A screen for selecting "dart" or "side seam" appears.



- Select the required sewing operation (dart/side-seam) with the cursor keys.
- Press Enter.



- Select fabric thickness 1 - thin.



fabric thickness 1 - thin



fabric thickness 2 - medium



fabric thickness 3 - thick

- Select the vectors individually and enter the number of stitches.
After entering all the stitch numbers for fabric thickness 1:
- Select fabric thickness 2.
- Select the vectors individually and enter the number of stitches.
- Select fabric thickness 3.
- Select the vectors individually and enter the number of stitches.

Example: stitch-rate vectors for dart:

fabric thickness:

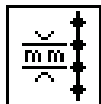
vectors:

thin medium thick

number of stitches

1	2	3
X		
	X	
		X

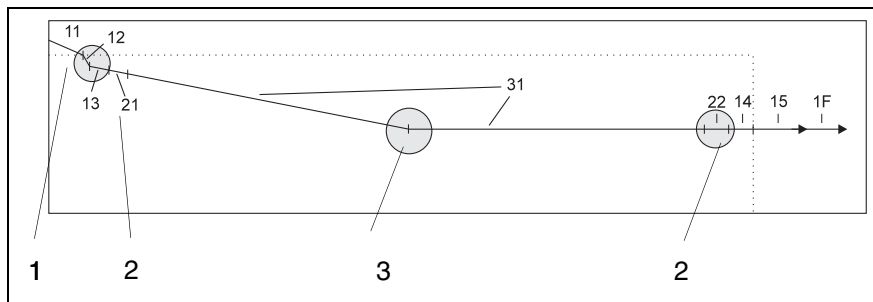
12	13	21	22	14	15	1F
10	0	0	5	0	3	15
5	1	4	5	0	3	15
1	1	8	5	0	3	15



Stitch length

The stitch length can be entered separately for individual regions of the dart or side seam and for the various fabric thicknesses.

Entry: 0.1 to 2.5 [mm]



The dart/side seam is divided into different stitch-length regions.
The required stitch length can be entered for the following regions:

region/ vectors	description
--------------------	-------------

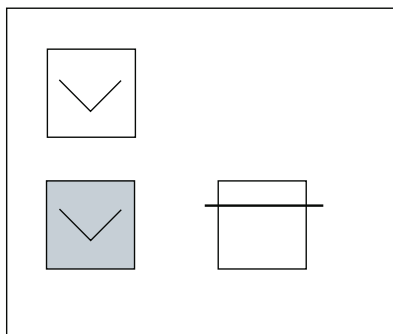
11, 14, 15, 1F	vectors with a fixed stitch length of 2 mm
----------------	--

1	stitch-length vectors 12 and 13
---	---------------------------------

2	stitch-length vectors 21 and 22
---	---------------------------------

3	stitch-length vector 31 (seam)
---	--------------------------------

- Select the "**stitch length**" parameter with the cursor keys.
- Press Enter.
A screen appears for selecting "dart" or "side seam".



- Select the required sewing operation (dart/side seam) with the cursor keys.
- Press Enter.
- Select stitch length 1.



stitch length 1



stitch length 2



stitch length 3



- Select the stitch-length regions individually and enter the stitch length.

After entering all three stitch lengths for fabric thickness 1:

- Select fabric thickness 2.
- Select the stitch-length regions individually and enter the stitch length.
- Select fabric thickness 3.
- Select the stitch-length regions individually and enter the stitch length.
-

Example: stitch lengths for dart:

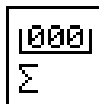
Fabric thickness:

stitch lengths [mm]:

thin medium thick

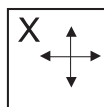
1	2	3
X		
	X	
		X

1	2	3
1,3	1,3	2,3
1,3	1,3	2,4
1,3	1,3	2,5



Piece counter (overall piece counter)

Entry: none, display only



Reference correction

**CAUTION:**

The reference position is precisely adjusted in our works with a special gauge.

Do not alter these values.



reference position in the X direction e.g. = 12.0



reference position in the Y direction e.g. = 0.51

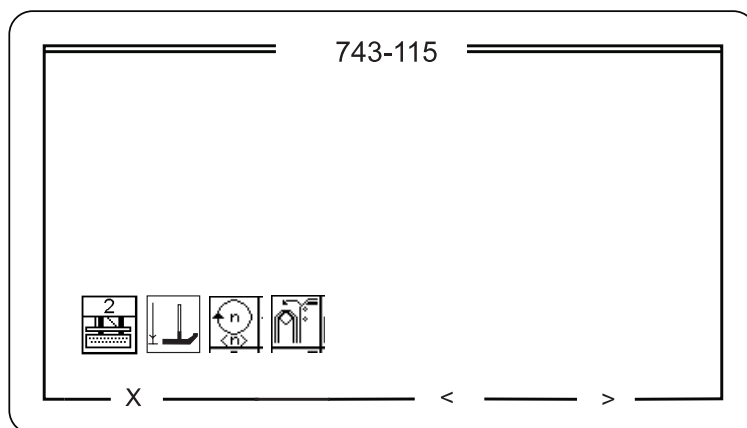


6.3 Machine-specific setting and test programs (

STOP

F2

The machine-specific test programs are used to adjust and test the individual machine components.



- During the display of the DÜRKOPP-ADLER logo press the **"Stop"** key followed by function key **F2**.
The display switches to the machine-specific test-program screen.
- Select the required test program with cursor keys "**←**" or "**→**".
The symbol of the selected test program appears in reverse video.
- Press the Enter key to run the selected test program.

4

6.3.1 Setting the machine type



This parameter is used to determine which folding-plate inserts are used in the sewing machine.



type 1 dart length from 160 to 310 mm



type 2 dart length from 180 to 330 mm (standard)



type 3 dart length from 200 to 350 mm



type 4 dart length from 220 to 370 mm



6.3.2 Sewing-foot setting



This program is used to run the "sewing-foot setting" test.

The test takes place in stages that are initiated individually by operating the foot pedal. The process can be terminated at any time by pressing the STOP key.

- Press the Enter key to run the test program.
- Operate the foot pedal.
The guide rail descends.
- Operate the foot pedal.
The sewing foot and fabric-thickness cylinders descend.
- Operate the foot pedal.
The sewing foot is locked.
- Turn the handwheel to bring the sewing foot to bottom dead centre.
At its lowest point the locked sewing foot must be at a distance of 0.2 mm from the stitch plate.
- Measure the distance between the sewing foot and the stitch plate.
- Turn the handwheel to return the sewing foot to top dead centre.
- Operate the foot pedal.
The sewing foot and fabric-thickness cylinder ascend.
The material-guide rail rises.

6.3.3 Testing the step drive



This program tests the function of the stepper motors.

When the program is run the X axle moves to its maximum possible position and returns to its basic position. The Y axle then does the same.

The cycle is repeated until the user stops it.



CAUTION:

Remove the vertical cutter before testing the step drives (see Operating instructions, section 4.8.2).

- Press the Enter key to run the test program.
- Press the **"Start"** key.
The program begins.
- Press the **"Stop"** key.
The test cycle is interrupted.
- Press the **F1** function key to leave the test program.

6.3.4 Testing the stacker



This program tests the stacker process.

NB:

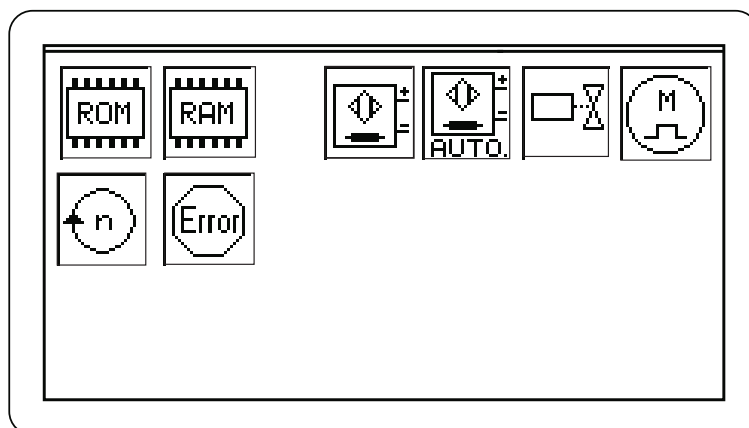
For this test the stacker must be switched on in the "Global parameters" menu (stacker on).

- Press the Enter key.
A complete stacker process is executed.



6.4 Multitest system (STOP + F3)

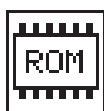
The Multitest system consists of a number of programs for the rapid testing of receiver and transmitter elements. There is no need for any additional measuring devices.



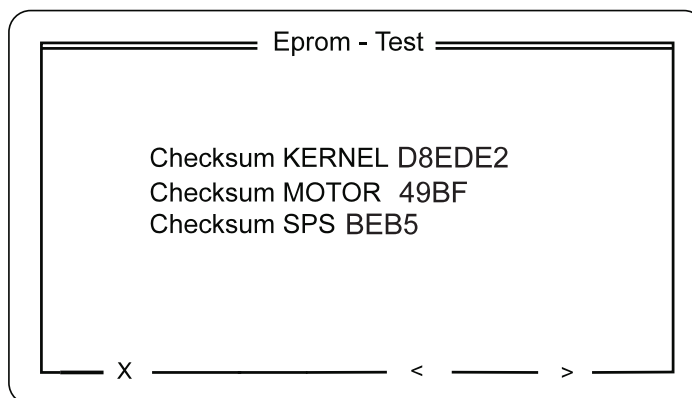
- During the display of the DÜRKOPP-ADLER logo press the **"Stop"** key and then the **F3** function key. The display switches to the Multitest system screen.
- Select the required test program with cursor keys "←" or "→". The symbol of the selected test program appears in reverse video.
- Press the Enter key to run the selected test program.

6.4.1 Displaying the check sum

4



This program tests the microcomputer's read-only memory (ROM).



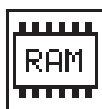
Check sum

The check sum is only intended for servicing at our works. It enables specialists to ascertain whether the program memory (EPROM) of the sewing machine controller contains the entire program with no errors.

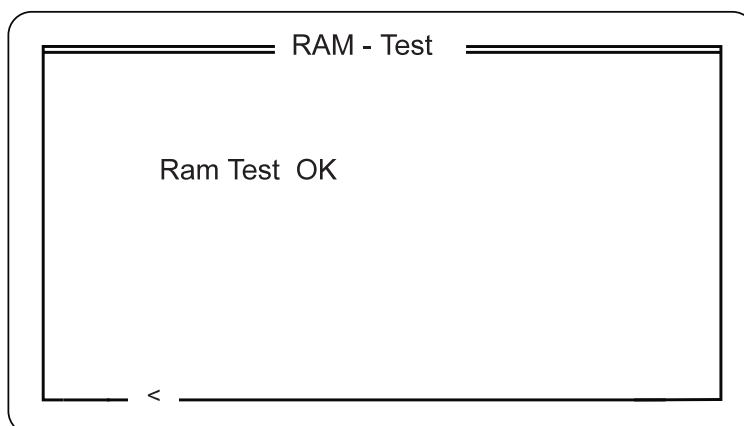
- Press the **F1** key to leave the test-program function.



6.4.2 Testing working memory



This program tests the microcomputer's working memory (RAM).

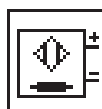


- Press the Enter key to run the test program. The display shows the test result.

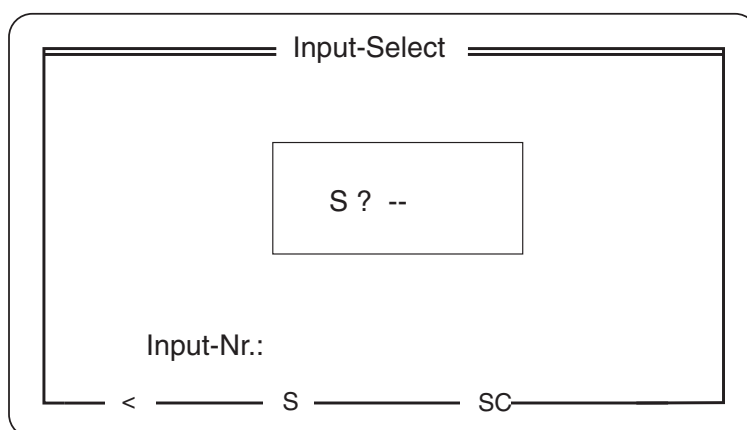
display	remark
RAM OK	working memory functioning perfectly
RAM error	error in the working memory

- Press the **F1** function key to leave the test program.

6.4.3 Selecting receiver elements



This program selects receiver elements.



CAUTION:

All receiver elements have been carefully adjusted in our works. Re-adjustment and correction may only be carried out by trained service personnel.

S = main-distributor receiver elements. **F2** to select.

SC = external receiver elements. **F3** to select.

- Press the Enter key to run the test program.



- Enter the code number of the required receiver element on the decimal keypad.
The abbreviated designations in the wiring diagram are used as code numbers (see following table).
- The display shows the wiring-diagram designation and the switch status of the selected receiver element (e.g. "+S17").
The display changes to reflect any change in the switch status of the receiver element.

The switch status "-" means:

contact switch = contact open
proximity switch = metal in front of the switch
reflecting light barrier = no reflection

- Adjust the receiver element until the display shows the required switch status.
- Press the **F1** function key to leave the test program.

Receiver elements main distributor

receiver element	function
S01	foot switch 1 folding table vacuum on
S02	foot switch 2 folding lip lower retraction off
S03	foot switch 3 folding lip swivel on
S04	foot switch 4 start dart
S05	Ref_X axle_1
S07	Ref_Y axle_1
S09	folding table in starting position
S10	folding table retracted
S11	folding lip extended below
S12	folding lip retracted below
S13	slide-plate catch
S14	rail down
S15	flap down
S16	flap central
S17	flap not raised
S18	vertical cutter on
S19	vertical cutter off
S20	waist-point code 1
S21	waist-point code 2
S22	waist-point code 3
S23	waist-point code 4
S24	thread monitor
S25	folding table engaged
S26	compressed-air monitor
S27	seam-end light barrier
S28	folding-table stop button



CAN node 743-115-0

receiver element	function
SC001	light barrier fabric prompt
SC002	upper-part catch
SC003	rail code 1
SC004	rail code 2
SC005	rail code 3
SC006	rail code 4
SC007	rail code 5
SC008	rail code 6

CAN node stacker

receiver element	function
SC101	smoother right
SC102	smoother left

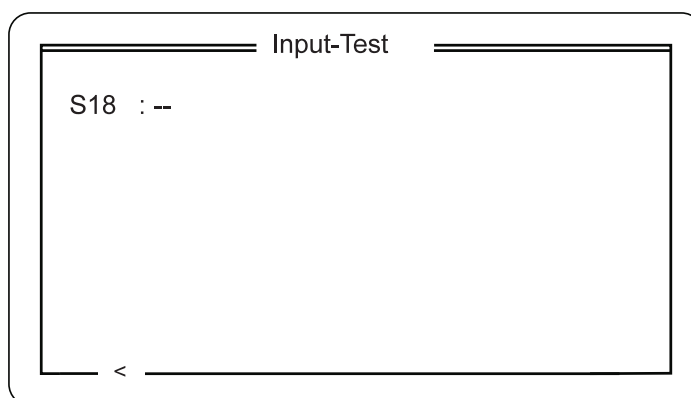
CAN node side-seam device -2

receiver element	function
SC201	clamp strip left
SC202	clamp strip right
SC203	start 1
SC204	start 2



6.4.4 Testing the receiver elements

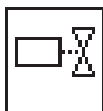
This program tests the receiver elements.



- Press the Enter key to run the test program.
- Operate the receiver element to be tested.
- The display shows the wiring-diagram designation and switch status of the selected receiver element (e.g. "+S17"). The display changes to reflect any change in switch status or if a different receiver element is altered. An acoustic signal sounds to indicate a change in switch status.
- Press the **F1** function key to leave the test program.



6.4.5 Selecting the transmitter elements



This program checks the function of the transmitter elements.

Output-Select

Y: ?

Output-Nr.:

< Y YC ON/OFF



Caution: danger of injury

Do not reach into the machine while the transmitter elements are being function-tested.

- Press the Enter key to run the test program.
- Select distributor Y or YC.
- Enter the code number of the required transmitter element. The abbreviated designations in the wiring diagram are used as code numbers (see following table).
- The display shows the switch status (**ON/OFF**) of the selected transmitter element.
- Press the **F4** function key to switch the selected transmitter element **ON** and **OFF**.
- Press the **F1** function key to leave the test program.

CAN node smoother

transmitter element	function
YC101	smoother to the left
YC102	smoother to the right
YC103	lower smoother
YC104	raise smoother
YC105	open clamp 2
YC106	close clamp 2
YC107	open clamp 1
YC108	close clamp 1



Main distributor outputs

transmitter element	function
YC008	folding table vacuum
YC007	vacuum-lift fabric sections
YC006	extend folding table
YC005	clear fluff
YC004	lower fabric clamp
YC003	swivel folding lip
YC002	folding-lip stop forwards
YC001	lower folding lip
Y1	raise fabric-compression foot
Y2	raise flap
Y3	fabric stop and folding lip are up – lower them
Y4	lower comb clamp
Y5	lift rail
Y6	lock fabric-compression foot
Y7	fabric-thickness prompt
Y8	increase thread tension
Y9	cutter transport
Y10	apply cutter clamp
Y11	undo thread chain
Y12	thread cutter
Y13	swivel out sliding frame (side-seam ancillary equipment)
Y14	push in folding table
Y15	needle cooling
Y16	retract folding lip
Y31	blast (external solenoid valve)

4

CAN node side-seam device

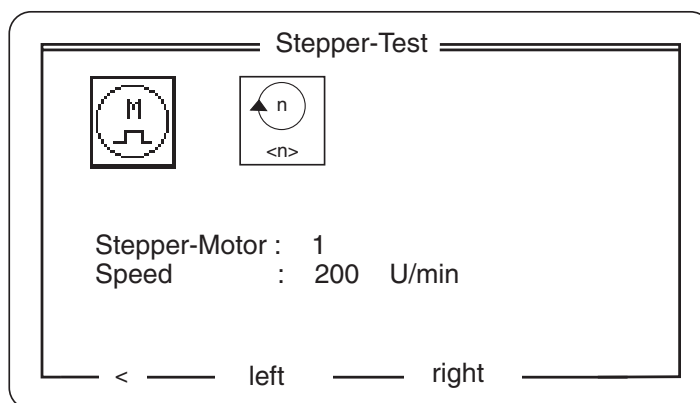
transmitter element	function
YC201	vacuum-suction tube
YC202	swivel suction tube
YC203	clamp strip to the right
YC204	clamp strip to the left
YC205	swivel support table in
YC206	swivel support table out
YC207	open clamp strip
YC208	stop for support table



6.4.6 Testing the step drive



This program tests the material-guide rail drive.



CAUTION: danger of breakage

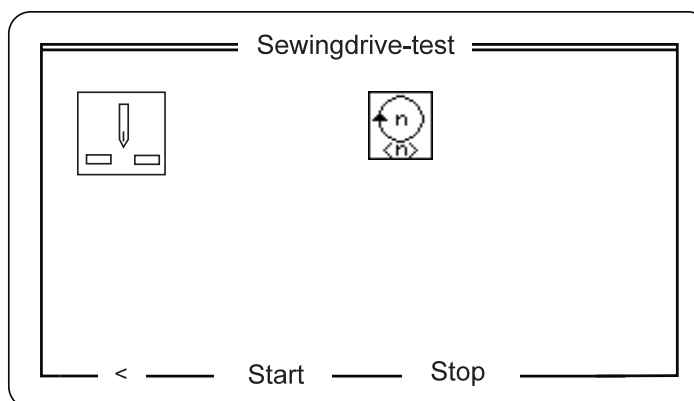
Do not allow the step drives to travel as far as the stop during the function test.

- Press the Enter key to run the test program.
- Select the symbol for the motor with the cursor keys " \leftarrow " or " \rightarrow ".
Motor 1 = X axle
Motor 2 = Y axle.
- Press Enter.
- Select the symbol for the rpm setting with cursor keys " \leftarrow " or " \rightarrow ".
The symbol appears in reverse video.
- Enter the rpm on the decimal keypad.
- Press the Enter key.
- Press the **F2** function key.
The rail moves to the left at the set rpm.
- Press the **F3** function key.
The rail moves to the right at the set rpm.
- Press the **F1** function key to leave the test program.
- Press the Stop button.
The material-guide rail moves to its basic position.

6.4.7 Testing the sewing drive



This program is used to test the needle positions and the various rpm stages of the sewing drive.



- Press the Enter key to run the test program.
- Select the symbol of the required parameter with cursor keys "←" or "→".
The selected symbol appears in reverse video.
- Adjust the parameter with cursor keys "↑" or "↓".



the sewing drive runs at the selected rpm,
the upper part of the machine moves to its set position



upper part of machine in position 2



upper part of machine in position 1



upper part of machine halts unpositioned

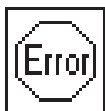


select motor rpm
Entry: 100 - 4800 [rpm]

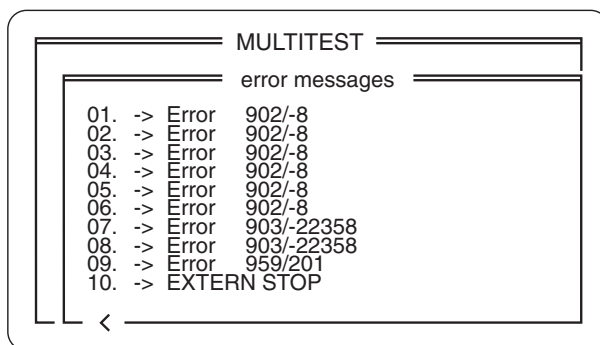
- Press function key **F2**.
The sewing drive runs at the set rpm.
The current rpm (e.g. "**0199 rpm**") appears in the upper right-hand corner of the display.
- Press function key **F3**.
The sewing drive halts.
The upper part of machine moves to the set position.
- Press the "**STOP**" key to leave the program.



6.4.8 Displaying error messages



This program displays the last 10 error messages.



F1

- Press the Enter key to run the test program.
The last 10 error messages appear in the display.
- Press the **F1** function key to leave the program.



7. Error messages

In the event of an error in the control system or in the machine program the display shows the corresponding error number.

The following tables enable the cause of the error to be determined and help to rectify it.

7.1 Controller error messages

Error number	remark	remedy
100	low voltage	Stabilising the power supply
101 - 199	processor error	---
EXTERN STOP	external stop input	close hood
300 - 399	error in the transfer of data to the sewing drive	check cable
400 - 411	general stepper-motor error	---
412	power-amplifier error AMP1	---
413	power-amplifier error AMP2	---
414	power-amplifier error AMP3	---
418 - 420	response error in stepper-motor card (time out)	---



A. Appendix

A.1 safety messages

During operation the sewing machine is constantly interrogated by the controller about matters with safety implications. If any response is not satisfactory, a safety message appears in the display.



Slide-plate catch

The slide-plate catch has been opened.

- Engage the slide plate.
The message disappears.



Protective hood not down

The protective hood has been raised.

- Lower the protective hood.
The message disappears.



Protective hood not in centre position

The protective hood has not been raised.

- Raise the protective hood to its centre position.
The message disappears.



Vertical cutter on/off

The vertical cutter must be switched on so that the jacket-breast-dart sewing cycle can begin.

- Switch on the vertical cutter.
The message disappears.



Vertical cutter off

The vertical cutter must be switched off so that the side-seam sewing cycle can begin.

- Switch off the vertical cutter.
The message disappears.



Compressed-air monitor

If the air pressure is lower than it should be before sewing begins, the message "compressed-air monitor" appears.

Sewing is blocked.

- Check the compressed-air supply.

Press Enter to clear the message.

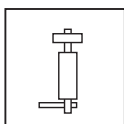
The sewing machine is ready for operation.



Sewing-length range exceeded Incorrect insertion position (side seam only)

The side-seam insertion range is marked on the clamp strips with two red flags.

- Turn the main switch off and on again.



Upper part not engaged

If the upper part of the machine has not engaged properly after being swivelled up or down, the message "upper part not engaged" appears.

Sewing is blocked.

- Engage the upper part.
- Press Enter to clear the message.
The sewing machine is ready for operation.



Folding table not engaged and folding table not retracted

If the folding table has not been retracted to its starting position, the message "folding table not retracted" appears when the sewing machine is switched on.

- Retract the folding table as far as it will go.
- Press Enter to clear the message.
The sewing machine is ready for operation.

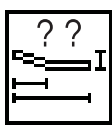
4



Flash full

The internal flash memory is full. It can be cleared by transferring seam programs first to a memory card, then back into the controller.

- Save programs to a memory card.
See section 3.1



Enter rail code

example:

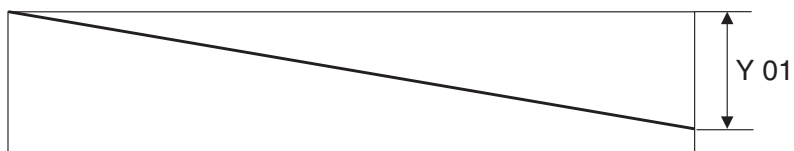
X = 91 , Y = 11



A.2 Summary of seam types

type: 001

Y 01 = dart depth

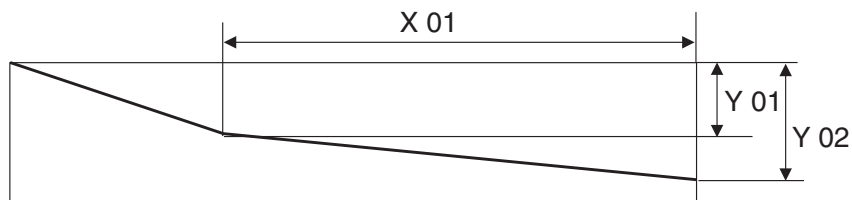


type: 002

Y 01 = dart depth 1

Y 02 = dart depth 2

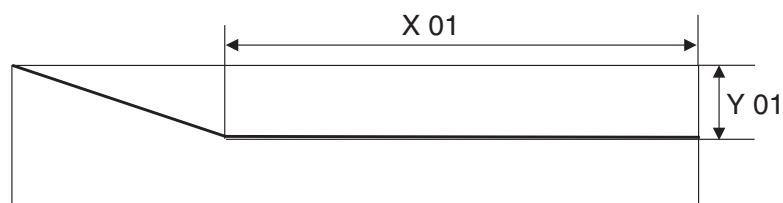
X 01 = waist point



type: 003

Y 01 = dart depth

X 01 = waist point



type: 004

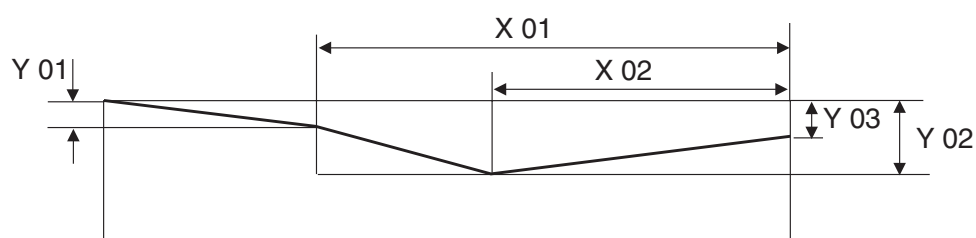
Y 01 = dart depth 1

Y 02 = dart depth 2

Y 03 = dart depth 3

X 01 = waist point 1

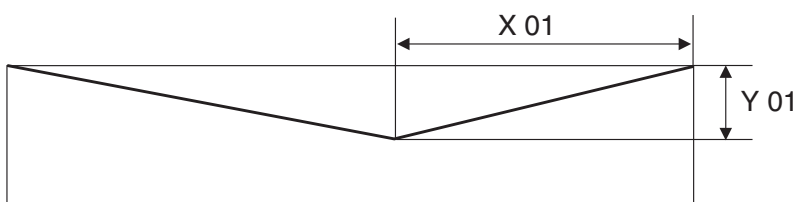
X 02 = waist point 2



type: 005

Y 01 = dart depth

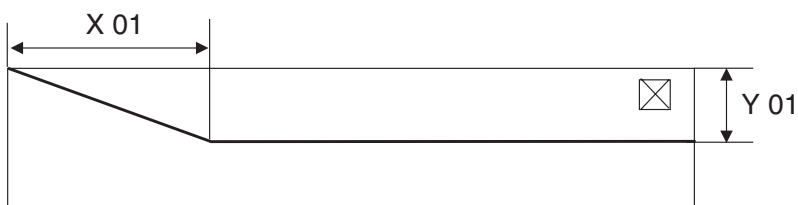
X 01 = waist point



type: 006

Y 01 = dart depth

X 01 = point length





A.3 Creating a seam program

In these examples we explain how you can create your own program for a jacket-breast dart from one of the seven standard programs.

Our sample program is based on a seam of deftyp 001:

The following steps are explained:

1. selecting a seam type
2. copying a seam program
3. entering a program name
4. entering a program sequence.

Procedure

1. Selecting a seam type

The screenshot shows the control panel of a sewing machine. At the top, the model number "743-115" is displayed. Below it is a diagram of a jacket-breast dart. Under the diagram, there are two input fields: "04" and "03". To the right of these fields is the text "Mustermann__" and "01". Further right is the text "Σ : 0099". Below this is a table with three rows and six columns. The first row contains the values 160, 46, 48, 98, and two empty cells. The second row contains 170, 50, and four empty cells. The third row contains 180, 52, 54, and three empty cells. At the bottom of the panel, there are four icons representing different sewing programs, each with a number above it: 1 (GP), 2 (PP), 3 (PS), and 4 (SP). The first icon (GP) is highlighted with a cursor.

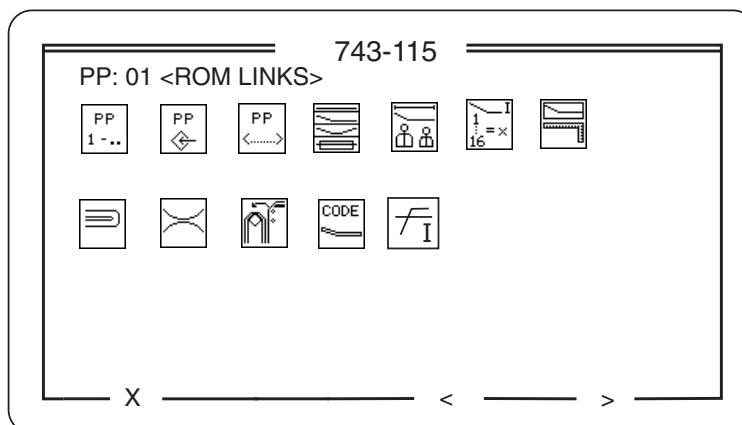
160	46	48	98		
170	50				
180	52	54			


- Select a sewing program with cursor keys "↑" or "↓". Sewing program 1, deftyp 001.




2. Copying a seam program

- When the main screen is displayed press function key **F2**. The program-parameters screen appears.



- Select a parameter  with cursor keys "←" or "→". The symbol of the selected parameter appears in reverse video.
- Press Enter. The seam program is copied.
- Enter a new seam-program number:
Example: 99
- Press Enter. The new seam program with the values of program "**deftyp 001**" is saved.

3. Entering a program name

- Select a parameter  with cursor keys "←" or "→". The symbol of the selected parameter appears in reverse video.
- Press Enter.
- Enter a program name (max. 16 characters).
Entry: Gerry 01
- Press Enter. This program name is saved.
- Press the **F1** function key. The program-parameters menu is closed.



4. Entering a program sequence

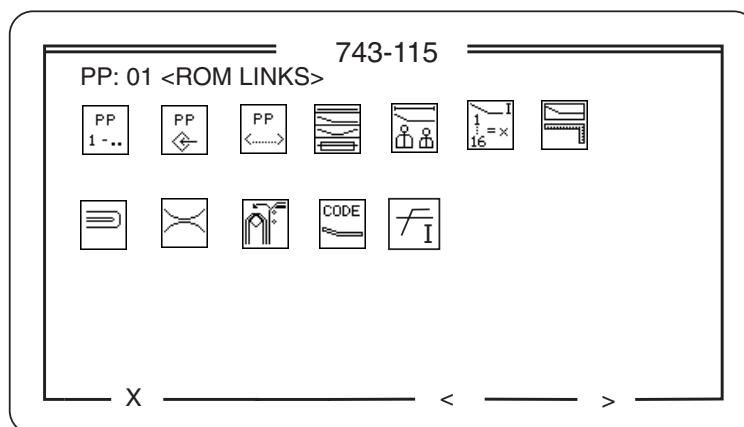
- When the main screen is displayed press function key **F3**. The "program-sequences" screen appears.



- Use the cursor keys "↑" or "↓" to look for a free program location (example no. 50).
- Press Enter.
- Enter the program number.
Example: program 99
- Press the **F1** function key.
The "program-sequences" menu is closed.

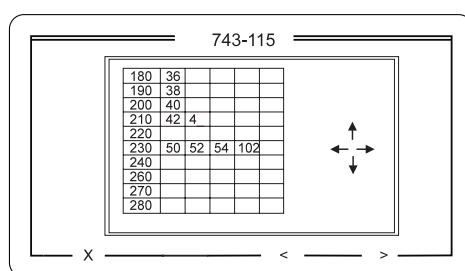


A.4 Programming a seam

- When the main screen is displayed press function key **F2**.
The display switches to the sewing-program screen.




-  Select the **"equal/unequal dart depths"** parameter with cursor keys " \leftarrow " or " \rightarrow ".
The symbol of the selected parameter appears in reverse video.
- Press Enter.
- Select the required parameter with cursor keys " \leftarrow " or " \rightarrow ".
(example: equal dart depths)
- Press Enter.
The parameter is saved.
- Press the **F1** key to leave the menu.
-  Select the **"assign sizes to dart lengths"** parameter with cursor keys " \leftarrow " or " \rightarrow ".
The symbol of the selected parameter appears in reverse video.
- Press Enter.
The dart-length window appears.



- Select the required dart length with cursor keys " \updownarrow " or " \updownarrow ".
- Press Enter.
The first size window appears in reverse video.
- Enter the model size (e.g. size 52).
- Press Enter.
The size entered is saved in the table.
- Select the next size window with cursor key " \rightarrow ".
- Press Enter.
The second size window appears in reverse video.



- If required, enter the next two sizes as described above.
- Press the **F1** key to leave the menu.

-  Select the "**program dart form**" parameter with cursor keys "←" or "→".
The symbol of the selected parameter appears in reverse video.
- Press Enter.
A table of all the dart lengths appears.


180	190	200	210
220	230	240	250
260	270	280	290
300	310	320	330

- Select the required dart length with cursor keys "↑", "↓", "←" or "→" (example dart length 270).
The dart length appears in reverse video.

180	190	200	210
220	230	240	250
260	270	280	290
300	310	320	330

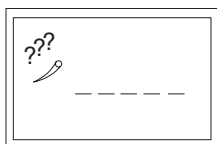
4

- Press Enter.
- Select and enter values for the individual co-ordinates.
- Example (type 004)
Y01 = 4.0, X01 = 200.0, Y02 = 10.0, Y02 = 150.0, Y03 = 8.0
- Press the **F1** key to leave the menu.

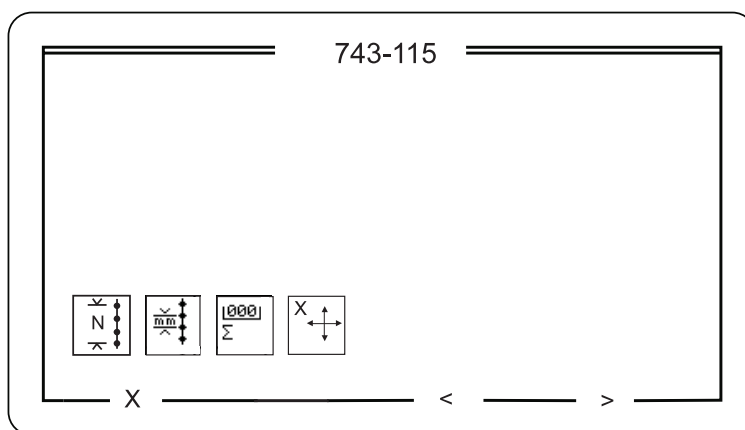
-  Select the "**fabric thickness**" parameter with cursor keys "←" or "→".
The symbol of the selected parameter appears in reverse video.
- Press Enter.
- Select the required parameter with cursor keys "←" or "→".
- Press the **F1** key to leave the menu.
- Enter the rail code (e.g. 01).




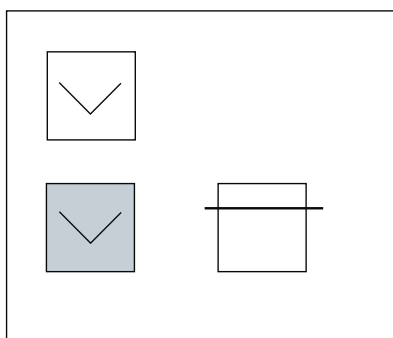
- Activate the required additional functions.
- Press the **"STOP"** key and then the **F1** function key to leave the menu.
The code-number entry prompt appears in the display.



- Enter code number **"29801"** on the decimal keypad.
- Once the correct code number has been entered the display switches to the machine-parameter screen.
If an incorrect code number is entered the display switches to the main screen.




-  Select the **"number of stitches"** parameter with the cursor keys.
- Press Enter.
A screen for selecting "dart" or "side seam" appears.

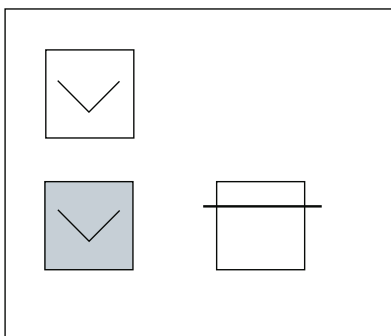


- Select the required sewing operation (dart/side seam) with the cursor keys.
 - Press Enter.
 - Select fabric thickness 1 - thin.
 - Select the vectors individually and enter the number of stitches.
- After entering all stitch numbers for fabric thickness 1 - thin:
- Select fabric thickness 2 - medium.
 - Select the vectors individually and enter the number of stitches.
 - Select fabric thickness 3 - thick.



- Select the vectors individually and enter the number of stitches.
- Press the **F1** key to leave the menu.
-  Select the "**stitch length**" parameter with the cursor keys.

- Press Enter.
The screen for selecting "dart" or "side seam" appears.



- Select the required sewing operation (dart/side seam) with the cursor keys.
- Press Enter.
- Select fabric thickness 1 - thin.
- Select stitch-length regions 1, 2 and 3 individually and enter the stitch length.

After entering all three stitch lengths for fabric thickness 1 - thin:

- Select fabric thickness 2 - medium.
- Select the stitch-length regions individually and enter the stitch length.
- Select fabric thickness 3 - thick.
- Select the stitch-length regions individually and enter the stitch length.
- Press the **F1** key to leave the menu.

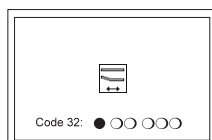


A.5 Switching programs

A.5.1 Switching from the "dart" to the "side-seam" program

Switching from the "dart" to the "side-seam" program is carried out in the following sequence:

- When the main screen is displayed press key "1".
The material-guide rail moves to the left.
- Change the rail.
- Switch off the vertical cutter.
- Bring the protective hood to its medium position.
- Press Enter.
The material-guide rail moves to the right into the starting position.
This message appears:

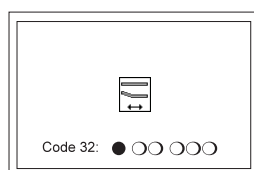


- Press the ESC key.
- When the main screen is displayed press the "F3" key.
- Select the "side-seam" program with cursor keys "↑" or "↓".
- Press the **F1** key to leave the menu.
The sewing machine is now ready to sew side seams.

A.5.2 Switching from the "side-seam" to the "dart" program

Switching from the "side-seam" to the "dart" program is carried out in the following sequence:

- When the main screen is displayed press key "1".
The material-guide rail moves to the left.
- Change the rail.
- Press Enter.
The material-guide rail moves to the right into the starting position.
This message appears:



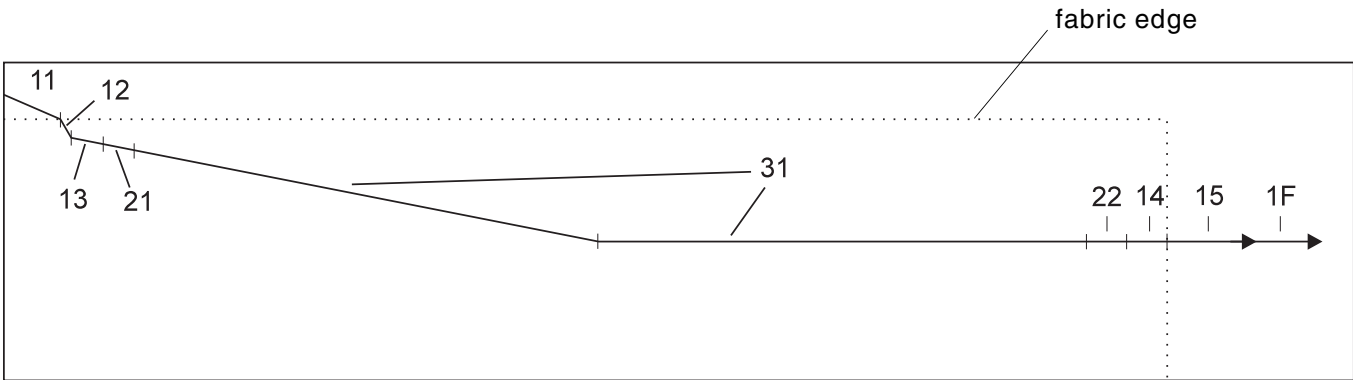
- Press the ESC key.
- When the main screen is displayed press the "F3" key.
- Select the required dart program with cursor keys "↑" or "↓".
- Switch on the vertical cutter.
- Lower the protective hood.
- Press the **F1** key to leave the menu.
The sewing machine is now ready to sew darts.



A.6 Seam description

A.6.1 Seam vectors

A dart seam or side seam is divided into individual vectors. The number of stitches in the individual vectors can be separately programmed for three different fabric thicknesses.



The figures in the diagram stand for the following vectors:

vector	description
11	starting area (fixed number of stitches)
12	opening seam
13	front transition region
21	front compression
31	seam
22	back compression
14	back transition region (correction value)
15	closing seam (only possible with seam type 005)
1F	run-out (chain length beyond the fabric)

Example table

fabric thickness:

thin medium thick

1	2	3
X		
	X	
		X

vectors:

number of stitches

12	13	21	22	14	15	1F
10	0	0	5	0	3	15
5	1	4	5	0	3	15
1	1	8	5	0	3	15

The total number of stitches for vectors 12, 13 and 21 should be 10 stitches.



A.6.2 Stitch lengths in the seam

With certain exceptions, stitch lengths for the individual vectors can be separately programmed.

The following stitch lengths are available:

Stitch length vector

stitch length 1 12, 13

stitch length 2 21, 22

stitch length 3 31

2 mm fixed 11, 14, 15, 1F

Example table: stitch lengths for a dart

fabric thickness:

thin medium thick

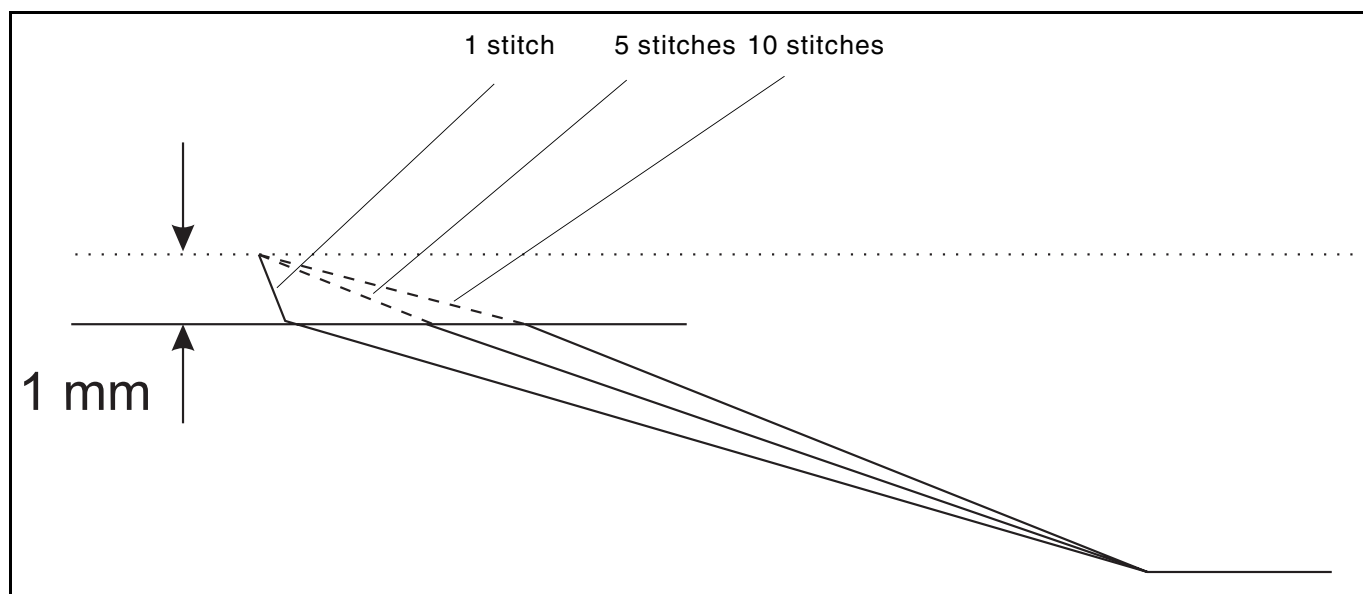
1	2	3
X		
	X	
		X

stitch lengths:

[mm]

1	2	3
1,3	1,3	2,3
1,3	1,3	2,4
1,3	1,3	2,5

A.6.3 Altering the opening seam (closing seam in seam type 005) for darts



The opening seam (parameter 12) extends over a fabric width of 1 mm. The more stitches there are in the opening-seam area, the smoother the transition to the seam proper.

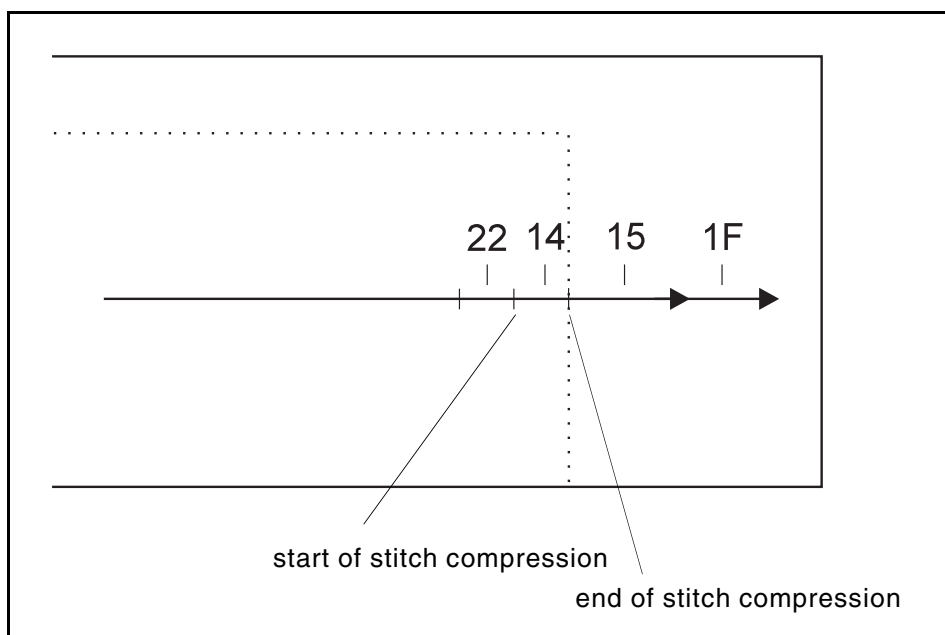
opening seam with one stitch = coarse opening seam

opening seam with 10 stitches = smooth opening seam

With seam type 005 the closing seam (parameter 15) can also be affected by the number of stitches.



A.6.3 Stitch-compression correction value at the seam end



The position of the stitch compression in the fabric can be altered with vector 14.

The standard setting for vector 14 is = 0.

Increasing this value shifts the start and end of the seam to the left.