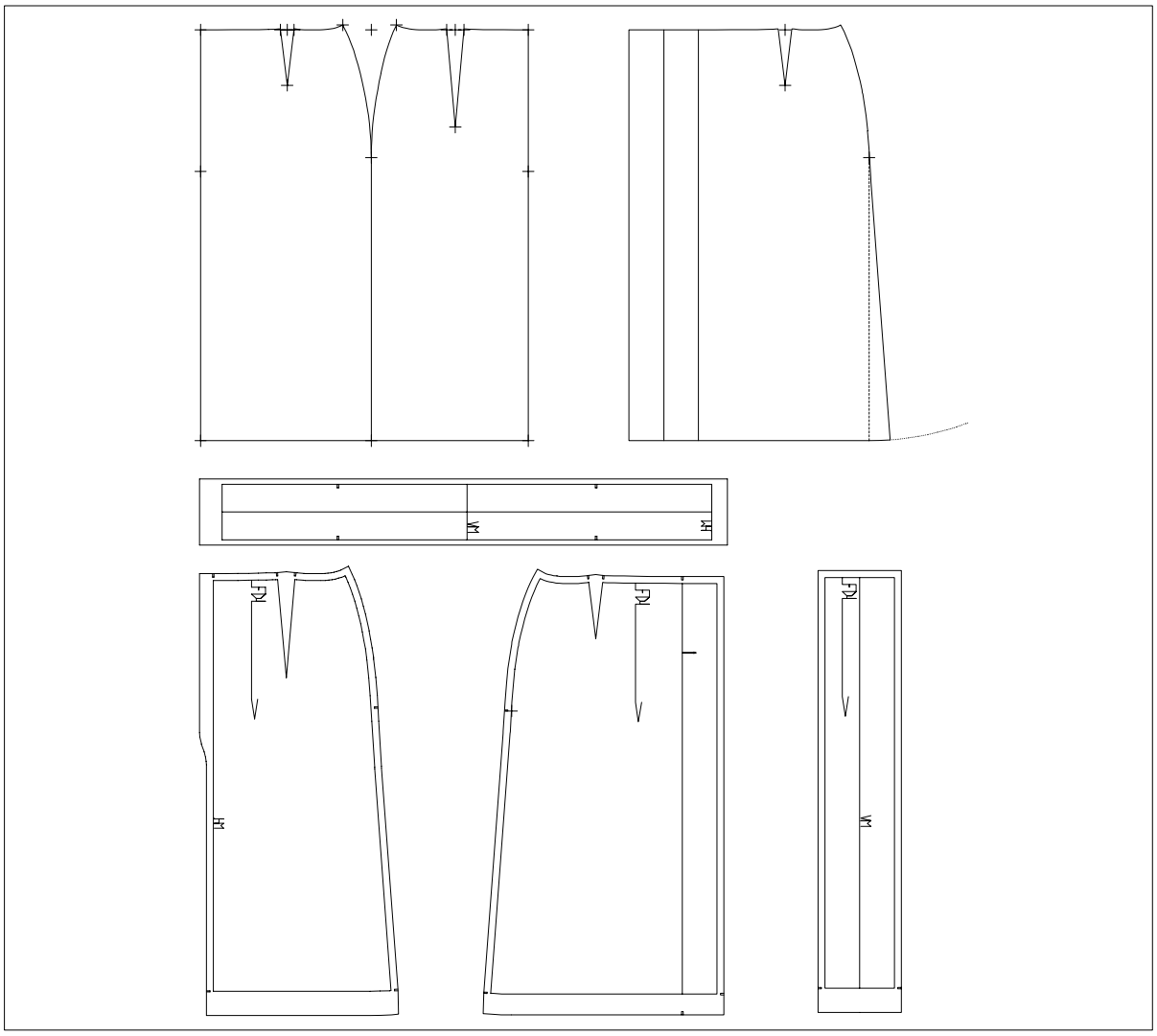
Chapter 13 “Part organisation and hereditary automatic”

Content

The part organisation allows for derivation of parts from first drafts or other existing parts. This derivation is also recorded by GRAFIS and processed during grading. The user can follow the formed hereditary structure in the *partorganis* menu.

Part organisation requires consideration of a few very important rules. In preparation for this, the functions of the *partorganis* menu are learned and practised in the first part of this chapter. Building on this is the second section which contains mainly the *insert* function and corresponding functions of the *partorganis* menu. This second section is very important for an error free use of the hereditary automatic. Detailed exercises follow before further special functions of the part organisation are discussed in the next chapter.



13.1 Basics of part organisation

partorganis

open
sert
duplicate
duplicate to
delete
remove
hide
all
call
all
ancestors
successors
text
-textbox
-techn.par.
print

What does part organisation mean?

In practice, a style consists of a number of parts, e.g. front, side panel, back, collar, sleeve, belt, pockets, facings, lining and others. The work with various parts of a style is the content of this section.

The *partorganis* menu

Clicking *partorganis* leads to screen picture 13-1. The left half of the screen contains the list of all parts of the style. The annotation of the parts (at the beginning part 001 only) has the following significance:

mother part	parts marked with * are mother parts for which special rules apply (see sections 13.2 and 14.3)
number	consecutive no. of the parts
visible	„ " = part is **not visible;** it is in the background „x" = part is **visible;** it is on screen
text	name of the part
record steps	number of record steps of the part
no. of objects	number of GRAFIS objects in the part (points, lines,....)

Step-by-step guide

⇒ *Basic menu --> partorganis* or *Extras | Part Organisation....*
⇒ Create new parts with *open* or *duplicate*
⇒ Enter a name for the new or altered part with *text* or after double-click on the part name
⇒ Activate part to work with it; the active part is highlighted with a light bar.
⇒ Manage list of parts:
- scroll in the list with the scroll bar,
- *delete* parts,
- *print* the list of parts.

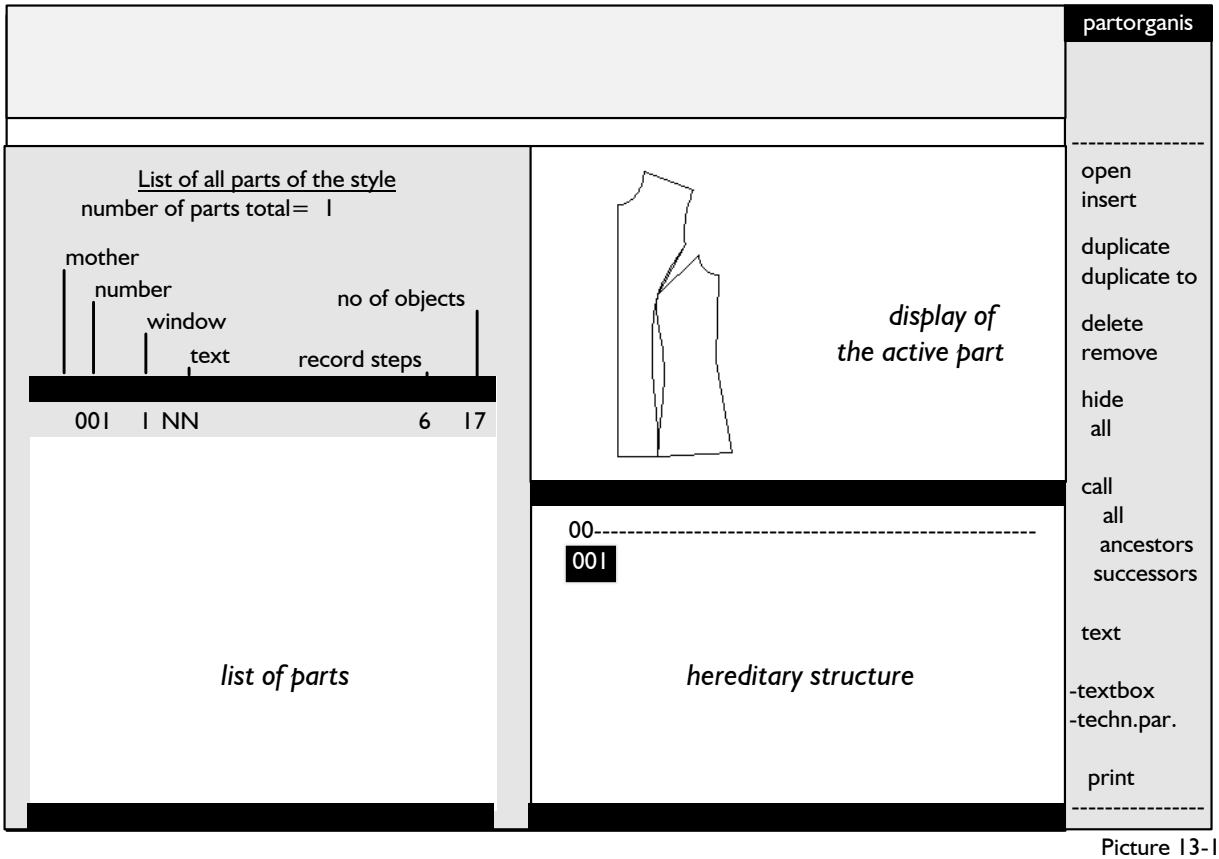
⇒ Call the help function via <F1>

Functions of the *partorganis* menu

open
Clicking on *open* creates a new part with the name „NN" and the next highest number after the last part. The new part is not active straight away. It has to be activated to be processed.

insert
Clicking on *insert* generates a new part before the selected part.

activate (no menu function)
Clicking on a part number, a part text or clicking the



Picture 13-1

part number in the hereditary structure activates the part. It is then highlighted by a bar. The part can be processed after having quit *part organisation.* When activating mother parts (see section 13.2) a warning message appears.

duplicate
After having clicked *duplicate* and a part GRAFIS copies the selected part with its x and z value tables to the end of the list.

duplicate to

As *duplicate* but the part can be copied directly into an empty part with a higher part number. After having activated *dupl. to* the part into which the selected part is to be copied is to be clicked in the part list.

delete
After a security question the record steps of the selected part are reset to 0. The last part in the list is removed, directly.

remove

Remove an empty part (with 0 record steps) from the part list. The following parts move up in the list.

hide
With the function *hide: all* all parts apart from the active selected part are removed to the background memory. Hidden parts are no longer visible on screen, but are not deleted. With the function *call* hidden parts can be recalled to the screen.
Individual parts can be hidden or called by clicking the „visible" column in the part list. In the „visible" column „x" indicates the part is on screen, „ „ the part is in the background memory.
It is recommended that only parts required for work are visible on screen.

call
Individual parts can be called from the background memory to the screen by clicking in the visible column. Clicking *call all* recalls all removed parts from the background onto the screen. Selecting *call ancestors* calls all ancestors of the active part onto the screen. Clicking *call successors* recalls all successors (heirs) of the active part onto the screen.

text
Activating *text* and clicking a part in the list allows for editing the part text. After <ENTER> entry can continue with the next part text. A part text can be edited, also with double-click on the text. In this case, <ENTER> does not switch to the next part text.
Take care of your part names! This makes your work easier and avoids mistakes.

+/- text box

Opens/closes the window in which comments on the selected part can be stored.

+/- techn. parameter

Opens/closes the window for technical parameters relevant for the layplan (see Chapter 16).

edit/copy

Copies the part list to the clipboard.

print
Clicking this function starts printing the part list given the printer is switched on.

The number of parts per style is limited to 250. During construction the active part is always displayed in yellow. In the basic menu all visible parts can be activated by clicking. It is not necessary to open the partorganis menu to activate a part.

Exercises on the *partorganis* menu

1. Call basic block 001 into the first part of a new style and enter a text in the list of parts.
2. Open 3 more parts.
3. Activate part 002. Call basic block 004 "one-piece sleeve" into part 002 and take care of the text for part 002 in the list of parts.
4. Activate part 003. Call the basic block 009 "kimono" into part 003 and take care of the text for part 003 in the list of parts.
5. **Arrange** all parts in a rectangle by clicking the **<F5> key.**

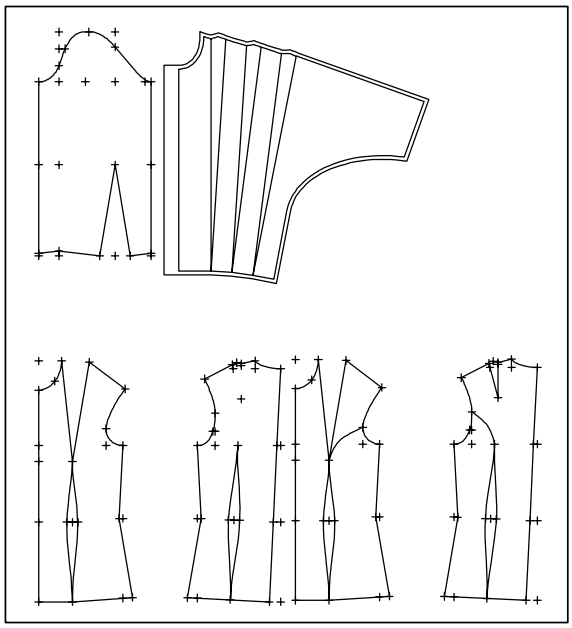
The <F5> key arranges all visible parts inside a rectangle.

6. Remove parts 001, 002 and 004 to the background memory. Part 003 is to be active. Modify part 003 "kimono" with three pleats.
7. Call all parts onto the screen and activate part 001 "bodice". Construct the waist darts and the shoulder dart in the back of the bodice.
8. Duplicate part 001. It appears as part 005. Activate part 005 and design a princess line.
9. Open a number of new parts and delete them.

The result of this exercise is a list of parts as displayed in Picture 13-3 and a screen as in Picture 13-2.

Suggestion for construction steps:

1.	*call*	basic block 001
	partorganis	
	text	part 001: "bodice"
2.	*open*	
	open	
	open	The list now contains 4 parts.



Picture 13-2

3. Activate part 002 by clicking the part number or the part text
   text part 002: one-piece sleeve
   with ⬒ return to the basic menu
   call basic block 004
4. *partorganis*
   Activate part 003 by clicking the part number or the part text
   text part 003: kimono
   with ⬒ return to the basic menu
   call basic block 009
   partorganis
   remove all

Clicking results in removal of all inactive parts and is indicated in the list of parts by changing „x" to „ " in the „visible" column.

Call all

Clicking results in calling all parts and is indicated by changing „ " to „x" in the „visible" column. You can also click onto the „visible" column, directly. This way the respective part is called or removed.

call all
with ⬒ return to the basic menu

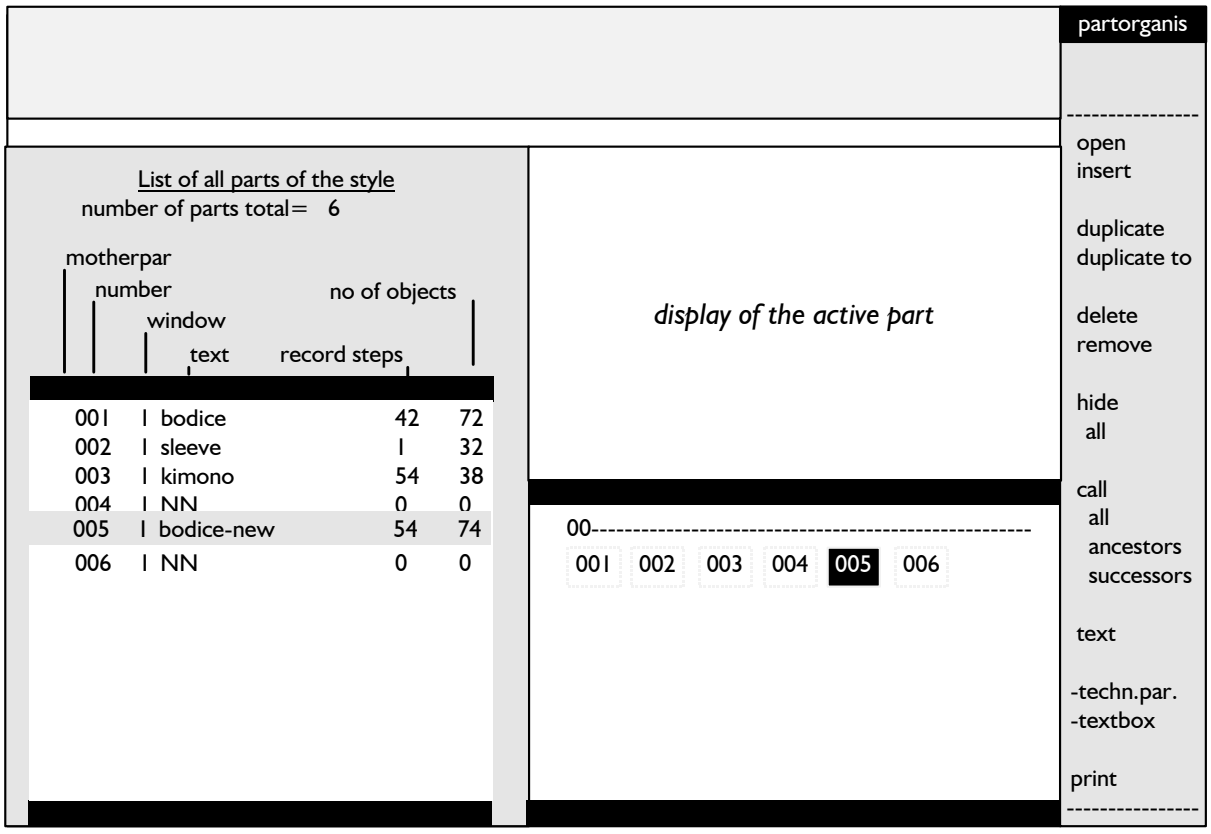
5. Press <F5>-key

The active part is always displayed in yellow. Only this part can be modified. The other parts remain unchanged.

6. *partorganis*
   remove all

Modify the active part 003.

p+l+c+r perpencicular from shoulder to hem
separate
raster
transform
move p==>p
pleats
spread
parallel



Picture 13-3

7. *partorganis*
   call all
   activate part 001 by clicking the part number or the part text

Modify the active part 001.

8. *partorganis*
   activate part 001
   duplicate
   text new part 005: "bodice-new"
   activate part 005 by clicking the part number or the part text

Part 005 contains all modifications made to part 001.

   remove all

Modify the active part 005.

   Extras | Size Table activate 3 sizes
   grading

9. *partorganis*
   open the new part is no. 06.
   delete click part 006
   print, if a printer is connected and switched on
   call all
   with ◘ return to the basic menu.

Now, click a purple inactive part. This part is thus, activated and displayed in yellow. Only this part can be processed. Activate other parts, also.

Now, click on an inactive part, keep the left mouse button pressed down and „drag" the part. As soon as a red thread appears between cursor and part you can release the mouse button. The part is removed.

In the basic menu the following applies:

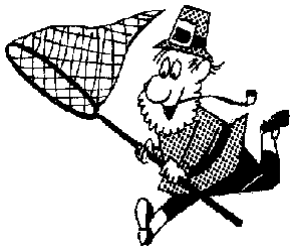
- ***clicking an inactive part ➔ activates this part***
- ***dragging an inactive part ➔ removes this part to the background memory.***

13.2 Insert without transformation, hereditary automatic

What does hereditary automatic mean?

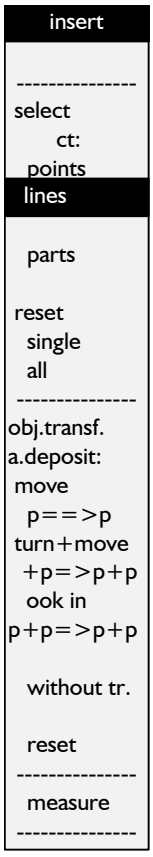
In practice, a style consists of many parts. These are amongst others front, side panel, back, collar, sleeve, belt, pockets, facings, lining. The parts have to fit together considering their interdependence. GRAFIS ensures this by building an automatic heredity. If, for example, a collar is to be designed to fit the parts "front" and "back", the neck lines of front and back can be inserted into the new part "collar" and the collar can be constructed. When grading the collar in different sizes the insertion of the neck lines is repeated automatically. We are talking about a heredity of the neck lines into the part "collar".

The heredity ensues with the functions of the *insert* menu. This menu contains functions for insertion of single objects or complete parts into the active part.



Inserting (heredity) always ensues <u>into the active part out of parts with lower part number</u>.
GRAFIS records the hereditary steps and displays the hereditary structure in the partorganis menu. The hereditary structure is arranged to generations.

Step-by-step guide



⇒ Activate the part into which objects (points, lines) are to be inserted.

⇒ Make donor parts visible on screen ("visible" column = "x" in *partorganis*)

⇒ *Basic menu --> insert*

⇒ Select the type of object to be inserted by activating *points, lines* or *parts* below *select object:* and click the objects in the donor part. The inserted objects appear in a different colour (red) and, after having pressed <F5> removed from the donor part.

⇒ Select the required object transformation below *obj.transf.a.deposit:*. Only then, will the inserted objects appear in the yellow colour of the active part and can be modified.

NB:
In this section only the object transformation *without tr.* is covered and practised. All further transformation options and the insertion of standard parts is the content of Chapter 14.

Functions of the *insert* menu

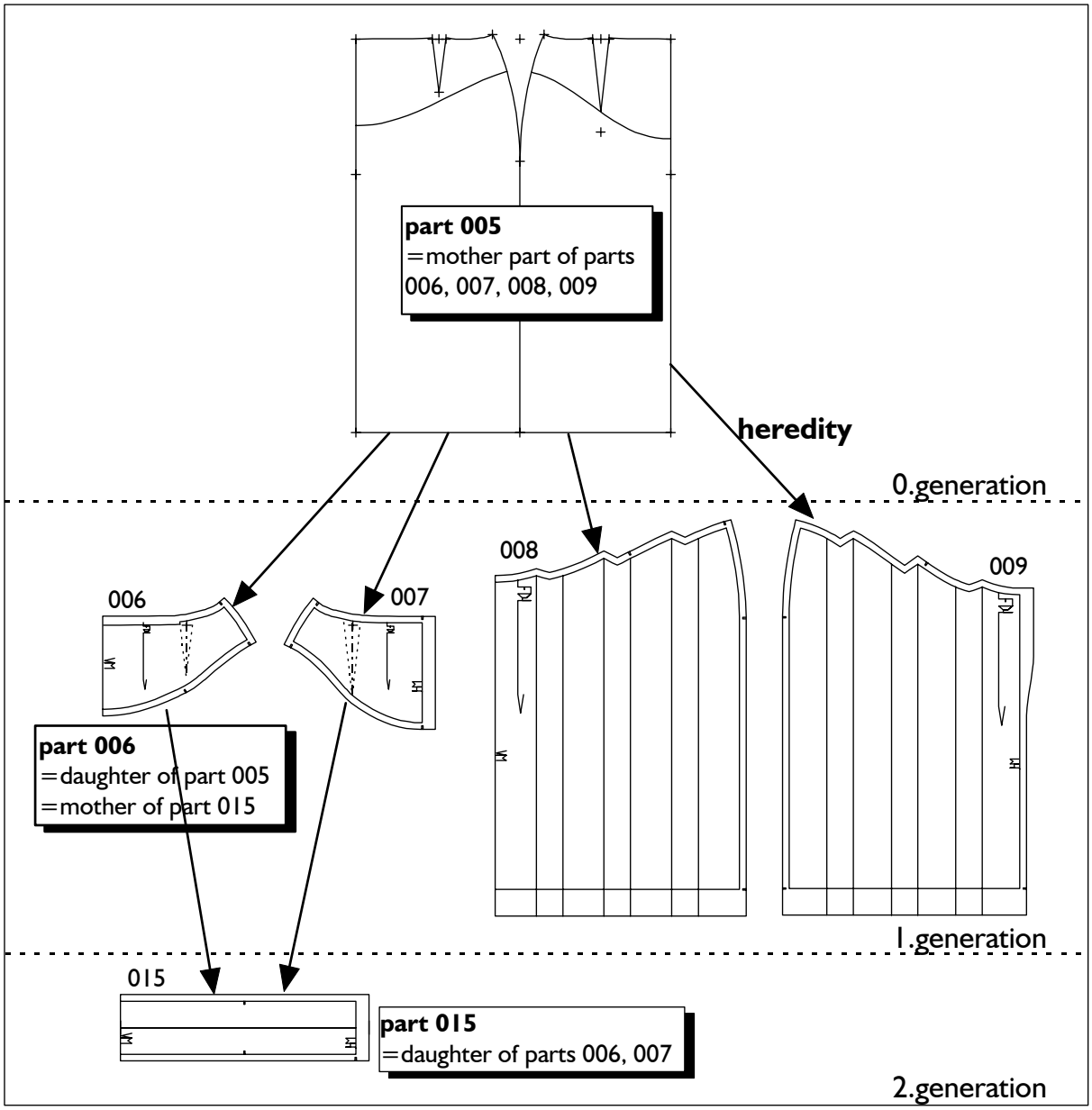
Select object:
All visible objects belonging to an inactive part with a lower part number can be inserted into the active part with these functions. One of the type of objects *points, lines* or *parts* is to be selected and the objects are to be clicked one after the other. The inserted objects appear in a different colour and, after having pressed <F5> removed from the original object.
With *reset single* or *reset all* individual inserted objects can be reset step-by-step or completely.
The selected coloured objects are accepted into the active part only after having called a function in the *obj.transf.a.deposit* section of the menu.

obj. transf. a. deposit:
With depositing the selected coloured part into the active part it can also be adapted to the active part. In this section the function *without tr.* (without adaptation) is covered, only.
All other transformation options are explained in Chapter 14.

without tr.
The selected objects are inserted into the active part without transformation.
reset undoes the last transformation step.

The heredity

Picture 13-4 elucidates the principle of heredity on the example style "pleated skirt". The front and



Picture 13-4

back skirt and both yokes were derived from part 005. Thus, part 005 has become a **mother part** and the parts 006 to 009 have become **daughter parts**. In a further heredity step the waist lines from parts 006 and 007 were passed on to part 015. Parts 006 and 007 which were daughter parts already have, thus, also become mother parts. For modification of mother parts separate rules apply, see Chapter 14.
Heirs (successors) of part 005 are the parts 006 to 009 and part 015. **Ancestors** of part 015 are the parts 005, 006 and 007.

Hereditary information can only be passed on to parts with a higher part number.

The hereditary structure

For presentation of the hereditary structure the parts are divided into generations; the following applies: ***A daughter part automatically receives a generation number at least 1 up from the mother part.*** This rule ensures that a part of the 3rd generation can carry hereditary information of the 0, 1st and 2nd generation, only.
Picture 13-5 shows the *partorganis* menu for the example "pleated skirt" (Picture 13-4). In the centre of the Picture the hereditary structure is displayed. All parts of a generation are combined in a part block. Part 005 and the empty parts 001 to 004 and parts 010 to 014 belong to generation 0 (first part block). They are marked with generation number "0" in the list of parts. Parts 006 to 009 belong to the 1st generation with generation number "1" and so on.
In the hereditary structure the active part is highlighted. Ancestors and successors are highlighted in grey. Parts without relation to the active part are not highlighted.
Clicking a part number in the hereditary structure activates the part. With pressed left mouse button the display changes as well. Thus, the user gets a quick overview of the hereditary structure of the parts.

Grading a number of parts

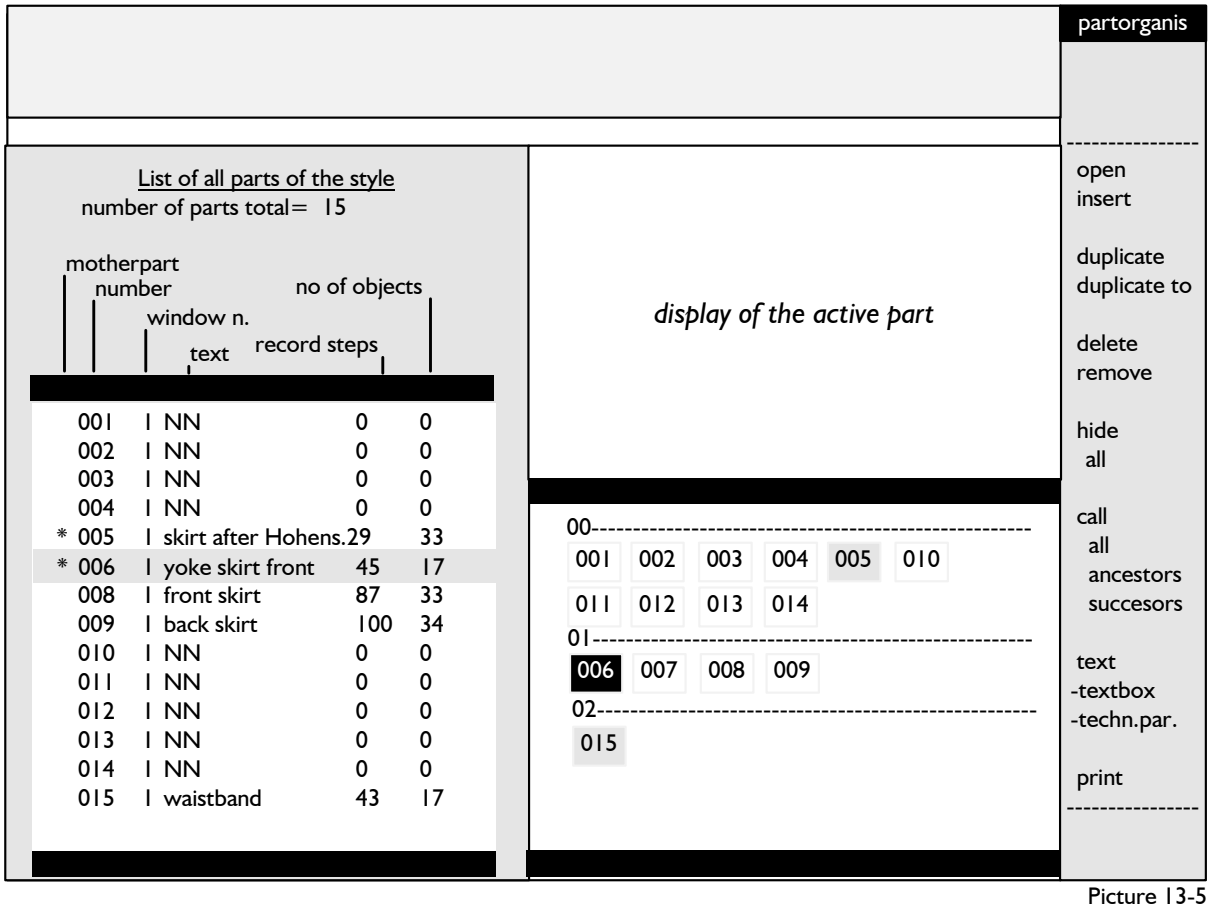
The functions *test run* and *grading* in the basic menu apply to the active part, only. GRAFIS also offers the option to calculate *(test run)* or grade all parts of the style or the successors of the active part, only. These function can be found in the *Grading* pull-down menu. In this menu you can choose between:

Test Run Active Part
Test Run Successor Parts
Test Run All Parts (also from the toolbox)

and

Grade Active Part
Grade Successor Parts
Grade All Parts (also from the toolbox)

and the functions for curve correction treated in Chapter 9.



Picture 13-5

Exercise on inserting without transformation

Construct the pleated skirt with yoke and waistband displayed in Picture 13-4. Organise your list of parts according to Picture 13-5.

Suggestion for construction steps:

1. Open 15 parts in total. Call basic block 017 "skirt after Hohenstein" into part 005, construct the yokes and shorten and lengthen the darts up to the yoke.

   partorganis
   open
   activate part 005
   text
   
   call "skirt after Hohenstein"
   Extras | X Values possibly for yoke
   curves construct yokes
   p+l+c+r adjust dart lengths
   grading check the construction for extreme sizes

2. Insert the lines and points required for the construction of the front yoke into part 006. Close the dart, add seam allowance and set the symbols.

   partorganis
   activate part 006
   text
   
   insert
   lines click the lines of part 005 (violet) required for the construction of the yoke
   <F5>
   points points of part 005 (violet) for construction of yoke
   <F5>

   The red group of objects contains all objects to be inserted into part 006. Check whether all required points and lines are highlighted in red.

   without tr. deposit

   All objects of the red group of objects are accepted into part 006 without transformation. These objects are now part of part 006 and appear in yellow.

   Modify the yoke.

   corners
   separate
   transform
   turn+p=>p
   link
   parallel add seam allowance
   symbols
   grading check the construction for extreme sizes

   Note that the mother part 005 with its x values is graded, first and then part 006 is graded.

   Activate part 005, alter the x values, activate part 006 and grade again.

   partorganis
   activate part 005

   Extras | X Values alter
   test run

   Grade also the successors.

   Grading | Grade All Parts

3. Insert the lines and points required for the construction of the back yoke into part 007. Close the dart, add seam allowance and set symbols.

   partorganis
   activate part 007
   remove all
   make part 005 visible
   insert

   Further steps as under 2.

4. Insert the points and lines out of part 005 required for the construction of the skirt front into part 008. Construct 3 spread lines for pleats and spread. The spacing is to be variable via x values. Generate single hoods, add seam allowance and set symbols.

   partorganis
   activate part 008
   remove all
   make part 005 visible
   insert
   lines lines for skirt front
   <F5>
   points points for skirt front
   <F5>

   The red group of objects contains all objects to be inserted into part 008.

   without tr. deposit

   All objects of the red group of objects are accepted into part 008 without transformation. These objects are now part of the active part 008 and are displayed in yellow.

   Modify the skirt front.

   Extras | X Values
   active part for part 008
   x1-spacing yoke
   x2-spacing hem
   corners
   raster
   transformation
   move p==>p
   separate
   pleats
   spread with x1 and x2
   dart hood single
   delete
   link hem
   parallel
   corners
   separate
   symbols

   Note that the mother part 005 with its x values is graded first, then part 008 is graded.

Alter the x values in part 005. Grade part 005 and then all successors.
test run
Grade | Grade All Parts

5. Insert the lines and points out of part 005 required for the construction of the skirt back into part 009. Construct 3 spread lines for pleats and spread. The spacing is to be variable via x values. Generate single hoods, add seam allowance and set symbols.
   The construction steps are analogous to 4.
6. Insert the waist lines out of parts 006 and 007 (yokes) into part 015. Measure the total length of the waist lines and the lengths of the waist lines in front and back with z values. Construct a waistband with a width variable via x values. Add seam allowance and set symbols.
   partorganis
   activate part 015
   remove all
   make parts 006 and 007 visible
   insert
   lines waist lines of parts 006 and 007 for the waistband
   <F5>
   The red group of objects contains all objects to be inserted into part 015.
   without tr. deposit
   Measure the waist lines and construct the waistband.
   <F11> or *Extras | Z Values*
   For separate waist lines:
   z1=gl+gl+gl+gl waist line front + back
   z2=gl+gl waist line front
   Extras | X Values x value for width of waistband
   p+l+c+r
   p+w+h with *w=z1* and *h=x1*
   p on x &y with *x=y=0*
   symbols
   place on set notch
   plg on l with *plg=z2* side seam
   delete
   transform
   mirror
   parallel
   corners
   symbols mark CF and CB
   Grading | Test Run All Parts
   Grading | Grade All Parts
   Activate part 005, alter the x values and grade.
   test run
   grading
   Grading | Test Run Successors
   Grading | Grade Successors
   Note that mother parts 006 and 007 are graded, first and then part 015 is graded.

13.3 The x values of all parts

In chapter 11 two of the three types of x values have been discussed, already. Content of this section are the x values of all parts, also called global x values. These x values apply to all parts of the style. They can be used for example for:

- seam allowance self / lining,
- ease,
- distances for markings,
- adaptation factors for stretch etc.

The x value table of all parts can be found in the „GRAFIS X Values" window in the „List: global". Processing this x value table is identical to processing the other x value tables. Implementing the x values of all parts ensues in the same way as implementing x values of the construction record, see section 11.2.

The x values of all parts are additionally indicated with a g (for "global"); small and capital letters have the same significance. Example: XG5 or xg5

XG5 stands for the fifth x value of the x value table of all parts whereas x5 stands for the fifth x value of the construction record of the active part. This rule applies to calculation with z values as well as direct entry into numerical fields (see Picture 11-11).

You can switch between record x value tables of <u>different parts</u> in the „GRAFIS X Values" window, directly: merely click the required part number in the „Part:" window.

Exercise

Open the first x value "seam allowance" in the x value table of all parts with the standard value 10mm. Call a bodice construction into your new style and extract a number of parts. Add a seam allowance of xg1 to all production parts which is variable in all parts at the same time.

call
Extras | X Values
List: global
Add New X Value
.....
parallel
d=XG1 constr. seam allowce

Alter the x value "seam allowance" and then grade all parts.

13.4 Drag, rotate, flip parts

With the functions of the *drag/rotate* menu parts can be dragged, rotated or flipped to one another. This menu appears after pressing the function key <F3>.
The part to be moved is to be clicked. A drag cursor in form of a crosshair with circle appears offering the following functions:

Drag
Click inside the circle and drag with the left mouse button pressed down.

Rotate
Click outside the circle and rotate with the left mouse button pressed down.

Flip (mirror)
Click the symmetry axis about which the part is to be flipped (mirrored).

drag/rotate

---
scale
1 : 0,2
1 : 1
1 : 3
1 : 5
1 : 10
is =
1 : 3.3
---
direction:
- 90 +
- 45 +
- 15 +
- 5 +
- 1 +
nil

is =322.5
---
set to p

Additional functions

The following additional functions are also available:

scale
Adjust the display scale by clicking

1 : 0.2	for 5 times enlargement
1 : 1	for scale 1:1 (original size)
1 : 3	for 1/3 scale
1 : 5	for 1/5 scale
1 : 10	for 1/10 scale

The line "is =" shows the current scale.
NB: The function keys <F2>, <F4> and <F6> are still active.

direction
Rotating the drag cursor in degrees by clicking "+" or "-" next to the required angle. The line "is =" shows the current angle.

nil
Reset the rotation of the part to nil.

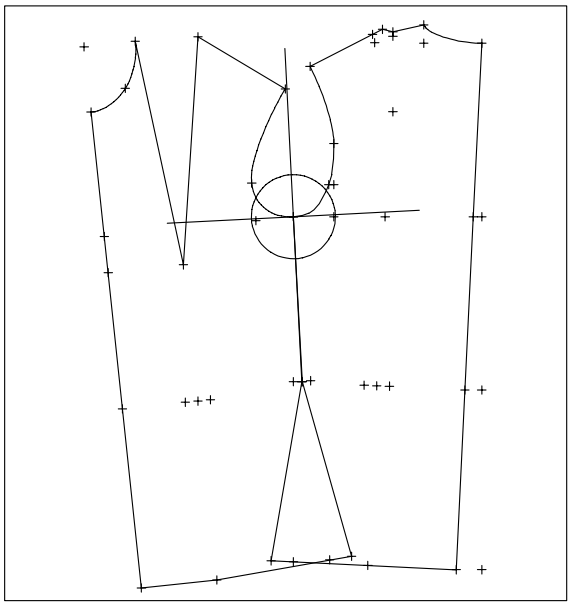
set to p
The part is moved with the drag cursor to the required click point.

Dragging is terminated with ◪. Moving the drag cursor on the part to be moved is possible after ◪, only.

The <F8> function key switches between „parts in original (construction) position" and „parts on position after drag with <F3> or outlay with <F5>.

Exercise

Call the basic block "bodice after Hohenstein" into part 001 and part 002. Delete the front in part 001 and the back in part 002. Drag and rotate part 002 as shown in Picture 13-6.



Picture 13-6

Activate part 001.
<F3> Click the front at the point side seam / armhole
Click inside the circle and drag.
set to p to the point ss/armhole bk
Click outside the circle and drag, see Picture 13-6.
Continue to practise. Test the flip function, also.

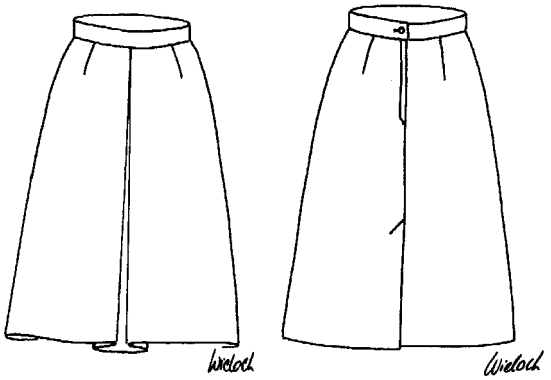
13.5 Complex exercises

1st Exercise

"Skirt with separate box pleat and flared side seam"

Working drawing:

skirt front skirt back



Design specification:
From the basic block "skirt after Hohenstein" a skirt with proportion class "c" with separate box pleat in the centre front, slightly flared side seam, zip and vent in the centre back is to be constructed. The production patterns skirt front, pleat, skirt back with concealed zip and waistband are to be derived.
Use the following global x values:

xg1 seam allowance in mm (10.)
xg2 hem in mm (40.)
xg3 flare at side seam in mm (20.)

Furthermore, the pleat depth and waistband width are to be variable.
Suggestion for the list of parts:

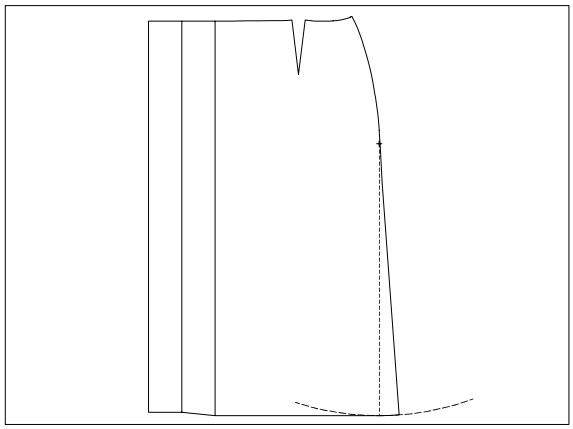
	001	1	NN	0	0	0
	002	1	NN	0	0	0
	003	1	NN	0	0	0
	004	1	NN	0	0	0
	005	1	NN	0	0	0
	006	1	NN	0	0	0
	007	1	NN	0	0	0
	008	1	NN	0	0	0
	009	1	NN	0	0	0
*	010	1	basic block skirt	1	31	0
*	011	1	front with pleat	47	38	1
	012	1	prod pattern skirt ft	32	25	2
	013	1	prod pattern pleat	29	18	2
	014	1	prod pattern skirt bk	57	24	1
	015	1	waistband	49	17	1

Suggestion for construction steps:
Open a number of parts in *partorganis*, enter the corresponding text and activate part 010. Call the basic block "skirt after Hohenstein" into part 010.

Skirt front with pleat (part 011)
x values:

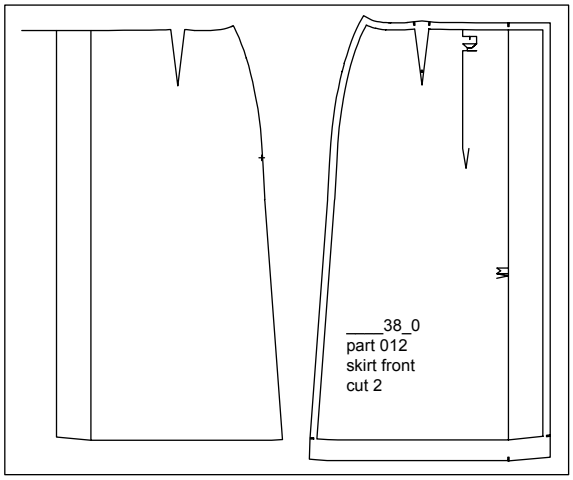
x1 pleat depth in mm (50.)

partorganis



activate part 011 (part 010 remains on screen)
insert insert lines, points for front
lines
points hip point
without tr.
remove part 010
parallel
with d=x1 parallel to CF for box pleat
lengthen
lengthen by lg=5 shorten box pleat by 5mm
p+l+c+r
p==>p hem line
corners
p+l+c+r
cp+p circle arc about hip point
separate circle arc at side seam
p+l+c+r
p==>p
click p hip point
plg on l with *plg=xg3* on circle arc
corners or *separate* circle arc
link
link with curve link side s. hip area

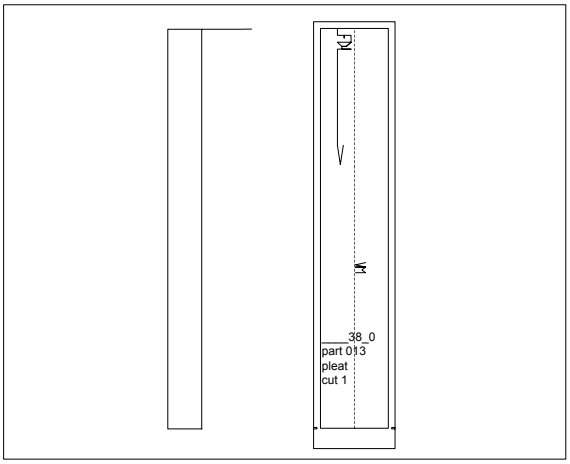
Production pattern ft (part 012)



partorganis
activate part 012 (part 011 remains on screen)

insert insert lines and points for the production pattern ft
points hip point
lines
without tr.
remove part 011
corners
transform
mirror side seam at hem
parallel seam allowance and hem with d=xg1 and xg2
corners
symbols set grain line and notches
text

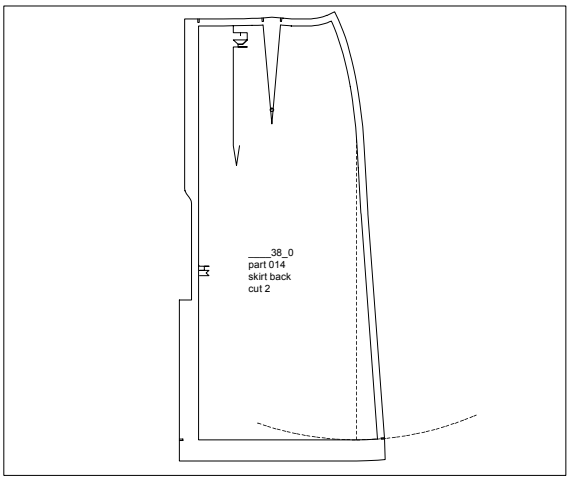
Production pattern pleat (part 013)



partorganis
insert lines out of part 011
lines
without tr.
remove part 011
transform
mirror
delete mirror line if part is mirrored
parallel construct seam allowance and hem with xg1 and xg2
corners
symbols set grain, CF and notches
text

Production pattern bk (part 014)

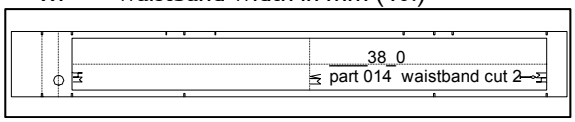
partorganis
insert insert lines and points out of part 010
remove part 010
p+l+c+r
cp+p circle arc about hip point
separate circle arc at side seam
p+l+c+r
p==>p
click p hip point
plg on l with *plg=xg3* on circle arc
corners or *separate* circle arc
link *link with curve* side seam in hip area
parallel construct seam allowance and hem with xg1 and xg2
link addition for concealed zip and



vent at centre back
transform
mirror side seam at hem
corners
symbols set CB, grain and notches
text

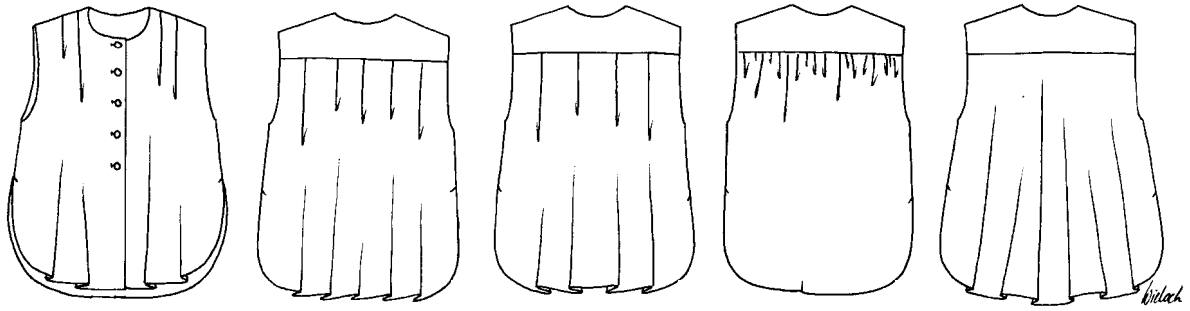
Waistband (part 015)

x values
x1 waistband width in mm (40.)



partorganis
insert insert waist lines ft+bk out of part 010
remove part 010
<F11>
z1=gL+gL+gL+gL calculate waist lines
z2=gL+gL calculate waist lines ft
delete waist lines
p+l+c+r
p+w+h with *w=z1, h=x1*
transform
mirror mirror part at CF and width
delete mirror lines
parallel auxiliary line button and buttonhole (20 mm), overlap, seam allowance with xg1 and addition for concealed zip
corners
symbols set CB, CF, circle, buttonhole and notches (at side seam with z value z2 and notches for hanger loops, 140mm from CF and CB); set dart notches if required
text

2nd Exercise "Shirt blouse with pleats in the front and different back variations"



Design specification:

From the basic block "shirt blouse" a blouse with two pleats in the front, a yoke and 4 different backs is to be constructed. The back should have the following variations:

- bk with pleats from the yoke,
- bk with flared hem,
- bk with gathering at the yoke,
- bk with pleats: less spacing at the yoke, more spacing at the hem.

Use the following global x values:

xg1 seam allowance mm (10.)

All spacing is to be variable via x values.

Suggestion for the part list:

	001		NN	0	0	0
	002		NN	0	0	0
	003		NN	0	0	0
*	004	x	draft shirt blouse	15	27	0
*	005	x	draft ft	11	15	1
	006		NN	0	0	0
	007		NN	0	0	0
	008	x	bk with pleats	89	76	2
	009	x	bk with gathering	74	49	2
	010	x	bk with flared hem	65	62	2
	011	x	bk with variab. pleats	96	84	2
	012		NN	0	0	0
	013	x	yoke	46	24	1
	014		NN	0	0	0
	015	x	ft	74	40	1

Suggestion for construction steps:

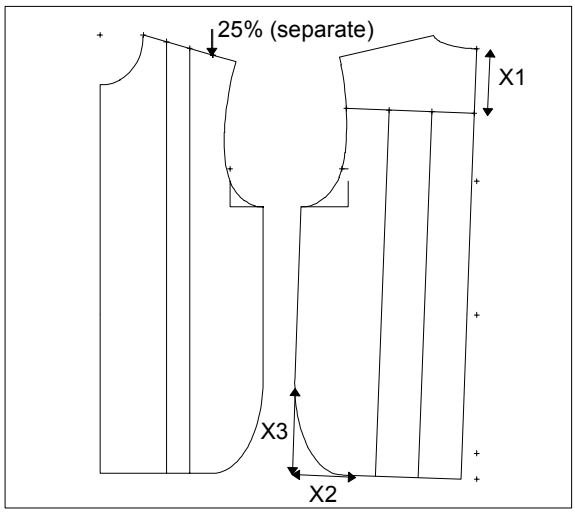
Open a number of parts in *partorganis,* enter the respective text and activate part 004.

Draft shirt blouse (part 004)

x values:

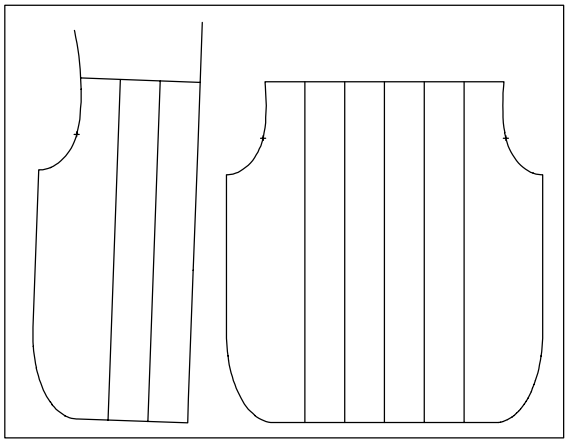
x1 yoke height from neck in mm (100.)
x2 cut-away hem in mm (80.)
x3 cut-away ss in mm (150.)

p+l+c+r
p+dir+lg yoke line 90° to CB
separate lengthen yoke line to armhole
raster
raster1 with *N=4* raster yoke line
corners



dic=x2, dac=x3 hem/side seam
separate
p+digi
rlg on l with *rlg=25* shoulder ft
raster
raster1 with *N=4* shoulder ft
p+l+c+r perpendicular onto hem ft + bk

Draft back (part 005)

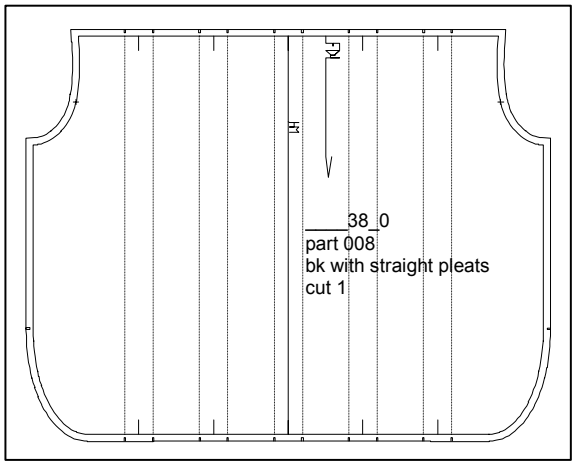


partorganis
insert insert lines required out of part 004
points armhole notch
lines
without tr.

remove part 004
corners
modify
adjust part vertical
transform
mirror mirror complete part
delete delete CB (double)

Back with pleats (part 008)

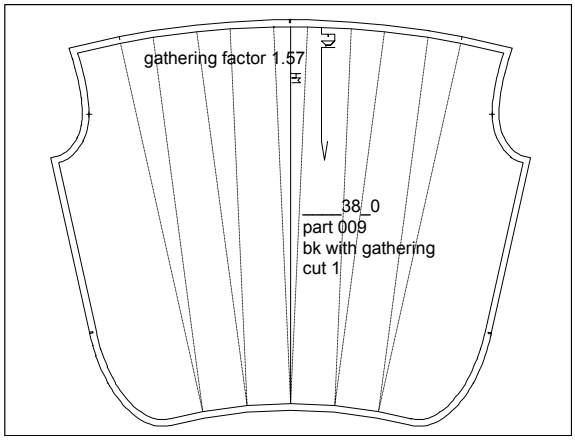
x values:
x1 pleat depth in mm (40.)



partorganis
insert insert complete part 005
remove part 005
Extras | X Values...
pleats
spread with *Z1=x1/2* spread CB
spread with *d1=d2=x1* spread pleats
dart hood double close pleats
delete double line CB
parallel seam allowance with xg1
symbols set CB, grain and notches
text

Back with gathering (part 009)

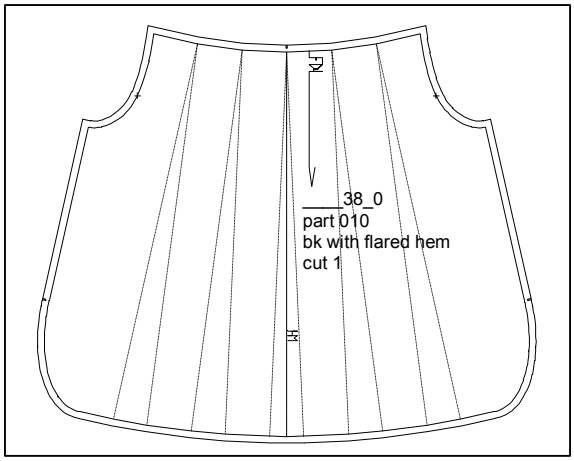
x values:
x1 spacing for gathering in mm (30.)



partorganis
insert insert complete part 005
remove part 005
Extras | x values:
pleats
spread with *Z1=x1/2* CB
spread with *d1=x1* spacing yoke
d2=0 spacing hem
delete double line CB
parallel seam allowance with xg1
symbols set CB, grain, notches and stripes
text

Back with flared hem (part 010)

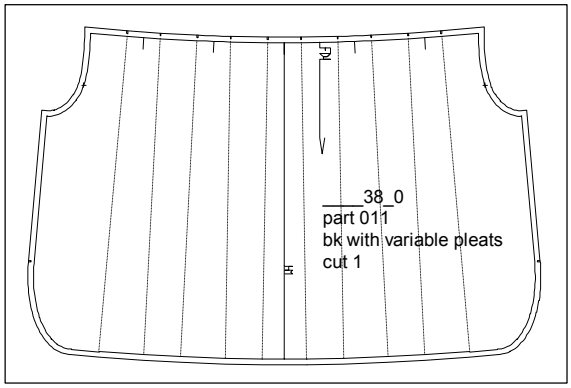
x values:
x1 addition to hem/spacing in mm (50.)



partorganis
insert insert complete part 005
remove part 005
Extras | X Values...
pleats
spread with *Z1=x1/2* CB
spread with *d1=0* spacing yoke
d2=x1 spacing hem
continue as in part 009

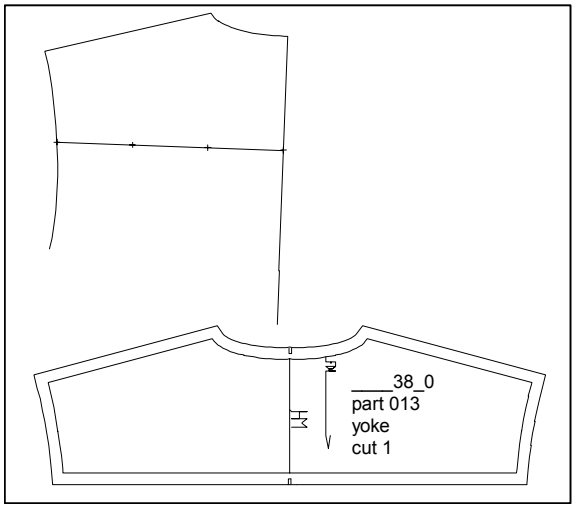
Back with variable pleats (part 011)

x values:
x1 spacing - yoke in mm (60.)
x2 spacing - hem in mm (80.)



partorganis
insert insert complete part 005
remove part 005
Extras | X Values
pleats
spread with *Z1=x1/2* CB
spread with *d1=x1* spreading yoke
d2=x2 spreading hem
continue as with part 009

Yoke (part 013)

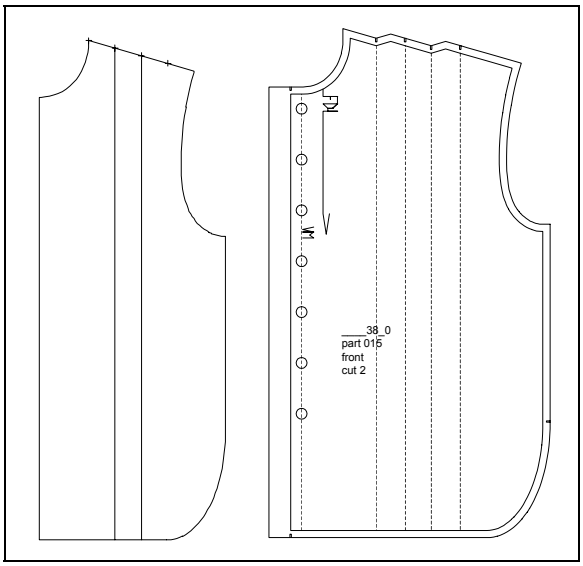


partorganis
insert insert lines and points required out of part 004
remove part 004
corners
modify
adjust part vertical
transform
mirror mirror complete part
delete double line CB
parallel seam allowance with xg1
symbols set CB, grain and notches
text

Front with pleats (part 015)

NB: Decide whether the pleats are to be open towards the CF or the side seam (in working drawing: to CF).

x values:
x1 pleat content in mm (40.)

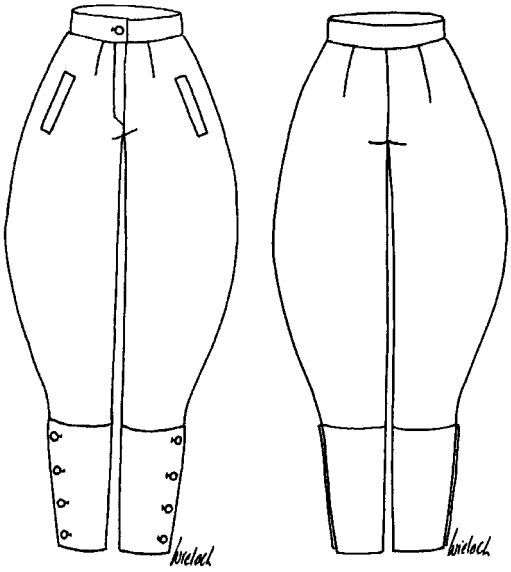


partorganis
insert insert lines and points out of part 004
remove part 004
pleats
spread with *d1=d2=x1*
dart hood single
parallel construct overlap and seam allowance with xg1
corners
raster points for buttons
symbols set CF, grain, notches, buttons and buttonholes
text

3rd Exercise "Riding breeches"

Working drawing:

trouser front trouser back



Design specification:

From the basic block "trousers after Hohenstein" a pair of fashionable breeches with separate cuffs, waistband and pocket with pocket bag is to be constructed.

Use the following global x values:

- xg1 seam allowance in mm (10.)
- xg2 seam allowance waist line back in mm (25.)
- xg3 overlap cuffs ft and bk in mm (30.)

Furthermore, the following is to be variable via x values:

- curve shapes,
- cuff length,
- cuff reduction at hem,
- cuff shortening,
- pocket position and pocket welt

Suggestion for the part list:

	001		NN	0	0	0
	002		NN	0	0	0
	003		NN	0	0	0
	004		NN	0	0	0
*	005	x	draft trousers	104	66	0
	006		NN	0	0	0
	007		NN	0	0	0
	008		NN	0	0	0
	009		NN	0	0	0
	010	x	trouser bk	30	21	1
	011	x	trouser ft	29	21	1
	012	x	cuff bk	63	25	1
	013	x	cuff ft	60	24	1
	014	x	waistband	48	18	1
	015	x	pocket welt	49	16	1
	016		NN	0	0	0
	017	x	pocket bag self	44	21	1
	018	x	pocket bag lining	29	15	2

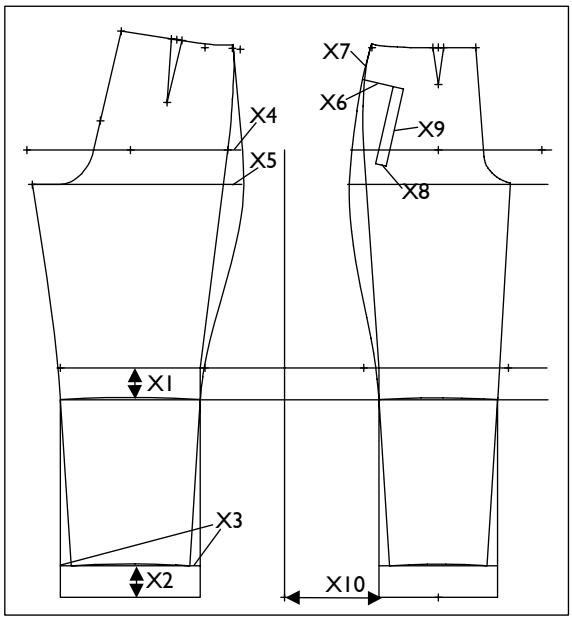
Suggestion for construction steps:

Open a number of parts in *partorganis,* enter the corresponding text and activate part 005.

Draft trousers (part 005)

x values:

- x1 cuffs from kee line in mm (60.)
- x2 cuff shortening from hem (60.)
- x3 cuff reduction at hem in mm (20.)
- x4 curve at hip line in mm (25.)
- x5 curve at seat line in mm (35.)
- x6 pocket position from side seam (60.)
- x7 pocket position from waist (70.)
- x8 pocket welt width in mm (20.)
- x9 pocket welt length in mm (150.)
- x10 distance mirror line to piece in mm (300.)



p+l+c+r

p+d on l with *d=x10*

starting point mirror line

p==>py mirror line

transform

mirror mirror trouser back

p+l+c+r construct horizontal auxiliary lines at hip, seat and knee

parallel

d=x1 cuff position

d=x2 cuff shortening

p+l+c+r

p==>p move side seam and inside leg at cuff

intersection

plg on l with *plg=x3*

separate cut side seam and inside leg (ft+bk) at cuff

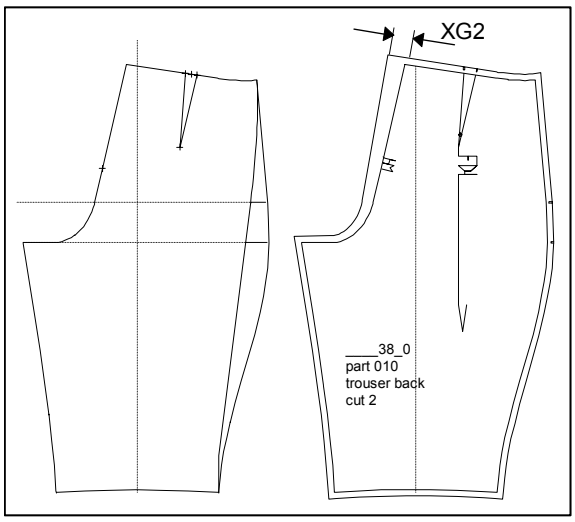
cut hip and seat line at side seams

p+l+c+r construct lines for curves

p+dir+lg with *lg=x4*

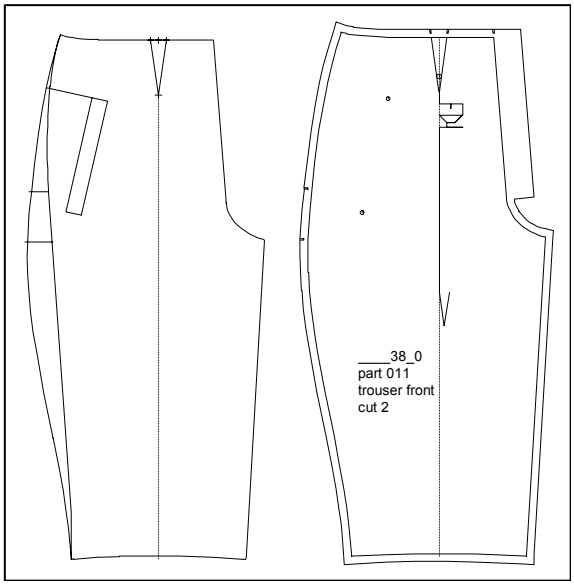
click pl or *intersectn*
p+dir+lg with *lg=x5*
alternative: *lenthern by x4* and *x5*
curves construct new ss waist to cuff, new inside leg crotch to cuff, hem and cuff lines
<F11>
z1=(gL+gL)/2 side seam curves ft+bk
z2=(gL+gL)/2 inside leg ft+bk
lengthen
forming
lengthem to z1 adjust curve length at side seam
lengthen to z2 analogous for inside leg
p+l+c+r
p+dir+lg with *lg=x6*
plg on l with *plg=x7* aux. line for facing, 90° to side seam
p+dir+lg with *lg=x9* pocket welt
parallel
d=x8 pocket welt width
p+l+c+r
p==>p close pocket welt

Trouser bk (part 010)



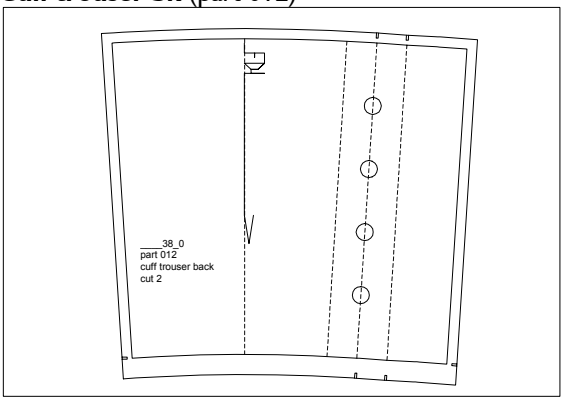
partorganis
insert insert lines and points for trouser bk out of part 005
remove part 005
corners
link CB
parallel seam allowance with xg1
lengthen
lengthen by xg2 lengthen waist line
link bk seam
poma seam allowance crotch
corners
symbols set grain and notches
delete auxiliary points and lines
text

Trouser ft (part 011)



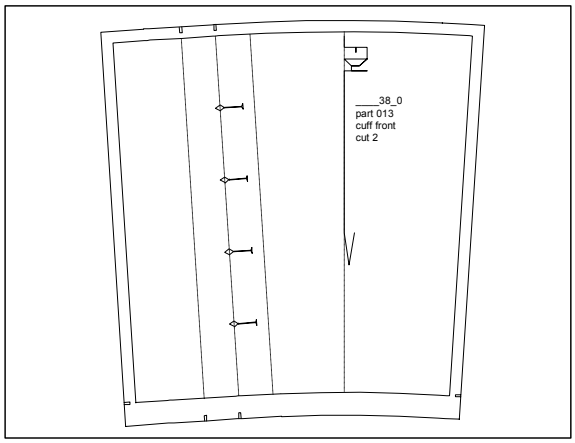
partorganis
insert insert lines and point for trouser ft out of part 005
remove part 005
corners
parallel seam allowance and overlap (35mm)
corners
link
single
symbols set grain, notches, drillholes
text

Cuff trouser bk (part 012)



partorganis
insert insert lines out of part 005
remove part 005
corners
parallel overlap with xg3
transform
mirror button catch
mirror cuff top and hem for overlap and button catch
corners
parallel seam allowance with xg1
symbols grain, notches, buttons

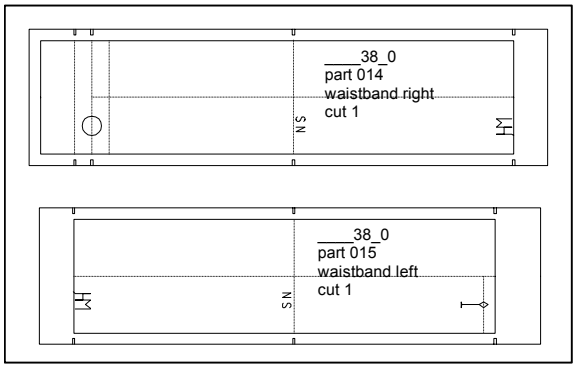
Cuff trouser front (part 013)



partorganis
insert insert lines for cuff out of part 005
remove part 005
further as part 012

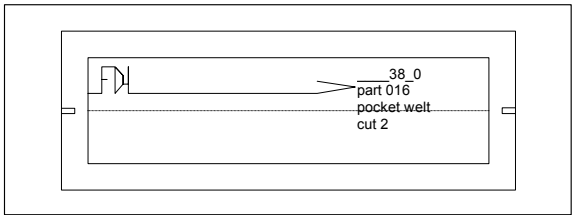
Waistband (part 014)

x values
x1 waistband width in mm (50.)



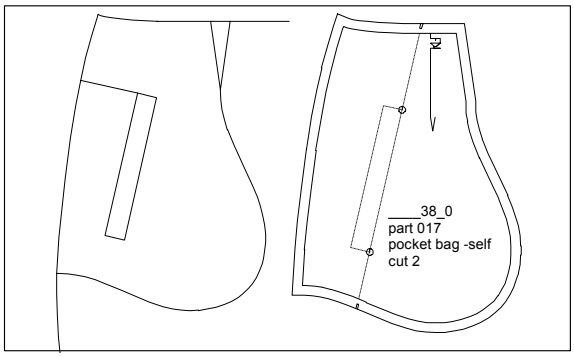
partorganis
insert insert waist lines (ft+bk) and darts out of part 005
remove part 005
separate waist lines at the dart
<F11>
z1=gL+gL+gL+gL calculate waist lines
z2=gL+gL calculate back waist for side seam notch
delete waist lines
p+l+c+r
rectangle construct waistband
with *w=z1*
and *h=x1*
transform
mirror mirror waistband at waist and side seam
delete delete waist line and side seam (double)
parallel seam allowance, addition waistband (d=xg3), buttons
symbols CF, CB, notches (with *plg on l, plg*=z2), buttonhole, circle

Pocket welt (part 015)



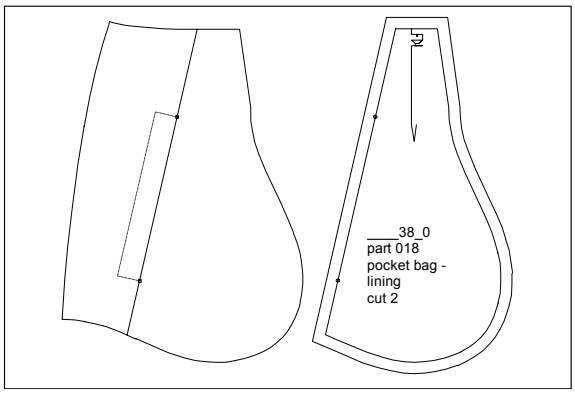
partorganis
insert insert lines out of part 005
remove part 005
corners
transform
mirror
parallel seam allowance with xg1
corners
symbols set grain and notches

Pocket bag - self (part 017)



partorganis
insert insert lines out of part 005
remove part 005
corners
parallel seam allowance with xg1
corners
symbols set grain, notches, drillhole

Pocket bag - lining (part 018)



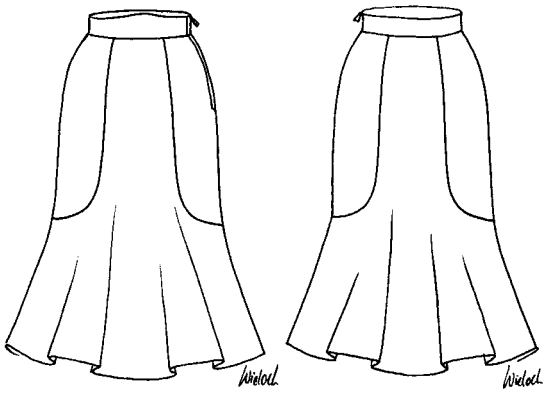
Construction steps as in pocket bag - self (part 017).

4th Exercise

"Flared skirt"

Working drawing

skirt front skirt back



Design specification:

From the basic block "skirt after Hohenstein" a panelled skirt with flared hem, concealed zip in the side seam and variable seam allowance is to be constructed.

Use a global x value for the seam allowance and a second x value for the pleat spacing:

- xg1 seam allowance in mm (10.)
- xg2 hem allowance in mm (20.)
- xg3 spacing hem in mm(40.)

Furthermore, the following is to be variable via x values:

- distance between CF or CB to the side/pleat panel,
- distance between hip line and curve,
- curve depth at side seam (distance between auxiliary lines for curve construction)
- waistband height at CF

Suggestion for the list of parts:

	001	NN	0	0	0
	002	NN	0	0	0
	003	NN	0	0	0
	004	NN	0	0	0
*	005	x draft skirt	114	51	0
	006	NN	0	0	0
	007	NN	0	0	0
	008	x side panel ft	28	15	1
	009	x side panel bk	24	15	1
	010	x pleat panel ft	58	60	1
	011	x pleat panel bk	45	58	1
	012	x waistband	70	26	1

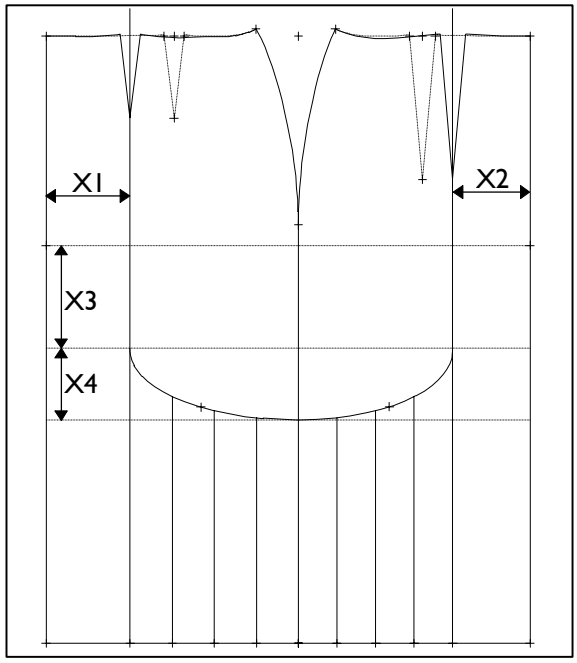
Suggestion for construction steps:

Open a number of parts in *partorganis*, enter the corresponding text and activate part 005.

Draft skirt (part 005)

x values:

- x1 distance between CF and side panel in % (33.3)
- x2 distance between CB and side panel in % (33.3)
- x3 distance between hip line and curve in mm (100.)
- x4 curve depth in mm (70.)



p+l+c+r

p+digi

rlg on l with *rlg=x1* aux. line to CF

rlg on l with *rlg=x2* aux. line to CB

p==>p construct hip line

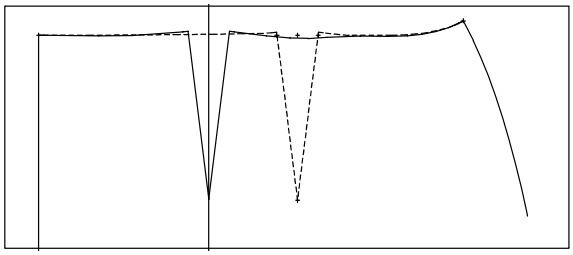
separate separate hem

transform

move dart lines and points onto the panel seam

curves construct new waist line

delete old waist lines



parallel aux. lines with x3 and x4

curves construct curve

separate hem at 2 vertical aux. lines

raster hem with N=5

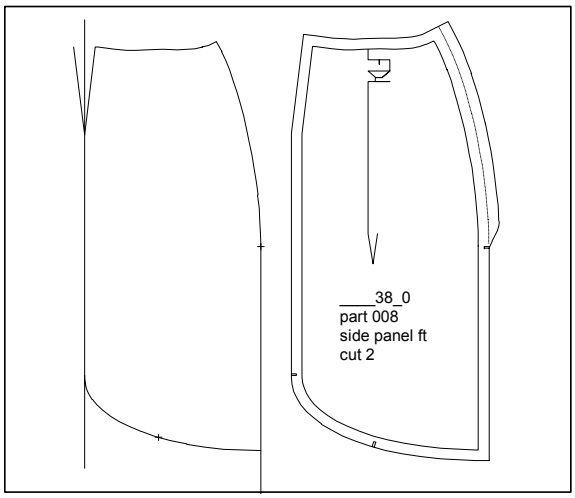
transform

move p==p construct spread lines

separate spread lines at curve

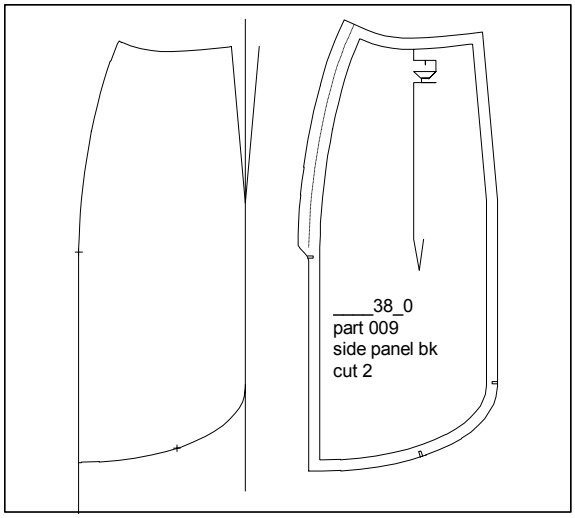
p+l+c+r construct two points for notches on the curve at 50%

Side panel ft (part 008)



partorganis
insert
remove part 005
corners
parallel construct seam allowance with xg1 and addition for zip
corners
link
link with curve addition side seam
symbols set grain and notches
text

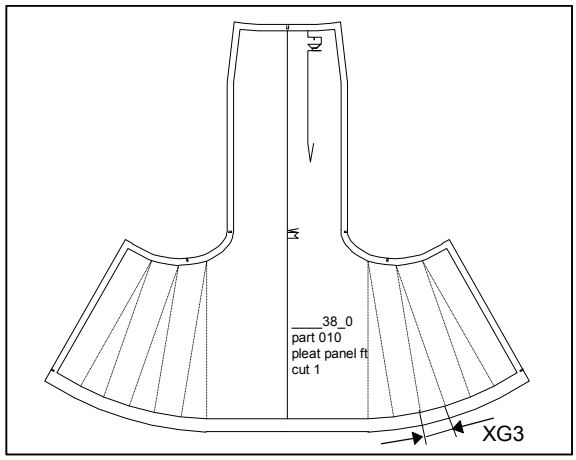
Side panel bk (part 009)



Construction steps as in side panel ft.

Pleat panel ft (part 010)

partorganis
insert
remove part 005
corners
pleats
spread construct hem flare with global x value xg3
link draw new hem



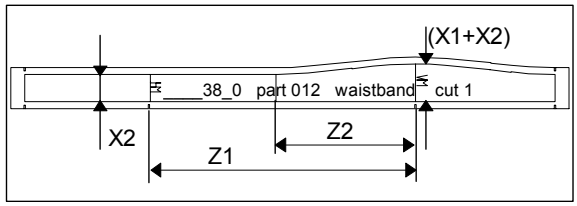
transform
mirror mirror complete part
delete CF (double)
separate superfluous lines
parallel construct seam allowances and hem with xg1 and xg2
symbols set CF, grain and notches
text

Pleat panel bk (part 011, no picture)

Construction steps as in pleat panel ft.

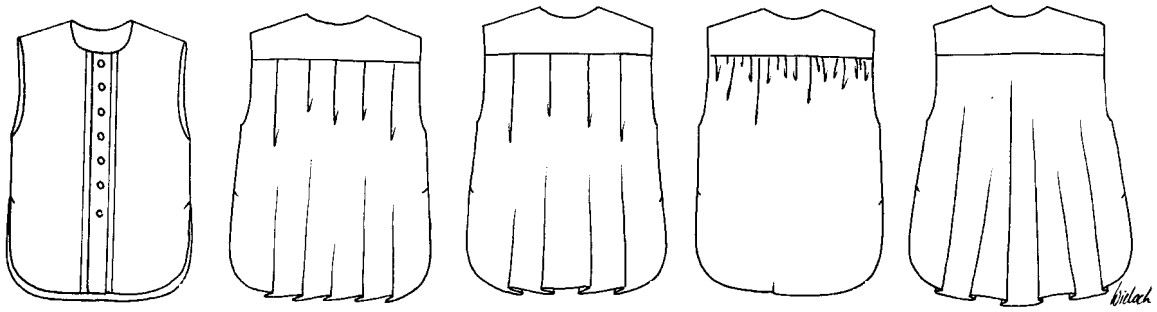
Waistband (part 012)

x values:
x1 waistband increase CF in mm (20.)
x2 waistband width bk in mm (40.)



partorganis
insert
remove part 005
<F11>
z1=gL+gL+gL+gL total length waist lines
z2=gL+gL waist lines ft
delete waist lines
p+l+c+r
p+w+h with *w=z1* and *h=x2*
perp p => l with *plg on l* and *plg=z2*
construct side seam
lengthen
lengthen by x1
curve waistband increase
separate old waistband lines
transform
mirror mirror lines for skirt ft + bk at CF and CB respectively
parallel seam allowance with xg1
symbols set CF, CB and notches
text

5th Exercise "Shirt blouse with pin-tucks in the front and different back variations"



Design specification:

From the basic block "shirt blouse" a blouse with front, yoke and 4 different backs is to be constructed. The front is to have 5 pin-tucks, a button stand and an overlap. The back is to have the following variations:

- bk with pleats from the yoke, CB fold,
- bk with flared hem, CB fold,
- bk with gathering at the yoke,
- bk with different spacing at yoke and hem, CB fold.

Use the following global x value for the seam allowance:

xg1 seam allowance (10mm)

As opposed to Exercise 2, use the function *duplicate* in the *partorganis* menu to create the different backs.

Suggestion for the list of parts:

	001		NN	0	0	0
	002		NN	0	0	0
	003		NN	0	0	0
	004		NN	0	0	0
*	005	x	draft shirt blouse	15	27	0
	006		NN	0	0	0
	007		NN	0	0	0
	008	x	draft back	89	76	1
	009		NN	0	0	0
	010		NN	0	0	0
	011	x	back with pleats	64	42	1
	012	x	back with gathering	33	32	1
	013	x	back with flared hem	31	20	1
	014	x	bk w. variable spacing	65	32	1
	015		NN	0	0	0
	016	x	yoke	17	10	1
	017		NN	0	0	0
	018	x	front	168	81	1

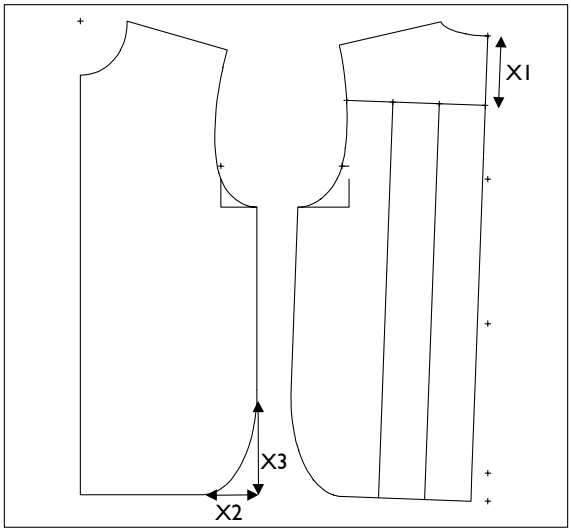
Suggestion for construction steps:

Open 10 parts in *partorganis,* enter the corresponding text and call the basic block "shirt blouse" into part 005.

Draft shirt blouse (part 005)

x values

x1 yoke CB from neck in mm (100.)
x2 cut-away from hem in mm (80.)
x3 cut-away from side seam in mm (150.)

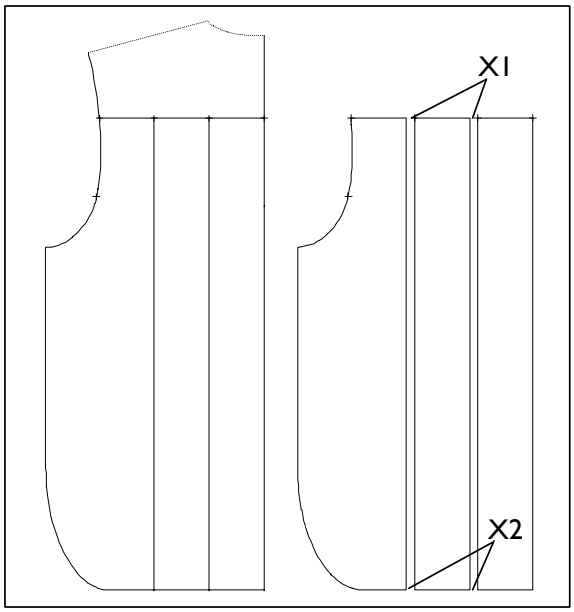


p+l+c+r
p+dir+lg
plg on l with *plg=x1* yoke vertical to CB
separate lengthen yoke line
raster1 with *N=4* raster yoke line
p+l+c+r perpendicular onto hem
corners
curve with *dbc=x2* and *dac=x3*

Draft back (part 008)

x values:

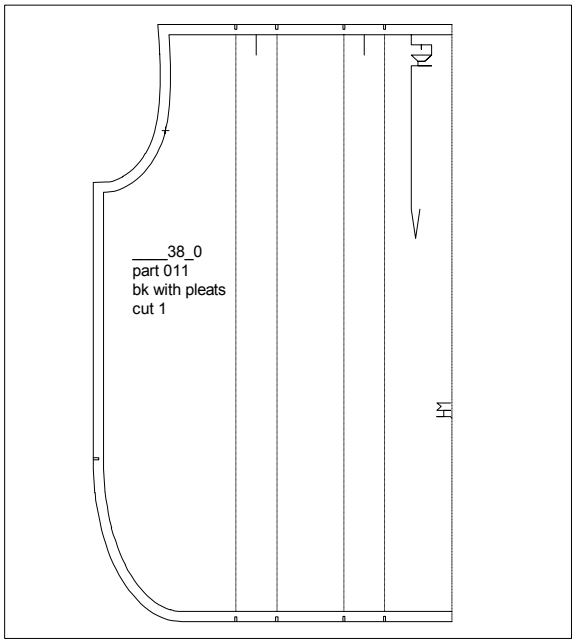
x1 spacing yoke in mm (10.)
x2 spacing hem in mm (10 .)
partorganis
insert insert lines and points for the back out of part 005
remove part 005



corners
modify
p adjust vertical
pleats
spread spread the complete part

Back with pleats (part 011)

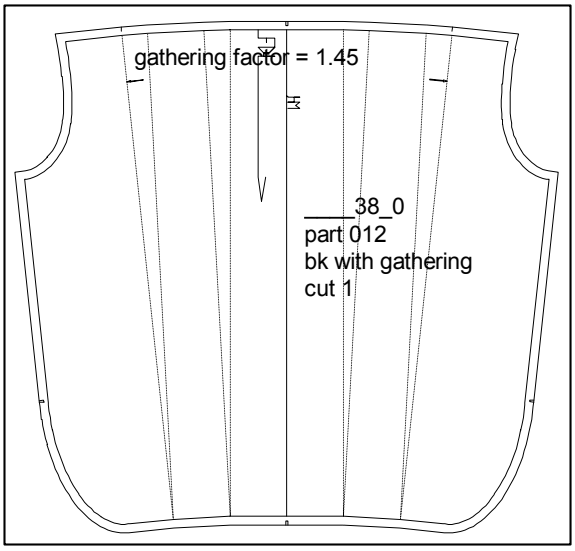
x values
x1 spacing yoke in mm (40.)
x2 spacing hem in mm (40.)



partorganis
duplicate part 008
Extras | X Values...
pleats
dart hood double close pleat
parallel seam allowance with xg1
corners
symbols set CB, grain and notches
text

Back with gathering (part 012)

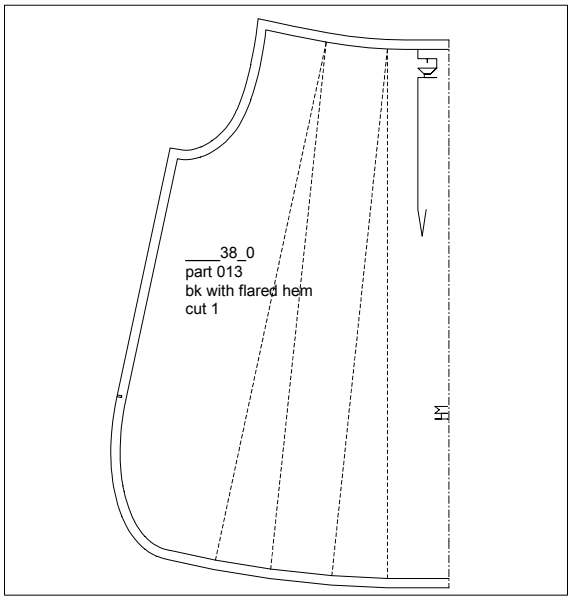
x values:
x1 spacing yoke in mm (30.)
x2 spacing hem in mm (0.)



partorganis
duplicate part 008
Extras | X Values...
link
chain close pleats
parallel
d=xg1 construct seam allowance
corners
transform
mirror
symbols set CB, grain, arrows, stripe
text

Back with flared hem (part 013)

x values:
x1 spacing yoke in mm (0.)
x2 spacing hem in mm (60.)

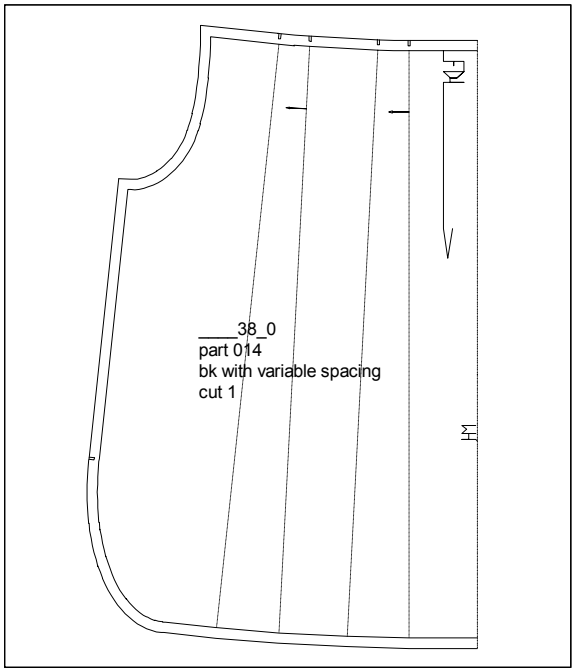


further as in part 012

Back with variable spacing (part 014)

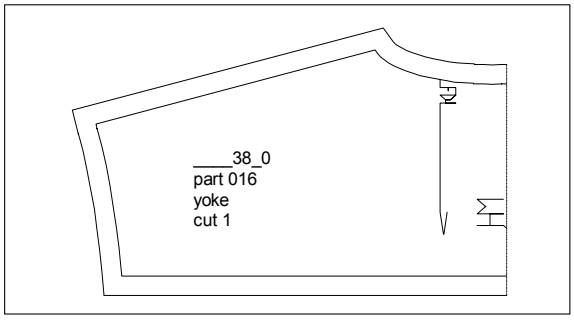
x values:

x1 spacing yoke in mm (30.)
x2 spacing hem in mm (60.)



further as in part 012

Yoke (part 016)



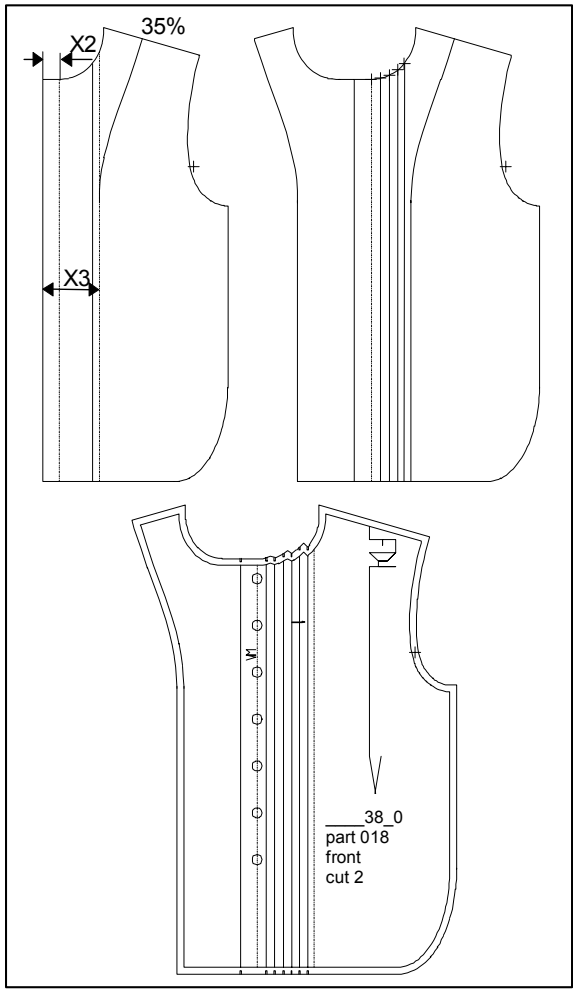
partorganis
insert insert lines out of part 005
remove part 005
corners
modify
p adjust vertical
parallel
d=xg1 construct seam allowance
symbols set CB, grain, notches
text

Front with pin-tucks (part 018)

x values:

x1 pleat content in mm (12.)
x2 overlap width in mm (25.)
x3 facing width in mm (60.)

partorganis
insert insert lines out of part 005

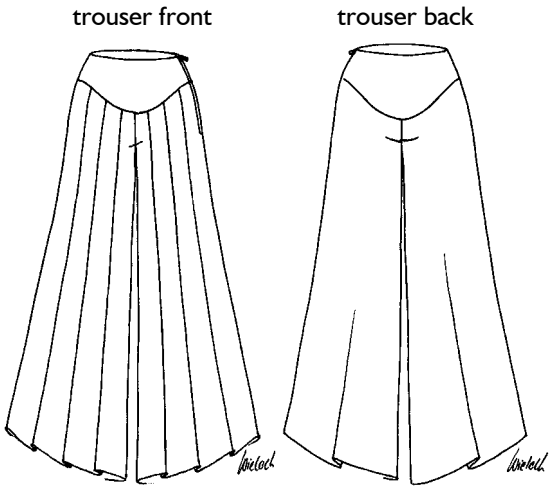


remove part 005
parallel
d=x2 and *x3* constr. overlap, facing
transform
mirror neck at fold
corners close button stand at hem
separate neck and hem at CF
raster
raster2 with *N=5* raster hem
p+l+c+r
p+dir+lg spread lines for pin-tucks
separate cut-on spread lines to neck
parallel seam allowance with xg1 at the neck
separate seam allowance at the pin-tuck spread lines
pleats
spread with *x1*
dart hood single
link
chain hem
parallel seam allowance with xg1
link neck and hem allowance
symbols set CF, grain, buttons, notches
text

6th Exercise

"Trousers with wide legs and pleats"

Working drawing:



Design specification:

From the basic block "trouser after Hohenstein" trousers with wide legs and pleats in the front, yoke, shortened seam and concealed zip in the side seam are to be constructed. For simplification of this exercise no difference is made between left and right pieces.

Use the following global x values:

xg1 seam allowance in mm (10.)
xg2 zip length in mm (250.)

The following is to be variable via x values:

- addition side seam,
- shortening at side seam and inside leg,
- yoke side seam, CF and CB
- pleat content

Suggestion for the list of parts:

	001		NN	0	0	0
	002		NN	0	0	0
	003		NN	0	0	0
	004		NN	0	0	0
	005		NN	0	0	0
*	006	x	draft trousers	93	58	0
	007	x	yoke back	42	12	1
	008	x	yoke front	40	14	1
	009	x	trouser bk	30	19	2
	010	x	trouser ft with pleats	61	44	2
	011		NN	0	0	0

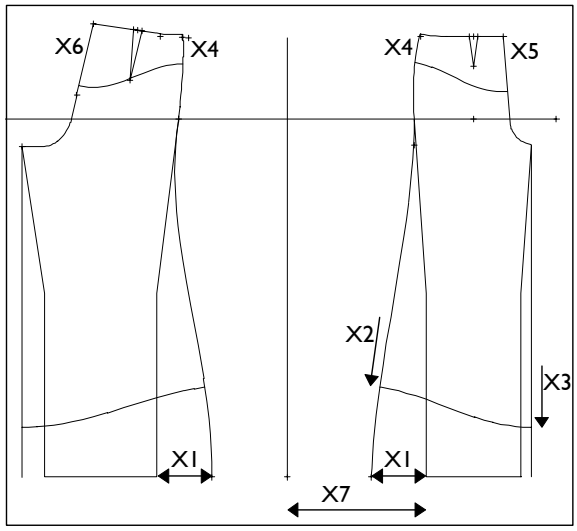
Suggestion for construction steps:

Open 11 parts in *partorganis*, enter the corresponding text and activate part 006.

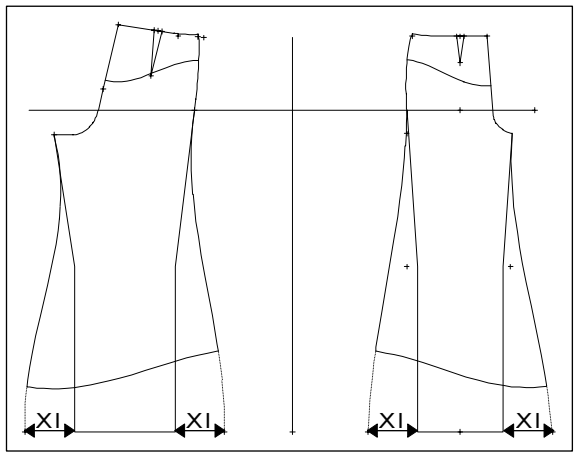
Draft trousers (part 006)

x values:

x1 addition side seam in mm (130.)
x2 shortening side seam from hip in % (75.)
x3 shortening inside leg in % (85.)
x4 yoke side seam in mm (50.)
x5 yoke CF in mm (130.)
x6 yoke CB in mm (150.)
x7 distance to mirror line in mm (300.)



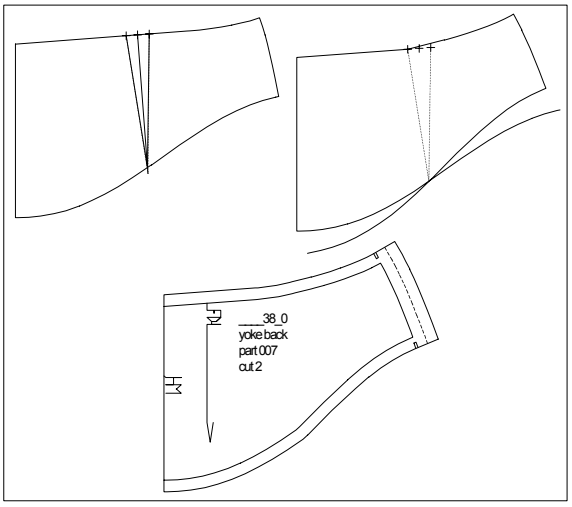
Alternatively you can work from the following draft:



p+l+c+r
p+d on line with *d=x7* construct starting point of mirror line
p==>py construct mirror line
transform
mirror mirror trouser back
p+l+c+r
p+digi horizontal auxiliary lines
p==>py inside leg vertical
delete superfluous points
p+l+c+r
p+d on line with *d=x1* construct starting point for side seam curve
curves construct yokes with x4, x5, x6, side seam, inside leg
separate
p+digi
rlg on l with *rlg=x2* cut ft side seam
rlg on l with *rlg=x3* cut inside leg

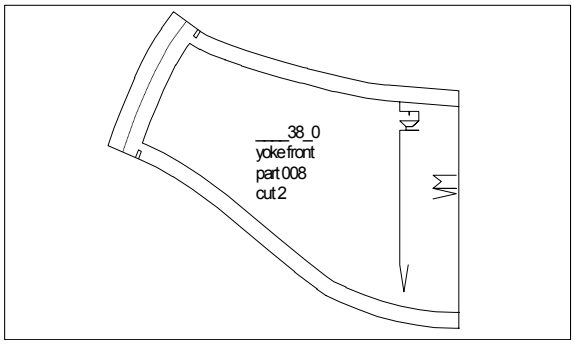
<F11>
z1=gL measure ft side seam
z2=gL measure ft inside leg
separate
p+digi
plg on l with *plg=z1* cut bk side seam
plg on l with *plg=z2* bk inside leg
curves draw hem curves

Yoke back (part 007)



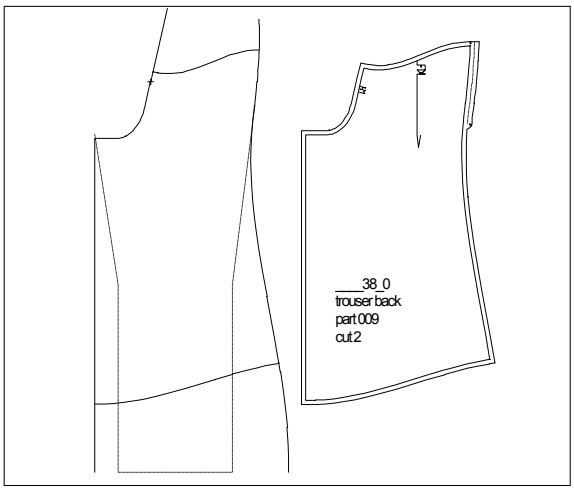
partorganis
insert insert lines and points out of part 006
corners
modify
p adjust vertical
p+l+c+r lengthen/shorten darts to yoke line
separate remove dart content of the waist
transform
tp+p=>p close darts
delete old dart lines
link
link with curve yoke and waist lines
parallel seam allowance with xg1
corners
symbols set CB, grain and notches

Yoke front (part 008)



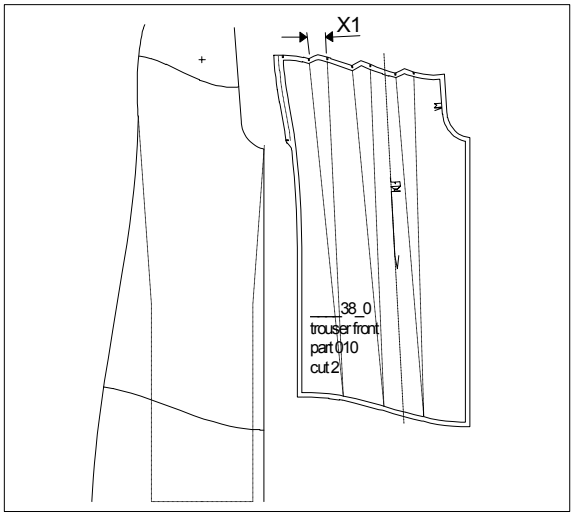
analogous to yoke back (part 007)

Trouser back (part 009)



partorganis
insert lines and points out of part 006
corners
insert side seam of yoke back
parallel addition for concealed zip
<F11>
z1=xg2-gL side seam yoke back
lengthen
lengthen to lg=z1 lengthen addition zip
parallel seam allowance with xg1
link
symbols set CB, grain and notches

Trouser front (part 010)
x values:
x1 pleat content in mm (40.)



Additionaly to the steps for trouser back:
raster
raster1 with *N=5*
p+l+c+r construct spread lines
pleats
spread with *d1=x1* and *d2=0*
dart hood single
NB: With the dart hood you decide which way the pleats open!