

SEWING TECHNOLOGY

TRADE PRACTICAL

NSQF LEVEL - 5

VOLUME - 2

HANDBOOK FOR CRAFTS INSTRUCTOR
TRAINING SCHEME



Directorate General of Training

DIRECTORATE GENERAL OF TRAINING
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
GOVERNMENT OF INDIA



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A Comprehensive Training Program
under Crafts Instructor Training Scheme (CITS)
for Instructors

HANDBOOK ON TECHNICAL INSTRUCTOR TRAINING MODULES

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NOT TO BE REPUBLISHED

अतुल कुमार तिवारी, I.A.S.

सचिव

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Secretary



भारत सरकार
कौशल विकास एवं उद्यमिता मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
AND ENTREPRENEURSHIP



Foreword

In today's rapidly evolving world, the role of skilled craftsmen and women is more crucial than ever. The Craft Instructor Training Scheme (CITS) stands at the forefront of this transformation, shaping the educators who will train the next generation of artisans and technicians. This book aims to provide an in-depth understanding of the subject, exploring its significance, methodologies, and impact on vocational training.

The Craft Instructor Training Scheme was established with the objective of enhancing the quality of instruction in industrial training institutes and other vocational training institutions. By equipping instructors with advanced skills and knowledge, the scheme ensures that they are well-prepared to impart high-quality training to their students. This, in turn, contributes to the creation of a highly skilled workforce capable of meeting the demands of modern industry.

The initial chapters provide the importance of specialized instructor training. Following this, detailed chapters delve into the curriculum covering advanced techniques, safety protocols, and instructional strategies. Each section is designed to offer both theoretical insights and practical applications, ensuring a well-rounded understanding of the subject.

The book offers recommendations for overcoming obstacles and enhancing the effectiveness of the program, with the ultimate goal of producing highly skilled instructors capable of shaping the future workforce.

This book is intended for a diverse audience, including current and aspiring instructors, vocational training administrators, policymakers, and industry stakeholders. It serves as a valuable resource for understanding the intricacies of the subject and its pivotal role in vocational education.

I extend my heartfelt gratitude to all contributors who have shared their experiences and expertise, enriching this book with their valuable insights. Special thanks to the contribution of the development team, reviewers and NIMI that have supported this endeavor, providing essential data and resources.

It is my sincere hope that this book will inspire and guide readers in their efforts to enhance vocational training, ultimately contributing to the development of a skilled and competent workforce.

ATUL KUMAR TIWARI, I.A.S.
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त्रिशलजीत सेठी
महानिदेशक

Trishaljit Sethi, IPoS
Director General



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GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT &
ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

FOREWORD

The Craftsmen Training Scheme (CTS) implemented by the Directorate General of Training (DGT) provides skill training to the youth and ensures a steady flow of skilled manpower for the industry. It aims to raise quantitatively and qualitatively the industrial production by systematic training, and to reduce unemployment among the youth by providing them with employable skills.

The Craft Instructor Training Scheme (CITS) is an indispensable part of the Craftsmen Training Scheme (CTS). It offers comprehensive training both in 'skills' and in 'training methodology' to the instructor trainees to make them conversant with techniques of transferring hands-on skills.

I congratulate NIMI for taking the initiative of preparation of the course content for CITS. This will help institutionalize the mechanism for imparting training to the trainers all across the ecosystem. I also extend my gratitude to the Instructors and Officials of National Skill Training Institutes (NSTIs) and the DGT for their invaluable contribution in preparation of the CITS course content.

As we navigate the complexities of a rapidly changing world and the technological disruptions, the significance of CTS and CITS has increased manifold. It not only empowers individuals with practical skills but also lays the foundation for a prosperous future. I am confident that this book will serve as a guiding light to all instructor trainees for skill development and nation-building.


(Trishaljit Sethi)

PREFACE

The Craft Instructor Training Scheme is an indispensable module of the Craftsmen Training Scheme, which has been an integral part of the Indian skill development industry since its inception. This program aims to equip instructors with the necessary skills and teaching methodology to effectively transfer hands-on skills to trainees and promote a holistic learning experience. The first Craft Instructor Training Institute was established in 1948, followed by six more institutes across India in 1960. Today, these institutes, including the National Skill Training Institute (formerly Central Training Institute for Instructors), offer the CITS course, which is mandated by the Directorate General of Training (DGT).

The Craft Instructor training program is designed to develop skilled manpower for industries. The course aims to offer instructors an opportunity to improve their instructional skills, engage learners effectively, offer impactful mentoring, and make efficient use of resources, leading to a more skilled workforce in various industries. The program emphasizes collaborative and innovative approaches to teaching, resulting in high-quality course delivery. Overall, the Craft Instructor Training Scheme is a pivotal program that helps instructors grow in their careers and make a significant contribution to society. This program is essential for developing skilled manpower and promoting a robust learning environment that benefits both trainees and instructors alike.

ACKNOWLEDGEMENT

National Instructional Media Institute (NIMI) sincerely acknowledges with thanks for the co-operation and contribution extended by the following experts to bring out this Instructional material **(Trade Practical)** for **CITS Sewing Technology (Volume - II of II) (NSQF Level - 5)** under the **Apparel Sector for Instructors**.

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NIMI records its appreciation of the Data Entry, CAD, DTP Operators for their excellent and devoted services in the process of development of this Instructional Material.

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NIMI is grateful to all others who have directly or indirectly helped in developing this IMP.

ABOUT THE TEXT BOOK

The Vocational Instructor Training Program is a comprehensive initiative designed to equip aspiring students with the necessary skills and knowledge to effectively teach in vocational education settings. This program encompasses a range of pedagogical strategies, instructional techniques, and subject-specific content tailored to the diverse vocational fields. Participants engage in coursework that covers curriculum development, assessment methods, classroom management, and the integration of industry-relevant technologies. Practical experience and hands-on training are emphasized, allowing participants to apply theoretical concepts in real-world teaching environments. Through collaborative learning experiences and mentorship opportunities, aspiring vocational instructors develop the confidence and competence to facilitate engaging and impactful learning experiences for their students. This training program aims to cultivate a new generation of educators who are not only proficient in their respective vocational fields but also adept at fostering the success and employability of their students in today's competitive workforce.

This text book covers communication, self-management, information and communication technology, entrepreneurial and green skills. It has been developed as per the learning outcome-based curriculum.

G C Rama Murthy,
Joint Director,
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SOFTWARE - 2

(5 - 28)

MODULE 3 : Pattern Design Software Tools and its Applications Software - 2

EXERCISE 5 - 28 : Identify the pattern making tools

Objectives

At the end of this exercise, you shall be able to:

- start the CAD program
- identify the pattern making tools.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.
- 1 feet scale - 1 No.

Materials

- White Sheet - 1 No.
- HB Pencil - 1 No.
- Pencil eraser - 1 No.

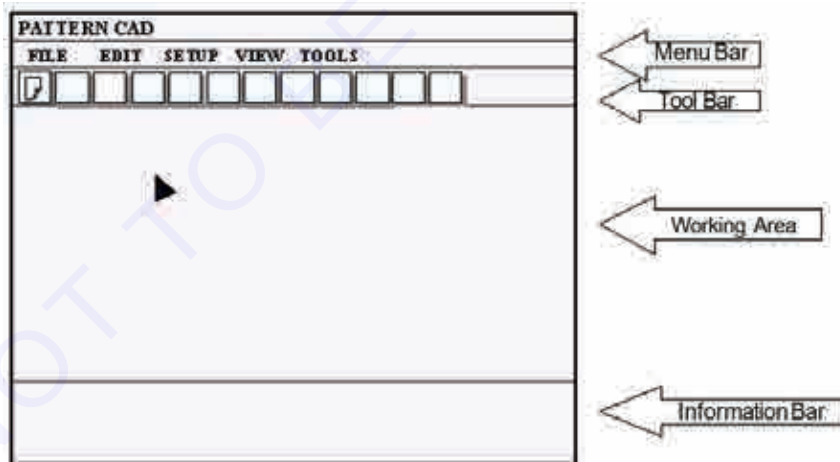
Procedure

TASK 1: Start the program

- 1 Double click the icon PATTERN CAD on the desk top*
OR
Choose all programme > CAD> from the start menu.

TASK 2: Identify the pattern making tools

- 1 Move the mouse pointer at the top of each tool in the tool bar.



- 2 Identify the name of the tool and it's icon.
- 3 Prepare the following identification chart in a white sheet using scale and pencil.
- 4 Write the name of each tool in the "Name of the tool" column.
- 5 Draw the symbol of each icon of the particular tool in the "symbol" column.

Note: Get the work checked by your Instructor

Identification chart for making tools

S.No.	Name of the Tool	Symbol
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Create a CAD file

Objectives : At the end of this exercise, you shall be able to:

- start the CAD program
- create a new CAD file
- save the file.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

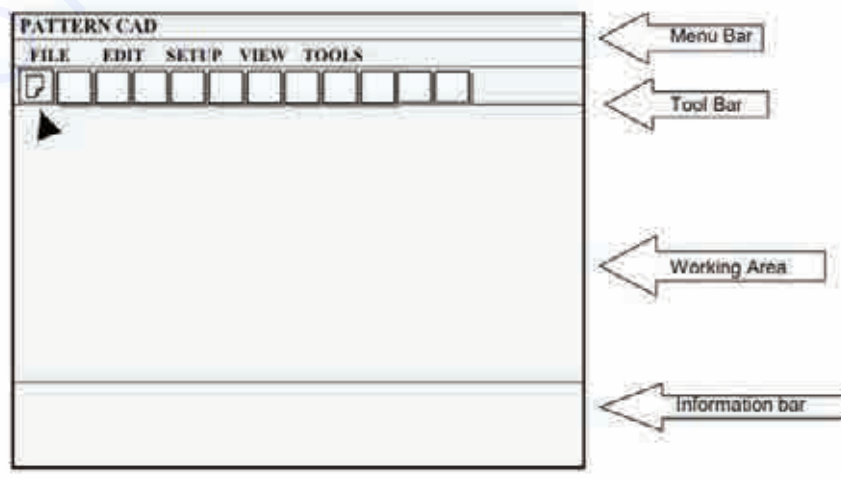
Procedure

TASK 1: Start the CAD program

- 1 Double click the icon PATTERN CAD on the desk top*
OR
Choose all programme > CAD> from the start menu.

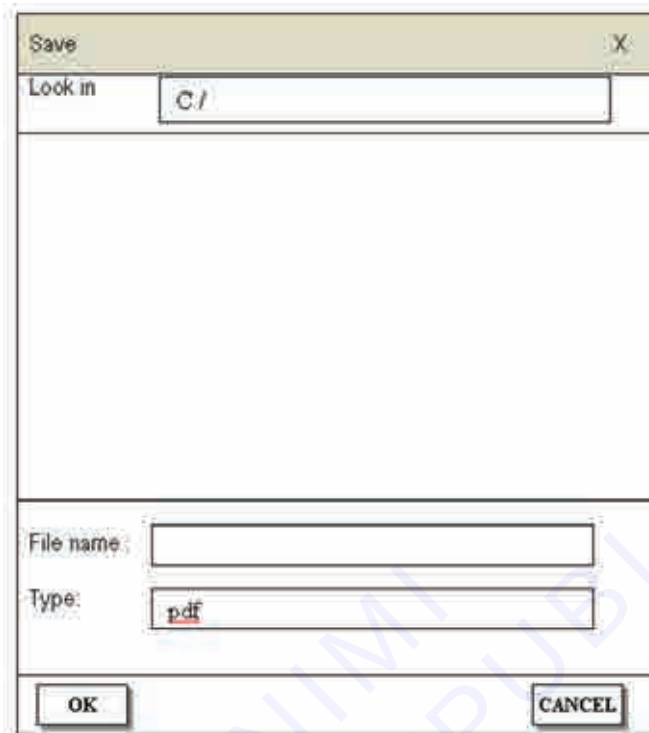
TASK 2: Create a CAD file

- 1 Click icon New in the tool bar.



TASK 3: Save the file

- 1 Select Save from the FILE in the menu bar
- 2 Enter the file name.
- 3 Click OK.



Construct lines using CAD

Objectives : At the end of this exercise, you shall be able to:

- create a CAD file
- create normal line, Horizontal line and vertical line
- create parallel line and perpendicular line.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

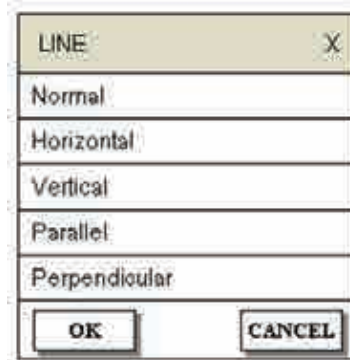
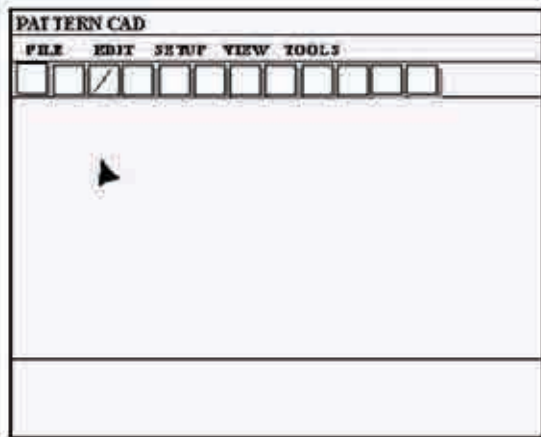
Procedure

TASK 1: Create a CAD file

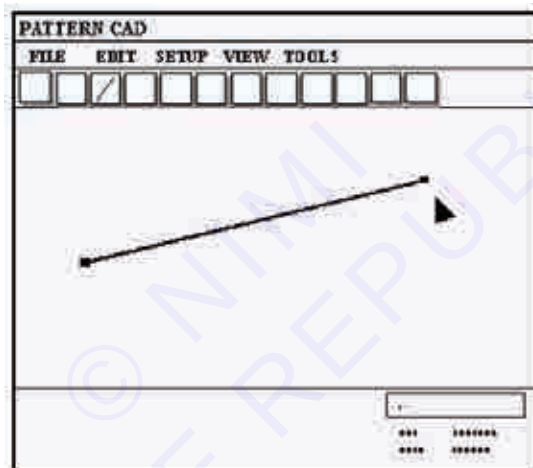
- 1 Refer Create a CAD file. (Task 2)

TASK 2: create normal line, horizontal line and vertical line

- 1 Click create line icon  in the toolbar.
- 2 Select normal line in the line dialog box .



- 3 Click OK
- 4 Click at the location of starting point of the line in the working area.
- 5 Click at the location of ending point of the line in the working area.



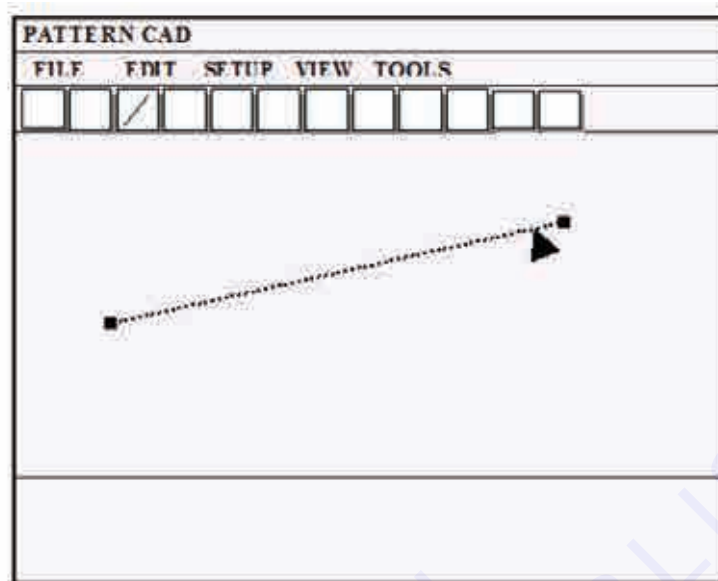
- 6 Construct horizontal and vertical line also by following the same above procedure.

***Note**

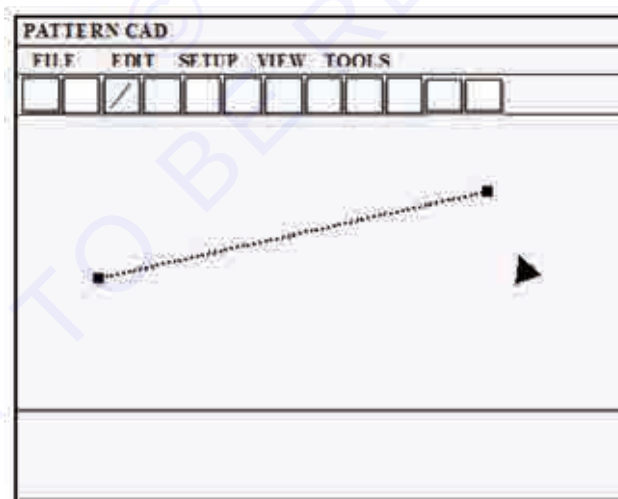
To specify the dimensions of line enter the values in dialog box of information bar and click ok

TASK 3: create parallel line and perpendicular line

- 1 Create a line.
- 2 Select the line on the working line area



- 3 Click create line icon in the toolbar
- 4 Select parallel line in the line dialog box.
- 5 Click OK.
- 6 Click and drag the line on the working area to construct a line parallel to the selected line.



- 7 Save the file with suitable file name.
- 8 Construct perpendicular line also by following the same above procedure.

***Note**

To specify the dimensions of line enter the values in dialog box of information bar and click Ok

Distance between the lines : cm

No of lines:

Create a curve

Objectives : At the end of this exercise, you shall be able to:

- create a normal curve
- create a dimensional curve
- create a 3 point curve
- create a 4 point curve.

Requirements

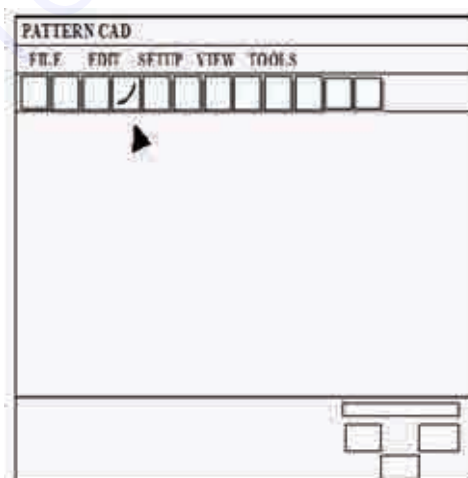
Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

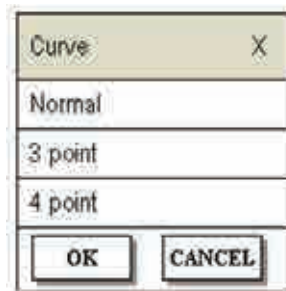
Procedure

TASK 1: Create a normal curve

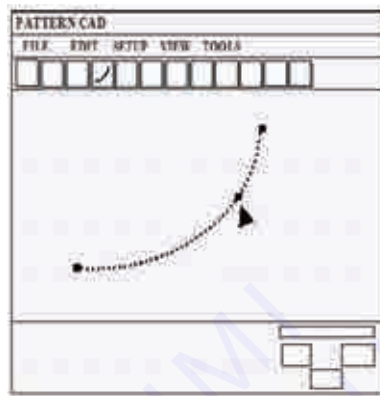
- 1 Click curve icon in the tool bar.



- 2 Select normal in the Curve dialog box.



- 3 Create a line by clicking two or three points on the working area.
- 4 Click anywhere on the line and drag the point to form a curve.



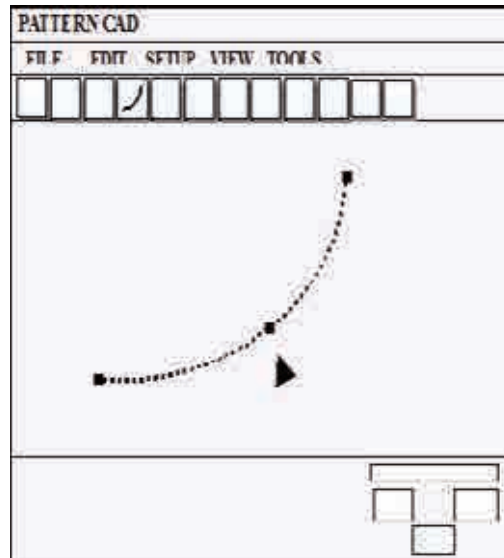
TASK 2 : Create a dimensional curve

- 1 Click curve icon in the tool bar.
- 2 Select normal in the Curve dialog box.
- 3 Create a line by clicking two points on the working area.
- 4 Enter the values in dialog box of information bar to specify the dimensions of curve.
- 5 Click O.K.

Starting point X:		cm	Y:		cm
Ending point X:		cm	Y:		cm
Angle :					
OK					

TASK 3 : Create a 3 point curve

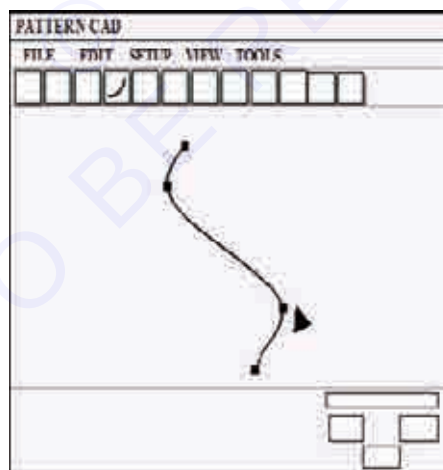
- 1 Click curve icon in the tool bar.
- 2 Select 3 point in the Curve dialog box
- 3 Click three points on the working area, with its third point lying in between the first two points.



— — — — —

TASK 4 : Create a 4 point curve

- 1 Click curve icon in the tool bar
- 2 Select 4 point in the Curve dialog box
- 3 Click 4 points on working area with its third and fourth point lying in between the first two points.
- 4 Save the file with a suitable file name.



— — — — —

Create a Rectangle

Objectives : At the end of this exercise, you shall be able to:

- create a rectangle
- create rectangles with different measurements.

Requirements

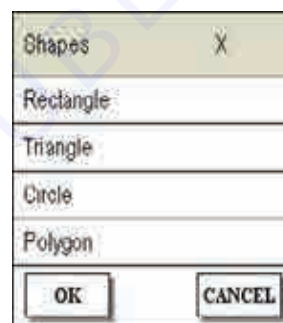
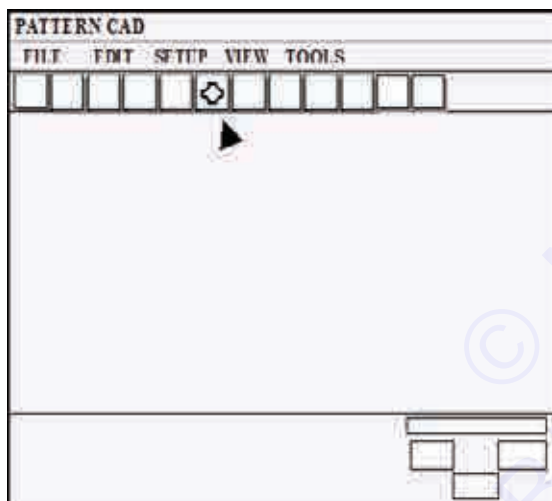
Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

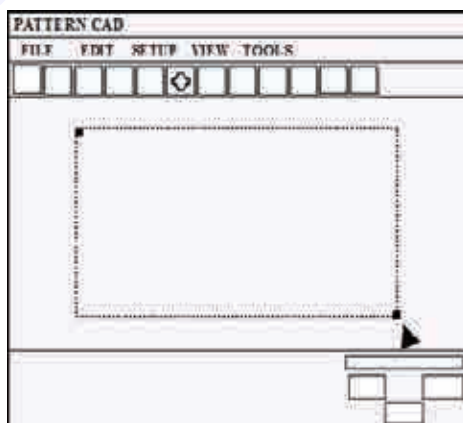
Procedure

TASK 1: Create a rectangle

- 1 Open the Pattern CAD software.
- 2 Click shape icon on the tool bar.
- 3 Select the shape rectangle from the dialog box



- 4 Click on the working area to define the first point of the rectangle.
- 5 Click and drag the end point.
- 6 Enter the values in the information bar to form the dimensional shapes.



TASK 2 : Create rectangles with different measurements.

- 1 Create rectangles with different measurements. (Refer Task 1).

Create pattern for a Bodice Block Front

Objectives : At the end of this exercise, you shall be able to:

- create pattern for a bodice block front.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

Procedure

TASK 1: Create pattern for a Bodice Block Front

- 1 Collect the required measurements for a Bodice Block Front.

Waist length	=	41 Cms.
Bust	=	88 Cms. + 6 Cms. for Ease
Waist	=	70 Cms. + 4 Cms. for Ease
Shoulder	=	34 Cms.
Armhole Depth	=	22 Cms.
Neck	=	38 Cms.+ 2 Cms. for Ease

- 2 Double click the icon PATTERN CAD on the desk top OR Choose all programs > CAD > from the start menu. (Fig 1)
- 3 Select options in the menu bar. Select "Cms." as unit.
- 4 Go to File and click new.
- 5 Give the name of the pattern.
- 6 Create a Rectangle of 41 cms,. length (for Waist Length) and 23.5 Cms. ($\frac{1}{4}$ Bust + 1.5 Cms. for ease) width.
- 7 Name the corner points of the rectangle from 1 to 4 as shown in the Fig 2.

Fig 1

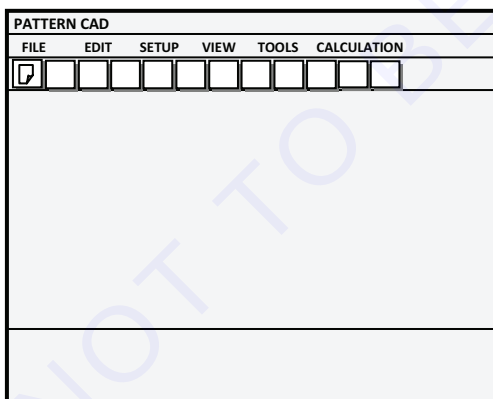
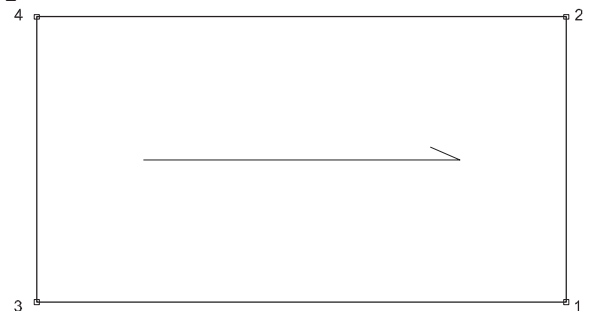
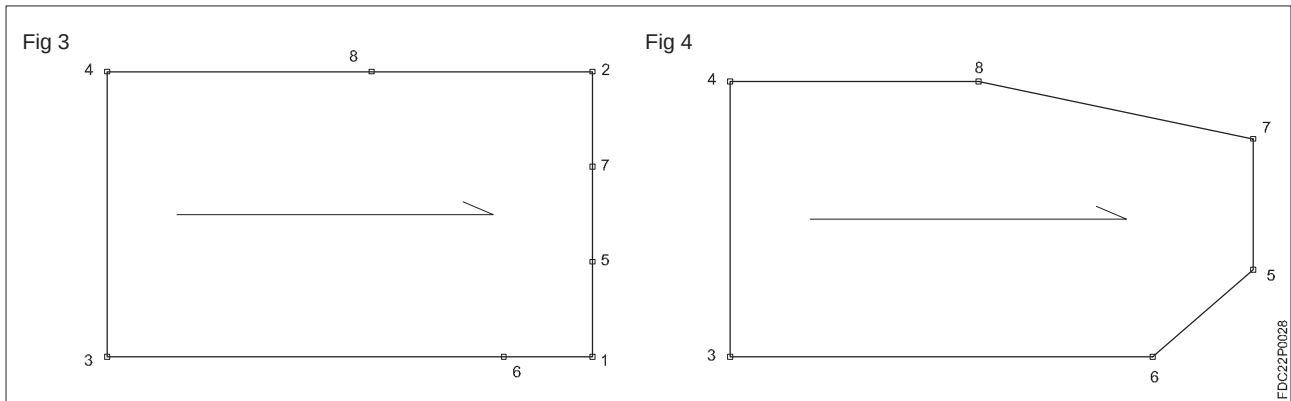


Fig 2

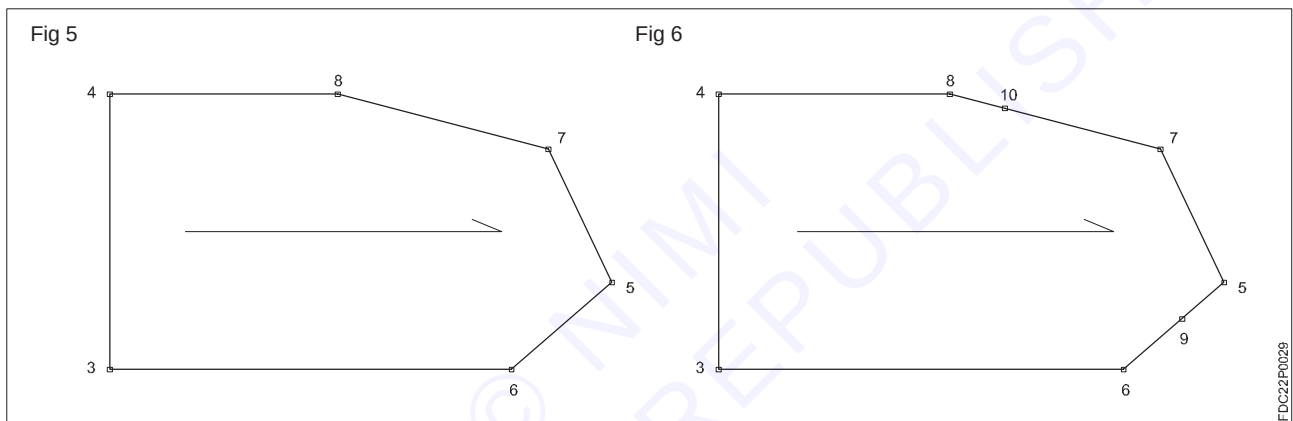


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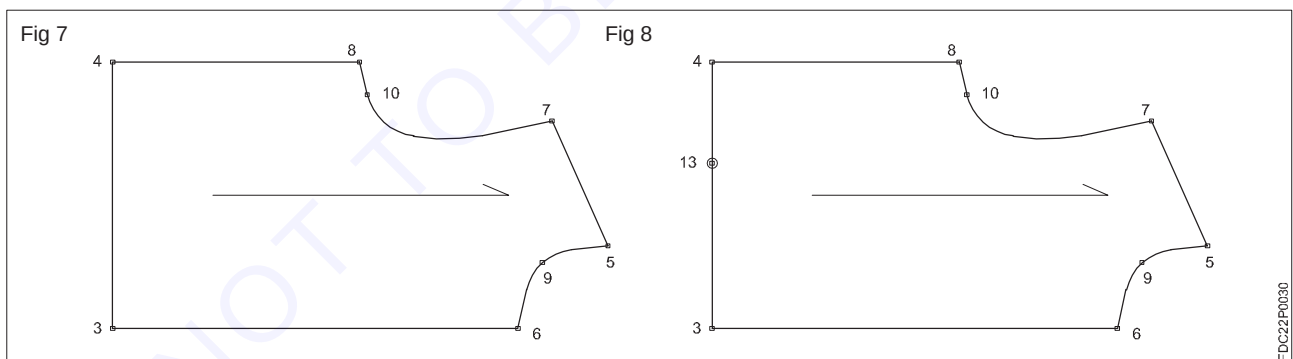
- 8 Select point tools and mark the points 5,6,7 & 8 as follows. (Fig 3)
 - 1-5 = 7.5 Cms., (one fifth of neck with ease measurement minus 0.5 Cm.).
 - 1-6 = 8 Cms (one fifth of neck with ease measurement).
 - 1-7 = 17.5 Cms.(Half Shoulder+0.5 cm for ease) 2-8 = 22 Cms.,Arm Hole depth.
- 9 Pick the selection tools and click the points 1 & 2 and press del button. (Fig 4)



- 10 Use move point tool and move the point 7 straight towards bottom portion with a distance of 5 Cms. for shoulder slope. (Fig 5)
- 11 Mark points 9 & 10 on the lines 5-6 & 7-8 respectively. Give the point type as “curve” in the dialog box. (Fig 6)



- 12 Move the points 9 & 10 with the help of move point tool and make smooth neck and armhole curves. (Fig 7)
- 13 Mark point from 3 with a distance of 13 Cms. for dart placement. (Fig 8)



- 14 Move the point 13 straightly towards bottom side with the distance of 1 Cm. (Fig 9)
- 15 Move the point 4 towards point 8 straight with a distance of 3 cms., with the help of the move point tool. (Fig 10)
- 16 Move the point 4 sideways straight with the distance of 2 cms., with the help of the move point tool
- 17 Check the measurement of 3-13 plus 13-4 using measuring tool. It should be equal to 24.5 Cms. (1/4 waist + 1 cm for ease + 6 cms. for dart). (Fig 11)
- 18 Mark points 14 & 15 for dart intake each having 3 Cms., distance from point 13. (Fig 12)

Fig 9

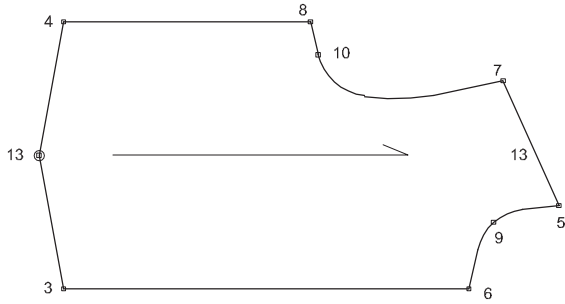
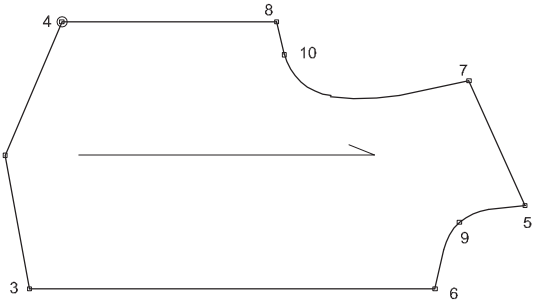


Fig 10



FDC22P0031

Fig 11

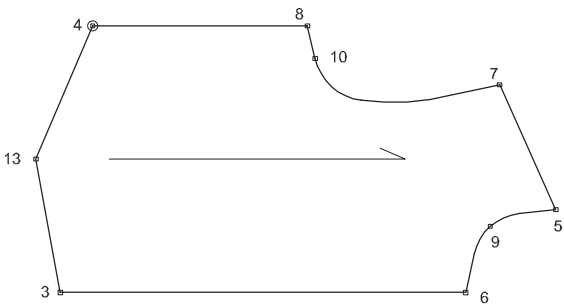
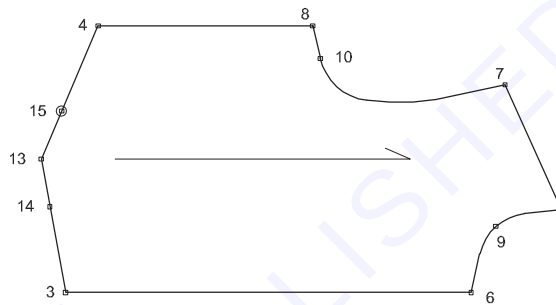


Fig 12



FDC22P0032

19 Select dart tool. Pick first point 14 and second point Enter the dart length as 15 Cms. in the dialog box. (Fig 13)

20 Mark curve points 16 & 17 on the lines 3-14 & 15-4 as smooth curves with the help of move point tool. (Fig 14)

Fig 13

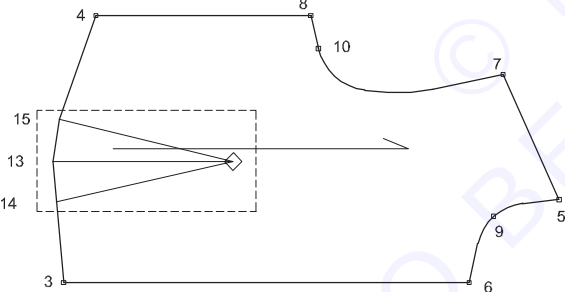
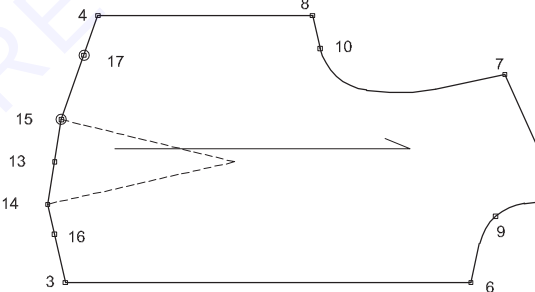


Fig 14



FDC22P0033

21 Modify the lines 3-14 & 15-4 as smooth curves with the help of move point tool. (Fig.15)

22 Select notch tool place the notches at the armhole. (Fig 16)

23 Save the file in the proper folder

Note: Get the work checked by your Instructor.

Fig 15

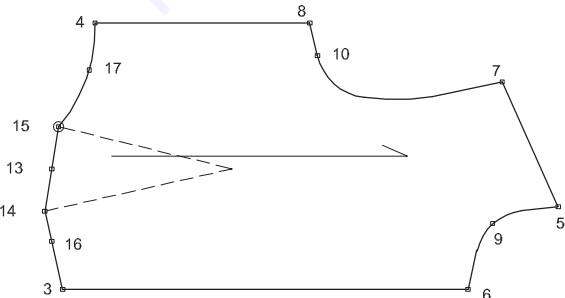
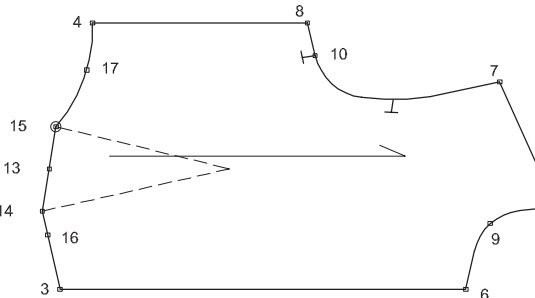


Fig 16



FDC22P0034

Practice Dart Tools

Objectives : At the end of this exercise, you shall be able to:

- open a dart
- create a multi darts
- close a dart
- remove a dart.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

Procedure

TASK 1: Open a dart

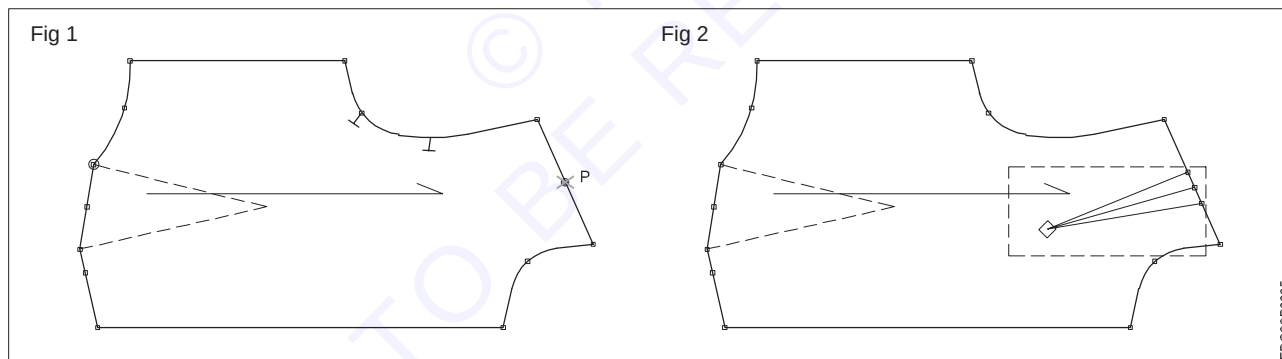
- 1 Open the Bodice Block Front pattern that saved in the file menu of PATTERN CAD.
- 2 Create a point 'P' at the mid level of the shoulder. (Fig 1)

Note: select the point where the fullness starts (the point where the slashing will begin).

- 3 Select Open Dart from the Darts menu.
- 4 Enter the amount of fullness to add in the dialog box. Enter Distance = 1 & Angle = 2.1.

Depth of dart = 10

- 5 Click OK. (Fig 2)



TASK 2: Create multi darts:

- 1 Open a Bodice Block Front pattern.
- 2 Click and drag to the points A to B (Neck curve) on the pattern, where the multi darts are to be created. (Fig 1)
- 3 Select Open Multiple Dart from the Darts Menu or Darts Toolbar.
- 4 Enter the desired multiple dart information in the dialog box. (Fig.6). Enter no. of Dart = 3, Width of First and last dart = 0.5 Cms., Depth of First and last dart = 4 Cms., and angle = 0.
- 5 Click O.K. (Fig 2)

Note: The darts will be created on the first and last selected points. If more than 2 darts are created, they will be equally distributed between the points.

Fig 1

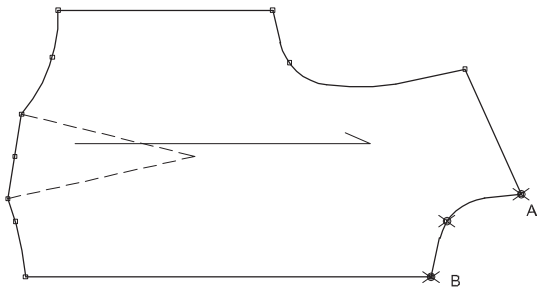
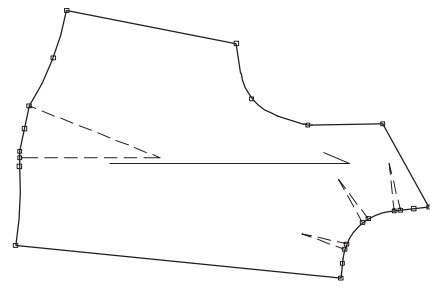


Fig 2



FDC22P0036

TASK 3: Close a dart

- 1 Open the bodice block front file.
- 2 Select the apex of the dart to close. (Fig 1)
- 3 Select Close Dart from the Darts menu. (Fig 2)

Note: The pattern will be adjusted as if the dart was physically closed.

- 4 Select the Undo tool or go to Open Dart Command to reopen the dart.

Fig 1

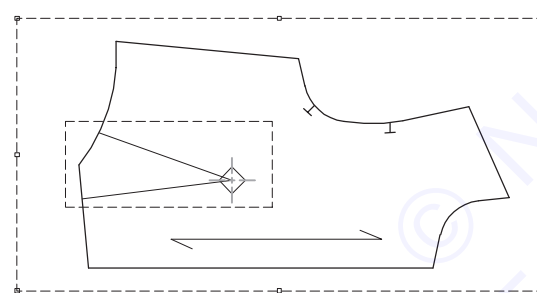
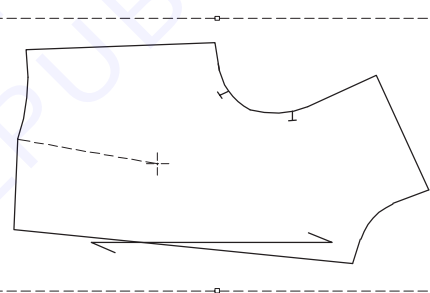


Fig 2



FDC22P0037

TASK 4: Remove a dart

- 1 Open a the bodice block front pattern file and select the desired darts to be removed. (Fig 1)
- 2 Select Remove Dart from the Dart menu. (Fig 2)

Note: The darts will be deflated from the piece. No changes will be made on the contour.

Note: Get the work checked by your Instructor.

Fig 1

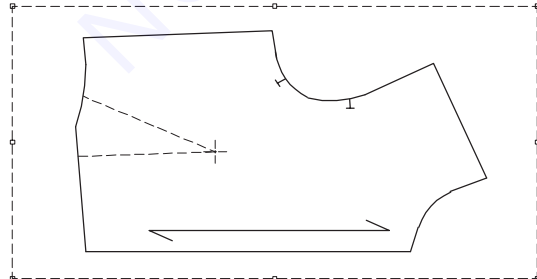
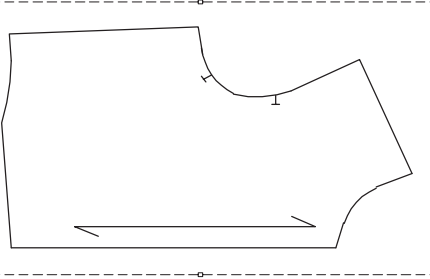


Fig 2



FDC22P0038

Edit Darts

Objectives : At the end of this exercise, you shall be able to:

- edit a dart
- copy & paste a dart.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

Procedure

TASK 1: Edit a Dart

- 1 Open the bodice block front file and select the dart to be edited.
- 2 Choose Edit Dart from the Darts menu.
- 3 Fill necessary values like dark width and depth in the attributes box.
- 4 Click O.K.

TASK 2: Copy & Paste a Dart

- 1 Open a pattern file and Select the Dart to be copied.
- 2 Choose Copy dart from the Darts menu.
- 3 Open the layout where the object is going to be pasted.
- 4 Choose Paste Dart from the Dart menu and place it in the working area as required. Find the selected objects is placed into the file and displayed in the working area.

Note: Get the work checked by your Instructor

Manipulate Dart

Objectives : At the end of this exercise, you shall be able to:

- manipulate dart.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

Procedure

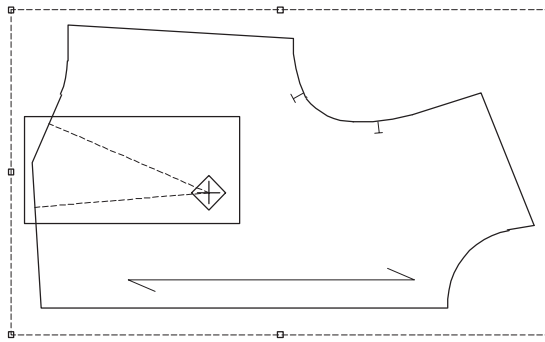
TASK 1: Manipulate Dart

- 1 Open the Bodice Block Front file.
- 2 Click on its apex to select the dart. (Fig 1)
- 3 Select Rotate Dart to Point from the Dart menu. So that, the cursor becomes the dart tool and attach to the dart apex.
- 4 Drag the cursor (dart tool) to the new location along the perimeter of the pattern piece where the dart is to be moved. Click on the point.

- 5 Select a point on the piece to pivot around the dart apex.
- 6 Pivot to the desired location and click the mouse.(Fig 2)
- 7 Note a Move Dart dialog box will appear listing the percentage and distance of the dart that has moved.
- 8 Click OK or enter in the desired percentage/ distance.(Fig 3)

Note: Get the work checked by your Instructor

Fig 1



FDC22P0039

Fig 2

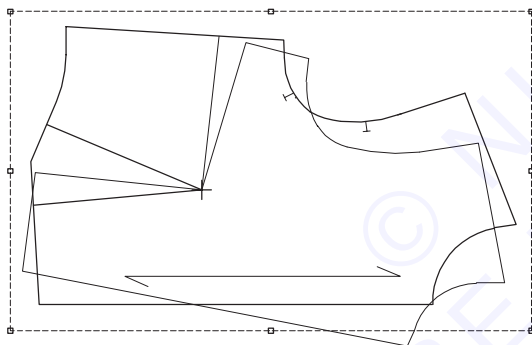
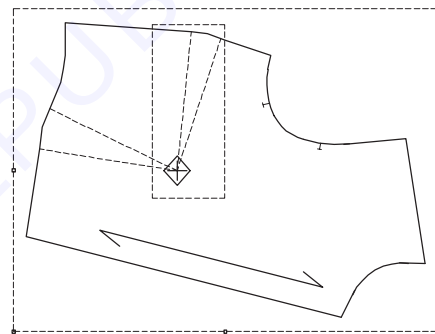


Fig 3



FDC22P0040

Create pattern for a Basic Straight Skirt

Objectives : At the end of this exercise, you shall be able to:

- create pattern for a basic straight skirt front
- create pattern for a basic straight skirt back
- create pattern for a skirt waist band.

Requirements

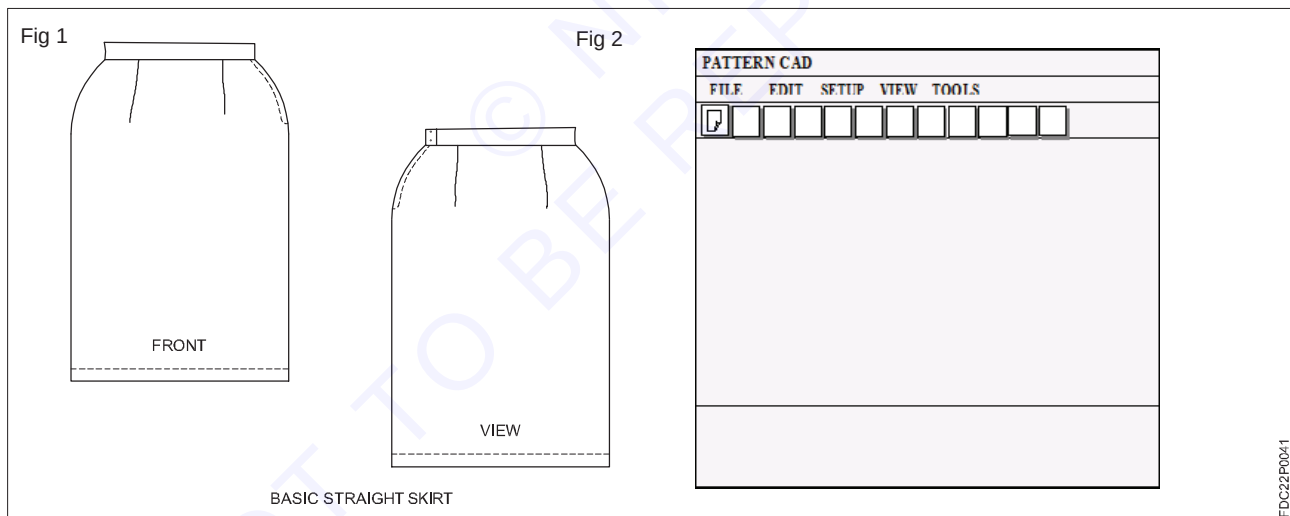
Tools/Instruments

- Computer with Pattern Making & Grading software, Design Book, Size Chart. - 1 No.

Procedure

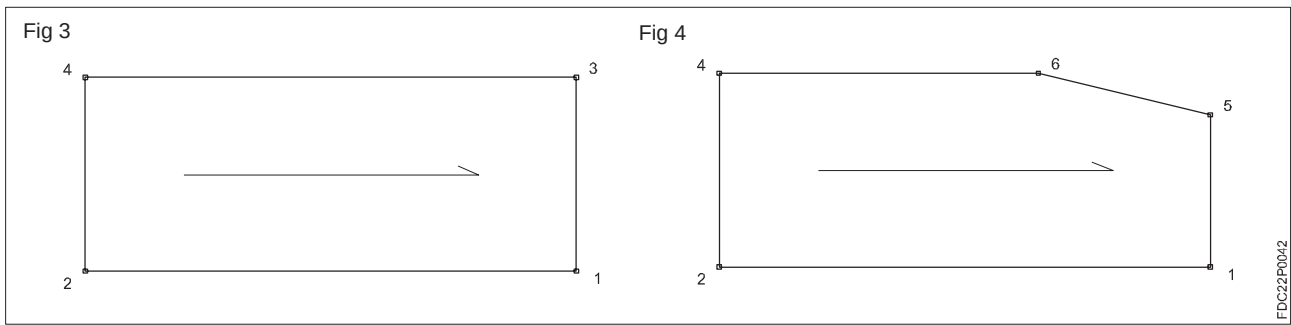
TASK 1: Create pattern for a Basic straight skirt front.

- 1 Collect a Design of a Basic Straight Skirt from a design book. (Fig.1).
- 2 Collect the required measurements for a Basic Straight Skirt from the size chart.
 Skirt length = 61 Cms.
 Hip = 96 Cms. + 4 Cms. for Ease
 Waist = 70 Cms. + 4 Cms. for Ease
 Waist to hip = 20 Cms.
- 3 Double click the icon PATTERN CAD on the desk top OR
 Choose all programs > CAD > from the start menu. (Fig.2)



- 4 Select options in the menu bar. Select "Cms." as unit.
- 5 Go to File and click new.
- 6 Give the name of the pattern.
- 7 Create a Rectangle of 57 cms., length (for skirt length minus 4 cms. of Waist Band width) and 25 Cms. (1/4 Hip + 1 Cm. for ease) width.
- 8 Name the corner points of the rectangle from 1 to 4 as shown in the figure 3.
- 9 Select point tools and mark the points 5 & 6 as follows.
 1-5 = 21 Cms., (one fourth of waist plus 1 cm for ease + 2.5 Cms. for dart).
 1-6 = 20 Cms (Waist to hip measurement).

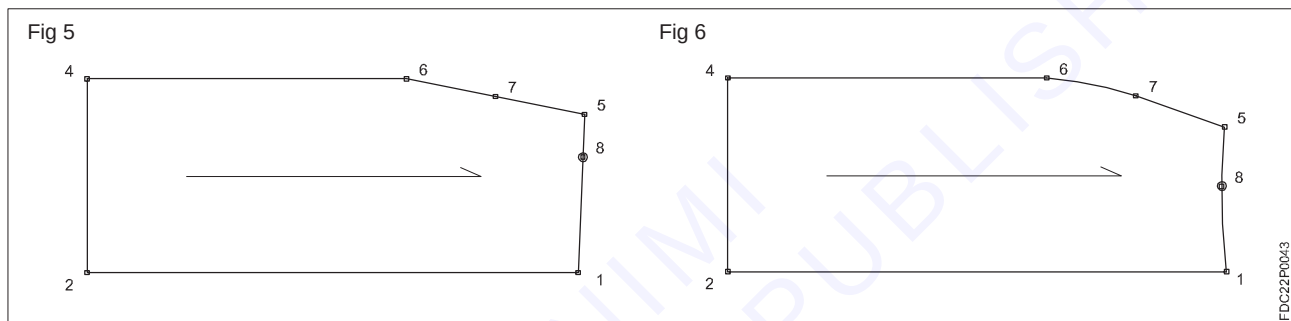
10 Pick the selection tool and click the point 3 and press del button. (Fig 4).



11 Use move point tool and move the point 5 straight towards the top side with a distance of 1 Cm. for waist curve.

12 Create Curve points 7 & 8 in the mid level of 5-6 and 5 Cms. from point 5 respectively. (Fig 5)

13 Move the points 7 & 8 with the help of move point tool and make smooth side and waist curves. (Fig 6)



14 Create point 9 for dart placement on the waistline at 12.5 Cms. from point 1 (two-thirds of the front waist).

15 Create points 10 & 11 both sides of the point 9 at the distance of 1.25 Cms. for dart legs. (Fig 7).

16 Select dart tool. Pick first point 10 and second point. Enter the dart length as 8 Cms. in the dialog box. (Fig.8)

17 Select Text Tool and Type the name and other pattern particulars. (Fig.9).

18 Add seam and hem allowance. (S.S.No.1).

19 Open the pattern in the fold line. (S.S.No.2).

20 Save the file in the proper folder.

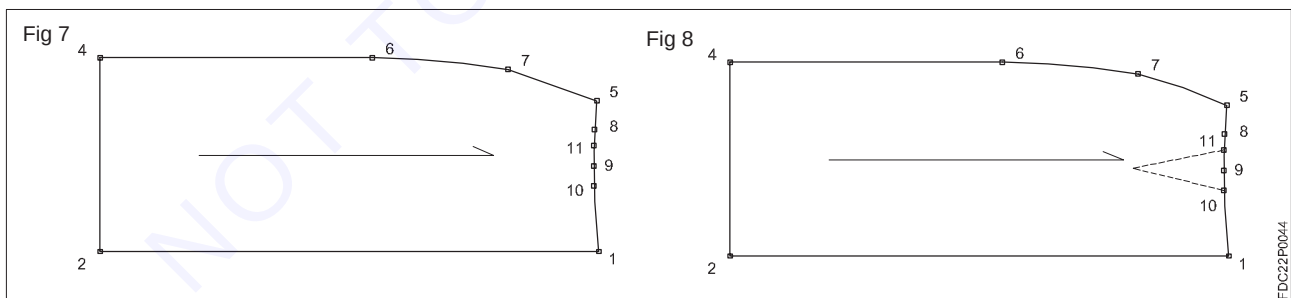
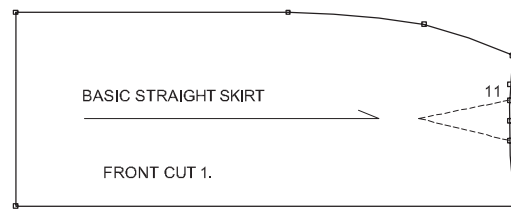


Fig 9



FDC22P004/5

TASK 2 : Create pattern for a Basic straight skirt Back.

- 1 Repeat the same process as explained in Task 1.
- 2 Do the following Changes.
 - $1-5 = 23$ Cms., (one fourth of waist plus 1 cm for ease + 4.5 Cms. for dart).
 - 9 = mid level of 1-5.
 - $9-10$ & $9-11 = 2.25$ Cms. (For 4.5 Cms. dart).
 - Dart Length = 14 Cms.
- 3 Open the Front Skirt Pattern.
- 4 Select the measure tool in the tool bar.
- 5 Click the start point 6 and click the end point 5.
- 6 Note the measurement of the curve 6 - 5 in the dialog box.
- 7 Check the same for the back pattern.
- 8 Adjust the curve 6 - 5 in the back pattern by moving point 7 with the help of move point tool.(Fig 1)
- 9 Check the curve 6 - 5 has the equal measure as in the Front Pattern.
- 10 Select the text tool and type the pattern particulars. (Fig 2)
- 11 Add seam and hem allowance. (S.S.No.1).
- 12 Open the pattern in the fold line (S.S.No.2).
- 13 Save the file in the proper folder.

Fig 1

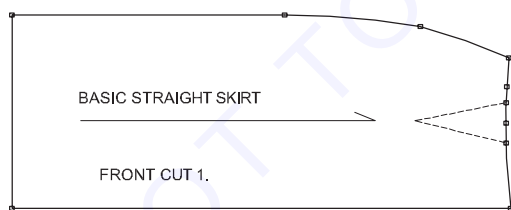
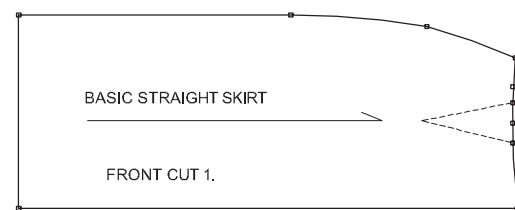


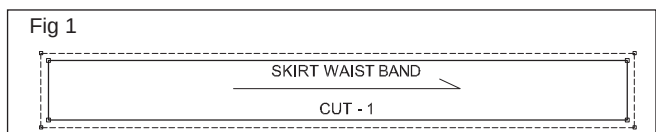
Fig 2



TASK 3: Create pattern for a Skirt Waist Band.

- 1 Create a Rectangle of 79 cms., length (waist measurement + 4 Cms. for ease + 5 Cms. for Waist band over lap) and 8 Cms. (Double of Waist band width (4 Cms.)) width.
- 2 Select the text tool and type the pattern particulars.
- 3 Add seam allowance all sides 1 cm each. (Fig 1).
- 4 Save the file in the proper folder.

Fig 1



Note: Get the work checked by your Instructor.

Skill sequence

Add Seam Allowance to the pattern

Objectives : At the end of this exercise, you shall be able to:

- add seam allowance to the pattern.

Add Seam Allowance to the pattern

- 1 Open a straight skirt front pattern. (Fig.1).
- 2 Select the seam tool.
- 3 Select first seam point 2 by holding the mouse down.
- 4 Drag cursor end of the seam in the Clockwise direction and click the end seam point 4.
- 5 Assign the exact seam (2.5 Cms. as hem allowance) in the dialog box.
- 6 Click O.K.
- 7 Select the second seam point 4 by holding the mouse down.
- 8 Drag cursor end of the seam in the clockwise direction and click the end seam point 5.
- 9 Enter the seam value. (1.5 Cms.).
- 10 Click O.K.
- 11 Repeat the same process for 5 to 1 waistline and give seam allowance as 1 Cm. (Fig.2)
- 12 Use the "Switch to seam" tool and find that the seam lines are coming inside the pattern. (Fig.3)

Note

- 1 As the line 1-2 is the Center Front Line and Fold line, There is no necessary to give seam allowance.
- 2 With the help of delete seam or unseam tool, we can delete all the seams. Remove seam is used to change one particular seam.

Fig 1

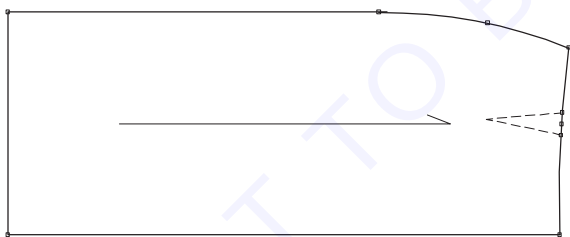


Fig 2

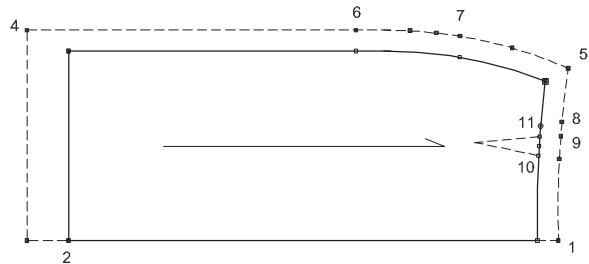
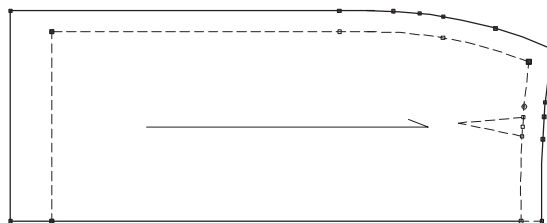


Fig 3



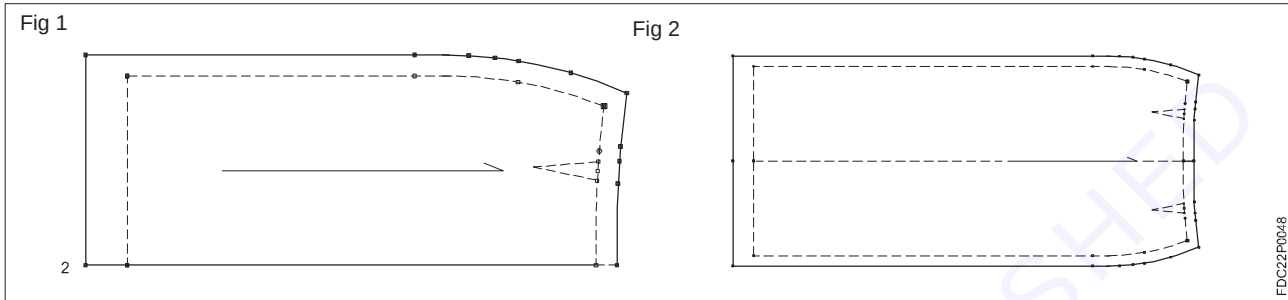
FDG22P0047

Open the pattern in the fold line

Objectives : At the end of this exercise, you shall be able to:

- open the pattern in the fold line

- 1 Open a straight front pattern. (Fig.1).
- 2 Select point 1 (top of the fold line) with selection tool by holding the mouse down.
- 3 Drag cursor end of the fold line in the Clockwise direction and release the mouse button at the end point 2.
- 4 Click mirror tool to find that the pattern has been opened in the fold line. (Fig.2)



Practice Pleat Tools

Objectives : At the end of this exercise, you shall be able to:

- create a box pleat
- create a knife pleat
- create multi pleats
- remove a pleat

Requirements

Tools/Instruments

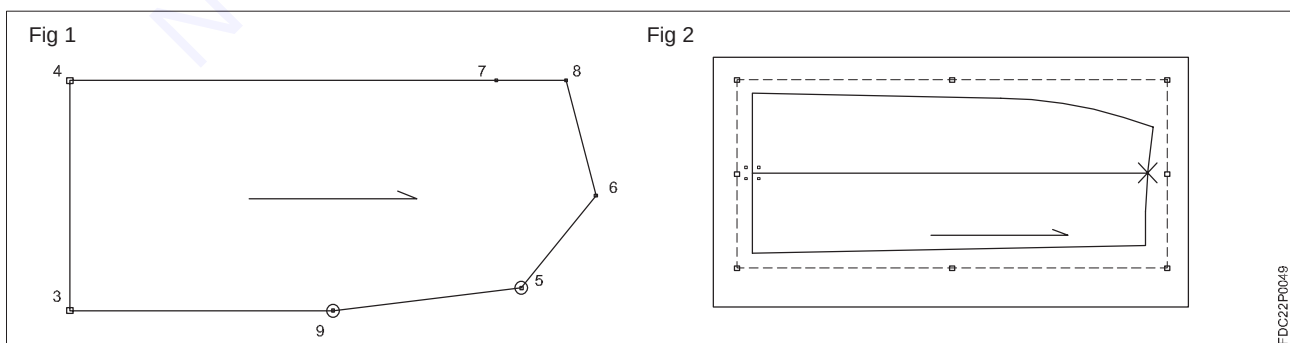
- Computer with Pattern Making & Grading software.

- 1 No.

Procedure

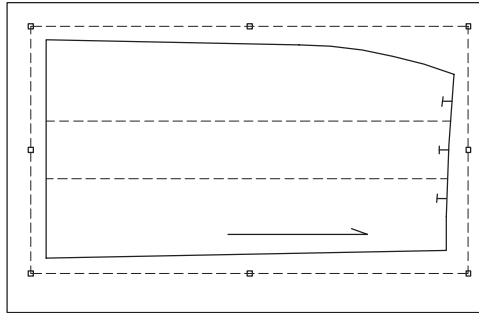
TASK 1: Create a Box Pleat

- 1 Open a Basic Straight Skirt Front pattern file.
- 2 Remove the dart and seam allowances. (Fig 1)
- 3 Select pleat start point.
- 4 Select pleat end point (Fig 2)



- 5 Select Box Pleat in the Pleat attribute box and Fill the details like Depth of pleat = 3 Cms. and No. of pleat = 1.
- 6 Click O.K. (Fig 3)

Fig 3



TASK 2: Create a Knife Pleat

- 1 Open a Basic Straight Skirt Front pattern file.
- 2 Remove the dart and seam allowances. (Fig 1)
- 3 Select Knife Pleat in the Pleat Attribute box. Select start and end point
- 4 Specify the details like Depth of First and Second Pleat (3 and 2 Cms.), No. of pleats = 3, Distance First pleat = 1.5 Cms., Second pleat = 2 Cms. (Fig 2)
- 5 Click O.K. (Fig 3)

Fig 1

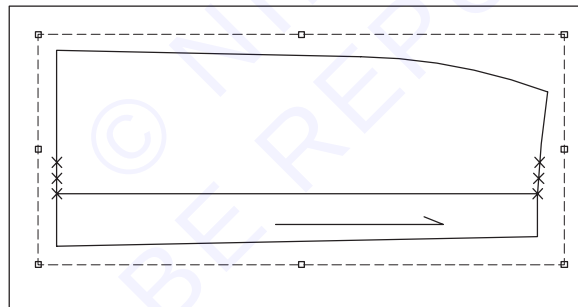


Fig 2

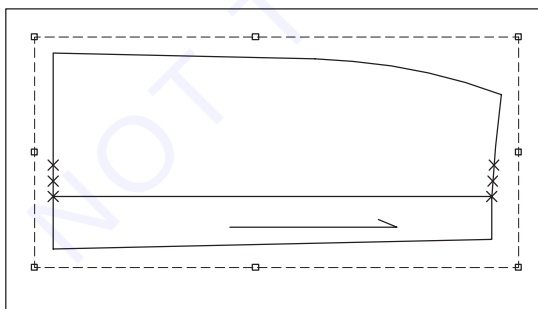
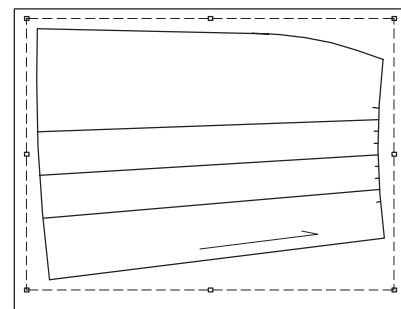


Fig 3

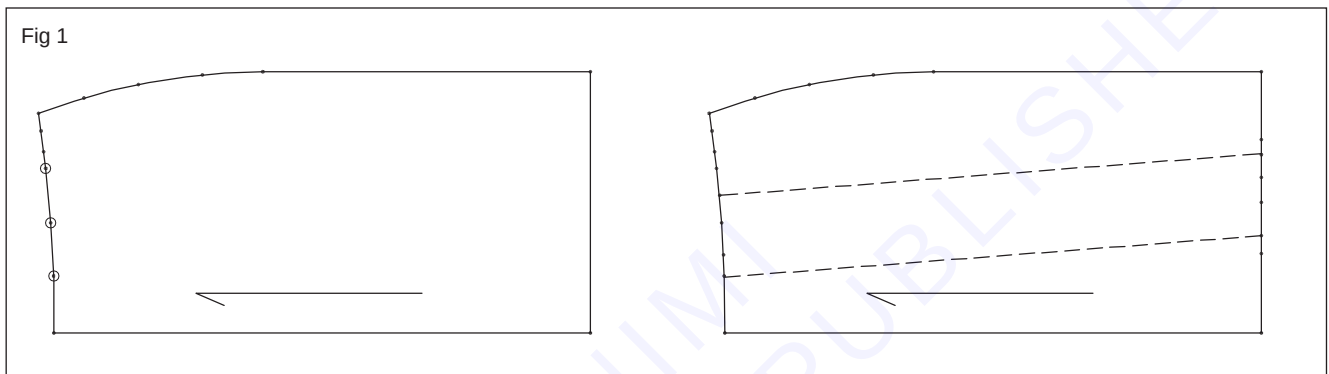


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TASK 3: Create Multi Pleats

- 1 Open a Basic Straight Skirt Front pattern file.
- 2 Remove the dart and seam allowances.
- 3 Select the First and Last points of Multi Pleat.
- 4 Go to Pleats Menu and select Create Multi Pleat option.
- 5 Enter Number of Pleats.
- 6 Check the Set on First Point and Set on Last Point checkboxes as required, otherwise the first and last points will be skipped.
- 7 Set the First and Last point Angles.
- 8 Select the type of the pleat (Box or Knife)
- 9 Check CCW Folded in order to change the pleat direction.
- 10 Check the Variable Pleat in order to define different depth on two different sides of pleat. (Fig 1)

Fig 1



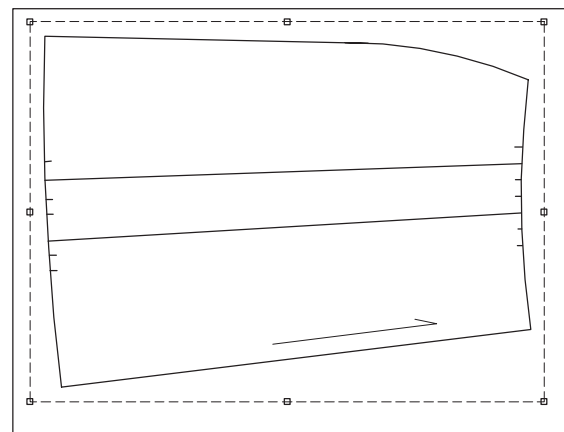
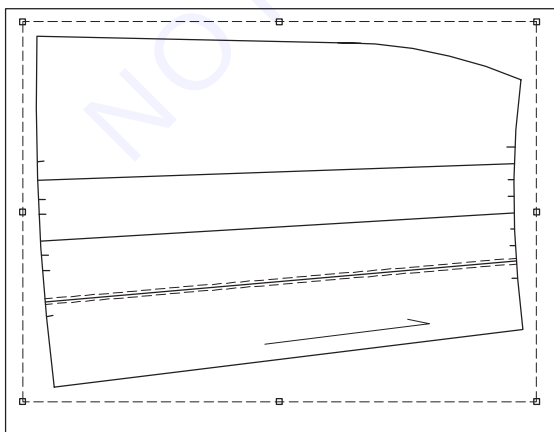
Note: The Pleat angles will be divided equally: for instance if you got 4 points and the first angle is 30 degrees and the last angle is 45 degrees then the second angle will be 35 degrees, and the third one will be 40 degrees.

TASK 4: Remove a Pleat

- 1 Open a Skirt pattern with pleats.
- 2 Click and drag to select the points that include the Pleat Line(s) to be removed. (Fig 1)
- 3 Choose Remove Pleat Lines from the Pleat Menu. All Pleat Lines between the selected points will be removed. (Fig 2)

Fig 1

Fig 2



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Note: All Pleat Lines between the two selected points will be removed. To remove just one of the Pleat Lines, select the first point, then press and hold the Shift key while selecting the second point. Only those two points will be grouped, and only that Pleat Line will be removed

Note: Get the work checked by your Instructor.

Practice Fullness Tools

Objectives : At the end of this exercise, you shall be able to:

- add Fullness in a pattern
- close Fullness in a pattern.

Requirements

Tools/Instruments

- Computer with Pattern Making & Grading software - 1 No.

Procedure

TASK 1: Add Fullness in a pattern

- 1 Open a Basic Straight Skirt Front pattern file.
- 2 Remove the dart and seam allowances.
- 3 Select add fullness tool.(Fig.1)
- 4 Select the opening pivot point.
- 5 Select the fullness end point. (Fig.2)
- 6 Specify the values in the box. Enter the value for width for parallel skirt = 10 and others = 0.(Fig 3)
- 7 Click O.K.

Fig 1

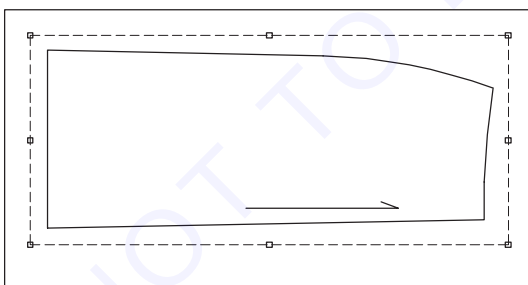


Fig 2

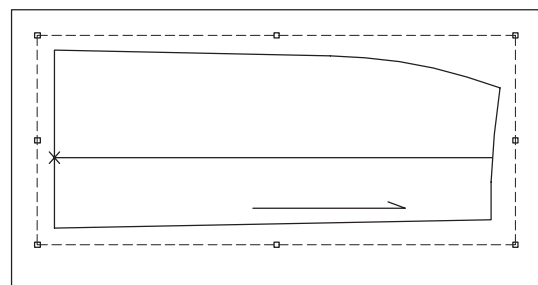
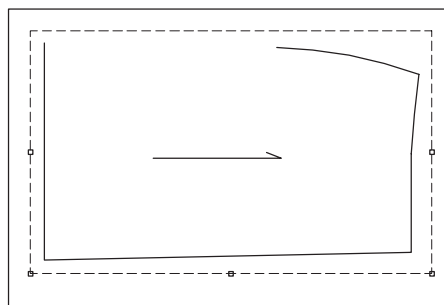


Fig 3



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TASK 2: Close Fullness in a pattern

- 1 Open a pattern with fullness.
- 2 Select the fullness points.
- 3 Hold the shift key while selecting the points.
- 4 Hold the Control key and push the Delete key to remove the fullness.

Note: You can also use the Undo command to bring the fullness back.

Note: Get the work checked by your Instructor.

Create pattern for a 'T' Shirt using Spec. Sheet

Objectives : At the end of this exercise, you shall be able to:

- create pattern for a 'T' shirt front
- create pattern for a 'T' shirt back
- create pattern for a 'T' shirt sleeve.

Requirements

Tools/Instruments

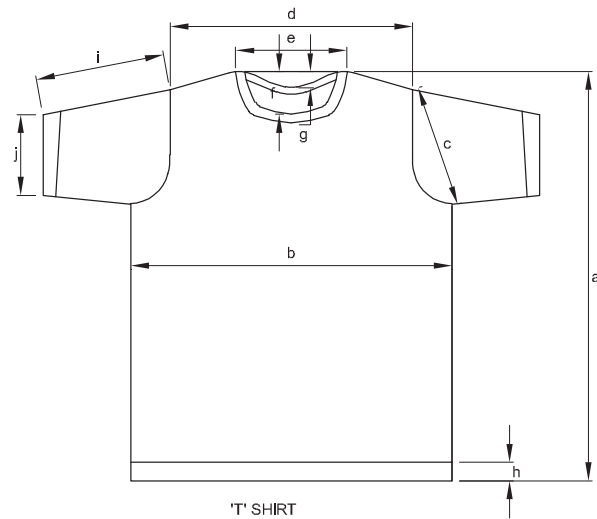
- Computer with Pattern Making & Grading software & Spec. sheet of a 'T' Shirt. - 1 No.

Procedure

TASK 1: Create pattern for a 'T' Shirt Front

- 1 Read completely all the details of the Specification sheet of a 'T' Shirt. (Fig.1).
- 2 Select a size for making patterns. (Size 'M').
- 3 Open the software.
- 4 Select options in the menu bar. Select "Cms." as unit.
- 5 Go to File and click new.
- 6 Give the name of the pattern as 'T' Shirt Front.
- 7 Create a Rectangle of 57.5 cms. length (for Total length from HSP) and 21.5 Cms. width. (Half of $\frac{1}{2}$ chest width).
- 8 Name the corner points of the rectangle from 1 to 4.
- 9 Select point tool and mark the points 5 & 9 as follows. (Fig.2).
 $1-5 = 18.5$ Cms. (Half of Shoulder). $1-6 = 8.5$ Cms (Half of neck width). $1-7 = 7$ Cms. (Front neck drop).
 $1-8 = 1.5$ Cms. (Back neck drop).
 $2-9 = 24$ Cms. ($\frac{1}{2}$ Armhole straight + 4 Cms. for Shoulder Drop).
- 10 Pick the selection tool, click the point 1 and press del button. Delete point 2 also. (Fig.3).
- 11 Use move point tool and move the point 5 straight towards the bottom side with a distance of 4 Cms. for shoulder drop. (Fig.4).
- 12 Go to menu and copy the pattern.
- 13 Paste the pattern near by the front pattern and give name as 'T' Shirt back.
- 14 Click the Front pattern with the help of selection tool
- 15 Delete the point 8.

Fig 1



'T' SHIRT

MEASUREMENT CHART (IN CMS.)

SI.NO	NOTATION	MEASUREMENT	S	M	L	XL
1	1	LENGTH FROM HSP	55.5	57.5	59.5	61.5
2	2	HALF CHEST	41	43	45	47
3	3	HALF ARMHOLE STRAIGHT	19	20	21	49
4	4	SHOULDER	35	37	39	55.5
5	5	NECK WIDTH	16	17	18	19
6	6	FRONT NECK DROP	6.5	7	7.5	8
7	7	BACK NECK DROP	1.5	1.5	1.5	1.5
8	8	BOTTOM HEM	4	4	4	4
9	9	SLEEVE LENGHT	20	21	22	23
10	10	HALF SLEEVE OPEN	13	14	55.5	55.5

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Fig 2

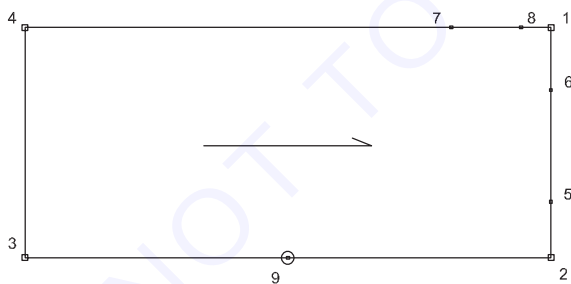
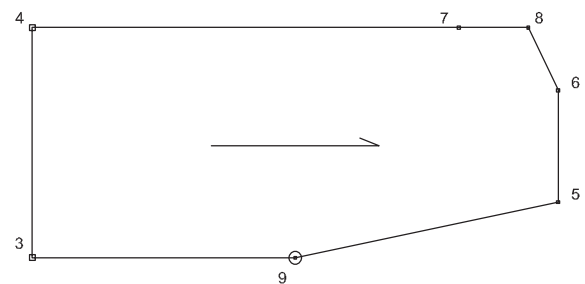


Fig 3



FDC22P0056

Fig 4

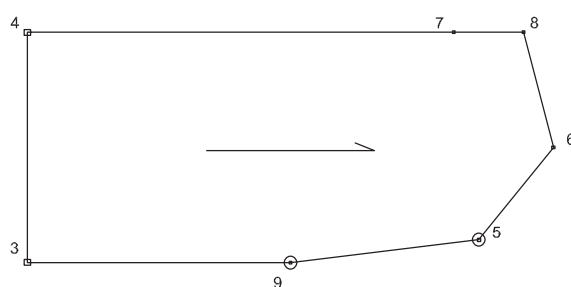
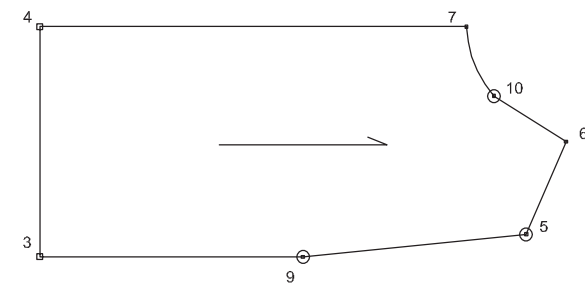
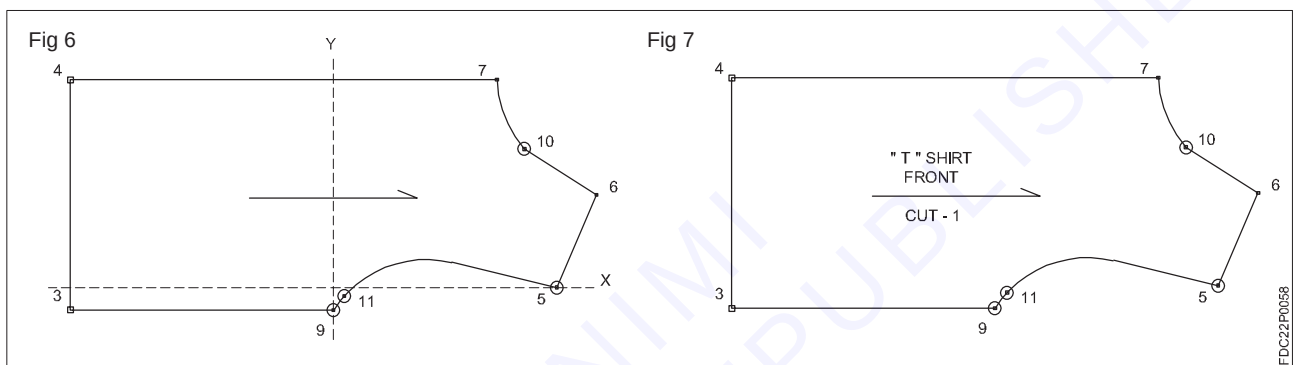


Fig 5

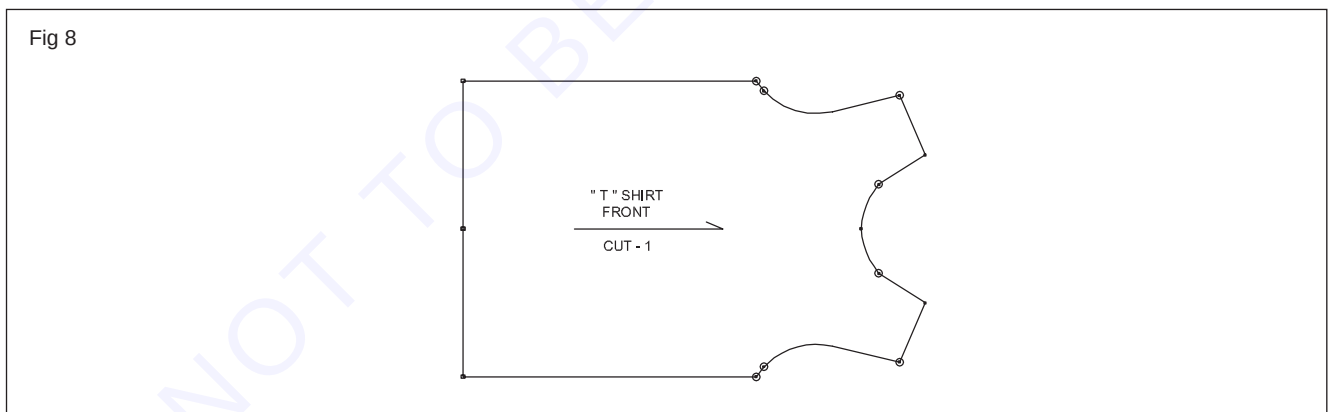


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- 16 Create Curve points 10 in the mid level of 6-7. Move the points 10 with the help of move point tool and make smooth front neck curve. (Fig.5)
- 17 Go to menu and select view and click Rulers.
- 18 Pick the selection tool and click on the horizontal ruler and drag the mouse down wards without releasing the mouse button for getting guide line.
- 19 Align the guide line 'X' on the point 5.
- 20 Get another guide line 'Y' which in vertical direction and align it at point 9.
- 21 Mark the curve point 11 with a distance of 2 cms. from point 9 on the line 9-5.
- 22 Shape the Front armhole with the help of move point tool.
- 23 Shape the curve inside the guide line X with the curve depth of 2 cms. inside. (Fig 6)
- 24 Select the guide lines X and Y with help of the selection tool and press del.
- 25 Select Text Tool and Type the name and other pattern particulars. (Fig 7).



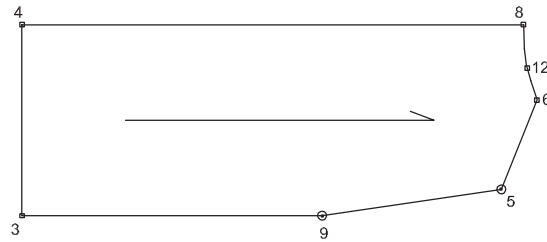
- 26 Add seam allowance 1 cm each at the neck curve and shoulder. Add 1.5 Cms. as seam allowance at the armhole and side seam for overlock and 4cms. at the bottom as hem allowance. (Ref. S.S.No.1 of Ex.No.1.15).
- 27 Open the pattern in the fold line. (Ref. S.S.No.2 of Ex.No.1.15). (Fig 8).
- 28 Save the file in the proper folder.



TASK 2: Create pattern for a 'T' Shirt Back

- 1 Open the saved 'T' Shirt back pattern in Task 1.
- 2 Delete the point 7.
- 3 Create Curve points 12 in the mid level of 6-8 and Move the points 12 with the help of move point tool and make smooth back neck curve. (Fig 1).
- 4 Go to menu and select view and click Rulers.

Fig 1



- 5 Pick the selection tool and click on the horizontal ruler and drag the mouse down wards without releasing the mouse button for getting guide line.
- 6 Align the guide line 'X' on the point 5.
- 7 Get another guide line 'Y' which in vertical direction and align it at point 9.
- 8 Mark the curve point 13 with a distance of 2 cms. from point 9 on the line 9-5.
- 9 Shape the Back armhole with the help of move point tool.
- 10 Shape the curve on the guide line X from the middle of the armhole up to the shoulder. (Fig 2)
- 11 Select the guide lines X and Y with help of the selection tool and press del.
- 12 Select Text Tool and Type the name and other pattern particulars. (Fig 3).

Fig 2

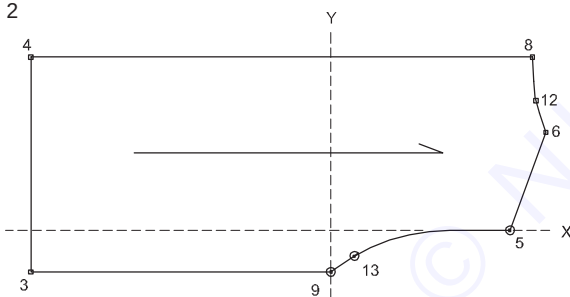
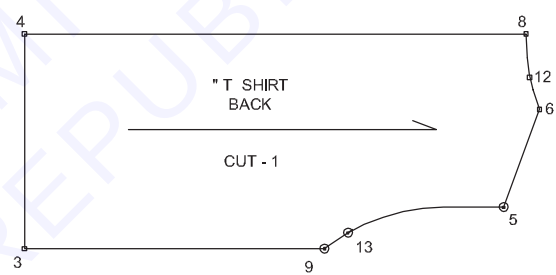


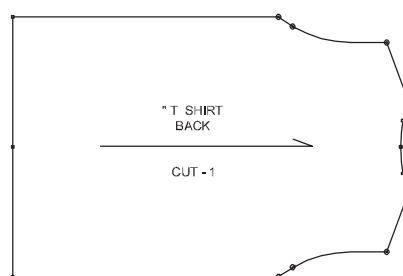
Fig 3



FDC22P0060

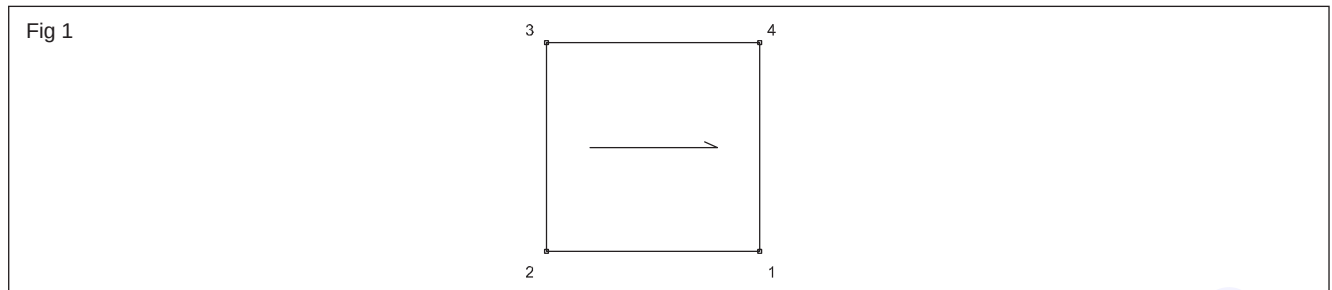
- 13 Add seam allowance 1 cm each at the neck curve and shoulder. Add 1.5 Cms. as seam allowance at the armhole and side seam for overlock and 4cms. at the bottom as hem allowance.
- 14 Open the pattern in the fold line
- 15 Save the file in the proper folder. (Fig 4).

Fig 4

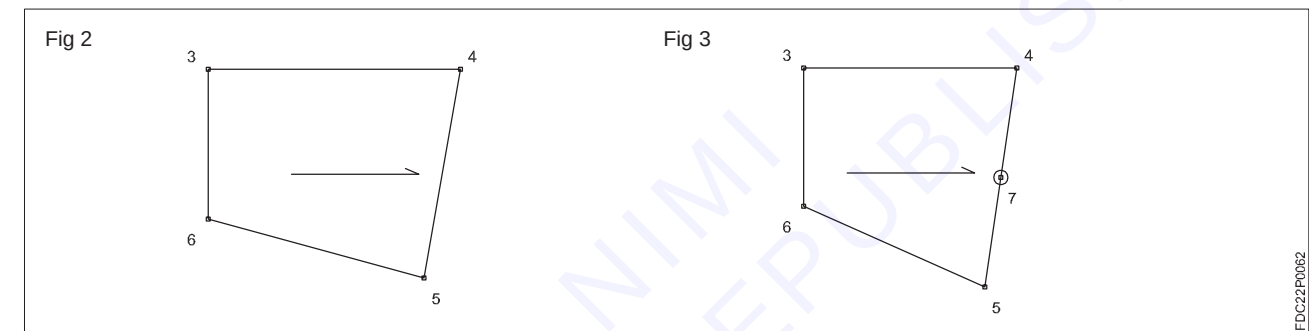


TASK 3: Create pattern for a 'T' Shirt Sleeve.

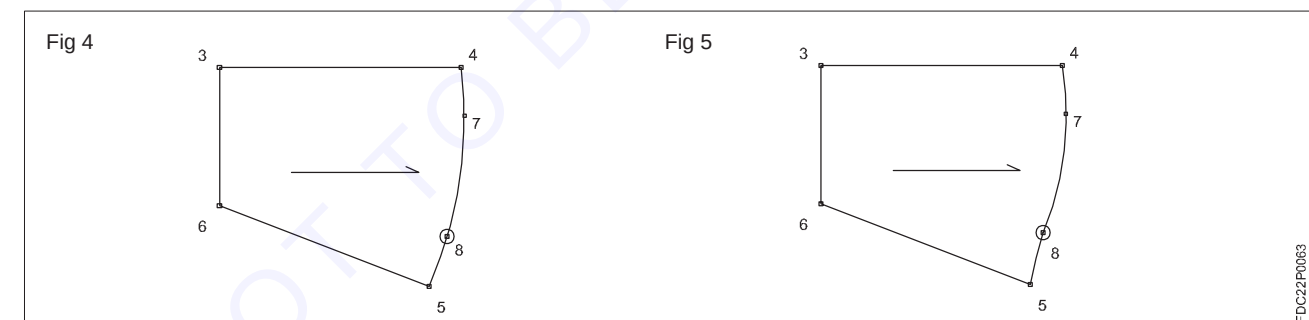
- 1 Create a Rectangle of 21 cms., length (Sleeve length) and 20 Cms. width (Armhole length).
- 2 Mark points 1,2,3 & 4. (Fig 1).



- 3 Mark point 5 from point 1 with the distance of 4 cms (Crown height).
- 4 Mark point 6 from point 3 with the distance of 14 Cms. (Half of Sleeve opening).
- 5 Delete points 1 & 2. (Fig 2).
- 6 Mark curve point 7 at the mid level of 4-5. (Fig 3)



- 7 Move curve point 7 and make 4-5 as smooth curve.
- 8 Also mark curve point 8 near point 5 at the distance of 3 cms. (Fig 4).
- 9 Move point 8 and make a smooth curve. (Fig 5).



- 10 Open the pattern in the fold line. (Fig 6).
- 11 Select the cut tool and select the line 3-4 (Fig 7).
- 12 Select the selection tool. Click the top part of the sleeve and drag. (Fig 8).
- 13 Identify the bottom portion as Back part of the sleeve and top portion will be Front.
- 14 Select the top portion of the sleeve.
- 15 Move the point 8 and modify the front armhole curve. (Fig 9).
- 16 Select "Join the pieces tools".
- 17 Select the point 4 at the bottom portion and also click the point 4 of the top portion to join.(Fig 10).
- 18 Pick the "Trace tool" and select all the lines of the top and bottom portion of the sleeve.

19 Pick the selection tool and click on the sleeve part and drag. (Fig 11).

Fig 6

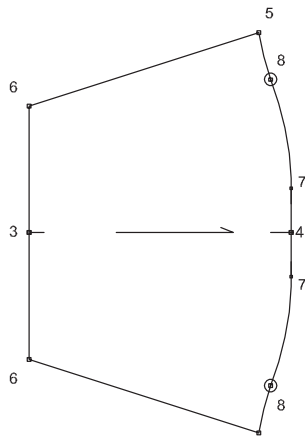


Fig 7

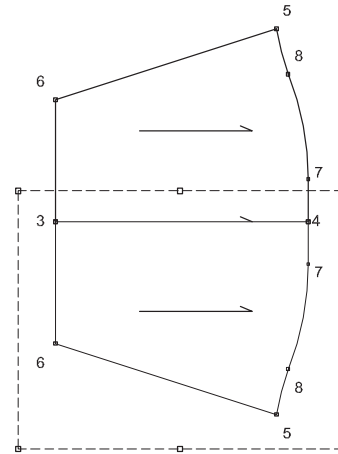


Fig 8

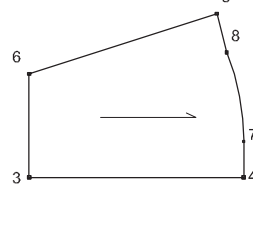
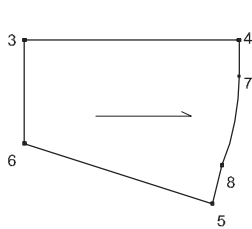
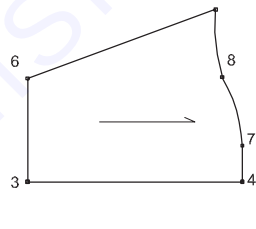
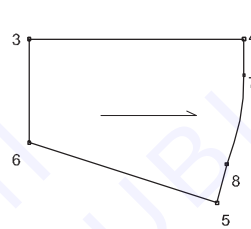


Fig 9



FDC22P0065

Fig 10

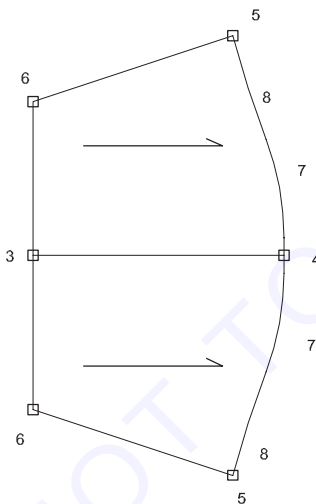
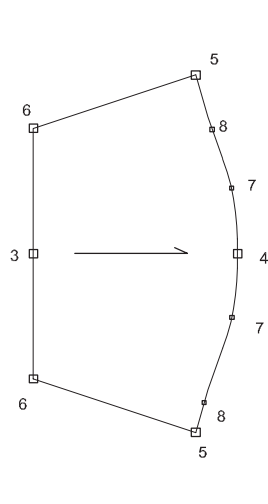
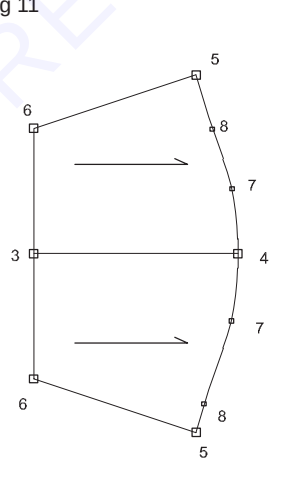


Fig 11



FDC22P0066

20 Delete the point 3.

21 Open the 'T' Shirt Front and Back pattern.

22 Select the measuring tool and measure the armhole part of the Front and Back pattern.

23 Select the sleeve pattern and pick the move point tool.

24 Use the armhole curve points for adjusting according to the required front and back armhole measurements (Fig 12)

25 Select the text tool and type the pattern particulars.(Fig 13).

26 Add seam allowance 1.5 Cms. at the armhole and side seam for over lock and 4cms. at the bottom as hem allowance.

27 Save the file in the proper folder.

Note: Get the work checked by your Instructor.

Fig 12

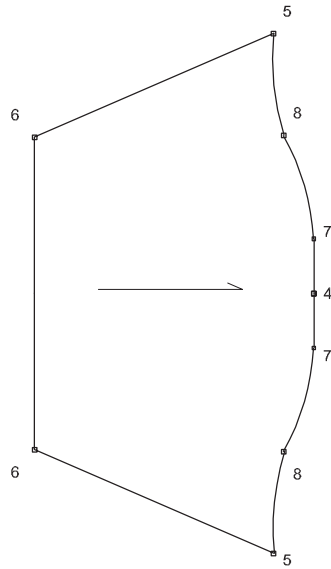
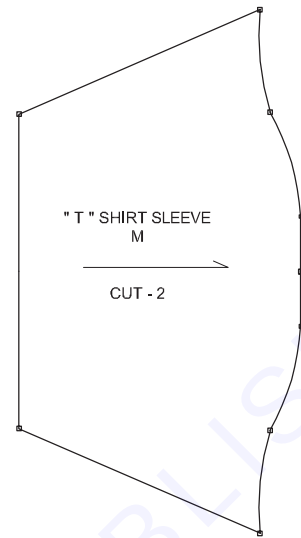


Fig 13



FDC22P0067

Grade a Pattern

Objectives : At the end of this exercise, you shall be able to:

- create a pocket pattern
- grade the pocket pattern.

Requirements

Tools/Instruments

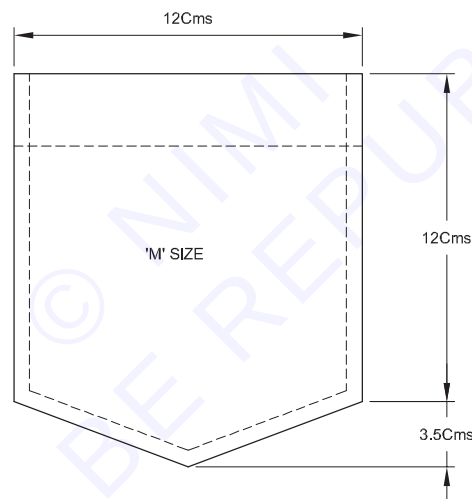
- Computer with Pattern Making & Grading software - 1 No.

Procedure

TASK 1: Create pattern for a Pocket

- 1 Collect the required measurements and design of a Pointed Patch pocket for at least 4 no. of sizes. (Fig.1).
- 2 Select the measurements for 'M' size.
- 3 Open the software and create a rectangle of 21 Cms. length (Pocket length + pocket hem + 2 Cms. for top and bottom seam allowance) and height of 14 Cms. (Pocket width + 2 cms. for two seams).

Fig 1



FD022P0074

Sl.No.	Name of the measurement (in Cms.)	Size 'S'	Size 'M'	Size 'L'	Size 'XL'
1	Pocket Length	14.5	15.5	16.5	17.5
2	Pocket Width	11	12	13	14
3	Pocket Hem	3.5	3.5	3.5	3.5

- 4 Number the pattern points as 1,2,3 & 4. (Fig.2).
- 5 Mark points 6 & 7 with a distance of 3.5 Cms. from the points 3 & 2. Mark point 5 at the mid-level of 2-3. (Fig.3).
- 6 Delete the points 2 & 3. (Fig.4).
- 7 Select the text tool and type the required pattern particulars. (Fig.5).
- 8 Save the file in the proper folder.

Fig 2

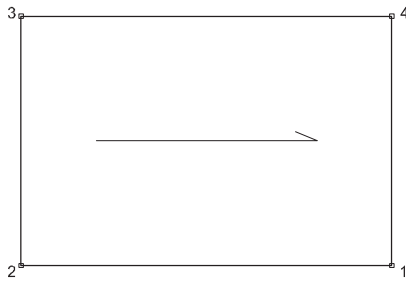
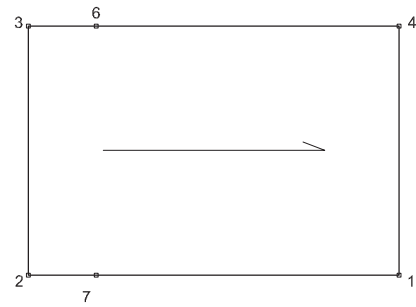


Fig 3



FDC22P0075

Fig 4

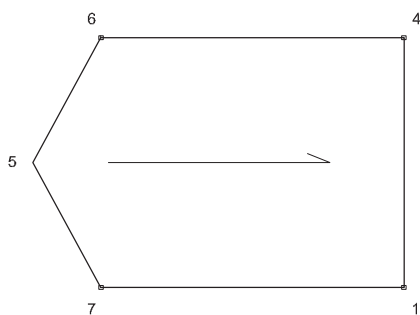
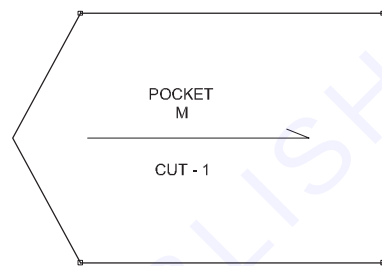


Fig 5

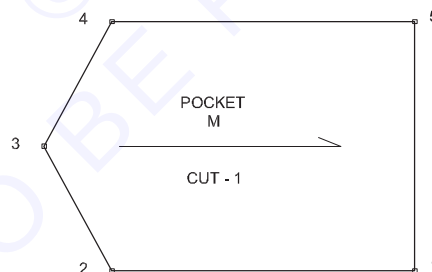


FDC22P0076

TASK 2: Grade the pocket pattern.

- 1 Open the required pocket pattern.
- 2 Number the pattern corners as 1,2,3,4 & 5. (Fig 1).

Fig 1



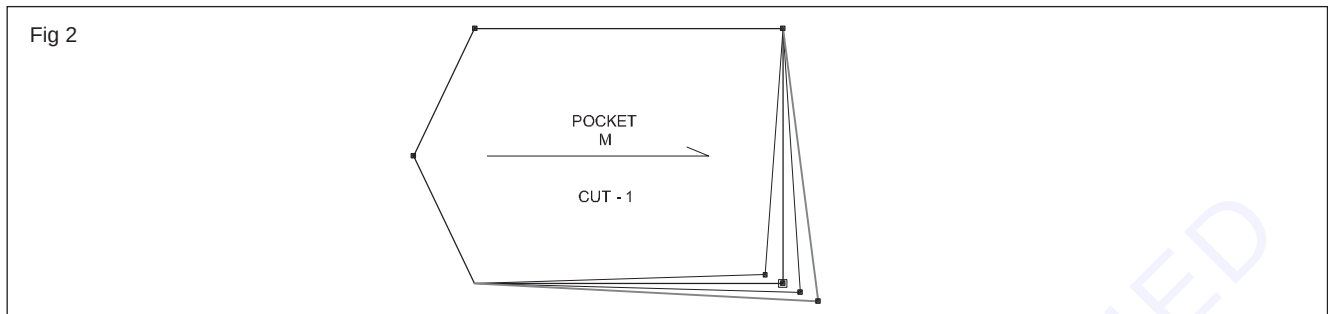
- 3 Click point 1 by selection tool.
- 4 Goto "Edit" menu and select "Point Attributes".
- 5 Select grading point to convert the normal point into grading point.
- 6 Repeat the above process for other points also.
- 7 Goto "Grading" menu.
- 8 Select 'sizes'.
- 9 Click "insert" in the box.
- 10 Insert the sizes 'L' and 'XL'. 11 Click "append" in the box.
- 12 Type the size 'S'.
- 13 Click the colour box and select suitable colour for each size.
- 14 Click the close button.

15 Goto "View" menu. Select "Grading". Select "Grading Table".

16 Calculate the grading increments for each point and prepare the grading increment table. (Skill Sequence No 1).

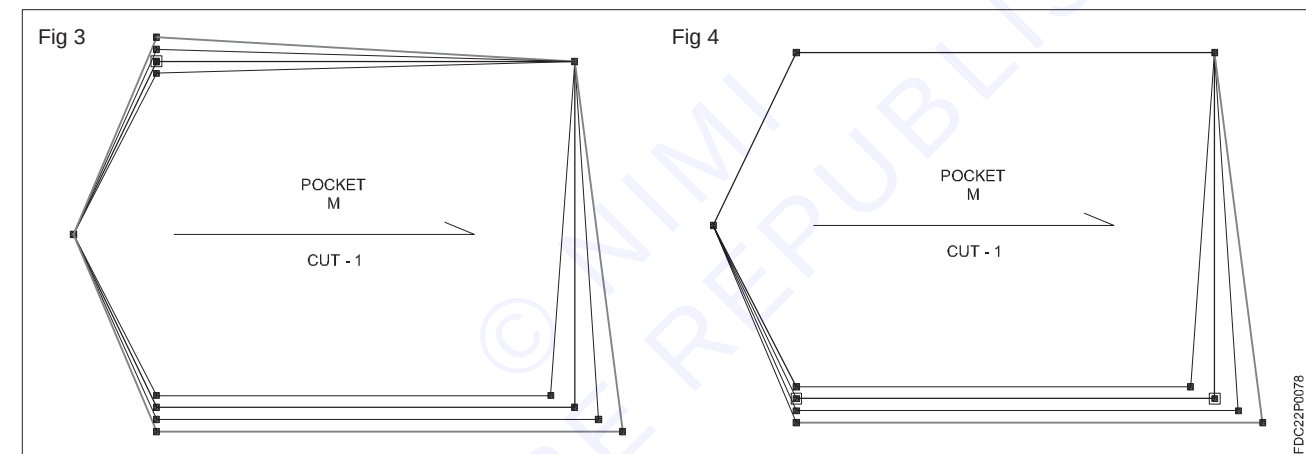
17 Click the point 1 with the help of the selection tool.

18 Give the grading increments for all the sizes, Observe the point 1 has been graded for the all the sizes.(Fig 2)



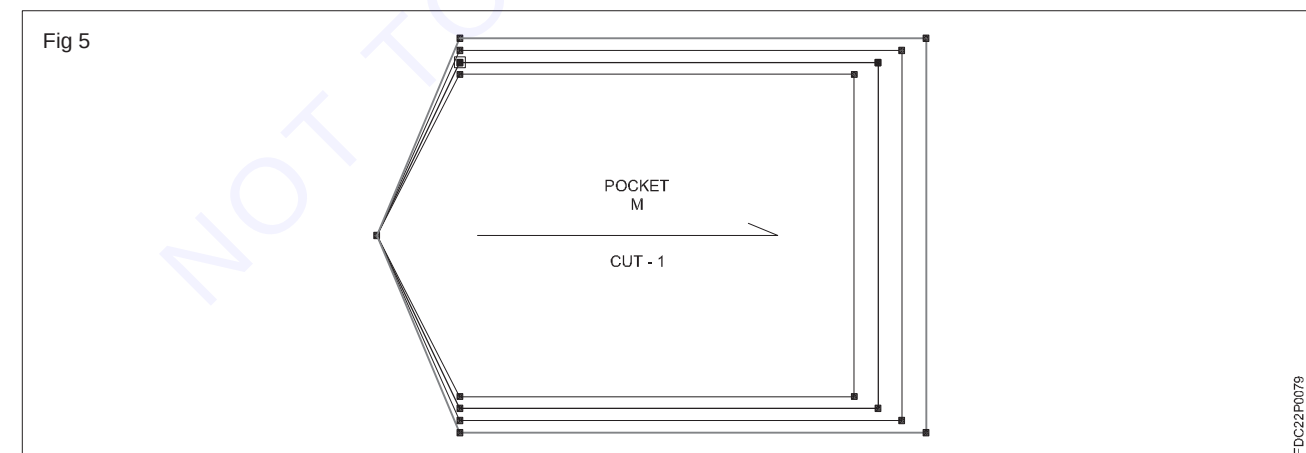
19 Apply the grading increments for the point 2. (Fig 3).

20 Apply the grading increments for the point 4. (Fig 4). (There is no grading increments for point 3).



21 Apply the grading increments for the point 4. (Fig 5).

22 Save the file in the proper folder. (Fig 5).



Note: Get the work checked by your Instructor.

Skill Sequence

Calculate Grading Increments

Objectives : At the end of this exercise, you shall be able to:

- calculate grading increments and prepare the grading increment table.

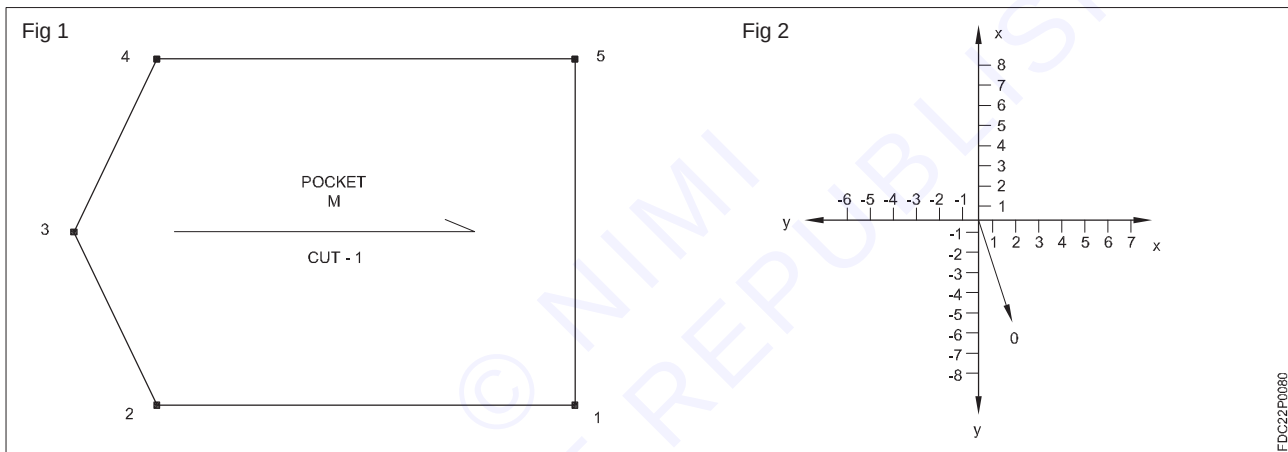
Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

Procedure

- Open the required pocket pattern. Note the measurements. (Fig 1).
- Verify the grading axes (Fig 2).



- Prepare a Grading increment table for all the required sizes.(Fig.3).

Sizes	M to S		M to L		L to XL	
Point	X	Y	X	Y	X	Y
1						
2						
3						
4						
5						

- Calculate Grading increments for point 1.

Grading Increment for Point 1.

From size M to L in -Y direction : Half Pocket width for 'L' minus half pocket width for 'M')
 = 6.5 Cms. minus 6 Cms.
 = 0.5 Cms.

For -Y direction = -0.5 Cms.

From size M to L in + X direction : (Pocket Length for 'L' minus Pocket Length for 'M')
 = 16.5 Cms. minus 15.5 Cms.
 = 1 Cm.

For +X direction = +1 Cm.

From size L to XL in -Y direction : (Half Pocket width for 'XL' minus half pocket width for 'L')
 = 7 Cms. minus 6.5 Cms.
 = 0.5 Cms.

For -Y direction = -0.5 Cms.

From size L to XL in + X direction : (Pocket Length for 'L' minus Pocket Length for 'M')
 = 17.5 Cms. minus 16.5 Cms.
 = 1 Cm.

For +X direction = +1 Cm.

From size M to S in +Y direction : (Half Pocket width for 'M' minus half pocket width for 'S')
 = 6 Cms. minus 5.5 Cms.
 = 0.5 Cms.

For -Y direction = 0.5 Cms.

From size M to L in - X direction : (Pocket Length for 'M' minus Pocket Length for 'S')
 = 15.5 Cms. minus 14.5 Cms.
 = 1 Cm.

For +X direction = -1 Cm.

- 5 Fill the respective X and Y increment values for point 1 of all sizes in the grading increment table.
- 6 Calculate the grading increments for other points as like the point 1.
- 7 Fill all the grading increment values for all the grading points of all the required sizes.
- 8 Complete the grading table.

Note: Get the work checked by your Instructor.

Sizes	M to S		M to L		L to XL	
Point	X	Y	X	Y	X	Y
1	-1	+0.5	+1	-0.5	+1	-0.5
2	0	+0.5	0	-0.5	0	-0.5
3	0	0	0	0	0	0
4	0	-0.5	0	0.5	0	0.5
5	-1	-0.5	1	0.5	1	0.5

Stack Graded Patterns

Objectives : At the end of this exercise, you shall be able to:

- stack point of graded patterns
- stack along line of graded patterns.

Requirements

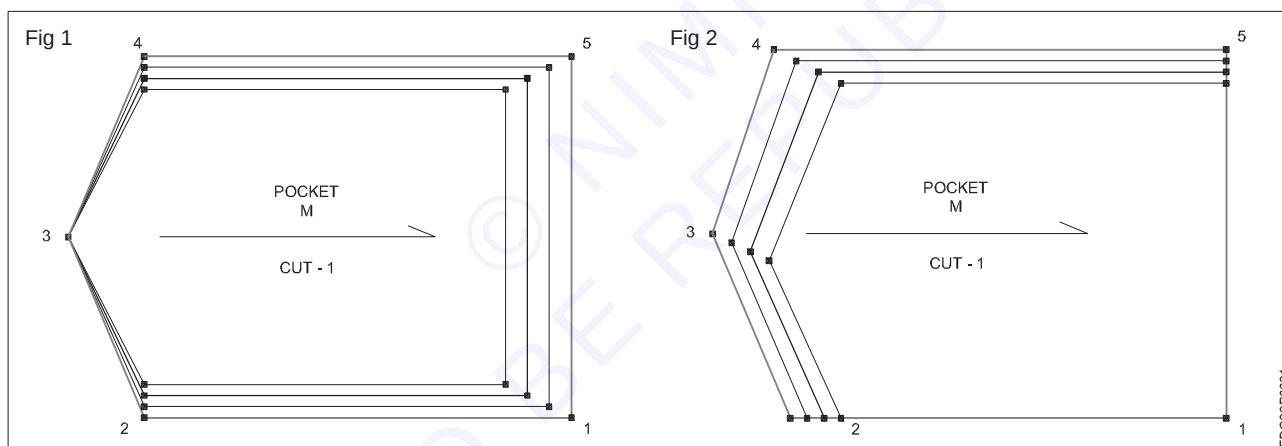
Tools/Instruments

- Computer with Software for Pattern Making & Grading - 1 No.

Procedure

TASK 1: Stack point of graded patterns

- 1 Open the graded pocket pattern file. (Fig.1).
- 2 Select the point '1' on which to stack the nest.
- 3 Go to Grading menu and Select Stack.
- 4 Choose stack point.
- 5 Select both Along 'X' Axis and Along 'Y' Axis in the stack point dialog box.
- 6 Click O.K. (Fig 2).



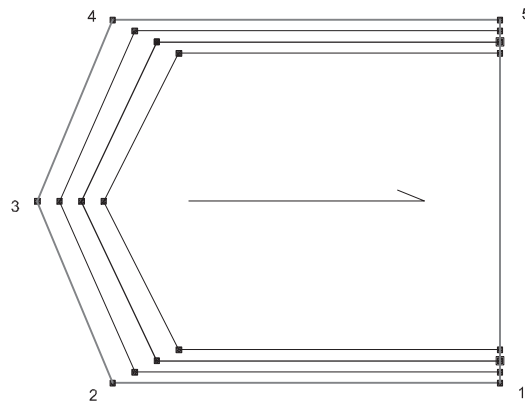
Note: To return to the initial position, determine a point at which all of the grading points are positioned in the same location prior to using the Stack command. Re-stack the nest at this predetermined point to return to the initial position. If no common point is available, simply add a button mark (without grading) to the piece and use that point as the initial point. The extra button mark may be deleted later.

TASK 2: Stack along line of graded patterns

- 1 Open the graded pocket pattern file.
- 2 Select the line 1-2 which will be nest line that all the sizes will be stack to.
- 3 Click Grading menu -> Stack, choose Stack along line, the grading will be stack along the line (Fig.1).

Note: Get the work checked by your Instructor.

Fig 1



FDC22P0082

Copy and Paste Grading

Objectives : At the end of this exercise, you shall be able to:

- copy & paste grading
- paste 'X' grading
- paste 'Y' grading
- paste around grading.

Requirements

Tools/Instruments

- Computer with Software for Pattern Making & Grading

- 1 No.

Procedure

TASK 1: Copy & Paste grading

- 1 Open the graded pocket pattern file. (Fig 1).
- 2 Select point 1.
- 3 Go to Grading menu and select "Copy Grading".
- 4 Select point 2.
- 5 Go to Grading menu and select "Paste Grading" and choose "Paste Grading". (Fig 2).

Fig 1

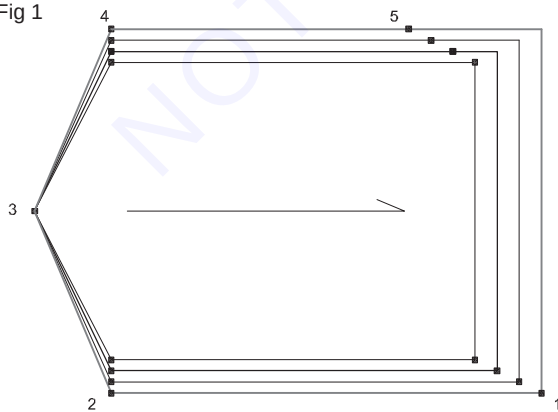
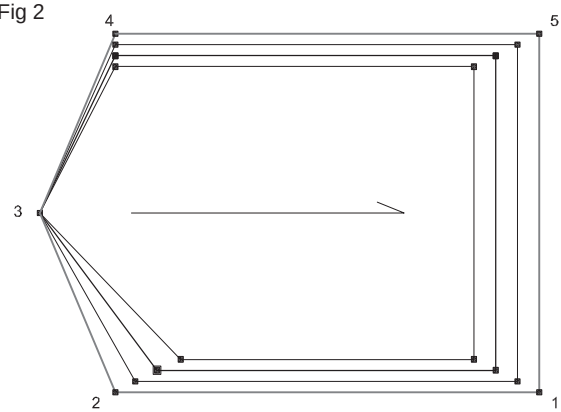


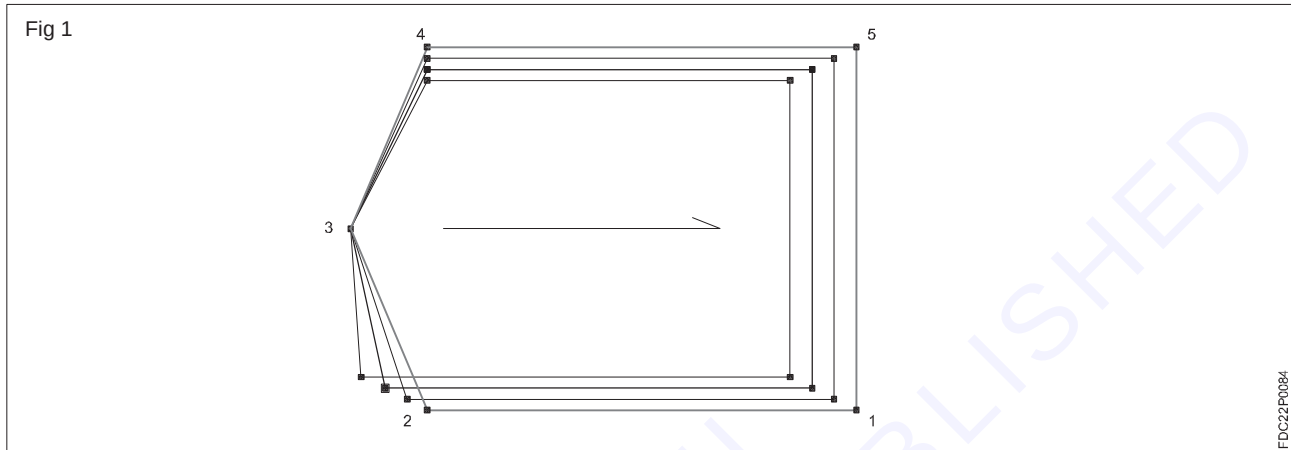
Fig 2



FDC22P0083

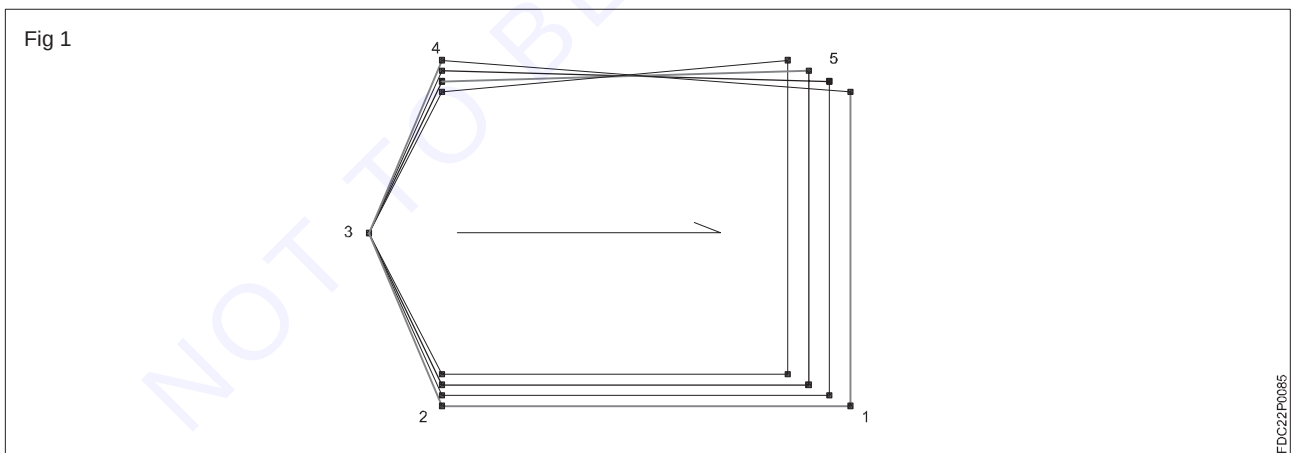
TASK 2: Paste 'X' grading

- 1 Open the graded pocket pattern file.
- 2 Select point 1.
- 3 Go to Grading menu and select "Copy Grading".
- 4 Select point 2.
- 5 Go to Grading menu and select "Paste Grading" and choose "Paste X Grading". (Fig 1).



TASK 3: Paste 'Y' grading

- 1 Open the graded pocket pattern file.
- 2 Select point 1.
- 3 Go to Grading menu and select "Copy Grading".
- 4 Select point 5.
- 5 Go to Grading menu and select "Paste Grading" and choose "Paste Y Grading". (Fig 1).



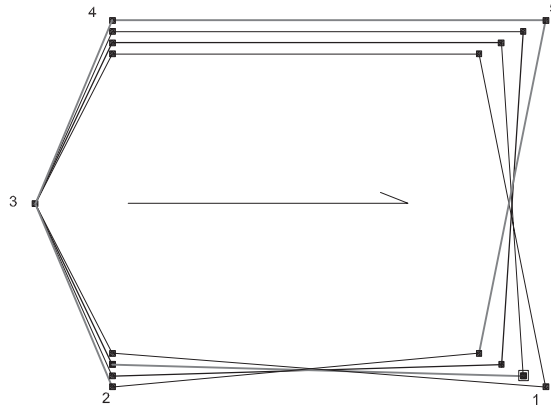
TASK 4: Paste around grading

- 1 Open the graded pocket pattern file.
- 2 Select point 1.
- 3 Go to Grading menu and select "Copy Grading".

- 4 Select point 2.
- 5 Go to Grading menu and select "Paste Grading" and choose "Paste around Grading". (Fig 1).

Note: Get the work checked by your Instructor.

Fig 1



FDC22P0086

Practice Grading Options

Objectives : At the end of this exercise, you shall be able to:

- flip 'X' and 'Y' grading
- grade along line
- apply 'zero all', 'zero X' and 'zero Y' grading.

Requirements

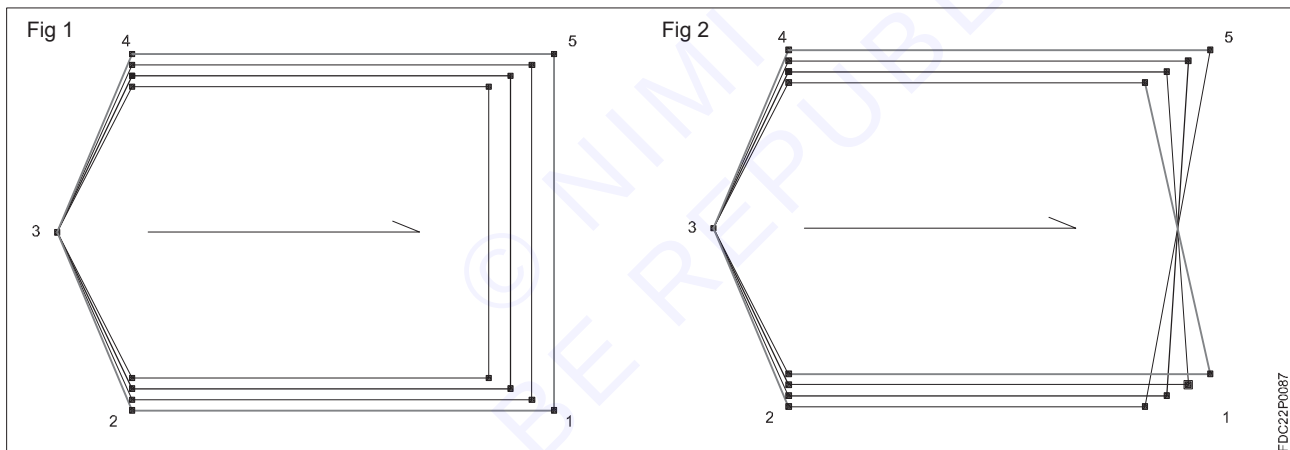
Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

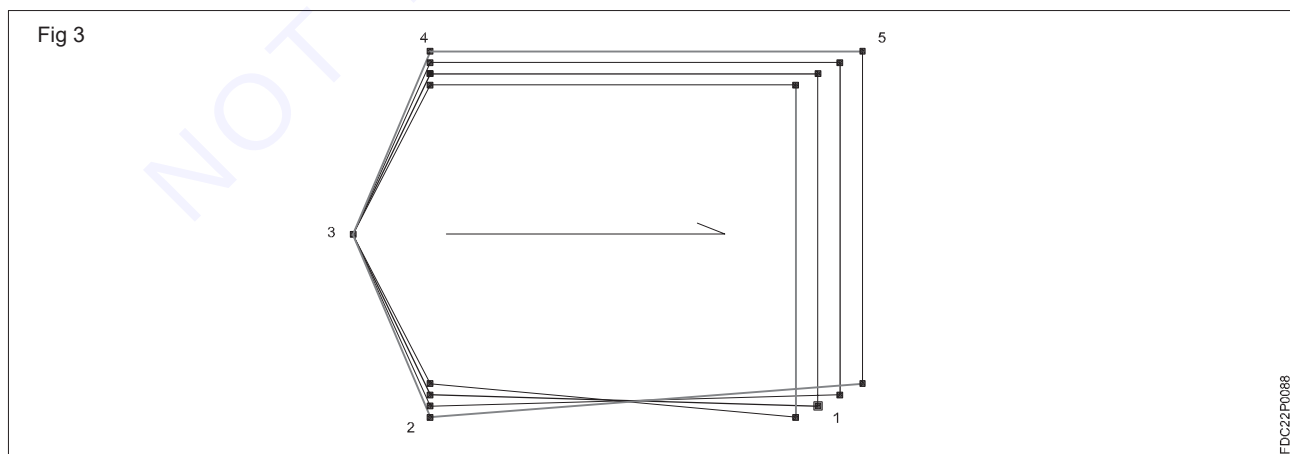
Procedure

TASK 1: Flip 'X' & 'Y' Grading

- 1 Open the graded pocket pattern file. (Fig.1).
- 2 Select point 1.
- 3 Go to Grading menu and select "Flip Grading" and choose "Flip X Grading". (Fig.2).

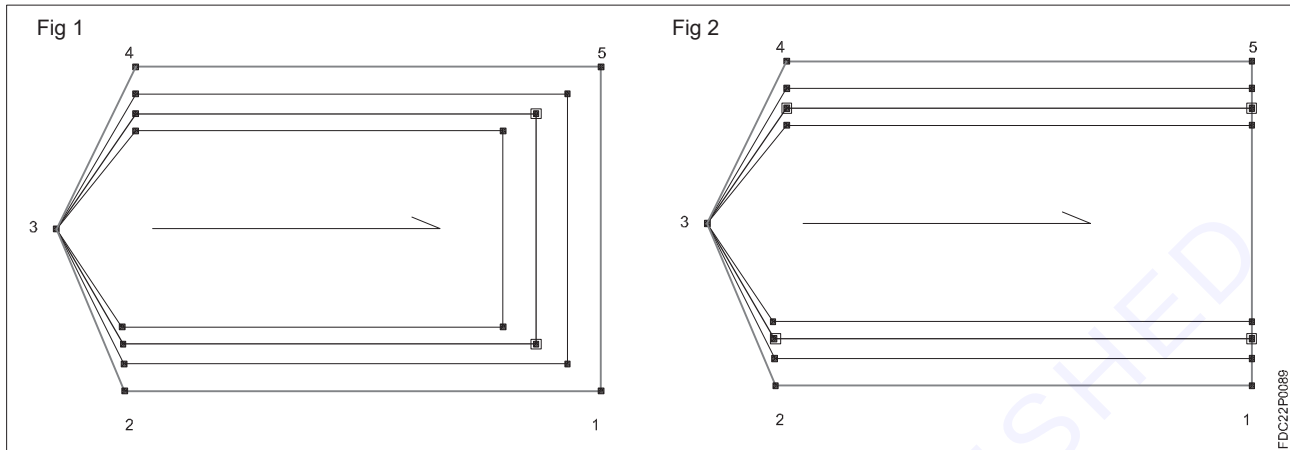


- 4 Go to Edit menu and click "Undo".
- 5 Go to Grading menu and select "Flip Grading" and choose "Flip Y Grading". (Fig.3).

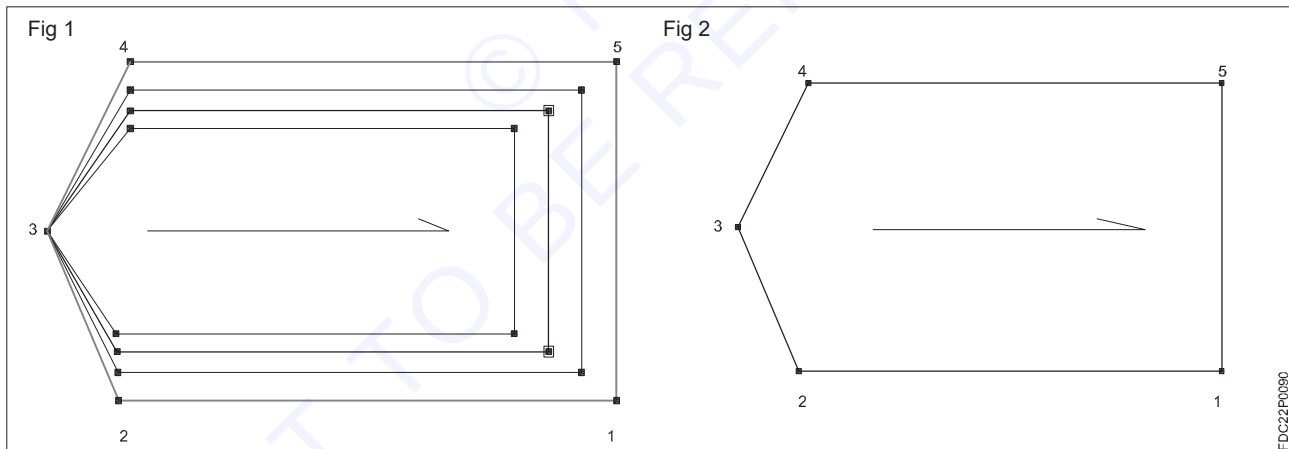


TASK 2: Grade along line

- 1 Open the graded pocket pattern file. (Fig 1).
- 2 Select the line 1-5 using selection tool.
- 3 Go to Grading menu, select grade and choose "Grade along line". (Fig 2).

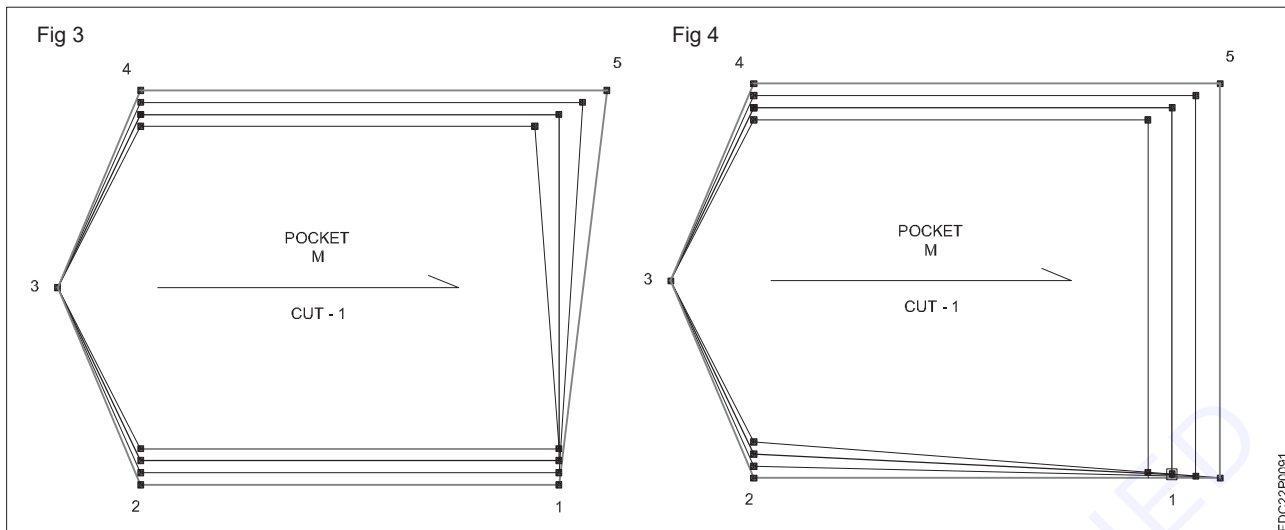
**TASK 3: Apply "Zero All", "Zero X" and "Zero Y" Grading**

- 1 Open the graded pocket pattern file. (Fig 1).
- 2 Go to Grading menu, select Zero Grading and choose "Zero All Grading". (Fig 2).
- 3 Goto Edit menu and select "Undo".



- 4 Go to Grading menu, select Zero Grading and choose "Zero X Grading". (Fig 3).
- 5 Goto Edit menu and select "Undo".
- 6 Go to Grading menu, select Zero Grading and choose "Zero Y Grading". (Fig 4).

Note: Get the work checked by your Instructor.



Grade a 'T' Shirt

Objectives : At the end of this exercise, you shall be able to:

- grade a 'T' shirt front pattern
- grade a 'T' shirt back pattern
- grade a 'T' shirt sleeve pattern.

Requirements

Tools/Instruments

- Computer with software for Pattern Making (Latest Version) - 1 No.

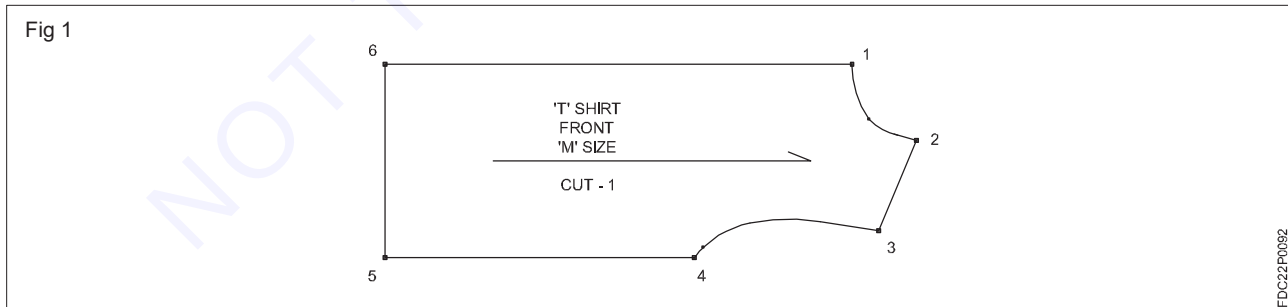
Materials

- Measurement Charts for a 'T' Shirt. - 1 No.

Procedure

TASK 1: Grade a 'T' Shirt Front Pattern

- 1 Collect the required measurement chart of a 'T' Shirt for at least 4 no. of sizes. (Refer Previous Exercise)
- 2 Open the required 'T' Shirt Front Pattern.
- 3 Number the pattern corners as 1,2,3,4,5 & 6. (Fig.1).



- 4 Click point 1 by selection tool.
- 5 Goto "Edit" menu and select "Point Attributes".
- 6 Select grading point to convert the normal point into grading point.
- 7 Repeat the above process for other points also.
- 8 Goto "Grading" menu.
- 9 Select 'sizes'.

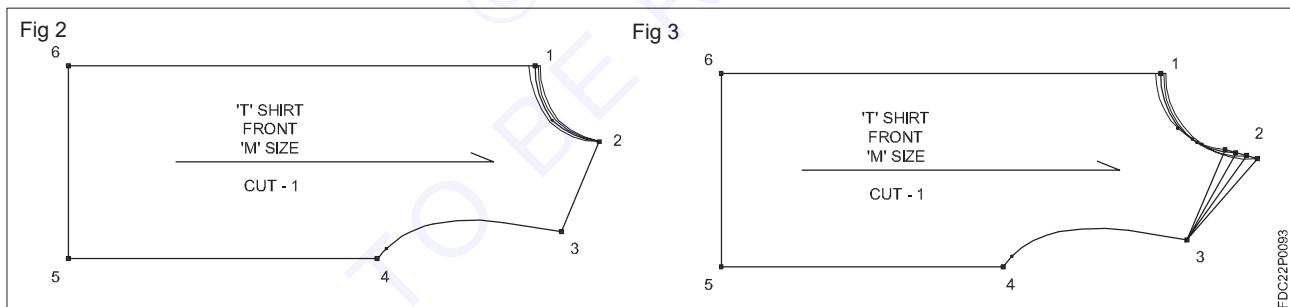
- 10 Click "insert" in the box.
- 11 Insert the sizes 'L' and 'XL'.
- 12 Click "append" in the box. 1
- 13 Type the size 'S'.
- 14 Click the colour box and select suitable colour for each size.
- 15 Click the close button.
- 16 Goto "View" menu. Select "Grading". Select "Grading Table".
- 17 Calculate the grading increments for each point and prepare the grading increment table.

Sizes	M to S		M to L		L to XL	
Point	X	Y	X	Y	X	Y
1	-0.5	0	+0.5	0	+0.5	0
2	-1	+0.5	+1	-0.5	+1	-0.5
3	-1	+1	+1	-1	+1	-1
4	0	+1	0	-1	0	-1
5	+1	+1	-1	-1	-1	-1
6	+1	0	-1	0	-1	0

- 18 Click the point 1 with the help of the selection tool.

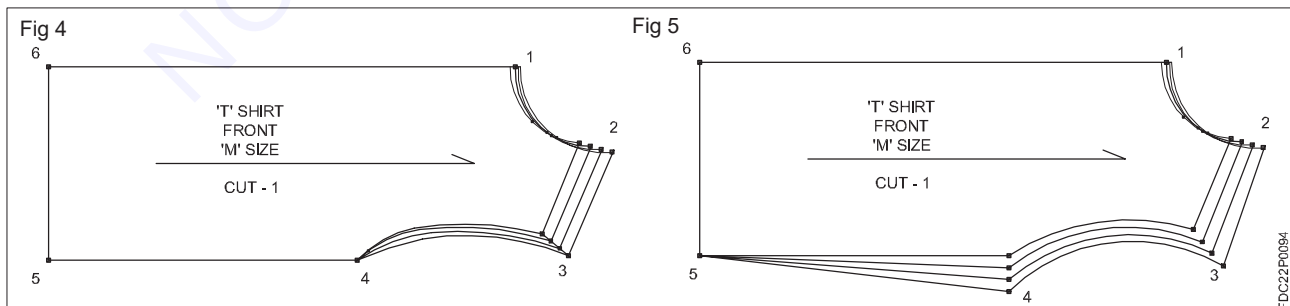
Mention the grading increments for all the sizes, observe the point 1 has been graded for the all the sizes. (Fig 2).

- 19 Apply the grading increments for the point 2. (Fig 3).



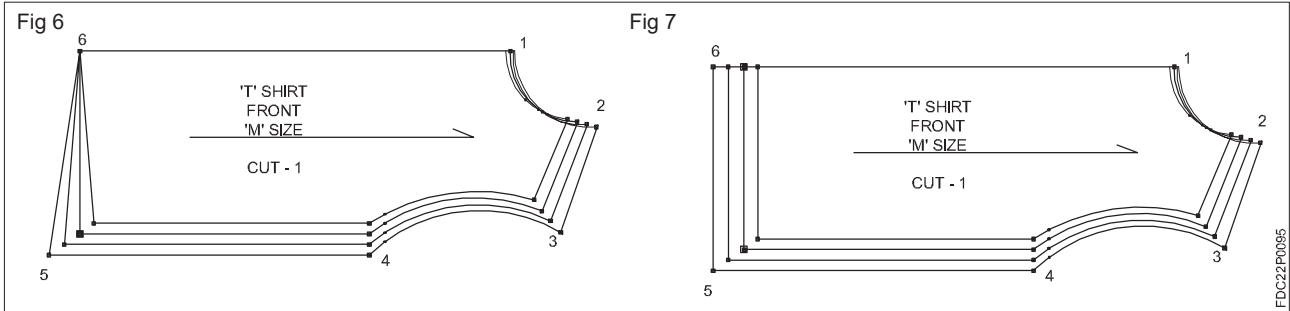
- 20 Apply the grading increments for the point 3. (Fig 4).

- 21 Apply the grading increments for the point 4. (Fig 5).



- 22 Apply the grading increments for the point 5. (Fig 6).

- 23 Apply the grading increments for the point 6. (Fig 7).



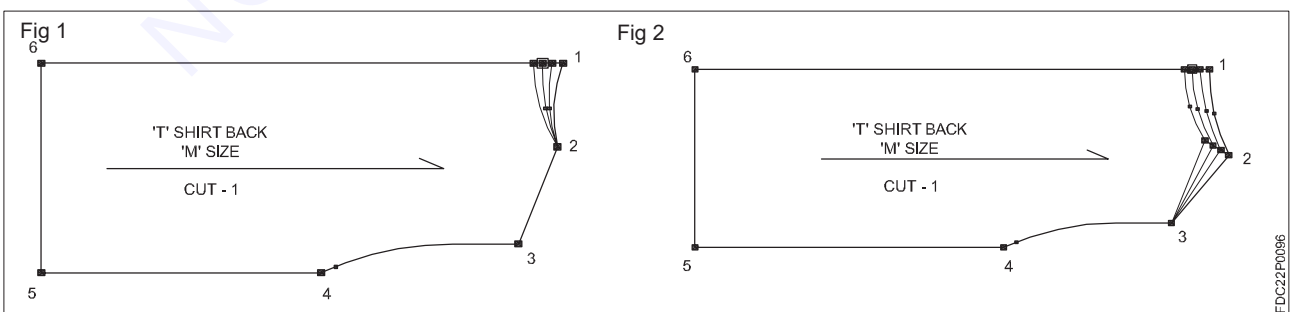
24 Save the file in the proper folder.

TASK 2: Grade a 'T' Shirt Back Pattern

- 1 Open the required 'T' Shirt Back Pattern.
- 2 Number the pattern corners as 1,2,3,4,5 & 6.
- 3 Click point 1 by selection tool.
- 4 Goto "Edit" menu and select "Point Attributes".
- 5 Select grading point to convert the normal point into grading point.
- 6 Repeat the above process for other points also.
- 7 Create sizes S,L & XL with suitable identification colours.
- 8 Open the grading table.
- 9 Calculate the grading increments for each point and prepare the grading increment table.

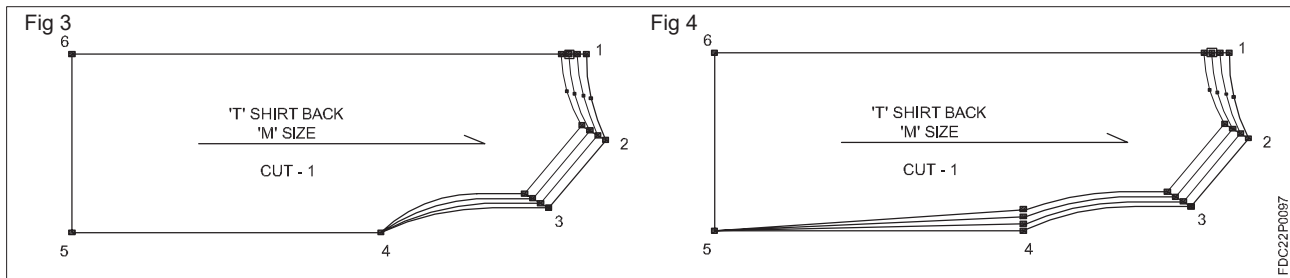
Sizes	M to S		M to L		L to XL	
Point	X	Y	X	Y	X	Y
1	-1	0	+1	0	+1	0
2	-1	+0.5	+1	-0.5	+1	-0.5
3	-1	+1	+1	-1	+1	-1
4	0	+1	0	-1	0	-1
5	+1	+1	-1	-1	-1	-1
6	+1	0	-1	0	-1	0

- 10 Apply the grading increments for point 1. (Fig 1.).
- 11 Apply the grading increments for the point 2. (Fig 2).



12 Apply the grading increments for the point 3. (Fig 3).

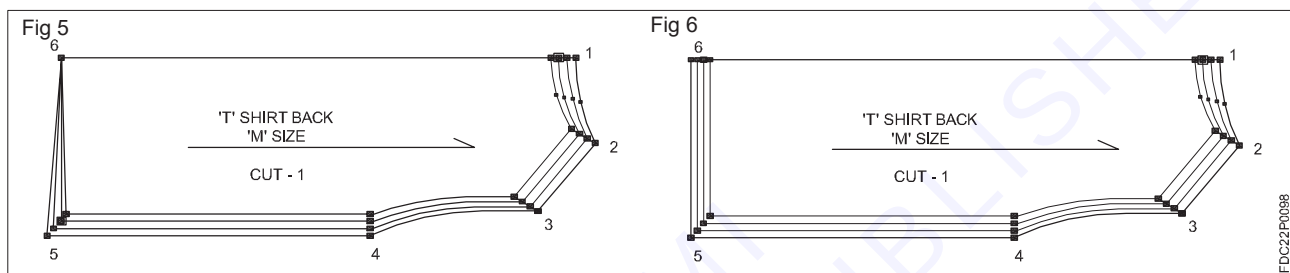
13 Apply the grading increments for the point 4. (Fig 4).



14 Apply the grading increments for the point 5. (Fig 5).

15 Apply the grading increments for the point 6. (Fig 6).

16 Save the file



TASK 3: Grade a 'T' Shirt Sleeve Pattern

- 1 Open the required 'T' Shirt Sleeve Pattern.
- 2 Name the corners 1,2,3,4 and armhole midlevel as 5. (Fig 1)
- 3 Convert all the corners in to grading points.
- 4 Create sizes S,L & XL with suitable identification colours.
- 5 Open the grading table.
- 6 Calculate the grading increments for each point and prepare the grading increment table.

Sizes	M to S		M to L		L to XL	
Point	X	Y	X	Y	X	Y
1	0	-1	0	-1	0	+1
2	-1	-1	+1	-1	+1	+1
3	-1	+1	+1	+1	+1	-1
4	0	+1	0	+1	0	-1
5	0	0	0	0	0	0

- 7 Apply the grading increments for point 1,2,3,4(No Grading increments for point 5) (Fig 2)

Note: Get the work checked by your Instructor.

Fig 1

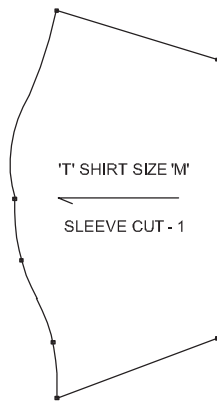
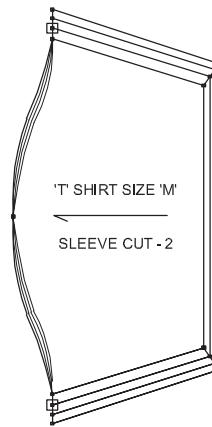


Fig 2



FDC22P0099

Draft Ladies Bodice Block

Objectives : At the end of this exercise you shall be able to

- draft ladies bodice block.

Requirements

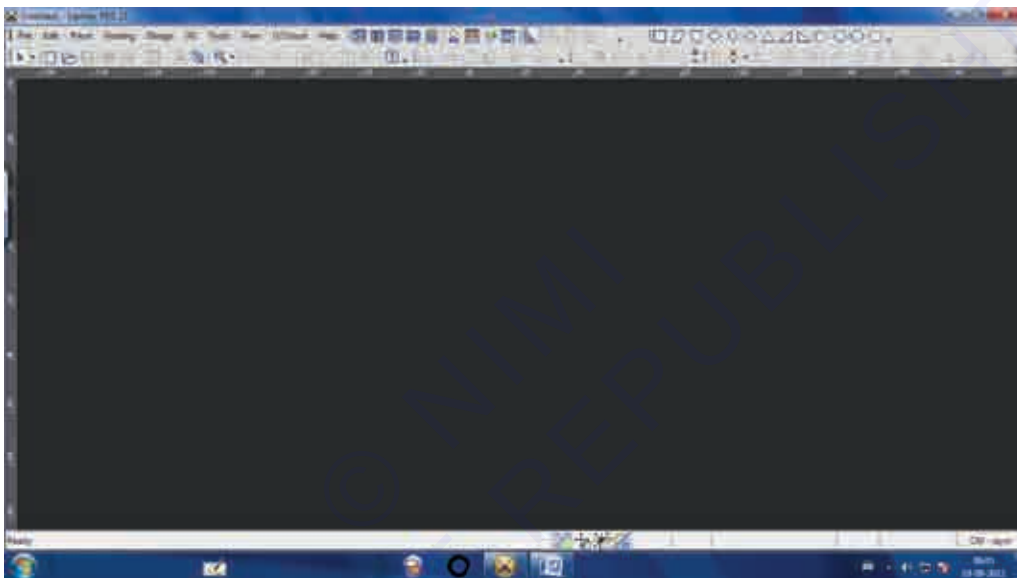
Tools/materials

- Computer with Software for Pattern Making (Latest Version) - 1 No.

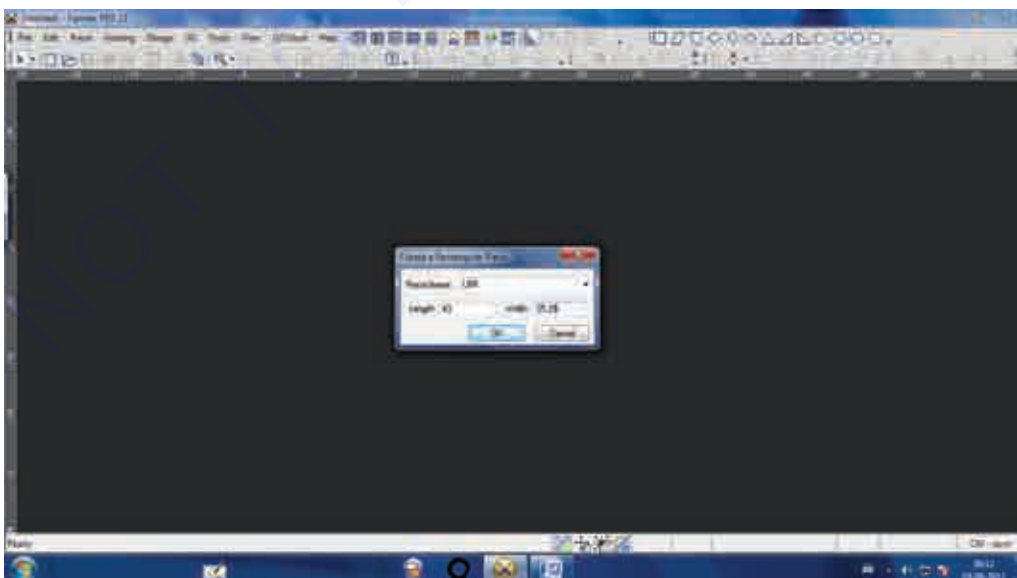
Procedure

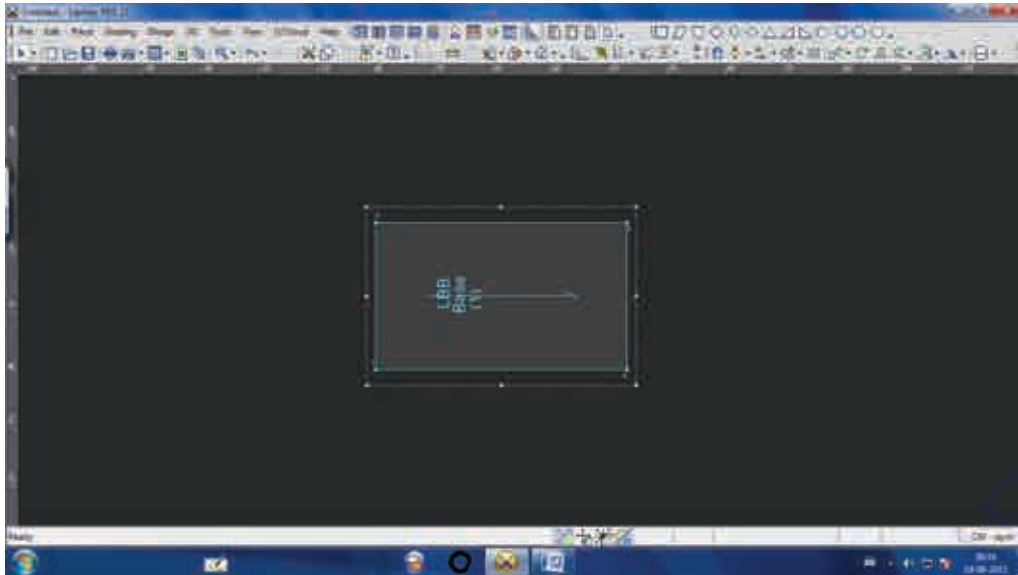
Step 1: Go to File Menu - Click New(Short cut Key Ctrl + N)

New Window Opens

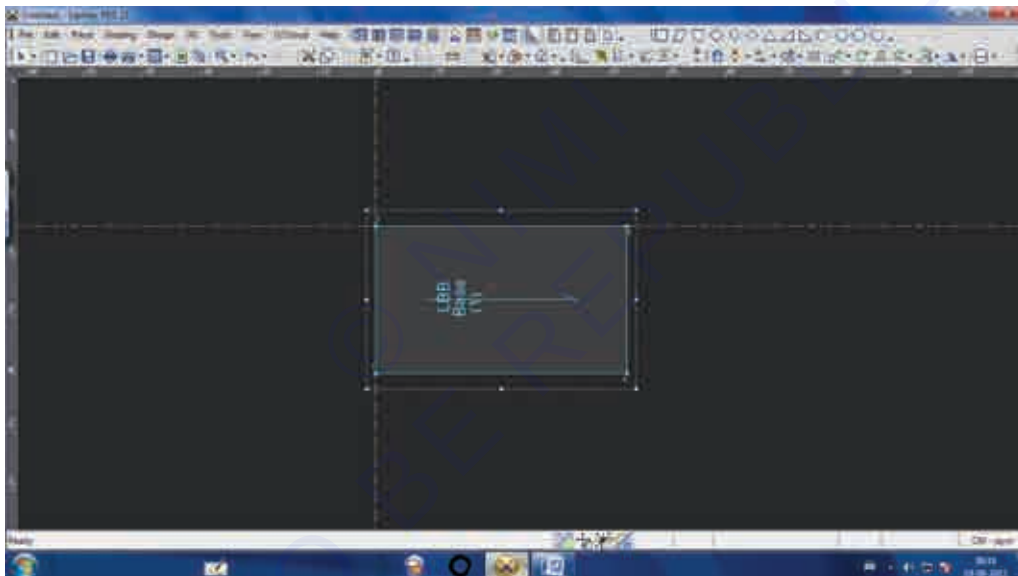


Step 2: Right Click Mouse – Select Create rectangular piece. Fill Piece Name LBB, Length – 43 cm, Width - 25.25 cm , click ok.

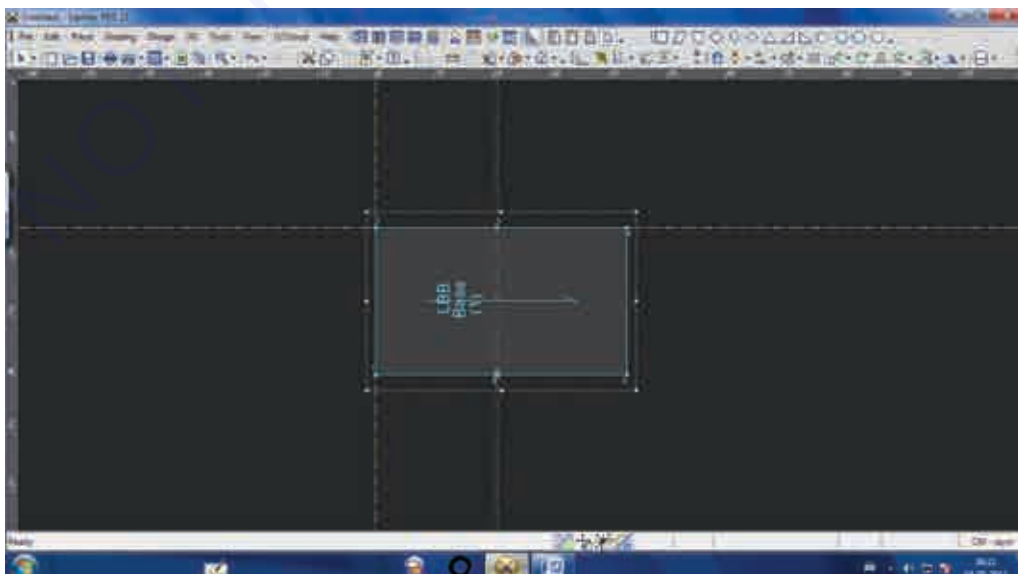




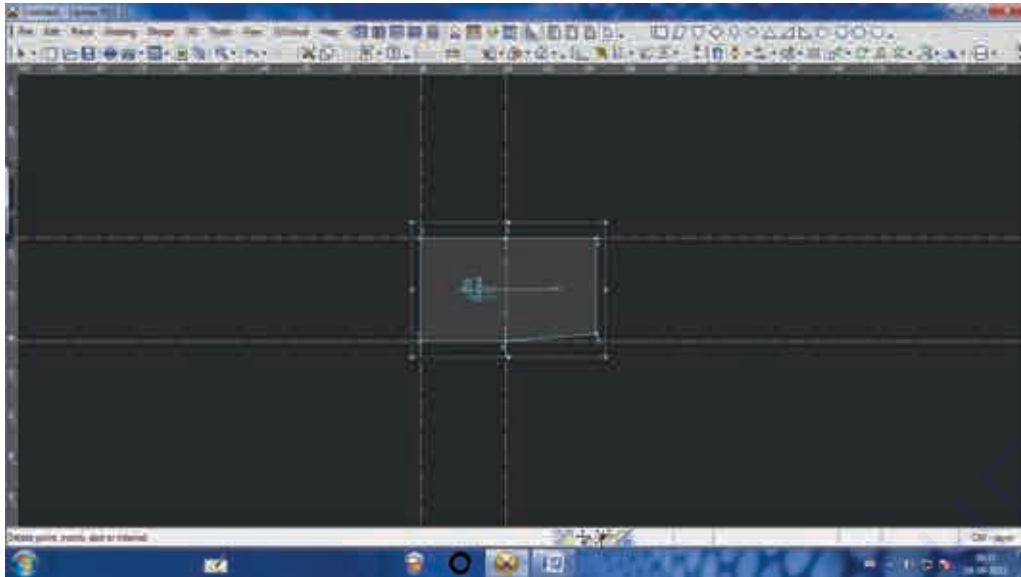
Step 3: Keep Guide line



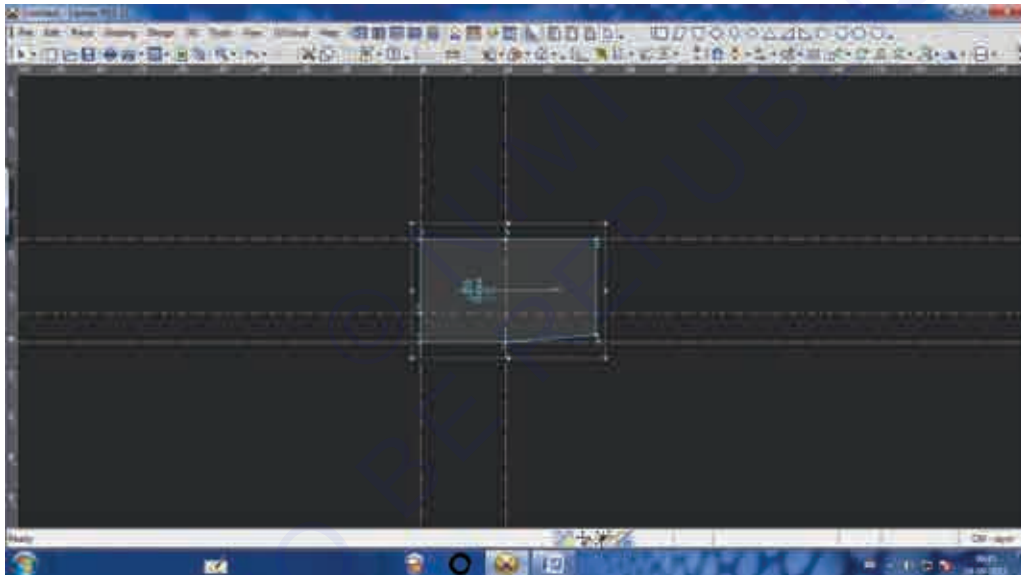
Step 4: Create point (ctrl + O) for chest measurement at 20.75 cm & keep guide line for Chest line.



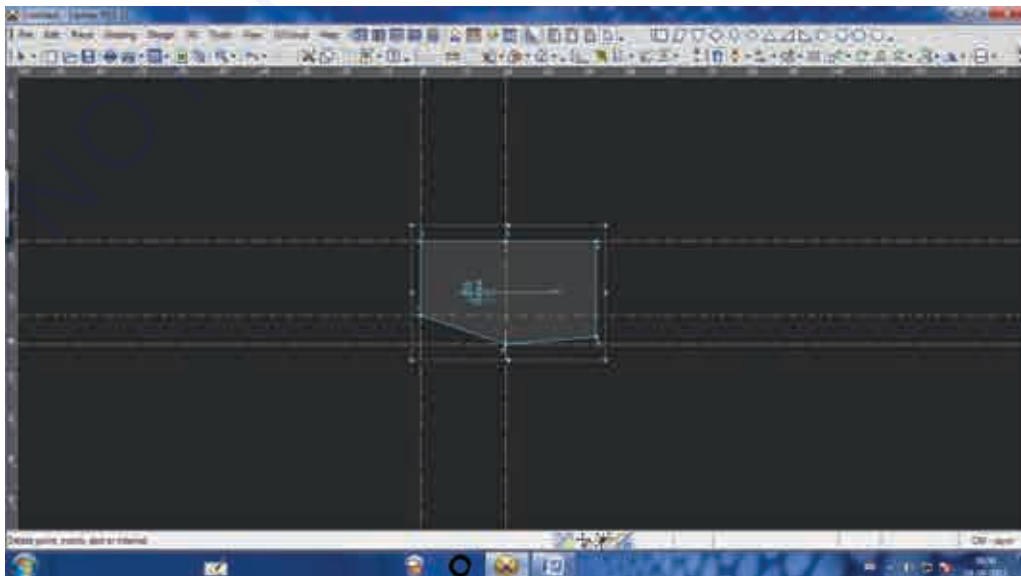
Step 5: Mark 2 cm for waist measurement and delete the extra point to give waist shape.

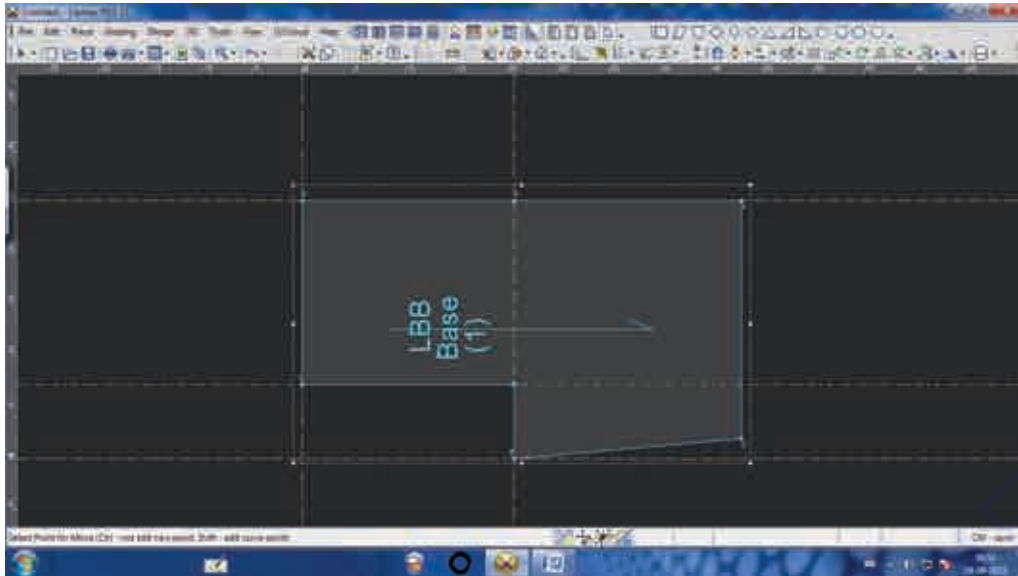


Step 6: Keep Guideline for $\frac{1}{2}$ Shoulder measurement and mark the Point at 18cm.

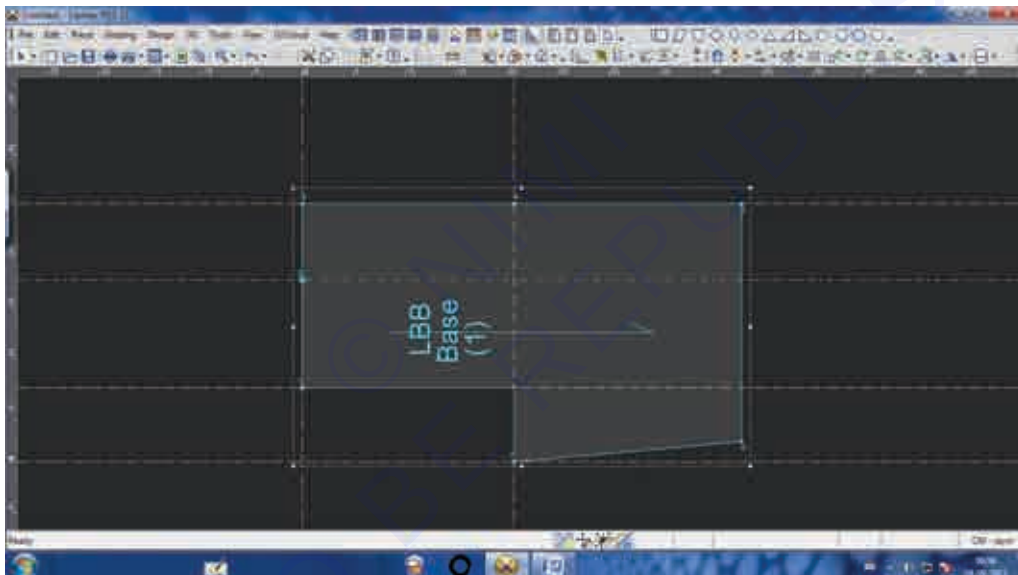


Step 7: Delete the extra shoulder point.

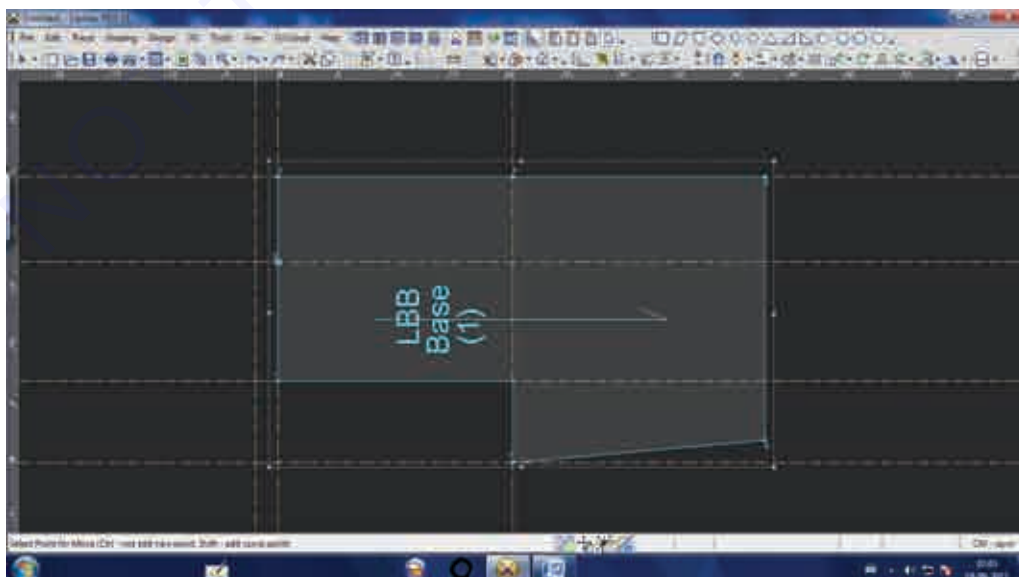




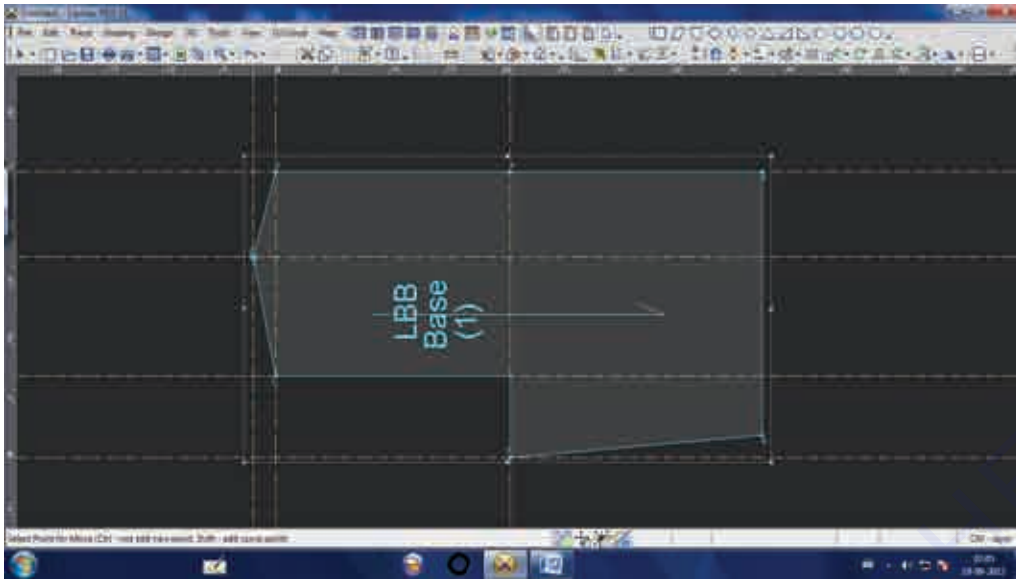
Step 8: Mark the Back Neck width measurement and add point and guideline to it



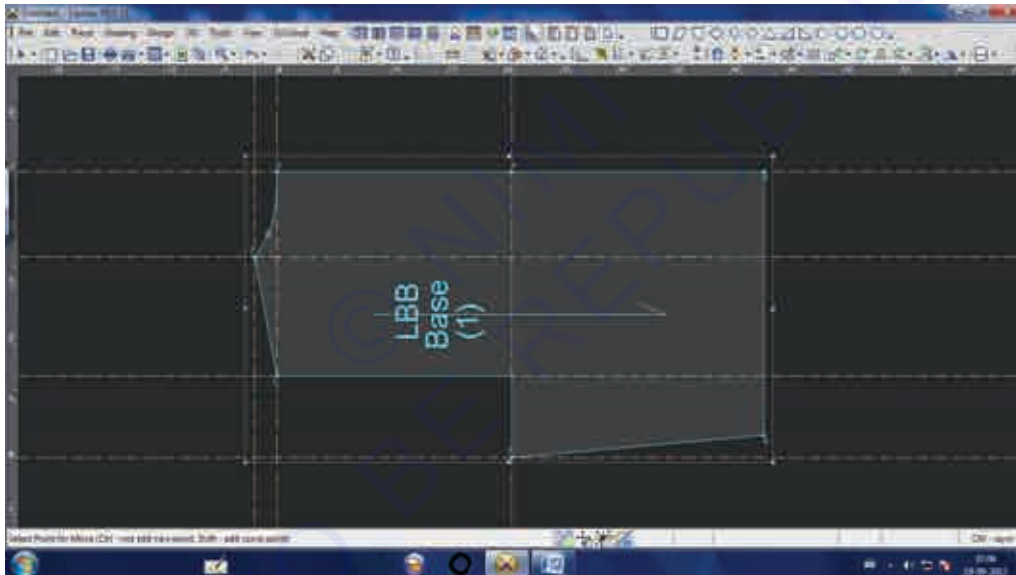
Step 9: Raise the Back Neck height by 2 cm use guideline for accurate measurement



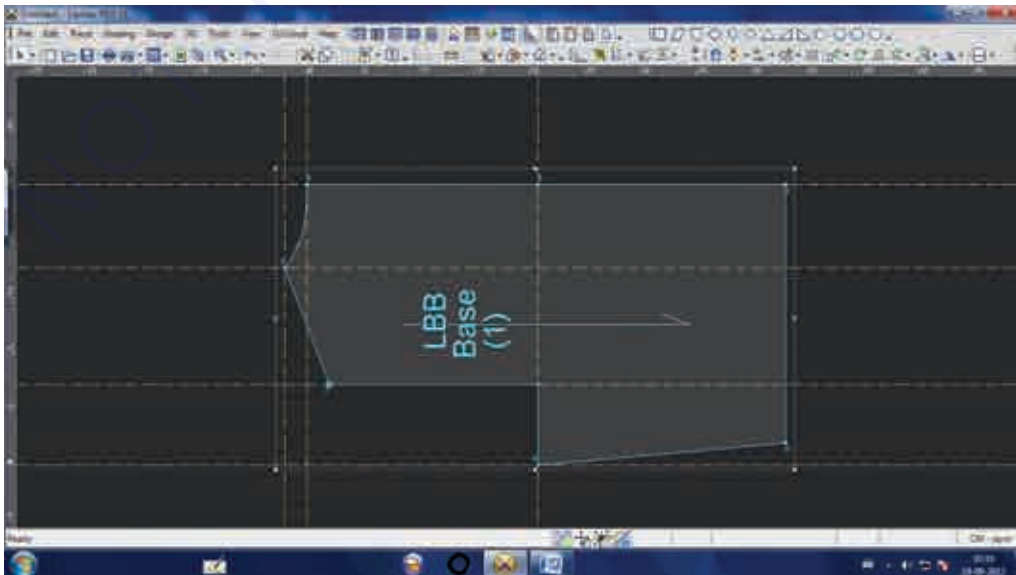
Step 10: Use Move Point (ctrl+M) to rise the Back neck

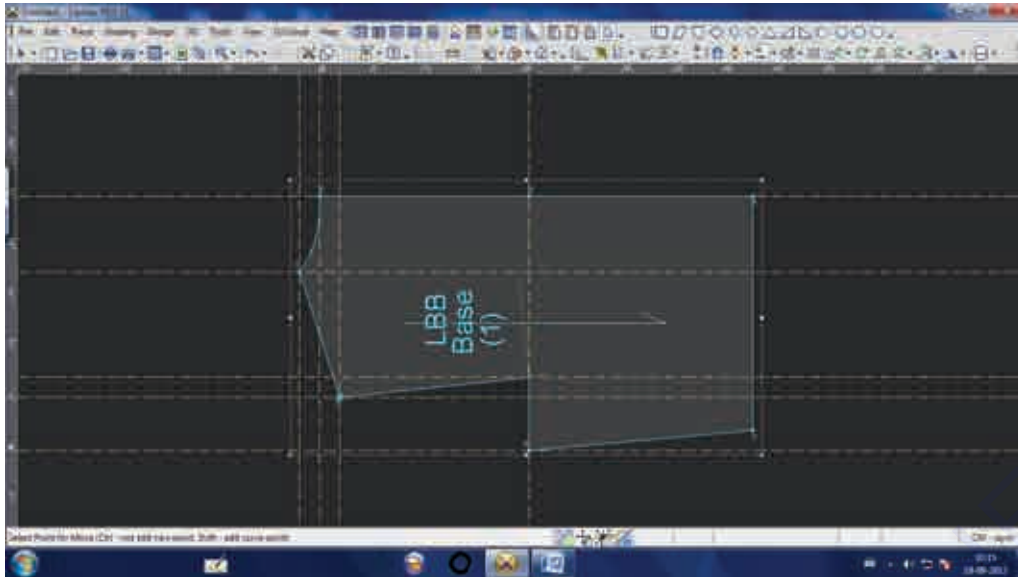


Step 11: Give Back neck curve shape (ctrl +M & shift)

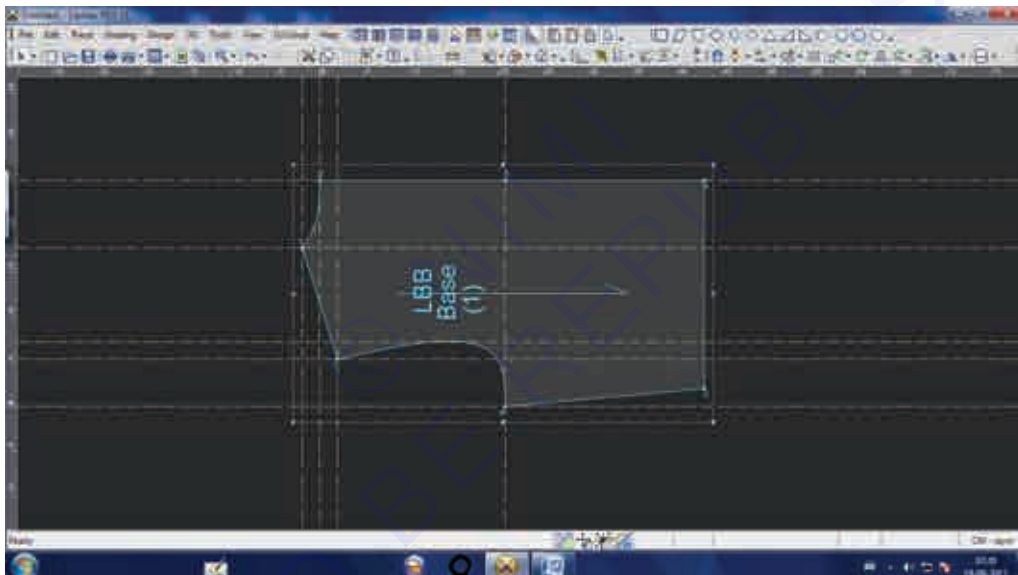


Step 12: Give Shoulder slope 2 cm using move point.

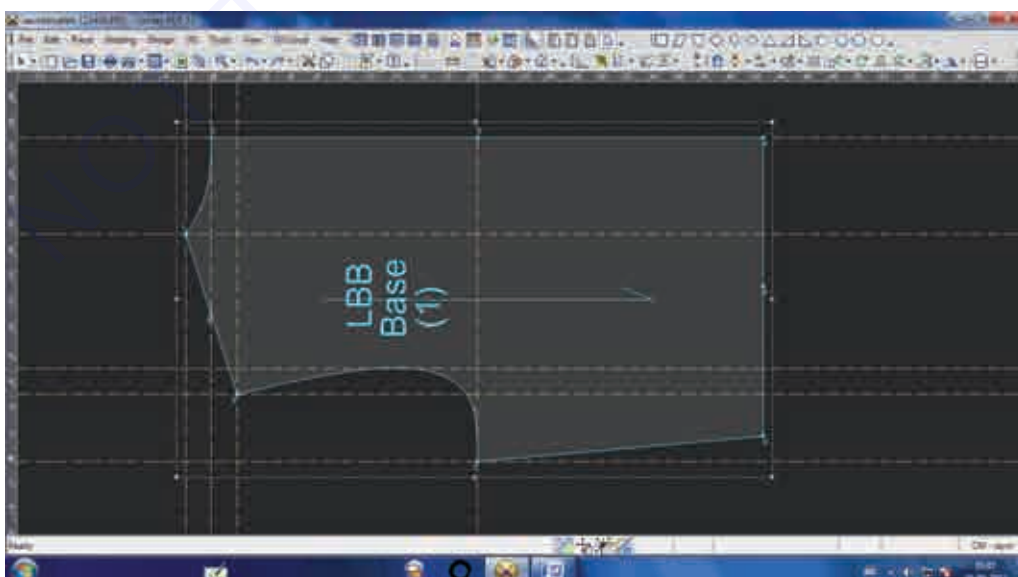




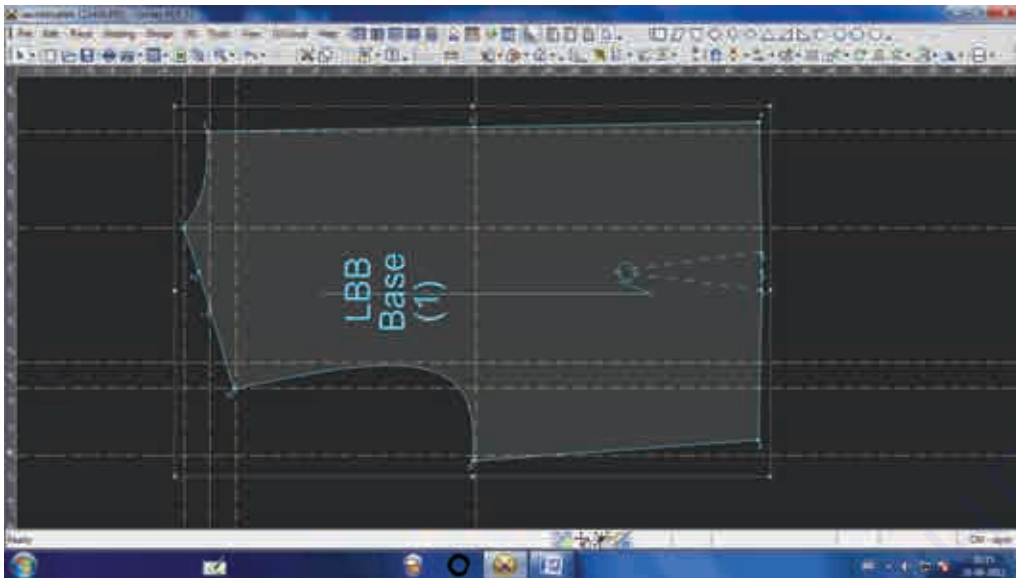
Step 13: Give armhole shape



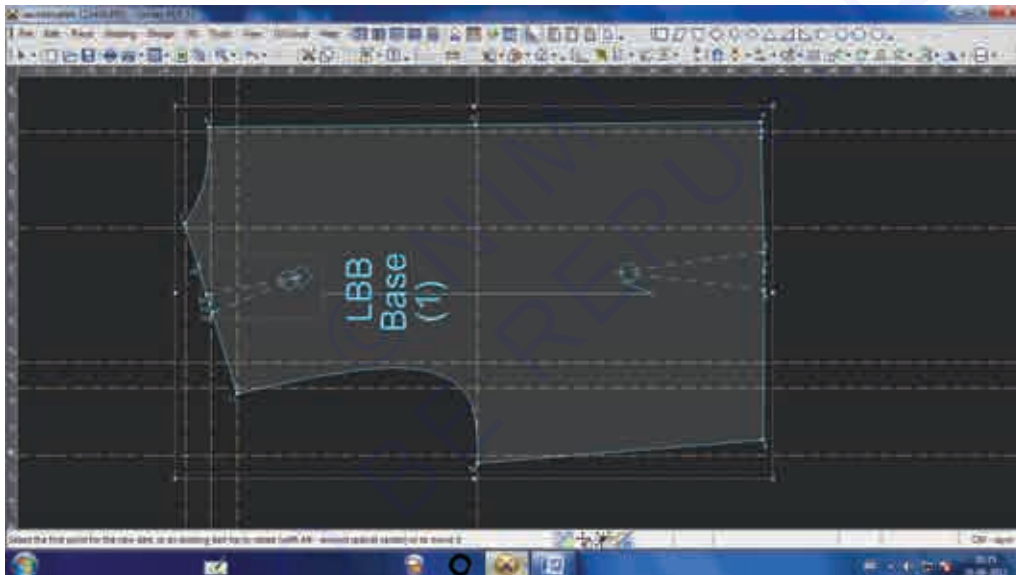
Step 14: Mark the Dart Placement in shoulder & Waist



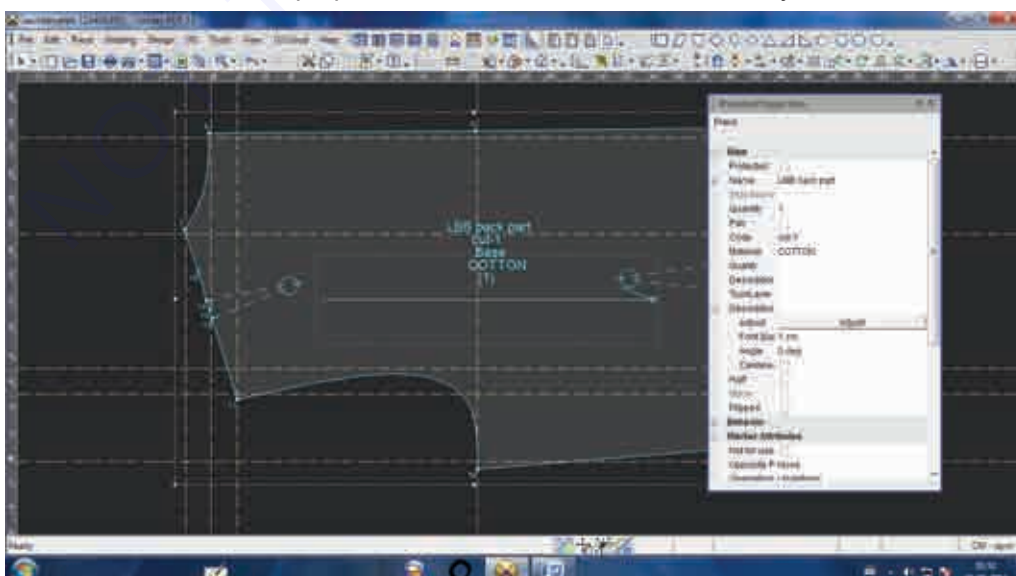
Step 15: Create waist dart (Ctrl + alt + D) dart length =11.5, dart width=1.5



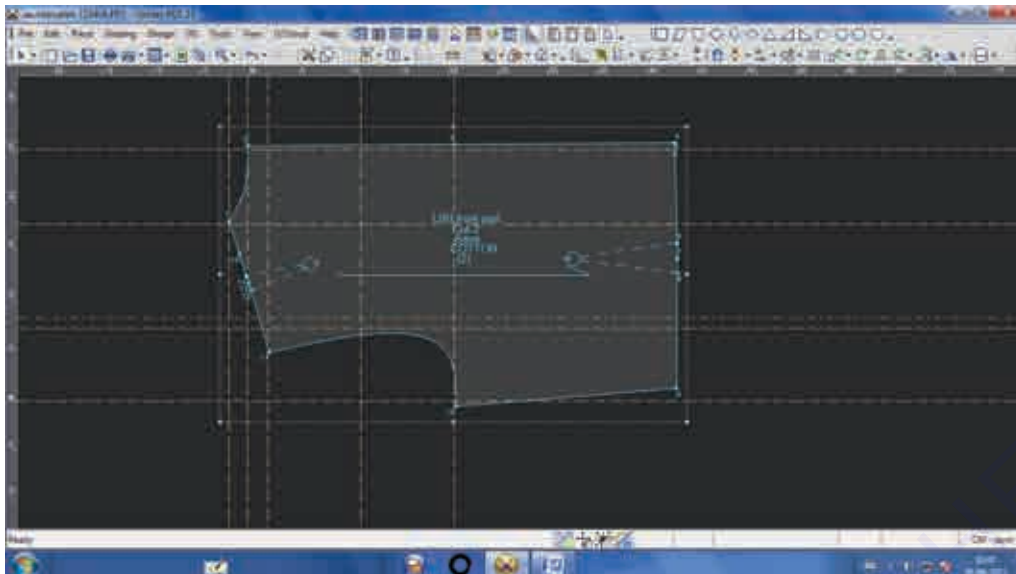
Step 16: Create a shoulder dart (Ctrl + alt + D) dart length =7.5, dart width=0.75



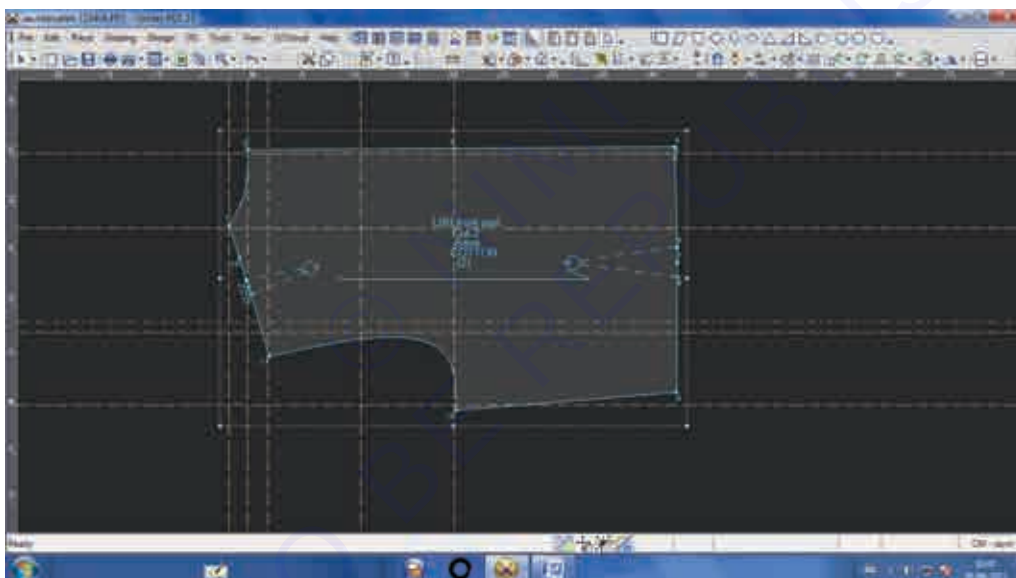
Step 17: Fill all the details in Piece properties table like Piece Name, Quantity, Code, Material etc.



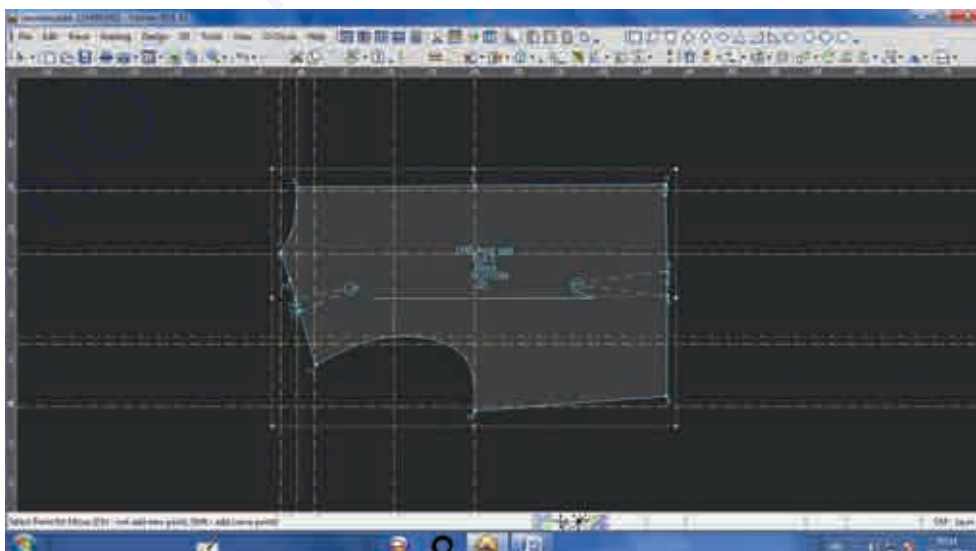
Step 18: Ladies Bodice Block Back part is Created



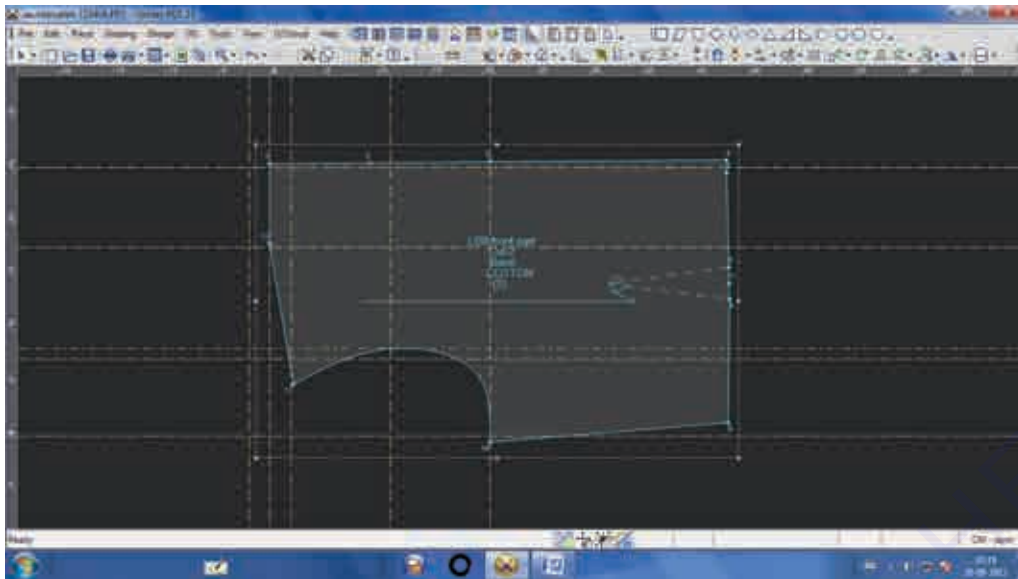
Step 19: Copy & Paste (ctrl + C , ctrl + V) the Back Part to modify it into Front Part



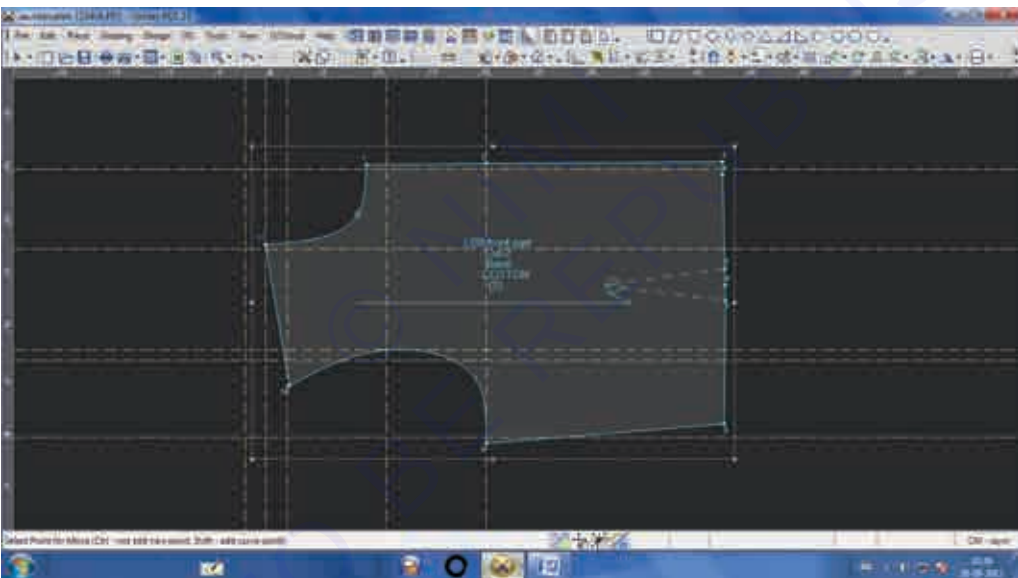
Step 20: Keep guideline 1 cm for Front armhole shape and give armhole front shape using Move point (Shift +Ctrl +M)



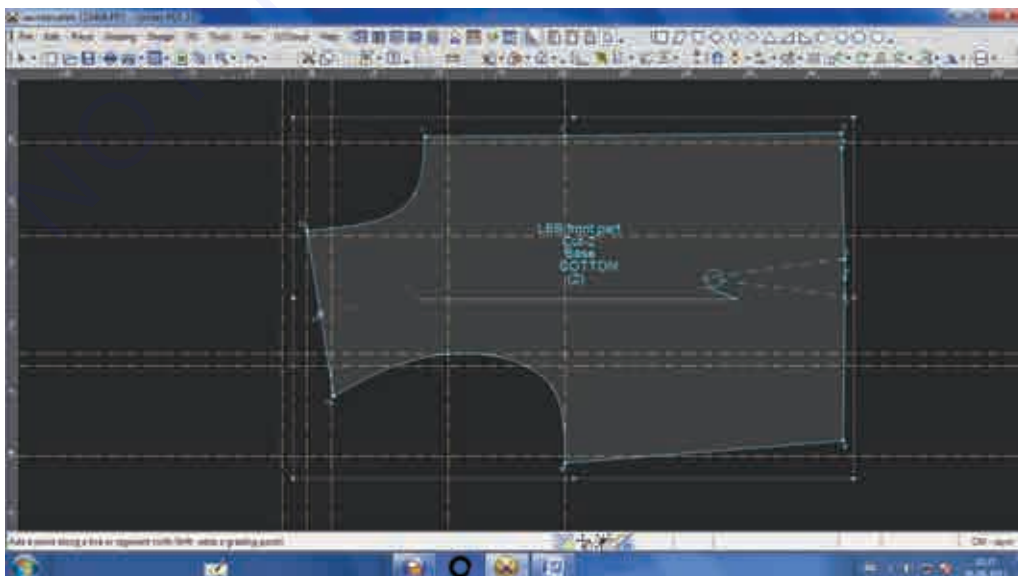
Step 21: Mark and keep Point for front neck width=7.5cm & front neck depth =9.5cm (ctrl +o)



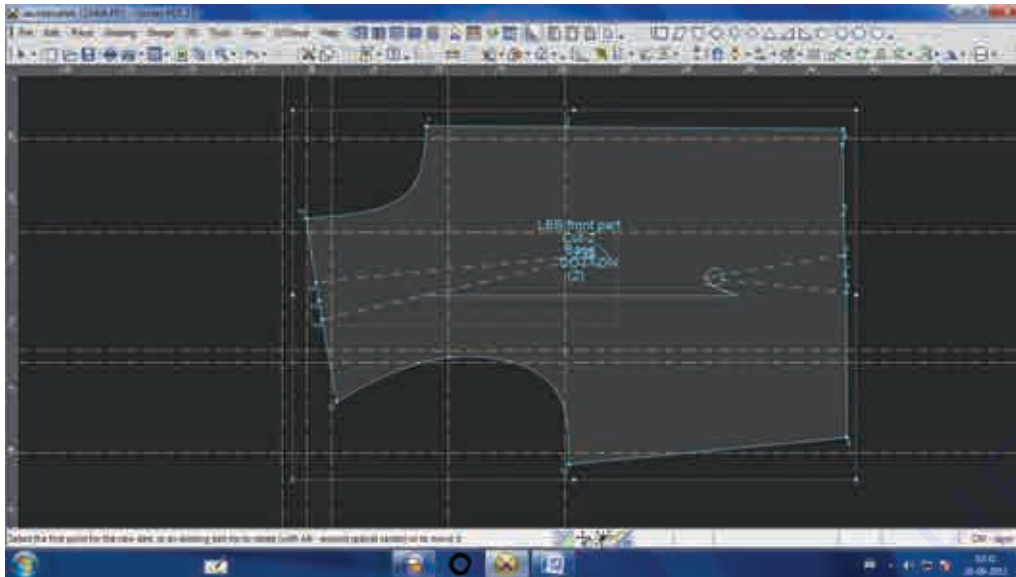
Step 22: Using move tool give Front neck shape



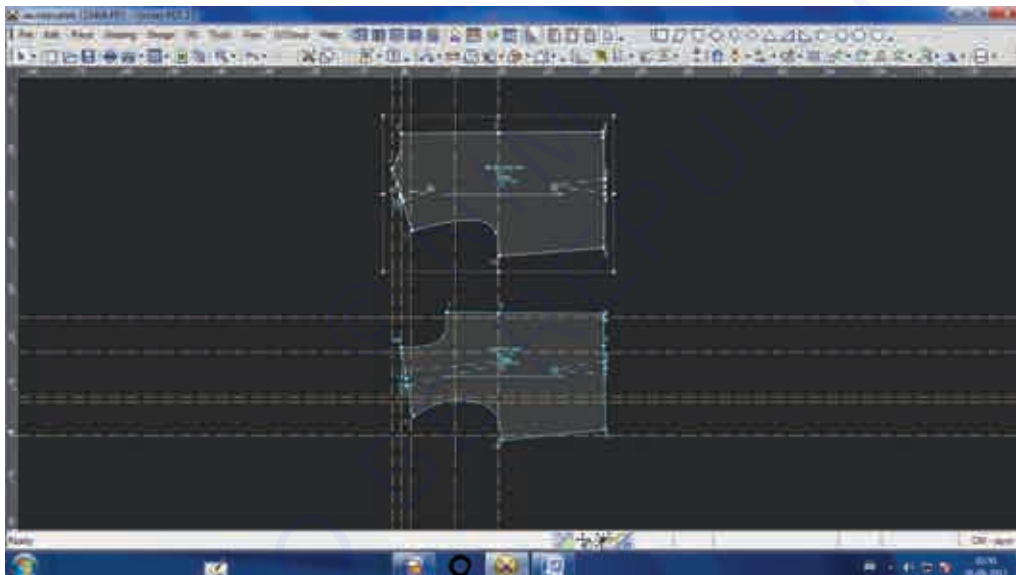
Step 23: Mark Point for Shoulder dart (ctrl +O)



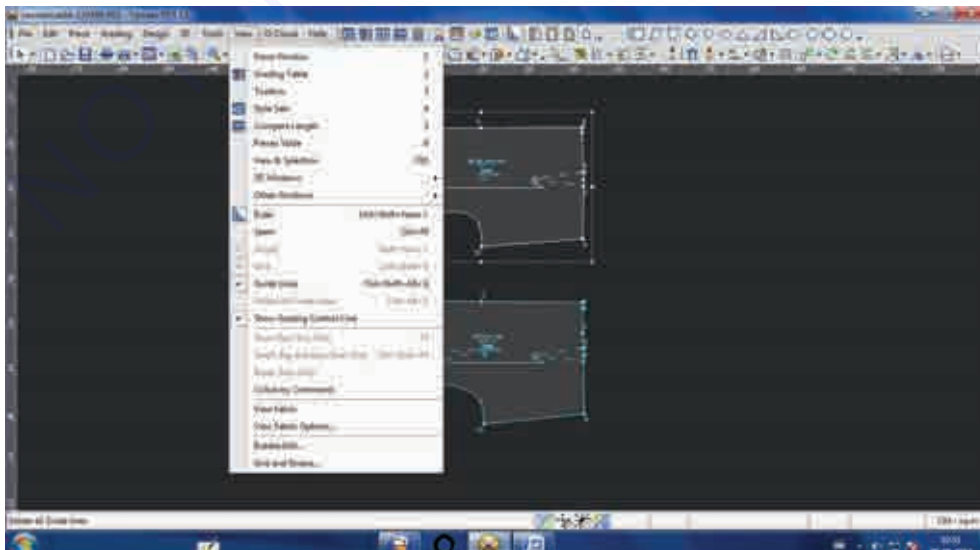
Step 24: Create Shoulder dart using Dart tool (ctrl + alt + D) dart length=22.7 , dart width =1.5



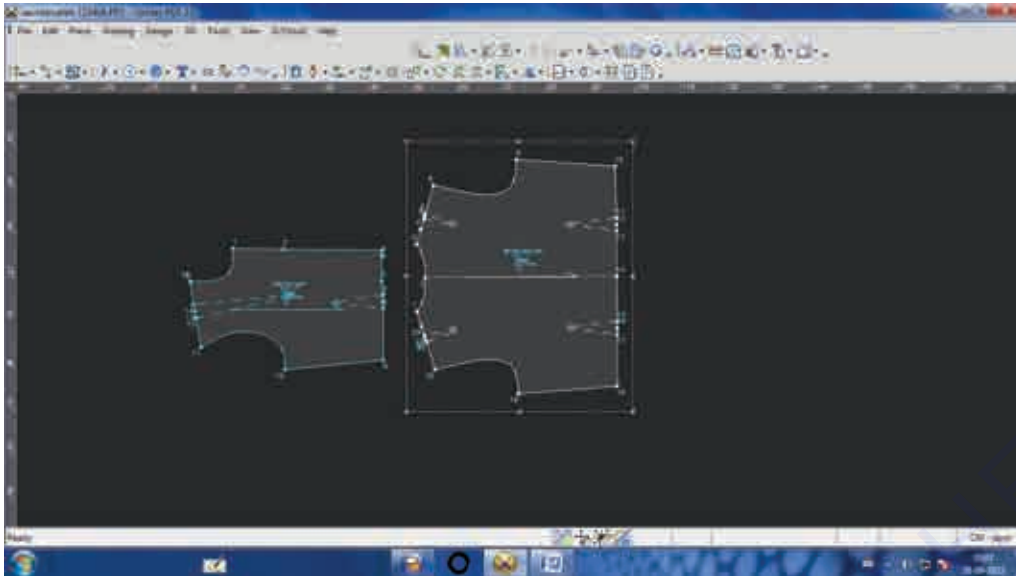
Step 25: Ladies bodice block Front & back part



Step 26: Go to the view and delete all guide lines

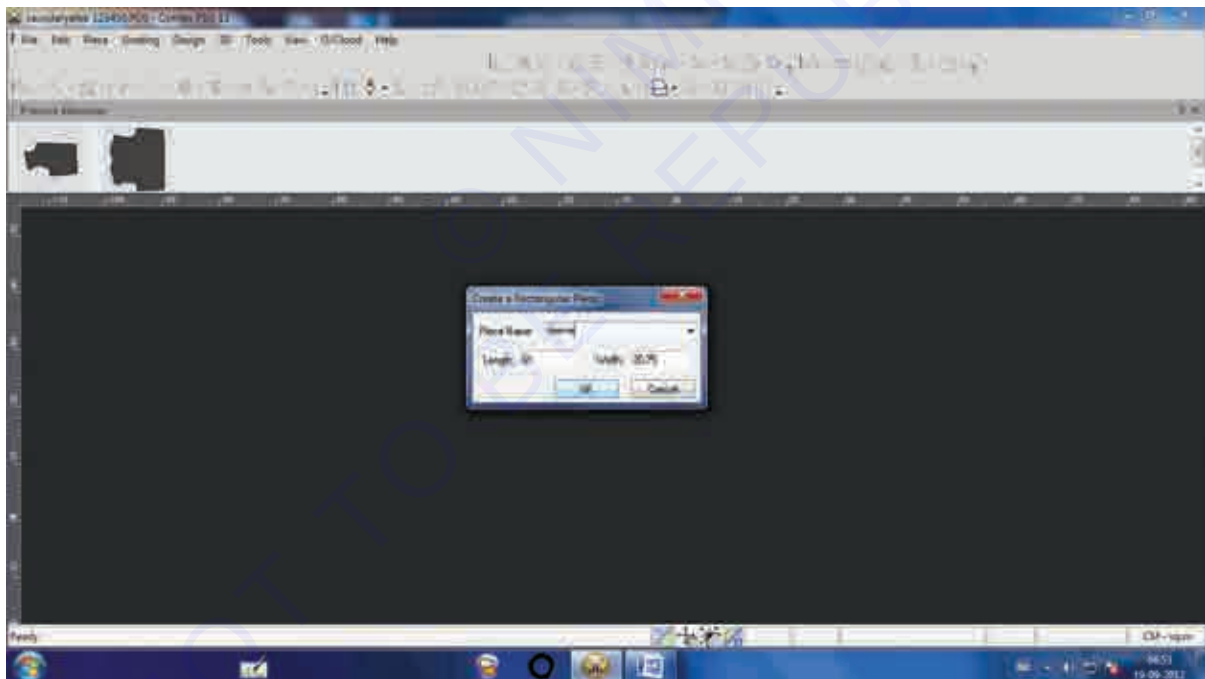


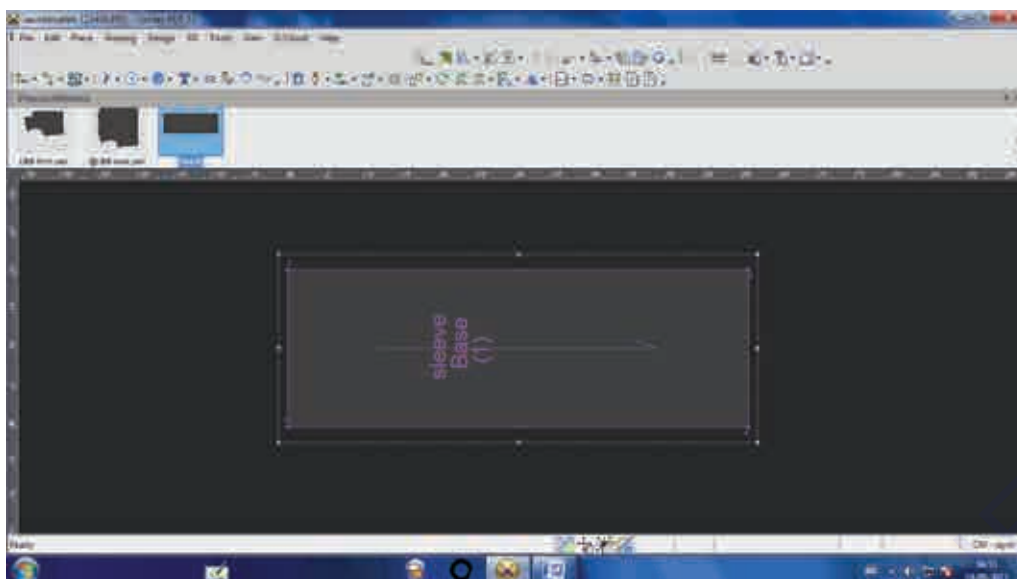
Step 27: Since Back Part is on Fold, to open - Set mirror line (ctrl +alt +H)



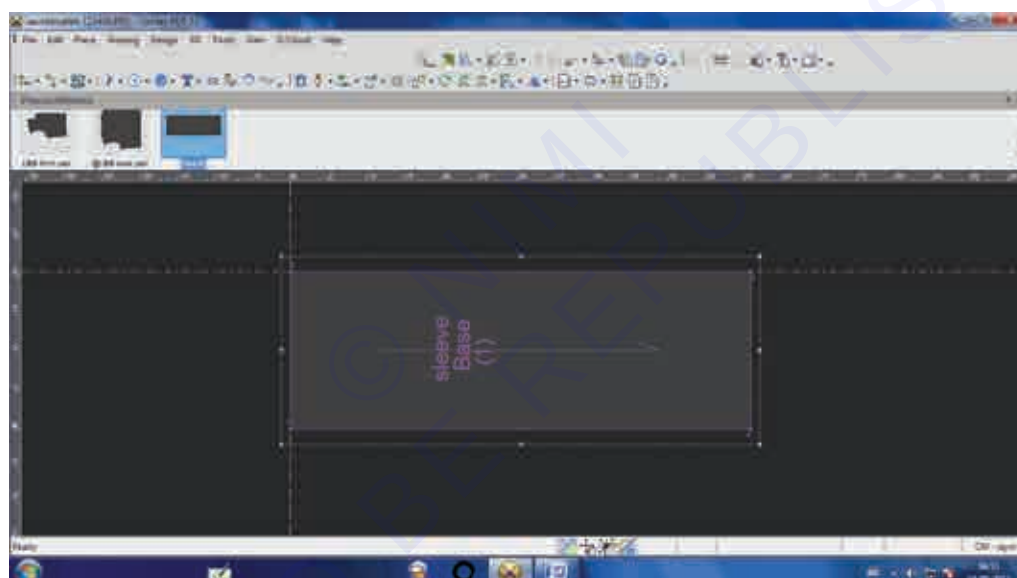
CREATE SLEEVE PATTERN

Step 28: Right Click Mouse – Select Create rectangular piece. Fill Piece Name sleeve, Length – 61 cm, Width - 20.75 cm, click ok.

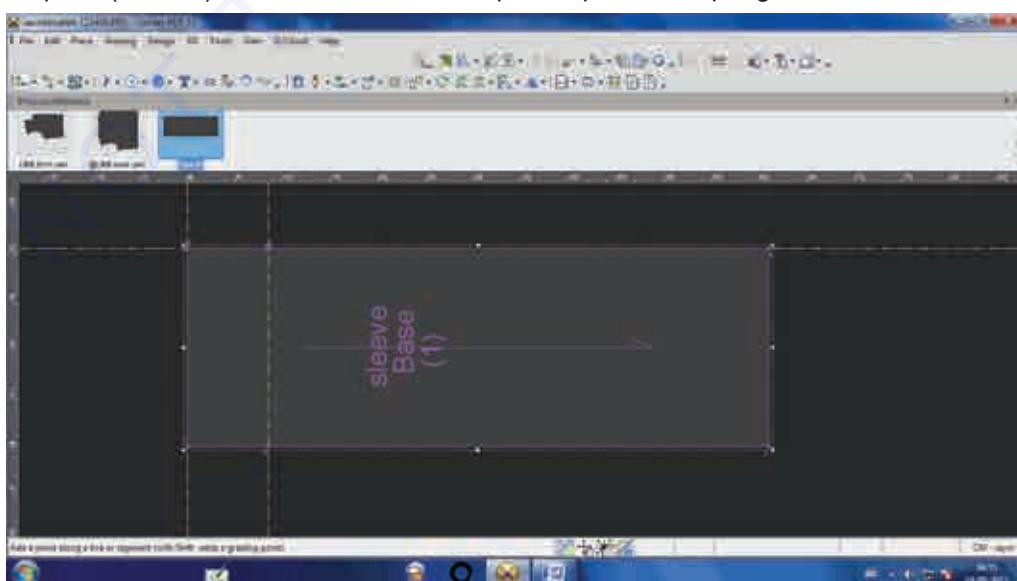




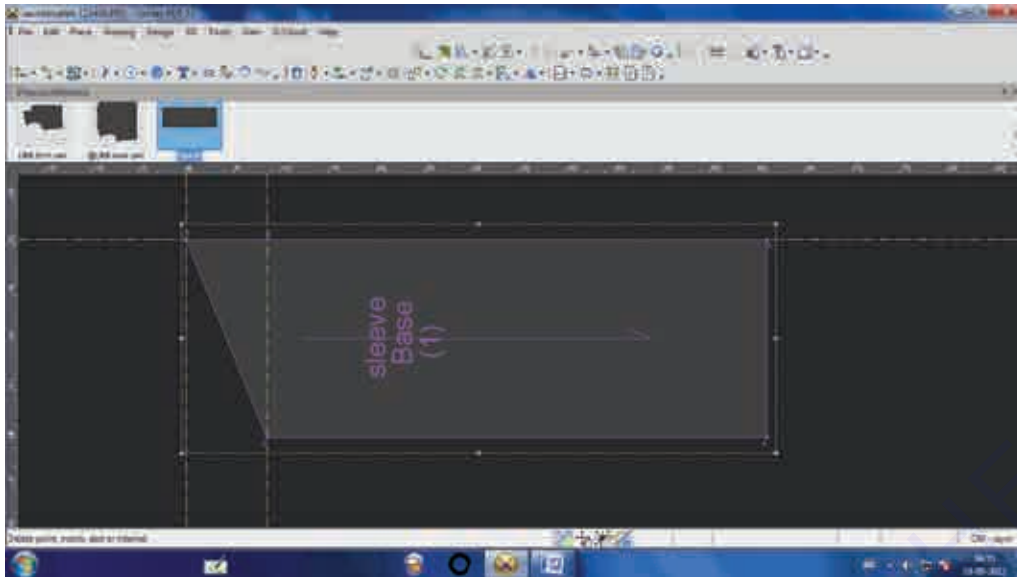
Step 29: Keep guide line



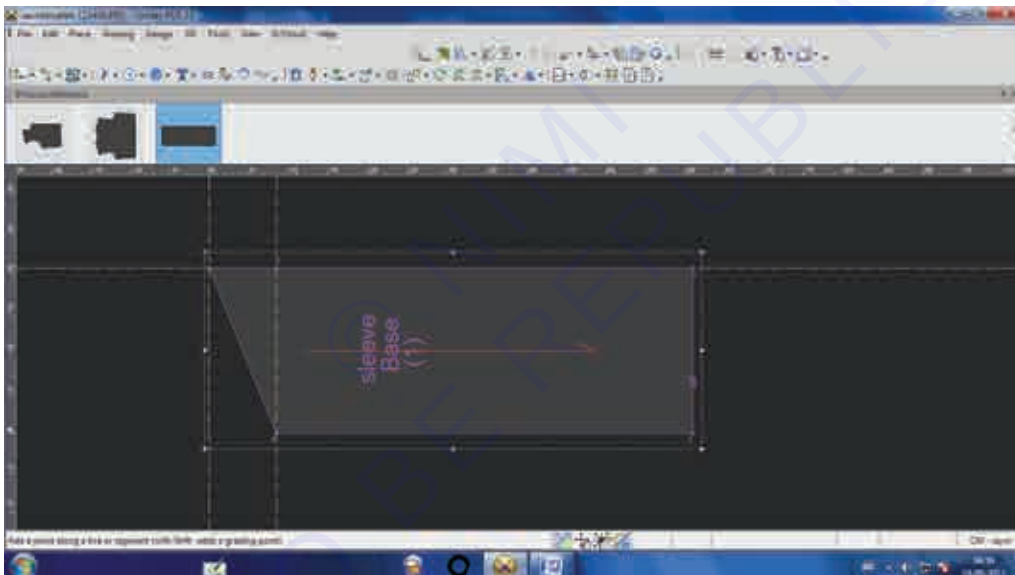
Step 30: Add a point (ctrl + O) at 8.5 cm for sleeve cap / bisep line, keep a guide line



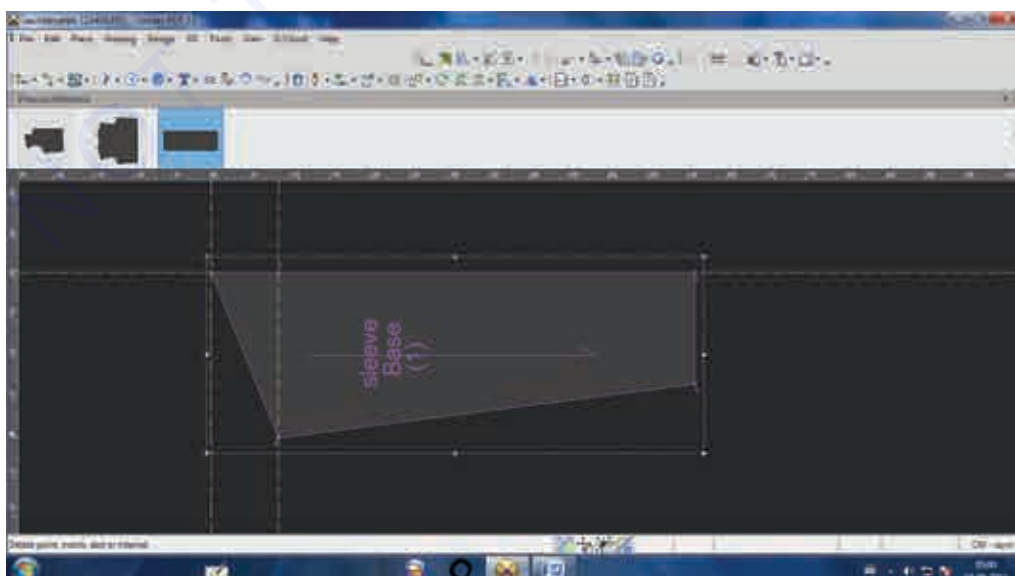
Step 31: delete the extra point to make sleeve crown



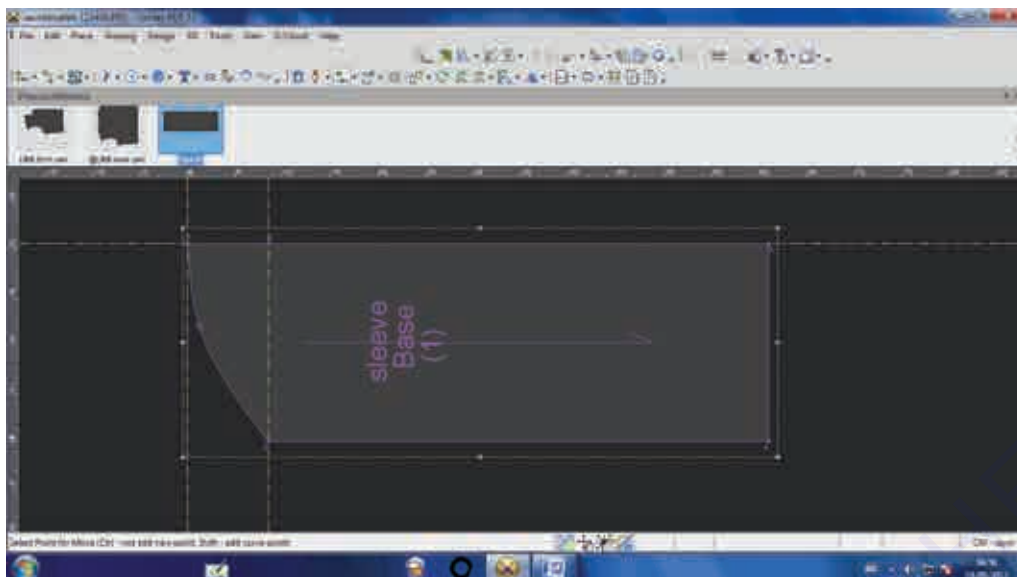
Step 32 : Mark and add a point at the hem at 14 cm as per sleeve bottom round measurement



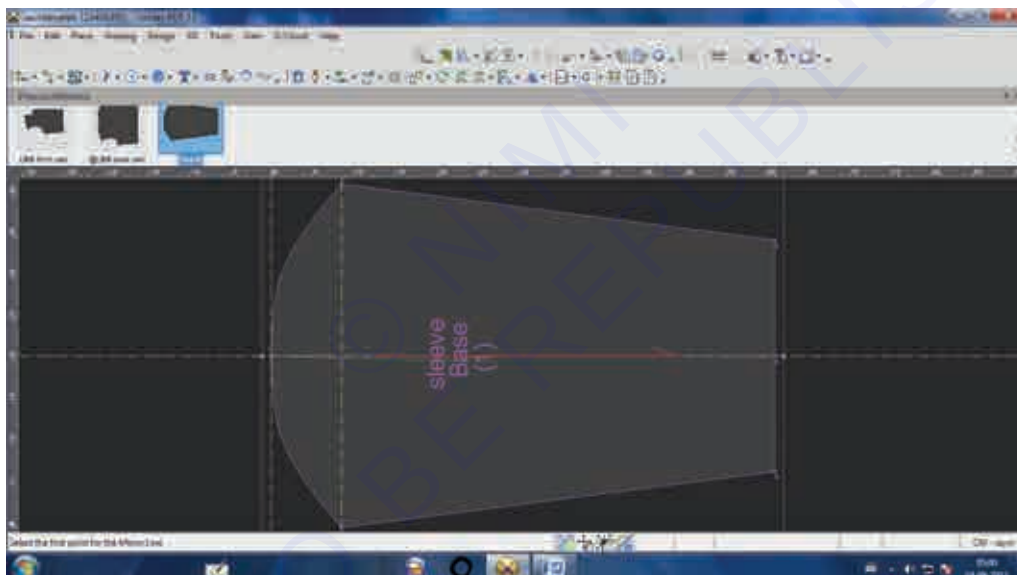
Step 33 : Delete the unwanted point at bottom hem, to give shape of underarm.



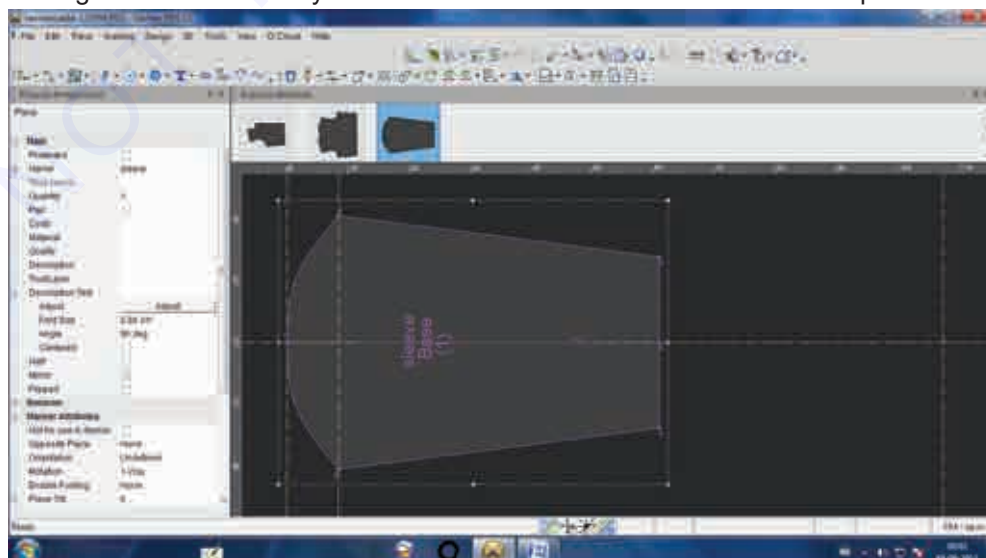
Step 34: Give back armhole shape using move tool (Cntrl + Shift + M)

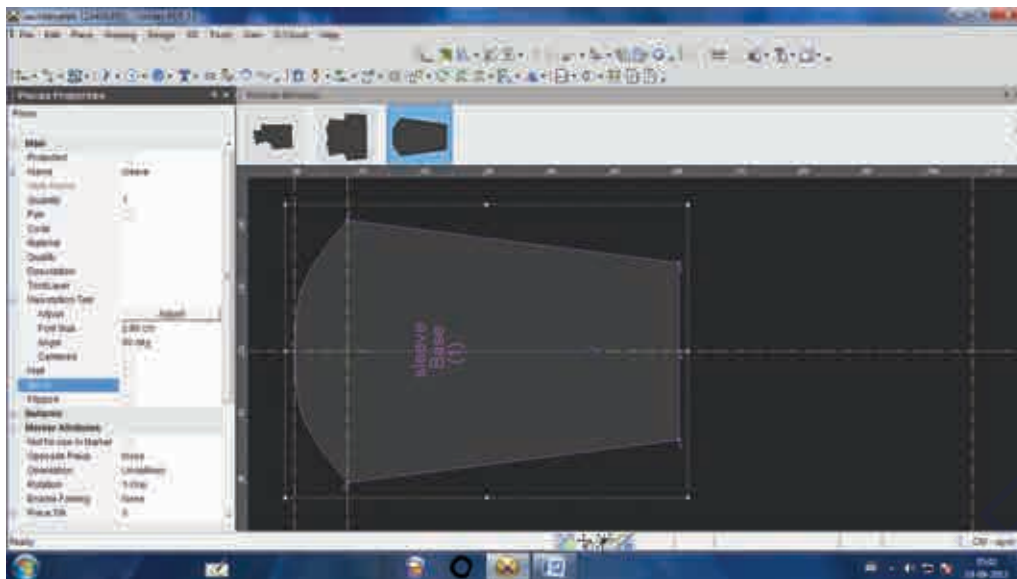


Step 35 : To open the sleeve fold line – select Set mirror line tool (ctrl + alt + H)

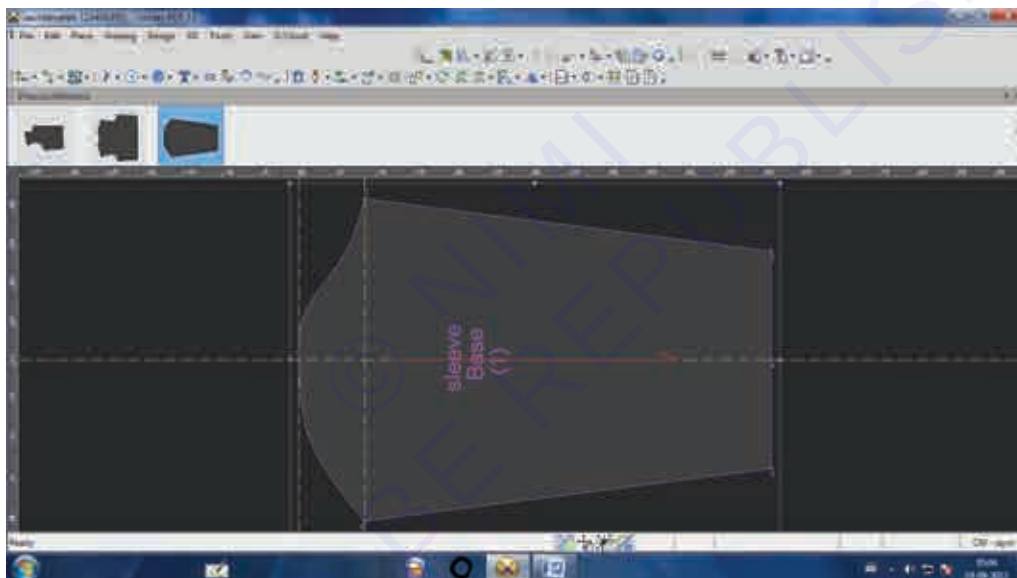


Step 36: Double click the pattern - Piece Information table appears. Remove the tick mark from Mirror drop down menu as shown in figure below. So that you can ammend the sleeve front armhole shape

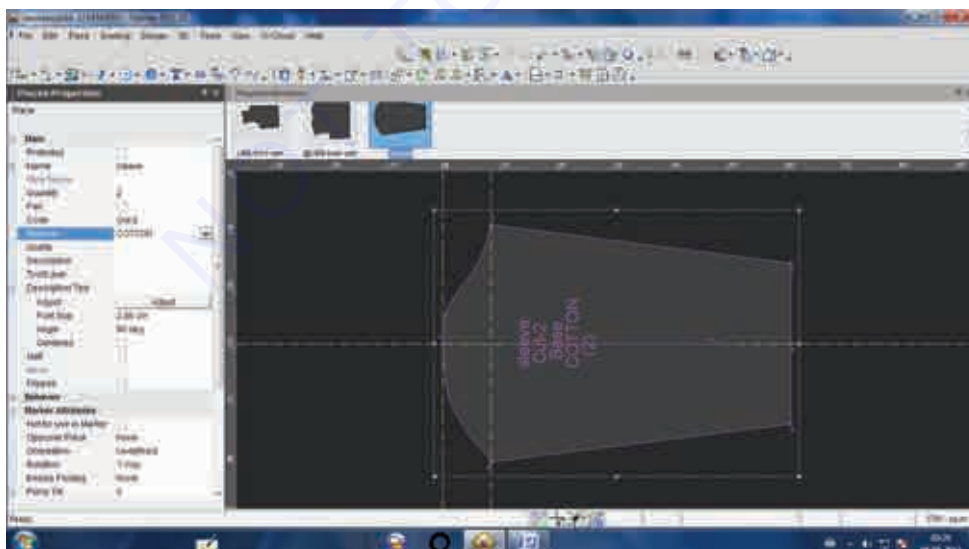




Step 37: Use Move tool to give front armhole shape.



Step 38: Give details in Piece Information Table – (Piece Name, Quantity, Code, Cut , Material)



Save the Pattern
-(ctrl+S)

Note: Get the work checked by your Instructor

Draft Ladies Trousers

Objectives : At the end of this exercise you shall be able to

- draft Ladies' Trousers.

Requirements

Tools/materials

- Computer with Software for Pattern Making (Latest Version) - 1 No.

Procedure

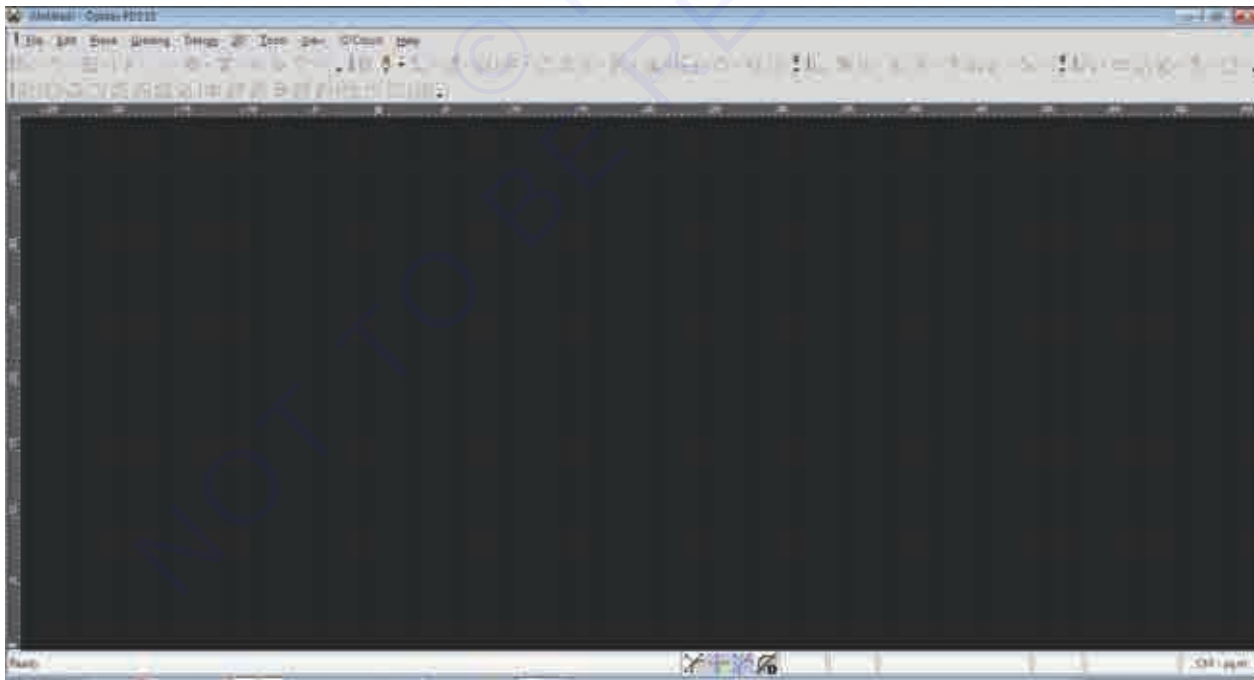
MEASUREMENT IN CM

Full Length	-	100 cm
Crotch	-	27 cm
Hip Level	-	22 cm
Waist	-	72 cm
Hip	-	100 cm
Knee	-	48 cm
Bottom Hem	-	48 cm

Double click and Open PDS Icon

Step 1: Go to File menu - Click New (short cut key ctrl + N)

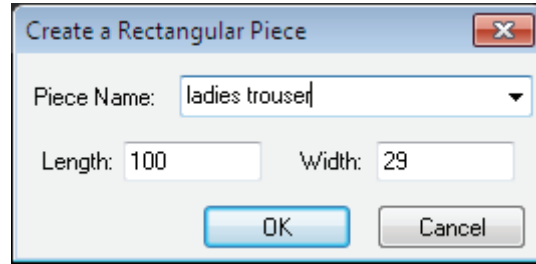
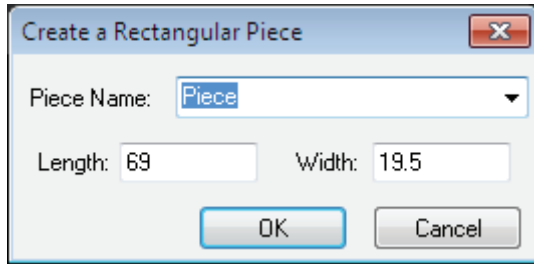
- New window opens



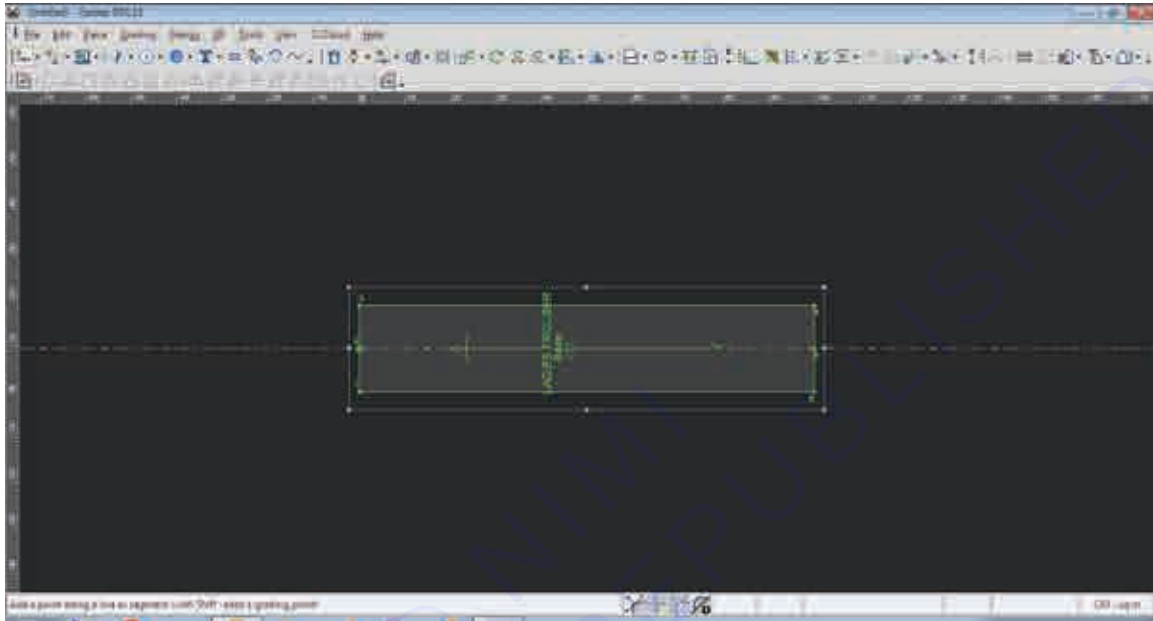
Right click the mouse - select create rectangular piece - dialogue box appears

Step 2: Write piece name:- ladies trouser

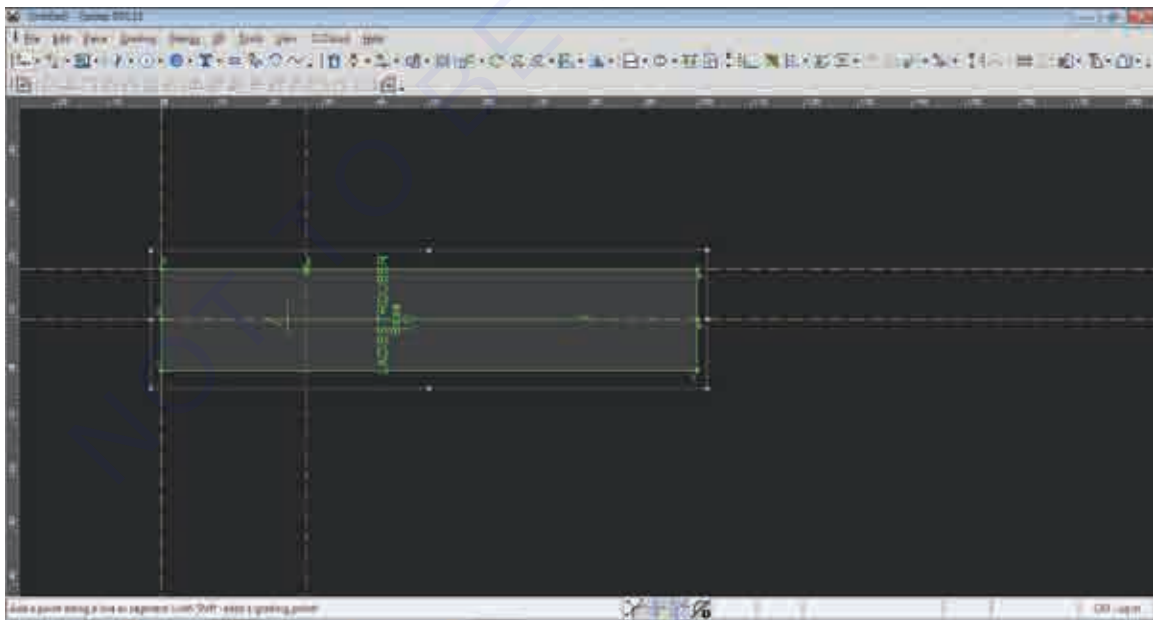
Entre the required length:-100 and width:-29, Click Ok



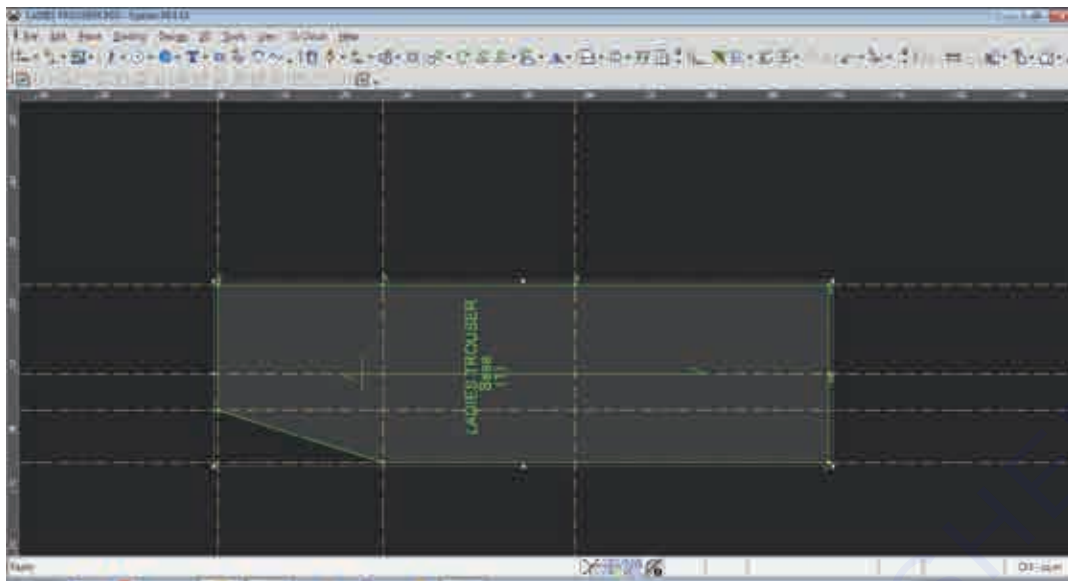
Step 3: Give grade point in center and keep guideline



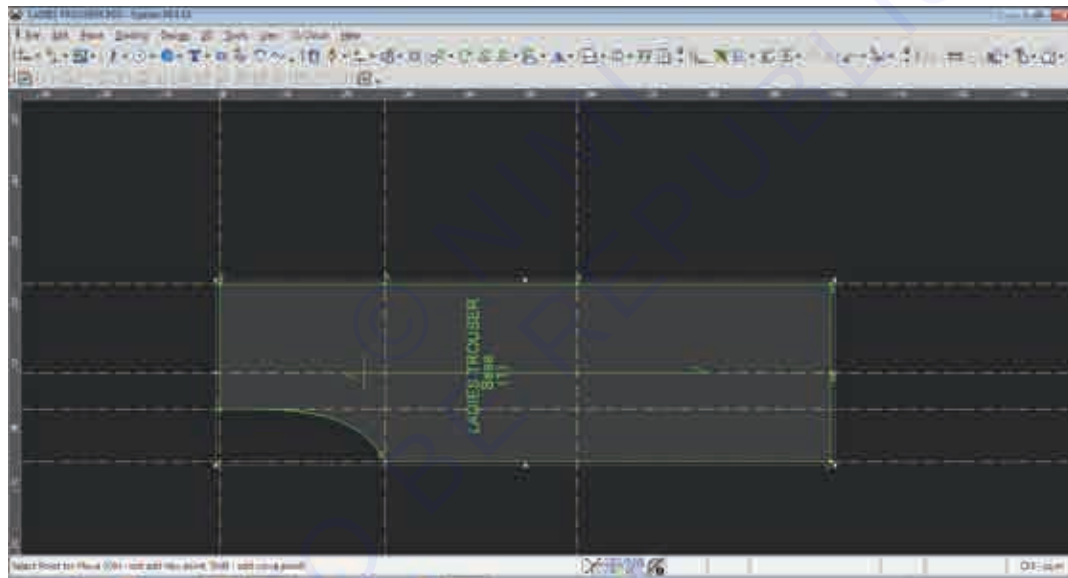
Step 4: Give all grade point(crotch length 27cm, knee length 31.5cm from crotch line, etc)



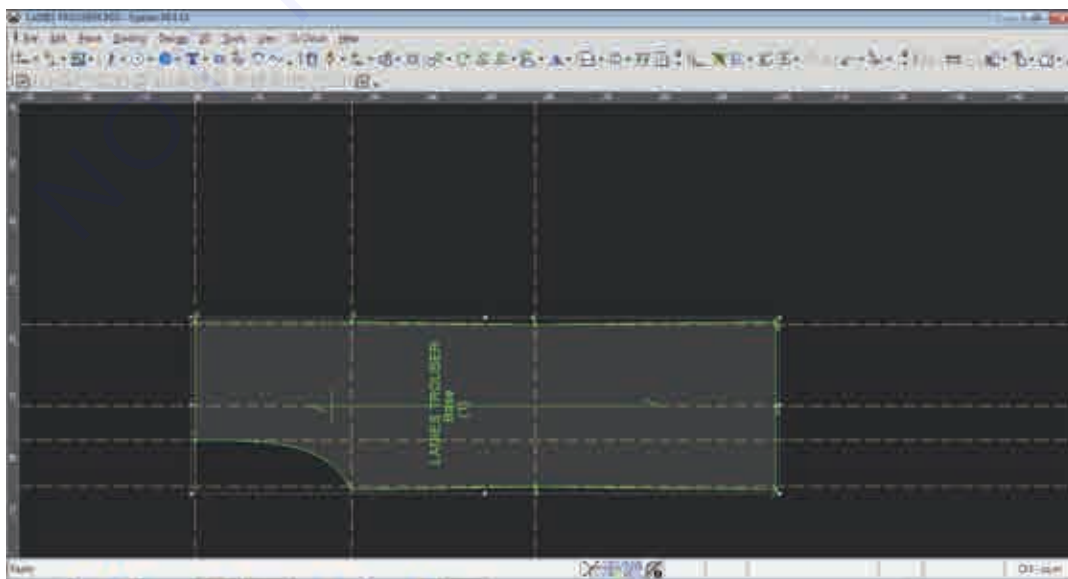
Step 5: Select guideline and keep for baseline, crotch line, knee line, crease line



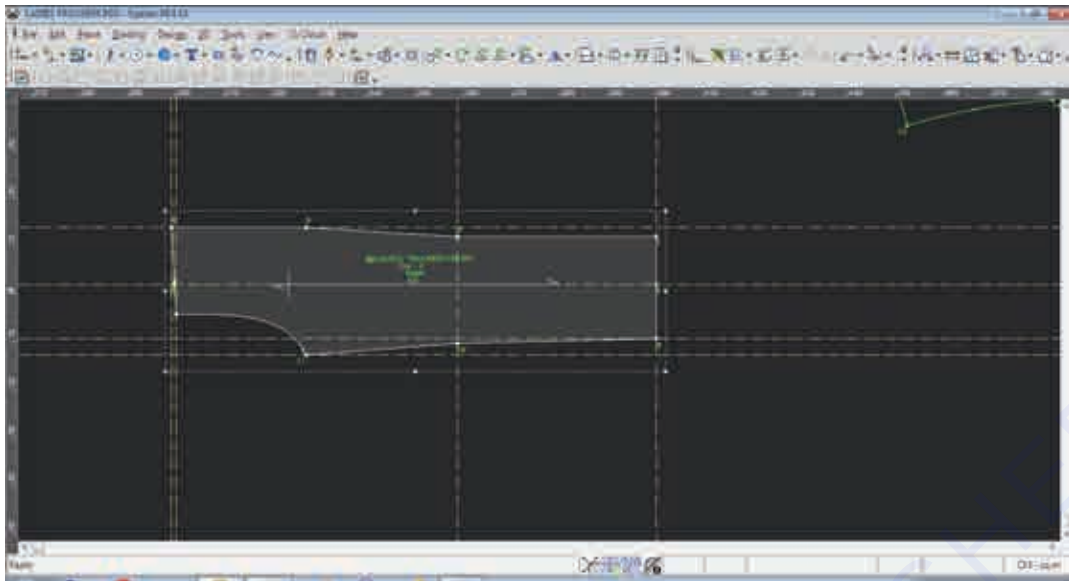
Step 6: Give crotch shape using move tool (Ctrl + M + Shift)



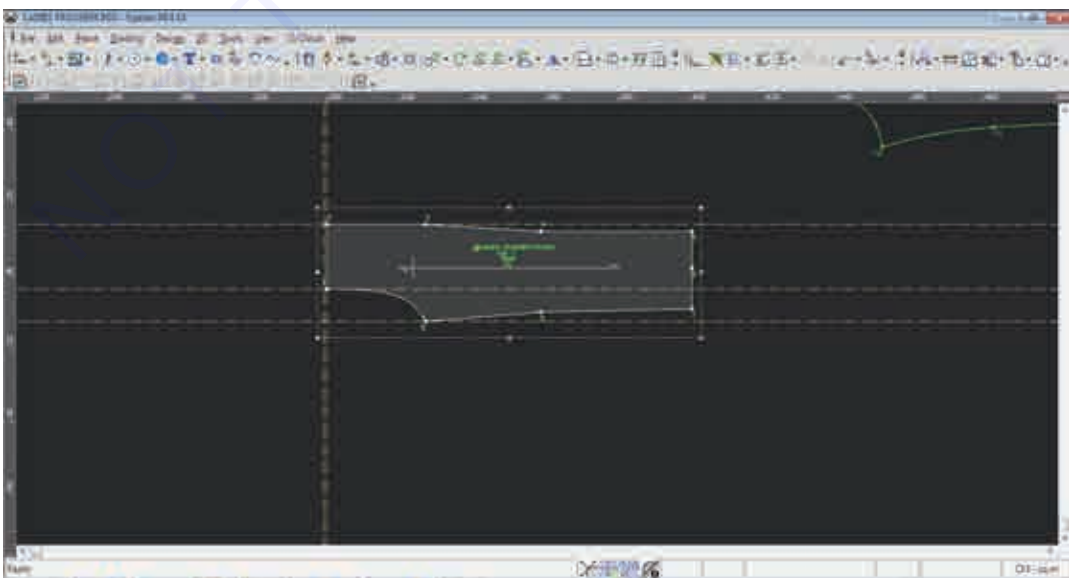
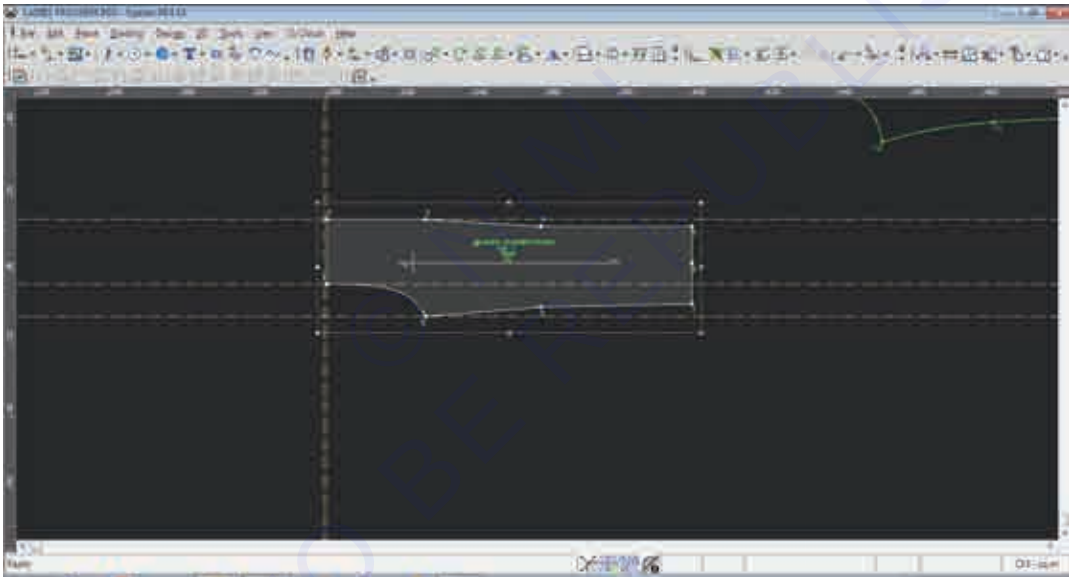
Step 7: Keep grade point for knee width 12cm and hem 11 cm from baseline



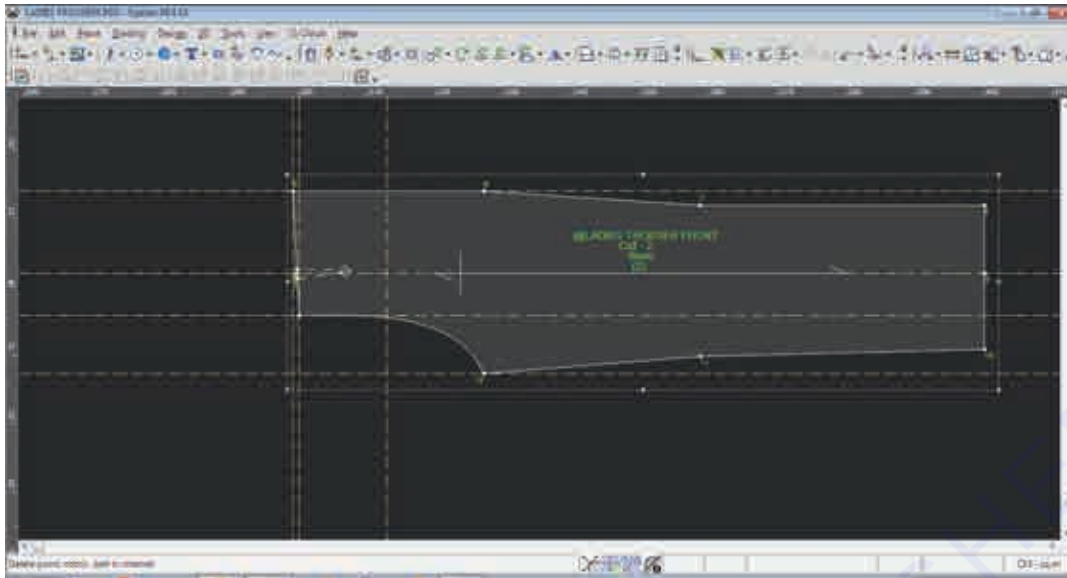
Step 8: Give shape Bottom hem & Knee shape. Delete extra points



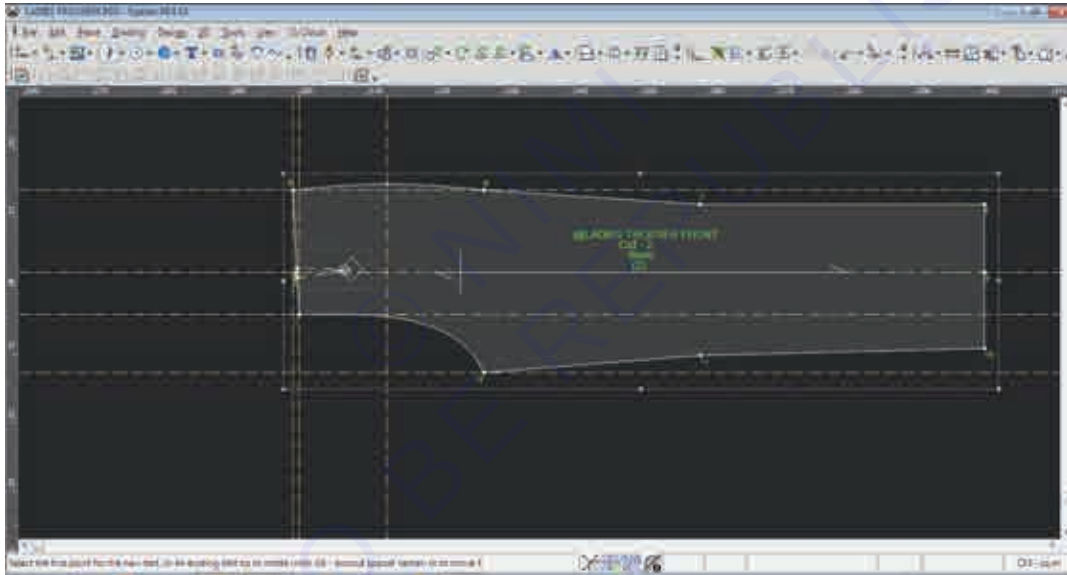
Step 9: Keep guideline for 1 cm and rise up the waist line



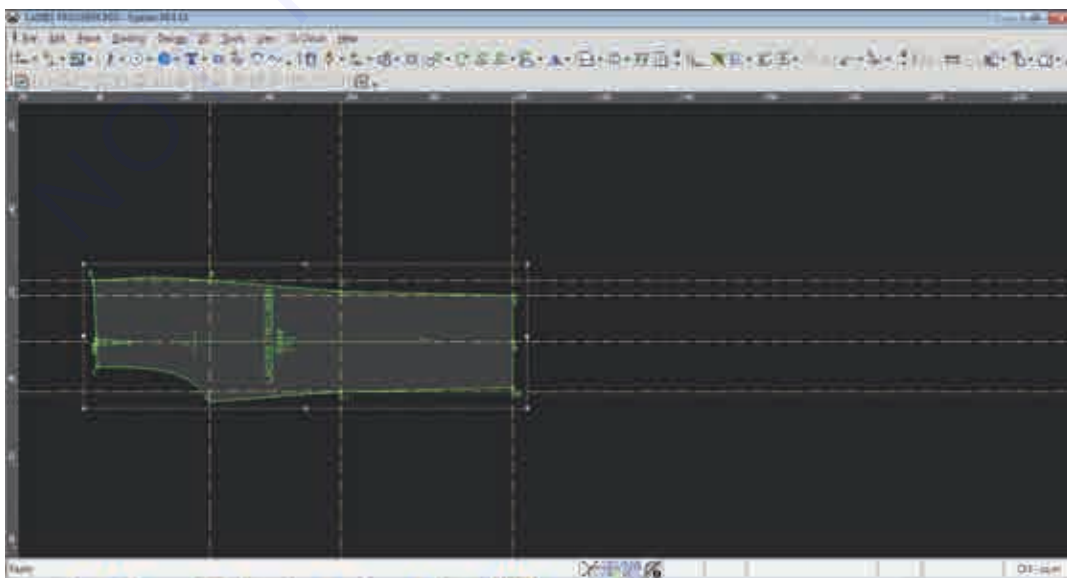
Step 10: Give dart in center point using dart tool – (dart intake -1.5 cm, dart length - 8 cm)



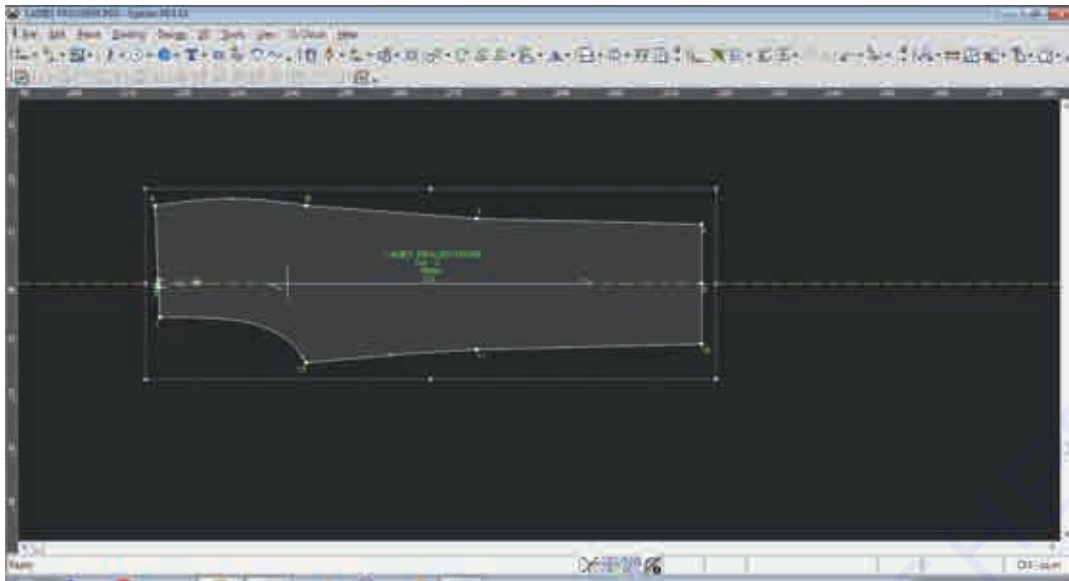
Step 11: Give Hip curve shape using move tool (Ctrl + M + Shift)



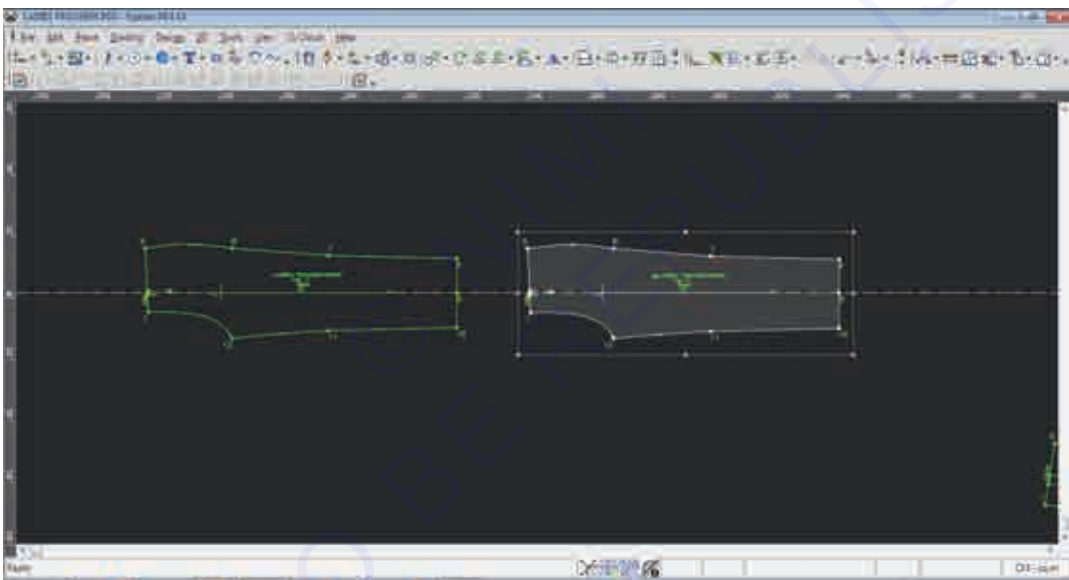
Step 12: Give Inner leg shape using move point tool



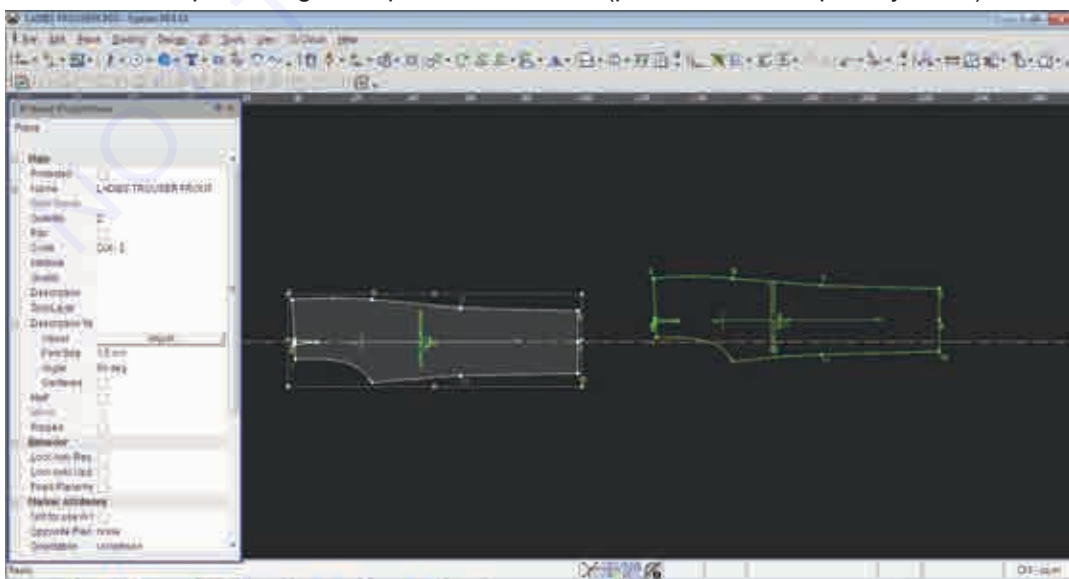
Step 13: Check all the measurement and shape of front part



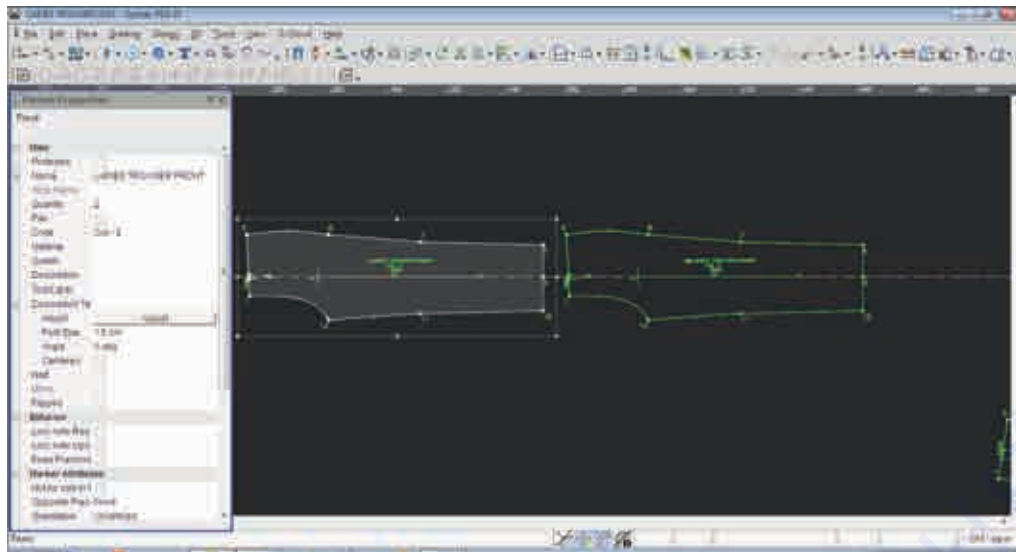
Step 14: Copy & Paste front part (ctrl + c , ctrl+v)



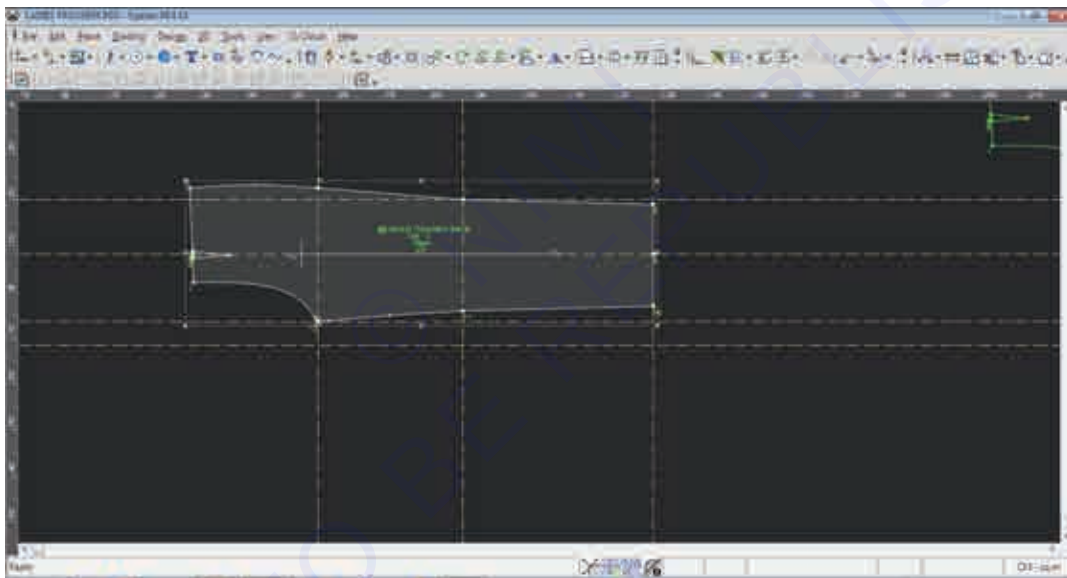
Step 15 : Select the Front part and give all piece information (piece name, cut quantity, code)



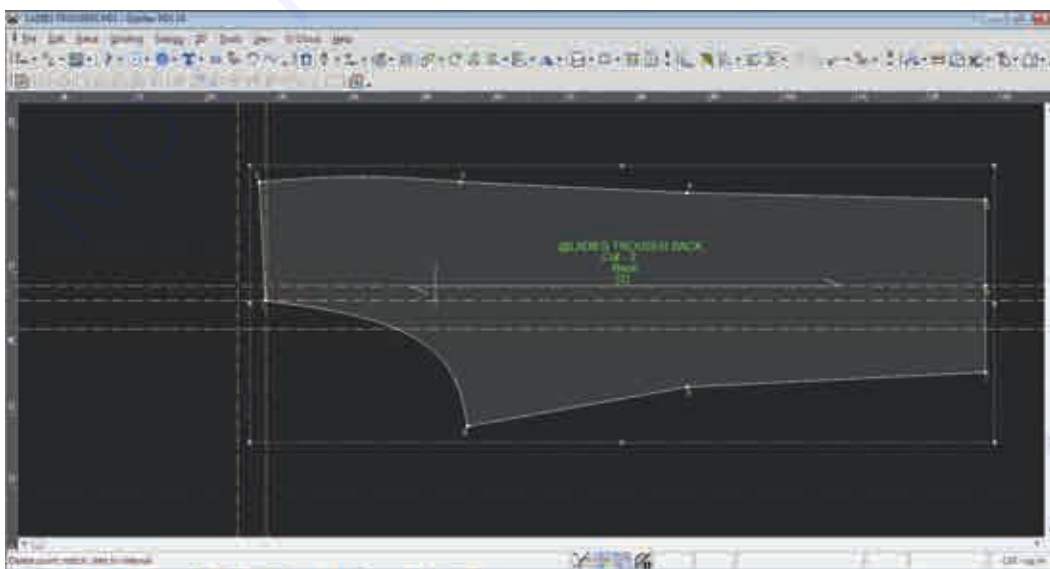
Step 16 : Select back part &give all piece information



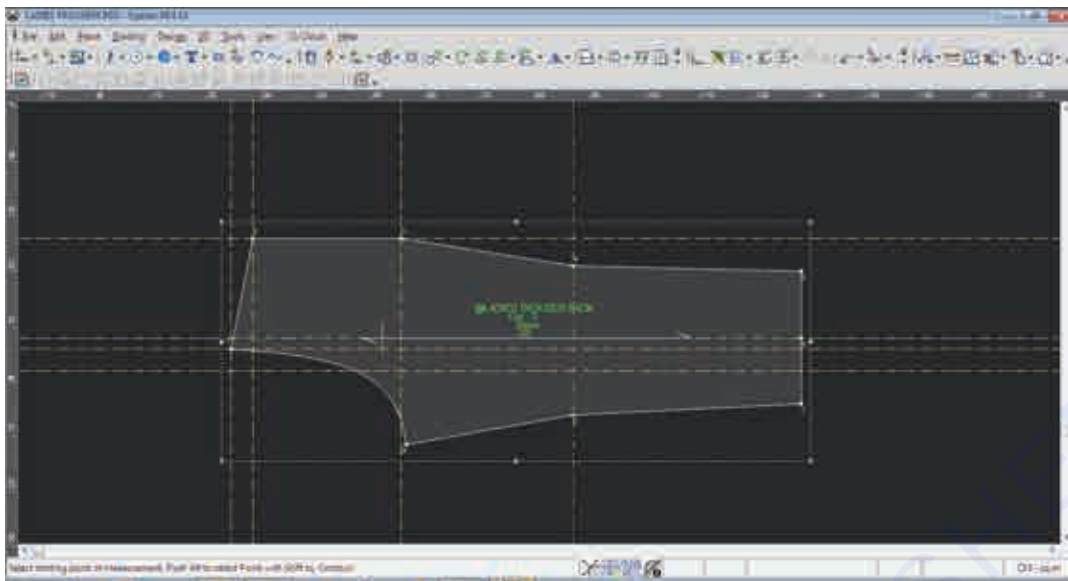
Step 17: Keep guide line to increase hip width 5 cm , Knee width 2 cm , Hem width 1 cm of back part. Using move point tool move the point as required.



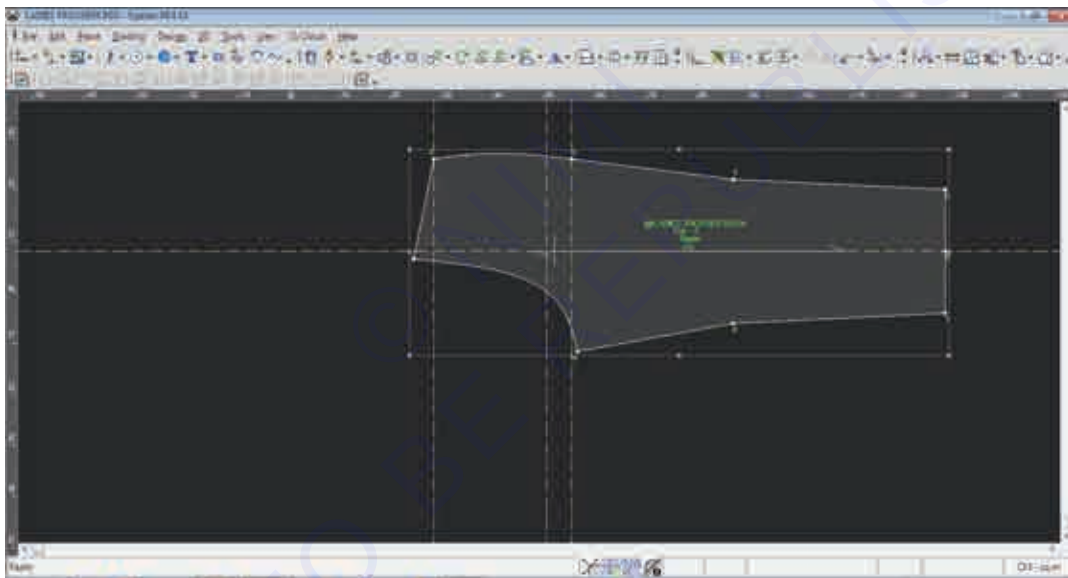
Step 18: Check for Knee width, Hem width and give crotch hip shape of back part,



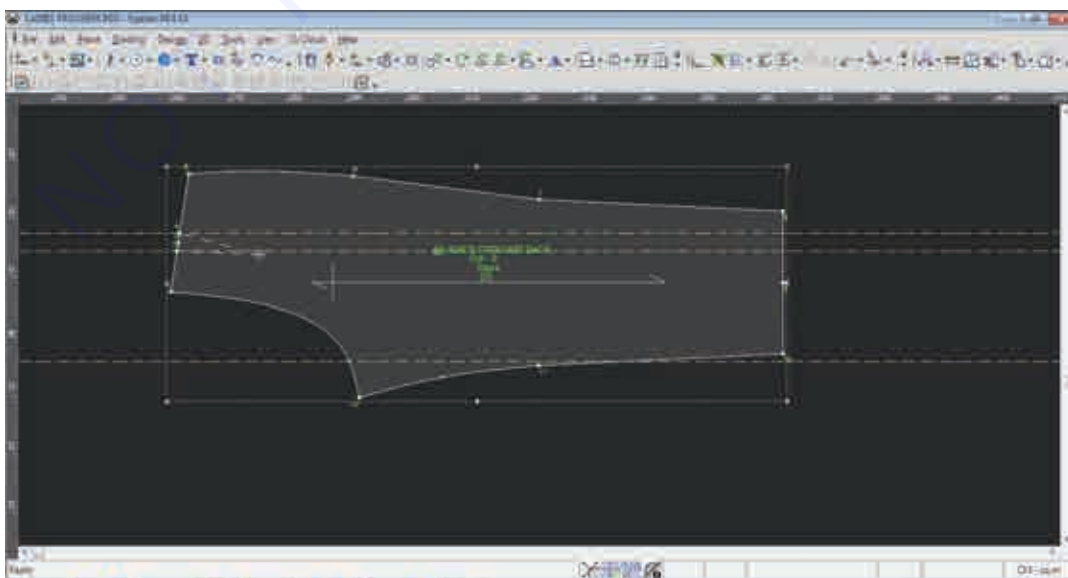
Step 19: Raise upwards the waist line 4cm of back part using move point tool.



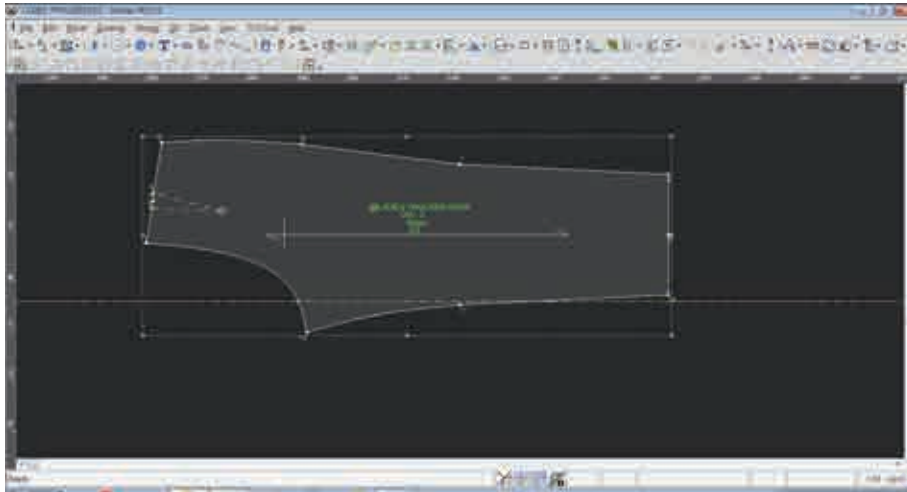
Step 20: Measure and give seat angle shape



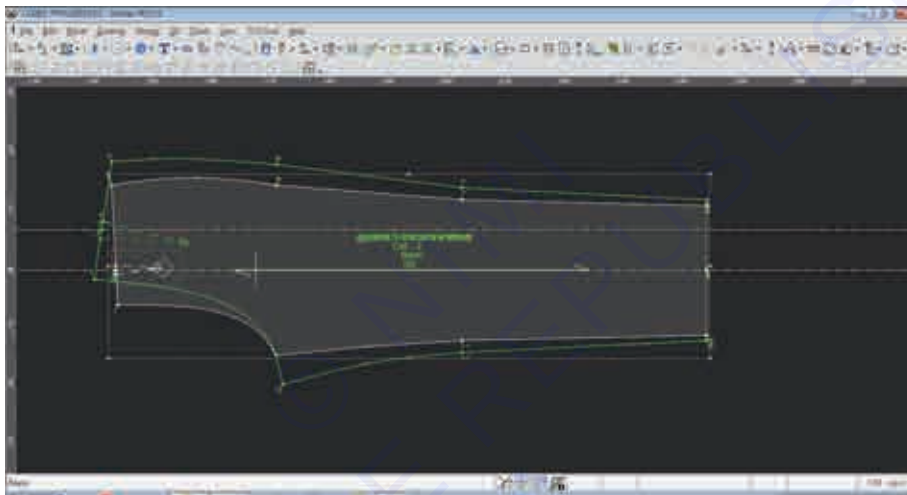
Step 21: Give Dart on back part using dart tool (dart intake 3cm & dart length 15 cm)



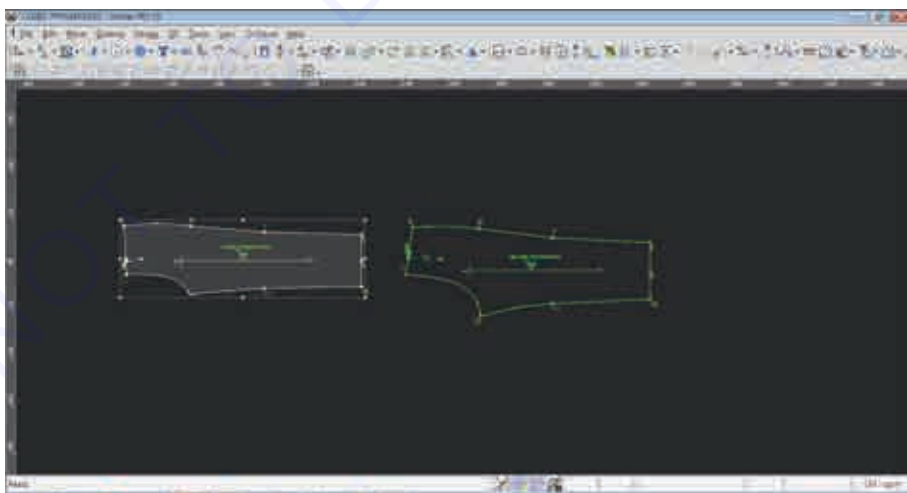
Step 22 : Give curve shape of Inner leg length side of back part using move point



Step 23: Cross check the pattern by placing Front part over the Back part



Step 24: Separate both the front & back part



Step 25 : Save the file (ctrl +s)

Note: Get the work checked by your Instructor

Drape the Pattern on a Model

Objectives : At the end of this exercise, you shall be able to:

- drape the Pattern on a Model.

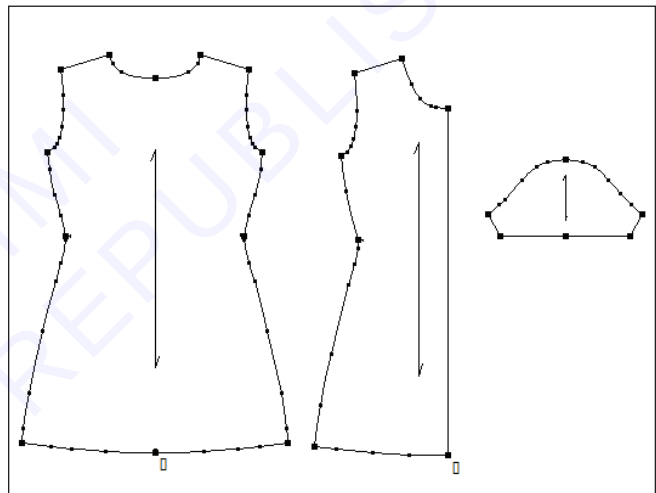
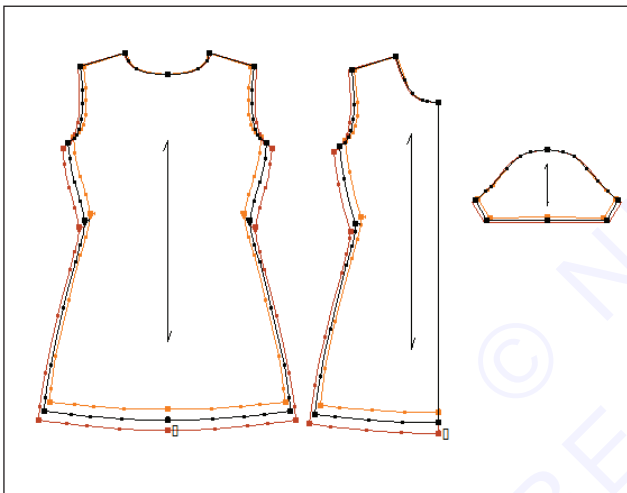
Requirements

Tools/Instruments

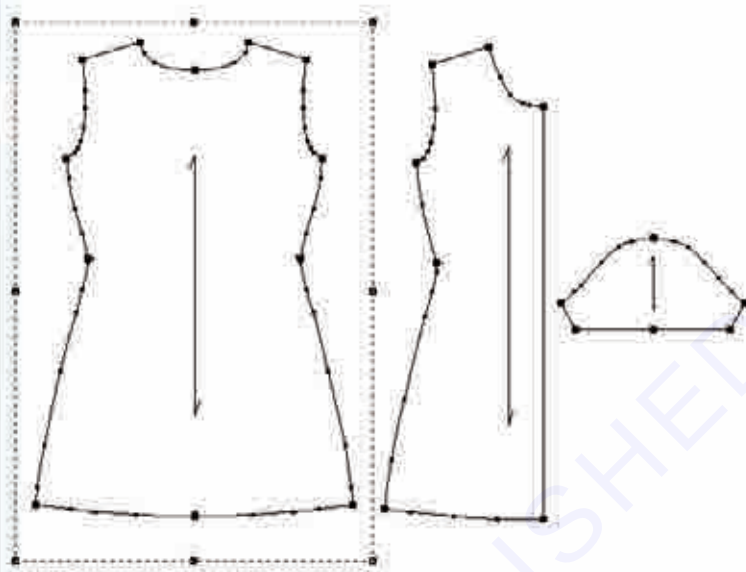
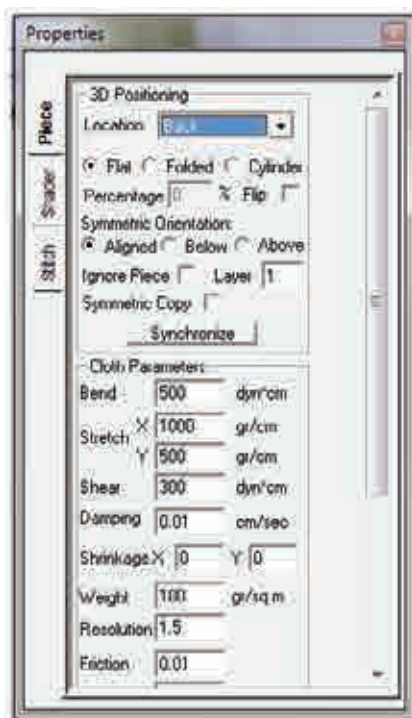
- Computer with Software for Pattern Making (latest version) - 1 No.

Procedure

- 1 Double click on the icon of the draping software.
- 2 Open the required pattern file. This file is a symmetric file and all the patterns have the quantity of two. Only half the amount of the actual pieces is needed.
- 3 Go to Grading Menu. Select Zero Grading and Select Zero All Grading. Select 'All pieces in the file' in the Dialog box.



- 4 Make sure the style consists of all patterns necessary. If some are missing, we may copy and paste, then flip or rotate accordingly. The pieces are the right side pieces. Lay the patterns out in a sensible manner on the screen.
- 5 From the View menu select 3D and select "Properties" dialog that can be found in the 3D subfolder. Dock this window by default vertically on left side of the screen. For each and every piece select the appropriate initial body position. Click one on the piece to select. Pieces can be multiply selected using "Shift" key or by dragging a rectangle and assigned similar properties.



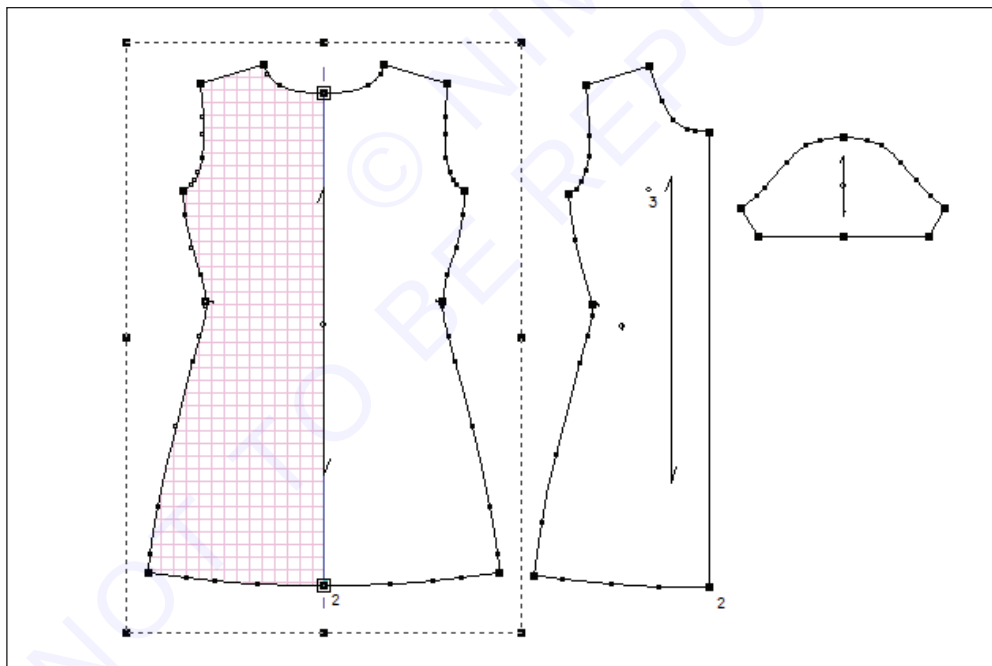
6. Verify placement by placing the cloth on the virtual model. Open the 3D view by selecting the "Model" options from the 3D subfolder in the VIEW menu.
7. Click on the "Place Cloth" tool. From the 3D toolbar.
8. After pressing the tool, you should see the following in 3D. Both front pieces are located on top of each other, and the same for the back. We now have to separate them interactively in 3D.



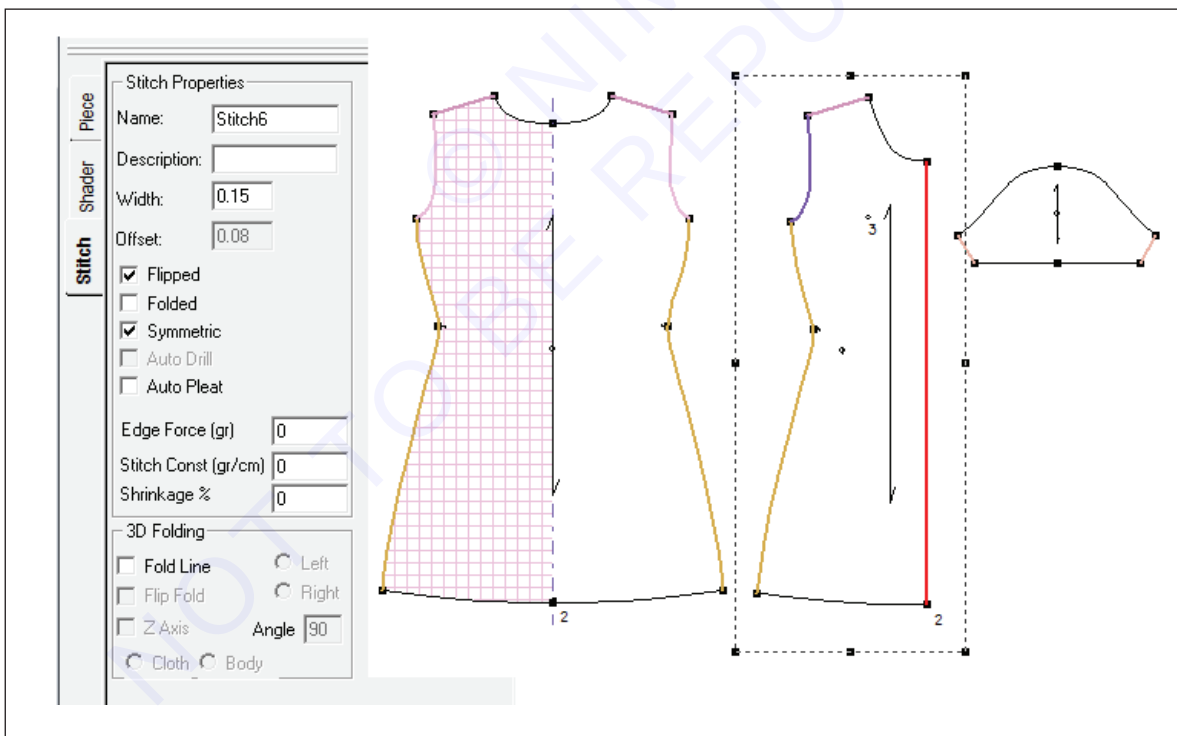
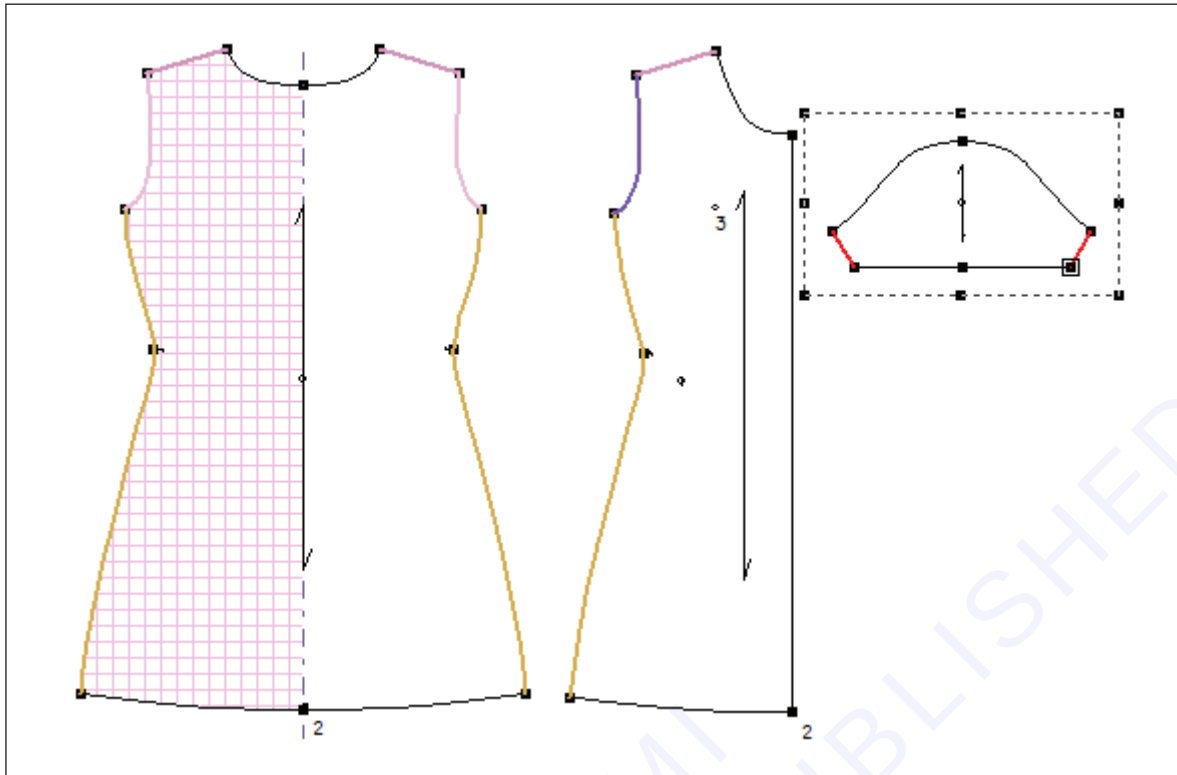
- 9 There are two basic operating modes in 3D: Navigate. (Default, always on) & Edit.(CTRL key down). Navigation mode is always "On", meaning we can always rotate, zoom & move the mannequin to inspect from different angles, no changes will occur. Edit mode is available by holding down the Ctrl key.
- 10 To move a specific piece, hold Ctrl down, then left click the piece, it should show a green rectangle indicating its selection. Moving the mouse left, right up and down moves the piece accordingly. To push the piece IN and OUT hold Ctrl down, right click it, and then move the mouse Up and Down.
- 11 Make sure the pieces are located correctly by inspecting the mannequin from multiple angles.
- 12 Using clear cloth tool, remove the fabric from the model.
- 13 Select 'Shader' in the 3D properties dialog box. Select the colour and texture of the fabric.
- 14 Use place cloth tool and verify the fabric colour and texture.



- 15 Remove the fabric using clear cloth tool. Select the Back pattern using selection tool. Select the left half of the pattern and click Set Half tool.



- 16 Select stitch tool in 3D tools. Select the front shoulder & Back shoulder, Front side seam & Back side seam, Front armhole & Sleeve front armhole, Back armhole & Sleeve back armhole and finally sleeve left side seam & Sleeve right side seam. All the selection should be in Clockwise order only. Notice the change in colour of the segments after selection.
- 17 Select the front CF line clockwise using stitch tool. Select Stitch menu in 3D Properties and mark Symmetric. Note that the flipped has also been marked automatically.



- 18 To delete a particular stitch, select the stitch tool and right click. The shape of the curve will be changed. Select a particular stitch and press del in key board.
- 19 Go to 3D tools, Click place cloth tool. The patterns are connected using blue coloured stitch lines over the model. Do the alterations if required.
- 20 Click Simulate Draping Tool. The patterns are joined and finally draped in the model.



Note : Get the work checked by your Instructor

Introduction to 3D

Uses of 3D

3D FASHION DESIGN AND DEVELOPMENT SOFTWARE

TUKA3D is the fashion industry's most advanced, easy-to-use, 3D apparel design and development software. Customize your virtual fit model, build life-like virtual clothing samples, and create stunning presentations for buyers, retailers, or even customers. Tukatech's 3D apparel design software eliminates the need for trial and error in physical sample creation, ensuring that any design fits right the first time. This video provides a great overview of the capabilities of TUKA3D.

3D VIRTUAL SAMPLE MAKING

Turn 2D patterns into visually stunning 3D apparel samples that accurately simulate the weight, stretch, color, and other values of any fabric.

BYPASS PHYSICAL SAMPLE MAKING

TUKA3D's accurate virtual fit sessions with animation allow the user to bypass physical sample making, dramatically reducing the time and cost associated with product development.



MODELS BASED ON SCAN DATA



Scan your fit model using the Styku Body Scanner. Hundreds of measurements can be extracted from a body scan which can then be used to create a 3D avatar that is an exact replica of your fit model.

FABRIC SIMULATION

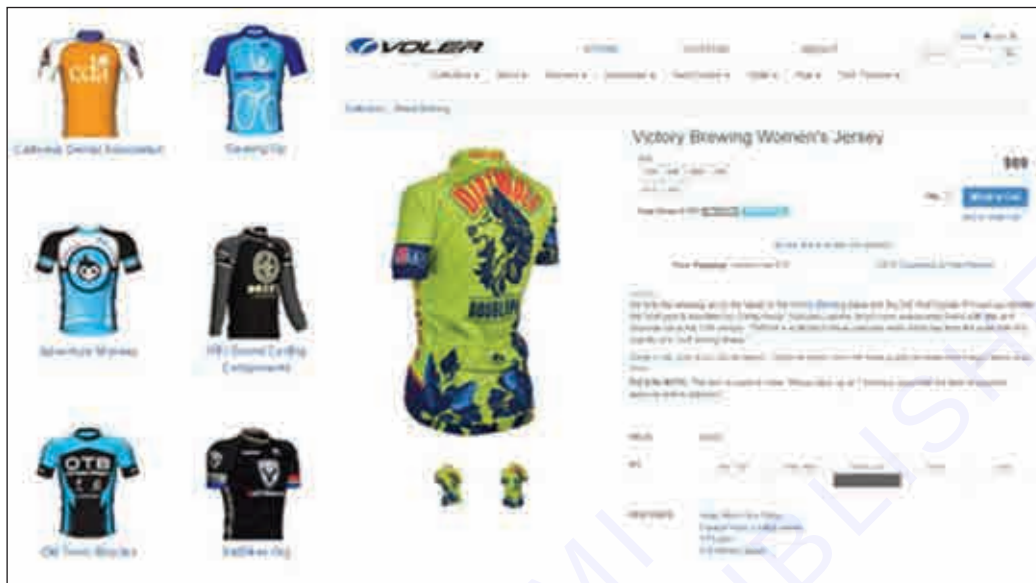
An extensive library of fabric presets allows the user to visualize garments with cloth properties that replicate actual fabrics. Build realistic fabric simulations with pleats, textures, transparencies and more.



FULL-MOTION SIMULATION

Animate the virtual fit model to visualize how a garment drapes in motion. Models can be made to run, dance, cycle, pose, walk the runway or anything else you desire.

NO PHYSICAL SAMPLES, NO PHOTO SHOOT, NO INVENTORY



Create a virtual photo shoot for online sales, emailing to buyers, or for marketing purposes. Showcase a complete collection without manufacturing a single garment. With TUKA3D, the Made-on-Demand business model becomes a reality.

EXPORT MULTIPLE FILE FORMATS

Within TUKA3D, users have the ability to export to multiple file formats. 3D files can be exported as OBJ, FBX, VRML, X3D, or XHTML files. Videos can be rendered and exported as AVI, WMV, MP4 or MOV files. Images can be rendered and exported as JPG, TIF, PNG, BMP, and many others.

Virtual Prototyping

With Optitex 3D Virtual Prototyping, the process of creating accurate samples has truly been revolutionized. Instead of sending real patterns back and forth to suppliers, one can create, view and edit the initial samples in one place, drastically reducing the time spent on developing products, and getting them to the market quickly.

Accurate, custom-made models help maintain fit standards across the entire collection of products and even across manufacturers. Our 3D avatars can be modified to meet the specifications so that an accurate preview can be performed, without having to call together a fit session. These models have over 60 parameters to modify, ensuring that a model that is custom-fit to specific requirements, can be created.

With each version of Optitex, our 3D Virtualization tools continue to evolve to meet a growing number of needs. Our 3D tools allow our users to simulate a large number of design elements:

- Hardware like buttons, zippers, pulls, buckles and rive
- A variety of seam finishes like piping and top-stitching
- Design elements like pleats, shirring, facing, interfacing and interlinings
- Texture placement like engineered repeats, logos, and matched logos

Fit tools like tension and stretch mapping, 3D digitizing and flattening and even true-to-life animations enable our customers to get patterns from sample to production quickly, accurately, and cost-effectively. Sample simulations allow them to fit their garments on a custom-made virtual model without having to cut any fabric, then make changes right on their screen. All this happens within a matter of hours, not days or weeks.



Navigating the 3D Toolbar

The 3D toolbar allows you to perform all 3D operations including, placing the cloth, simulating, changing avatars, digitizing, stitching, etc. The 3D toolbar is dynamic according to specific actions in 2D, for example, you will only be able to place the cloth if a PDS file is opened.

You can customize the toolbars, for example if you want to move the location of a toolbar.

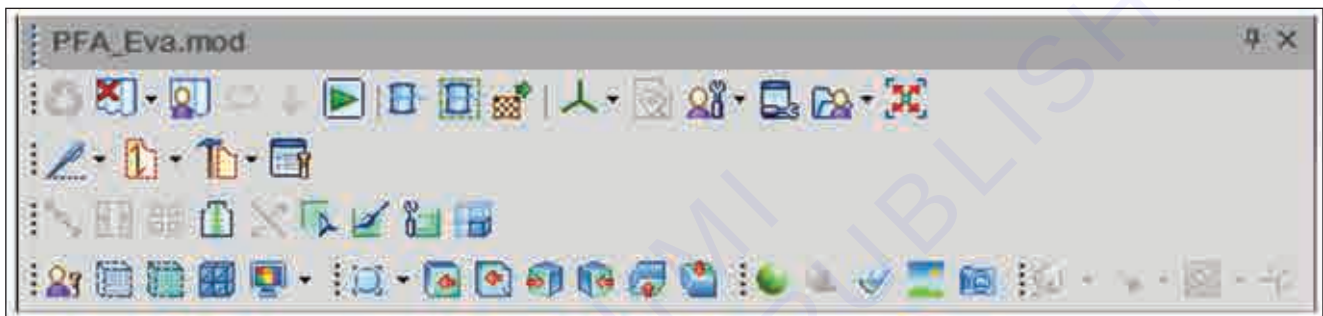
To customize the toolbars, click here

 Note: You can always click Reset Toolbars to return to the default view.

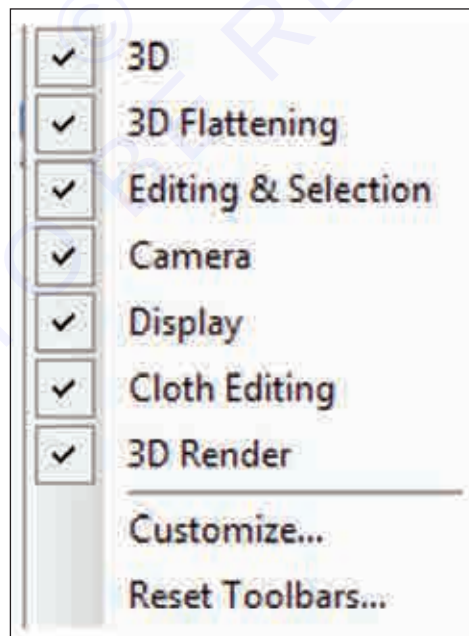
To navigate the 3D Toolbar:

- 1 Open PDS.
- 2 Make sure the 3D window is displayed (go to View> 3D Windows> Model).

The 3D toolbars are located at the top of the 3D window:



The toolbars are divided into the following groups to help make your work easier and more organized:



3D



Button	Description
	Allows you to refresh any changes that were made to your pattern. For more information, see Refresh.
	Allows you to remove the cloth from the 3D window. For more information, see Clear Lines.
	Allows you to remove all non-cloth items from the 3D window, i.e. Flattening lines, Tape measurements, Circumference disks, 3D text etc. For more information, see Clear Lines.
	Allows you to clear all content from the 3D window. For more information, see Using the Clear 3D Window Tool.
	Allows you to place the cloth in the 3D window. For more information, see Place Cloth.
	Turn on Dynamic Updates. When turned on, the 3D window updates according to changes that are made in 2D. For more information, see Continuously Perform 2D to 3D Dynamic Updates.
	Click on Update Now, if Dynamic Updates is off and you want to update changes in the 3D window that were made in 2D. For more information, see Update 2D to 3D Now.
	Allows you to simulate the pattern. For more information, see Simulate Draping.
	Allows you to stitch your pieces together using the 3D Stitch Tool. For more information, see 3D Stitch.
	Allows you to select the stitches using the Select Stitch tool. For more information, see Select Stitch.
	Allows you to move the texture on your pattern in the 3D window. For more information, see Move Texture.
	Allows you to select and move pieces in the 3D window. For more information, see 3D Move Piece.
	Allows you to rotate selected items such as pieces, circumference disks, clt items, models and model parts, i.e., shoulder pads in the 3D window. For more information, see 3D Rotate Piece.
	Allows you to scale avatars, rigid parts, models, etc. in the 3D window. For more information, see 3D Scale Model.
	Allows you to stretch or shrink pieces in the 3D window, for initial positioning. Once you simulate, the piece will go back to its original size. For more information, see 3D Scale Piece.
	Allows you to move or rotate objects or pieces in the 3D window, either by relative or absolute values. For more information, see 3D Transform Piece.
	Allows you to use the 3D digitizer. For more information, see 3D Digitizer.
	Allows you to view the model properties options. For more information see, Model Properties.
	Allows you to measure between two points on pieces/3D objects in the 3D window. For more information, see Tape Measure.
	Allows you to measure the circumference of the avatar in the 3D window. For more information, see Add Circumference Measure.

	Allows you to use a bounding box to measure the height, width and depth of 3D objects. For more information, see Bounding Box Measure.
	Allows you to add a description which points to a certain spot on the 3D model or cloth. For more information, see 3D Text.
	Allows you to view the Simulation Properties. For more information, see Simulation Properties.
	Allows you to load models/3D objects that are supported by Optitex. For more information, see Load Model.
	Allows you to save content of the 3D window in a 3D file format that is supported by Optitex. For more information, see Save Model.
	Allows you to save a cloth file (CLT) A CLT file contains the cloth, shaders, textures, etc. For more information, see Save Cloth.
	Allows you to send the content of the 3D Window to a printer. For more information, see Print Model.
	Click to view the 3D window in full screen mode. To move out of full screen mode, press Shift Ctrl F on your keyboard. For more information, see Full Screen.

3D Flattening



Button	Description
	Allows you to draft lines directly on the 3D object. For more information, see Draw Path.
	Allows you to create a notch on a pin or on a line drafted on the 3D object. For more information, see 3D Notch
	Allows you to add a button on a patch area on a 3D object. For more information, see Using the 3D Button Tool.
	Allows you to create symmetry of the drafted lines. For more information, see Using the Mirror Lines Tool.
	Allows you to set the 3D baseline. For more information, see 3D Baseline.
	Allows you to move a flattening pin and to reshape a curve line between two flattening pins. For more information, see Using the Edit Pins Tool.
	Allows you to use the build patch tool. For more information, see Build Patch.
	Allows you to transform 3D objects into 2D patterns. For more information, see Flatten All.
	Allows you to transform 3D objects into 2D patterns. For more information, see Flatten Whole Mesh.
	Allows you to view the Flattening Options dialog. For more information. Using Flattening Tools.

Editing & Selection



Button	Description
	Allows you to add a vertex. For more information, see Add Vertex Tool.
	Allows you to build a bridge. For more information, see Bridge Tool.
	Allows you to combine surfaces. For more information, see Using the Combine Tool to Combine Surfaces.
	Allows you to weld. For more information, see Using the Weld Selected Object Tool.
	Allows you to flip the normals. For more information, see Flip Normals.
	Allows to you to select a 3D item. For more information, see Selection Tools.
	Allows you to select 3D items using the paint brush. For more information, see Selection Tools.
	Allows you to view the 3D Selection options dialog. For more information, see Selection Tools.
	Allows you to use the View Reference Mode option. For more information, see View Reference Mode.

Camera



Button	Description
	Allows you to reset the camera in 3D and bring the content of the 3D window back to the default position. For more information, see Home.
	Allows you to focus on the selected mesh (3D avatar/pieces) and change the center focus of the 3D rotation. For more information, see Frame Selected.
	Allows you to turn the model around the Y axis continually. For more information, see Auto Rotate.
	Allows you to lock the front facing view rotation. For more information, see Tilt Camera.
	Allows you to view the front view of the content in the 3D window. For more information, see Camera Buttons.
	Allows you to view the rear view of the content in the 3D window. For more information, see Camera Buttons.
	Allows you to view the left view of the content in the 3D window. For more information, see Camera Buttons.
	Allows you to view the right view of the content in the 3D window. For more information, see Camera Buttons.

	Allows you to view the bottom view of the content in the 3D window. For more information, see Camera Buttons.
	Allows you to view the upper view of the content in the 3D window. For more information, see Camera Buttons.

Display



Button	Description
	Allows you to either Show/Hide Model. For more information, see Using the Show/Hide Model Tool.
	Allows you to view the pattern and avatar in X-ray display mode. For more information, see X-Ray Display.
	Allows you to view the pattern and avatar in wireframe display mode. For more information, see Wireframe Display.
	Allows you to view the pattern in springs mode. For more information, see Show Springs.
	Allows you to view each 3D cloth piece in a unique color. For more information, see Display Unique Colors.
	Allows you to inspect simulated cloth objects via a colored map depicting amounts of stretching, tension and distance between the cloth and the model. For more information, see Using the Tension Map.
	Allows you to apply the background of the fabric on the 3D model. For more information, see Use 2D Back-ground with Shader.
	Allows you to display the XYZ axes in the 3D window. For more information, see Show Center Axes.
	Allows you to determine which side of a surface is out or in. For more information, see Normals.
	Allows you to display only selected pieces in the 3D window. For more information, see Show Selected Piece.
	Allows you to depict depth in the 3D window by casting and obstructing light. For more information, see Display Shadows.
	Allows you to display a grid in the 3D window. For more information, see Show Grid.

Cloth Editing



Button	Description
	Allows you to create and define mating rules. For more information, see Create Mating Rules.

	Allows you to view and edit defined mating rules. For more information, see Mating Rules Manager.
	Allows you to use the Magic Glove so you can move pieces on the 3D model during simulation. For more in-formation, see Magic Glove.
	Allows you to move 3D objects before/during/after simulation and add a pin so you can move the pin to fur-ther alter. For more information, see Magic Glove + Pin.
	Allows you to use the Pin Manipulator so you can pin your cloth and manipulate your pattern in the 3D win-dow. For more information, see Using the Pin Manipulator Tool.
	Allows you to move the location of a pin that was added using the Magic Glove. For more information, see Move Pin.
	Allows you to select a single pin and remove it. For more information, see Remove Single Pin.
	Allows you to clear all the pins that were added using the Magic Glove. For more information, see Clear Pins.
	Allows you to increase the resolution of the cloth in the 3D window. For more information, see Refine Cloth.
	Allows you to decrease the resolution of the cloth in the 3D window. For more information, see Simplify Cloth.
	Allows you to smooth out your pattern after simulation. For more information, see Smooth Cloth.

3D Render



Button	Description
	Allows you to view your content in the 3D window in HQR mode (High Quality Rendering). For more infor-mation, see Using HQR to View your 3D Sample.
	Allows you to view your content in the 3D window in PR3D mode (Photorealistic Rendering). For more infor-mation, see Viewing Your Model in PhotoRealistic 3D Mode.
	Allows you to change the lighting presets. For more information, see Modifying the Lighting Via Lighting Editor.
	Allows you to change the background of the 3D window. For more information, see Edit Background.
	Allows you to create an image/s of your content in the 3D window by creating a snapshot, according to the ac-tive rendering (OpenGL/HQR/PR3D). Saving as a Snapshot.

3D Workflow

The following diagram shows the basic workflow of taking a 2D pattern and turning it into a 3D sample:



Prerequisites: Includes preparing avatars, preparing stitch assets (presets), preparing textures/logos, rigid parts and the fabric list.

Acquiring 2D Pattern: The user can either import a file into the PDS, or create a pattern from scratch.

Loading Avatar: Using Load Model, the user can load the avatar they defined and can select required sizes, final poses, etc.

Assigning Location: The user can assign piece locations, shapes, define layers and select physical fabric properties.

Stitching the Pattern: The user can now stitch the pieces together.

Positioning Pieces in 3D: The user can place the cloth on the avatar and move pieces to adjust their position.

(Optional) Creating Mating Lines: The user can create mating lines if they want to make sure the pattern sits at the right place on the avatar.

Simulating and Checking Fit: The user can now simulate the pattern, and then check fit by seeing final poses, using Tension Map, etc.

Accessorizing: The user can now add visual stitches using the Seam & Stitch Manager and add rigid parts if required.

2D 3D Modifications: The user can make changes to the pattern, for example, remove sleeves, lengthen a skirt, etc.

Assigning Shaders & Colorways: The user can now assign shaders and textures to the different elements in the pattern.

Getting Real Life Results: The user can now view the pattern using different rendering engines (HQR, PRR) and then save images.

Sharing with Others: Once the pattern is complete, the user can upload the sample to O/Cloud and share with others.

Before Creating Your 3D Sample

There are a few things you need to prepare before you can starting creating your 3D sample. Since everyone has their own way of working, this list is only a recommendation and can be used however you would like.

- 1 **Prepare your Avatar** - You can either use an Optitex avatar, or your own avatar. You can customize the avatar using the Avatar Editor so you can define sizes, poses, morphs, accessories, etc. For more information, see Avatar Editor.
- 2 **Prepare Presets** - if you want to use your own stitch presets, not Optitex presets, you can prepare them ahead of time using the Seam & Stitch Manager. For more information, see Creating a Custom Preset.
- 3 **Prepare Textures and Logos** - if you want to use your own textures and or logos in your pattern, you can prepare them ahead of time and save them as image files (BMP, PNG, or JPG). You can then select the image files when assigning shaders and textures.
- 4 **Prepare Rigid Parts** - If you want to use your own rigid parts, you can prepare them ahead of time and then select them when creating button shapes. For more information, see Creating Button Shapes.
- 5 **Fabric List** - If you want to use your own fabric list, you can prepare the list ahead of time and then select the fabric when defining the 3D Properties. For more information about creating a fabric list, see Using the Fabric Editor or Fabric Testing Unit.

Acquiring Your 2D Pattern

Once you are ready to begin working in the PDS, you have two ways to acquire your 2D pattern:

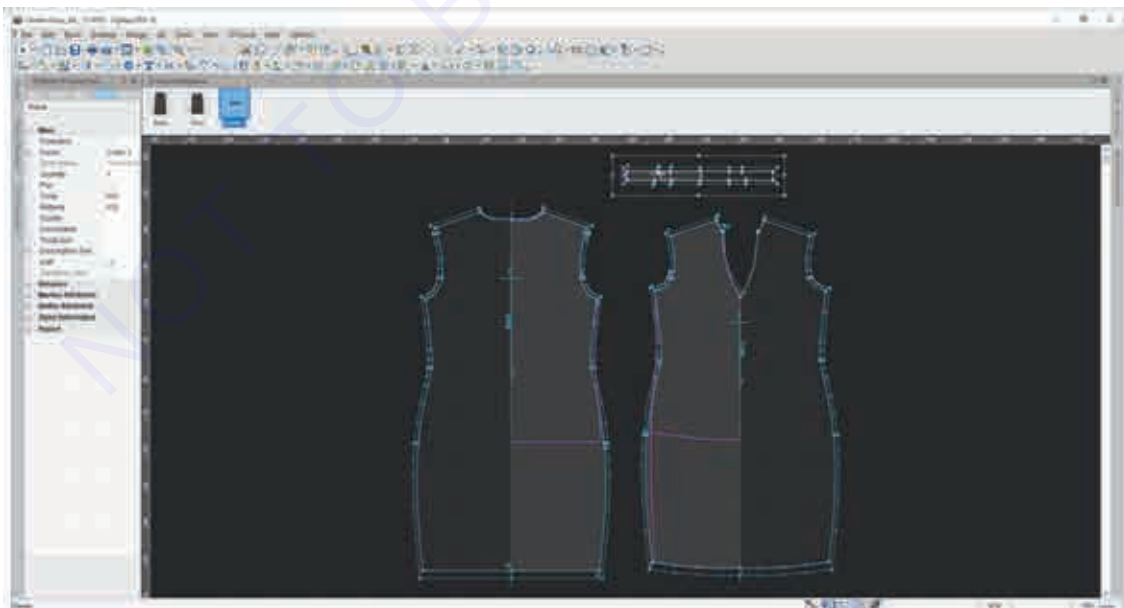
- 1 Import a CAD file - If you created your pattern in another software, you can import the file in the PDS. For more information, see Importing a CAD File into the PDS.
- 2 Create a file from scratch - You can use the PDS to create a pattern using a number of tools or you can open a file you already created. For more information, see Open File.

In our example, we have already created the pattern so we will open the pattern. The example we are using is a dress with a collar. There are a few things you need to know when working with collars. For more information, see Creating a Folded Collar.

To open the pattern:

- 1 Open the PDS.
- 2 From the main menu, go to File > Open.
- 3 Select the PDS file and click Ok.

The pattern opens as follows:



To make sure your pattern works correctly in 3D, it is recommended you follow the following pattern guidelines:

- All front and back pieces should be vertical.
- Arm parts (sleeves, cuffs, etc.) should be horizontal.
- Collars should have the stitch line facing up.

Loading an Avatar

You can load a model, AKA avatar into the PDS, when you want to view your pattern on a customized avatar. This allows you to see how the pattern will fit when simulated, and provides a realistic look and feel on an avatar not only in the 3D space.

Optitex provides a set of already defined avatars in the sample pack and these can be easily loaded into the PDS. You can also create and customize avatars prior to loading them, using the Avatar Editor. For more information, see Avatar Editor.

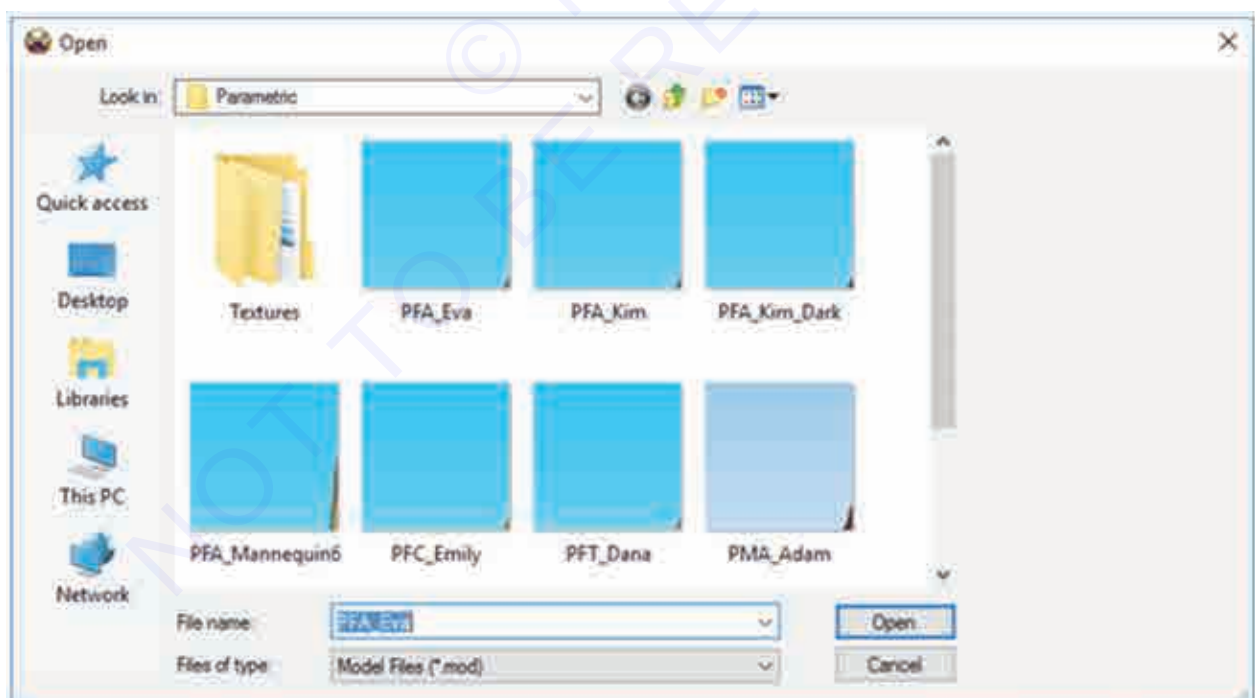
Notes:

- When loading the avatar, only attributes that were pre-defined will be displayed in the Model Properties. For example, if the avatar was defined with sizes, they will appear in the Sizes area, if not, no sizes will be displayed.
- All changes to avatars, including sizes, poses, etc. must be done prior to loading the avatar in the PDS. If a change is needed, for example you need another size, then you must create the new size using the Avatar Editor, save as an MOD and then reload into the PDS.

To load an avatar:

- 1 In the 3D Window, from the 3D Toolbar, click .

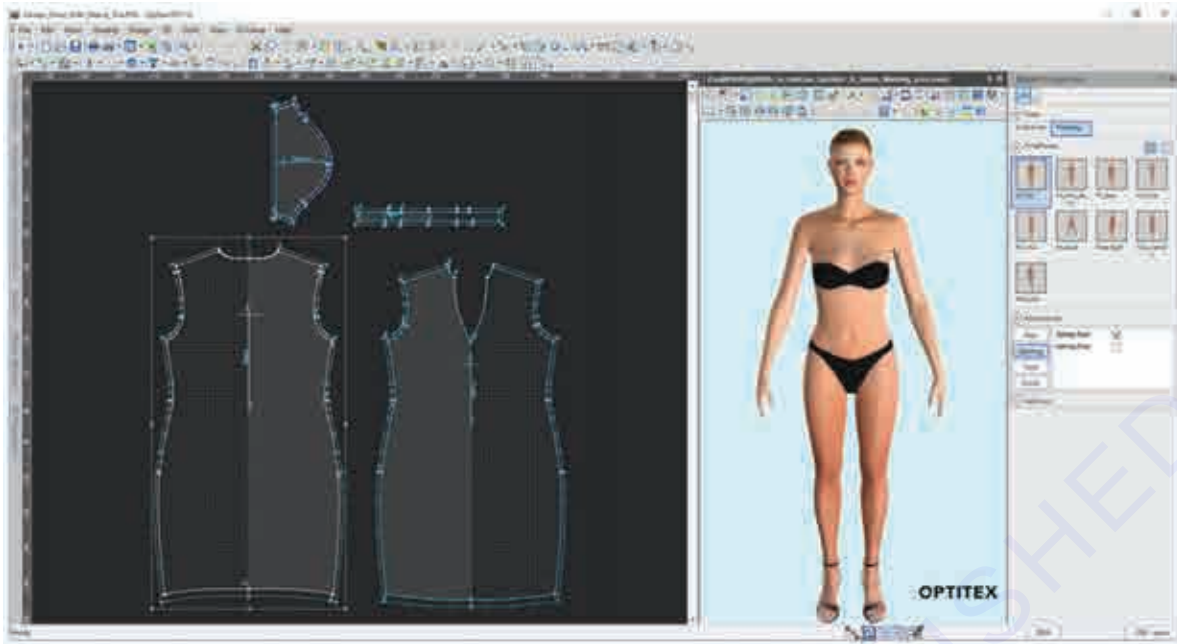
The **Open** dialog is displayed:



- 2 From the Files of Type drop-down list, select the type of file you are loading, then select the file. For more information about the different types of files that are supported, see Load Model.

Once you open an avatar, you can view the properties that were defined in the Model Properties dialog.

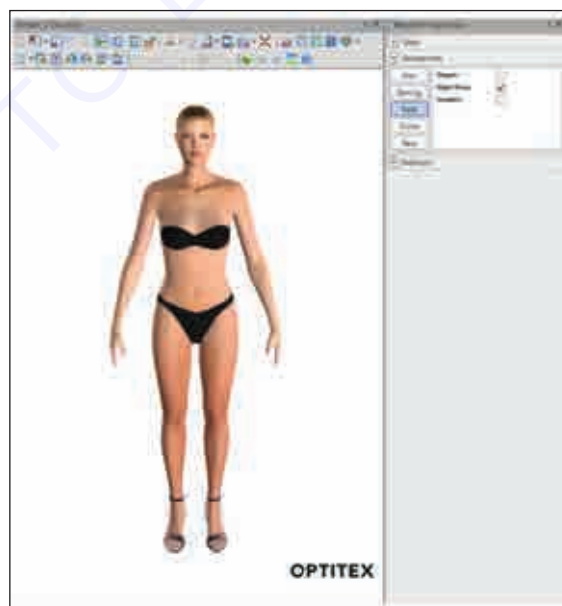
- 3 Click to open the Model Properties dialog:



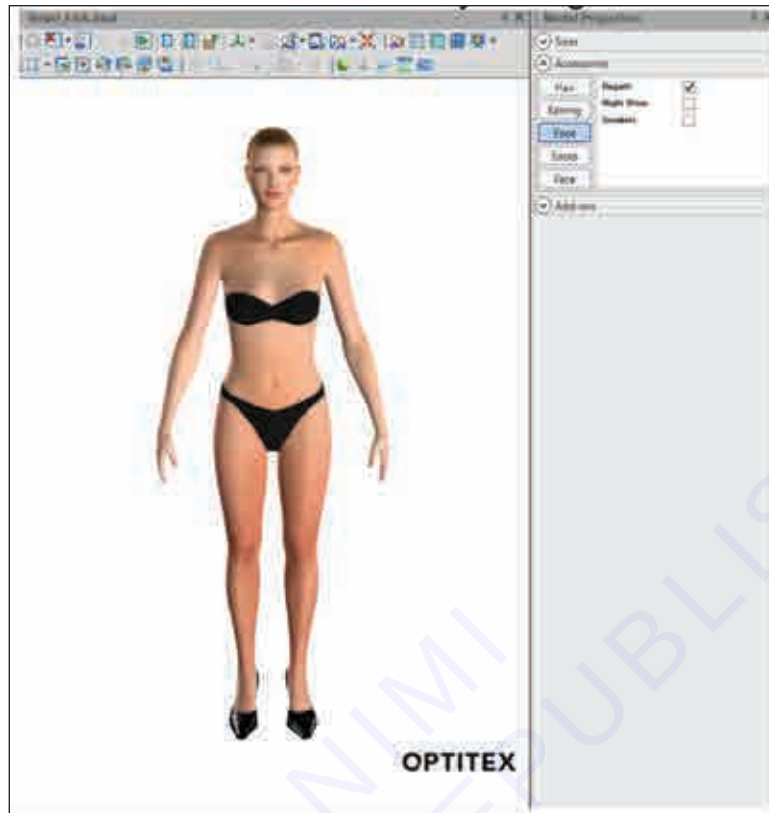
The following attributes are available (these are dependent on what was defined when customizing the Avatar; therefore not all attributes will be available for you).

- **Sizes:** Displays all the sizes that were defined for the Avatar. You can select a different size, if for example you want to view your “small” sized pattern on a “small” sized avatar.
 - **Final Poses:** Displays all poses that were defined for the Avatar. You can select a different pose, for example a final pose and then view your pattern in a final pose.
 - **Accessories:** Displays all the accessories that were defined for the Avatar. You can change the hairstyle, add/remove earrings, socks, shoes and change the face, etc.
 - **Add-Ons:** Displays all available add-ons. You can add/remove colliders, and/or shoulder pads.
4. If you want to change the attributes of the avatar, for example, if you want to change the shoes, this can be done in the **Accessories** section.
- Expand **Accessories** and then click on **Foot**.

Here you can see **Night Shoes** was defined as the default.



Select the required checkbox, for example, Elegant.
The shoes are automatically changed:



- At this point it is recommended you select the size of the avatar you require and select the final pose. You can view different poses after your pattern is simulated as well.

Assigning Piece Location

Once the pattern is loaded, you can now define the location of pieces so they are located correctly on the avatar. In this step, you can define the piece location, setup layers, as well as define physical fabric properties. For further detailed information about the different attributes available under the 3D Properties dialog, see Piece 3D Properties.

To assign piece location:

- Open the **3D Properties** dialog (press 8 on your keyboard).

Location is defined under **Positioning**. (Fig 1)



Note: By default, all pieces are assigned as Front.

- To change the default location, first select the piece. For example, select the back piece.
- Under Location, select Back. (Fig 2)
- Do the same for all the pieces in your pattern. (Fig 3)
- If you need to add a layer, for example you want the collar to simulate after the rest of the pattern, you can do so in the Layer field. For example, in this pattern, all the pieces except for the collar are defined as layer 1 and the collar is defined as layer 2 (Fig 4)

Fig 1

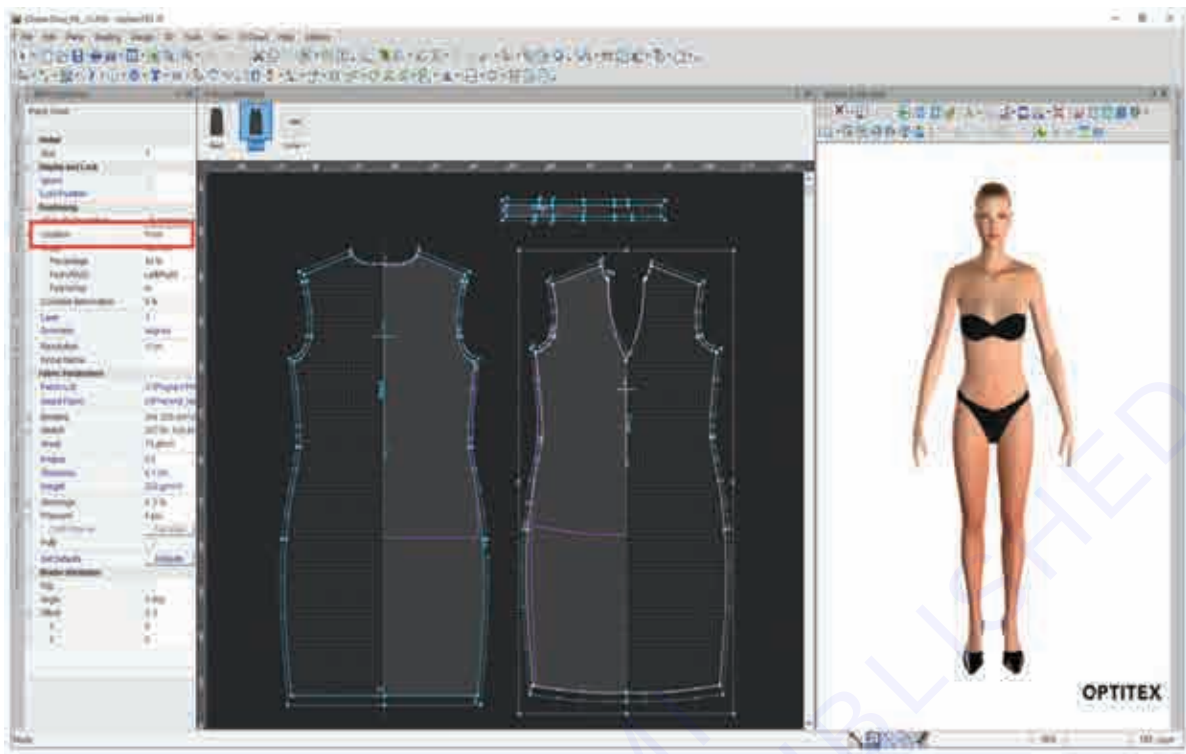


Fig 2

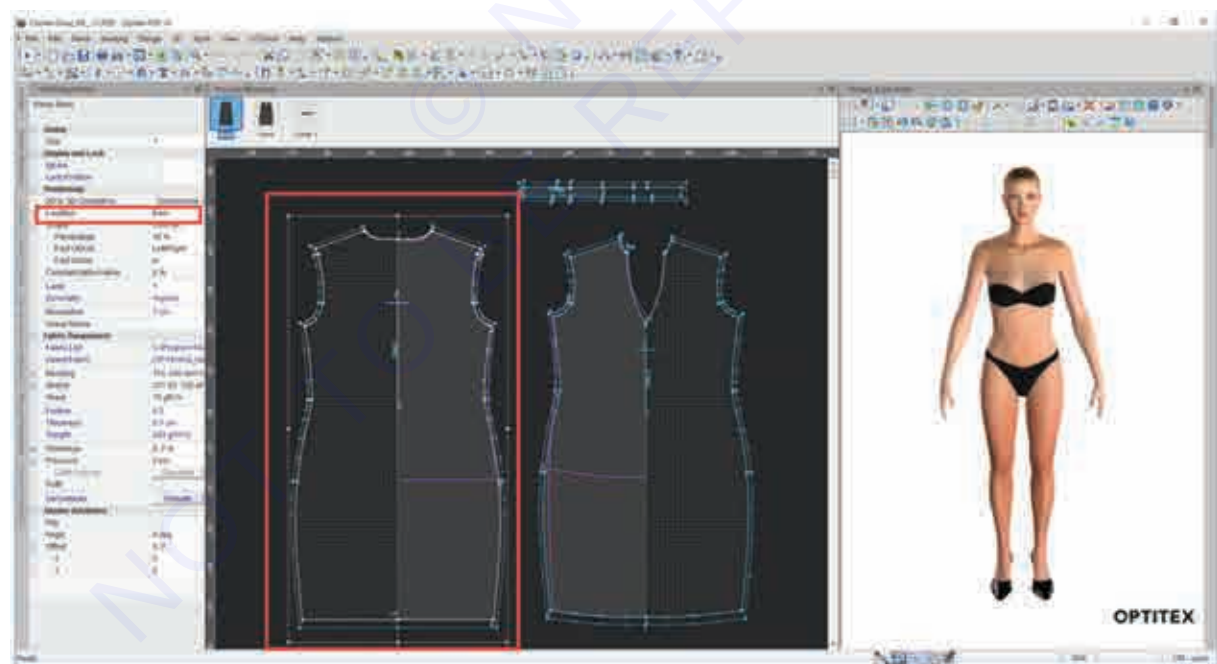


Fig 3

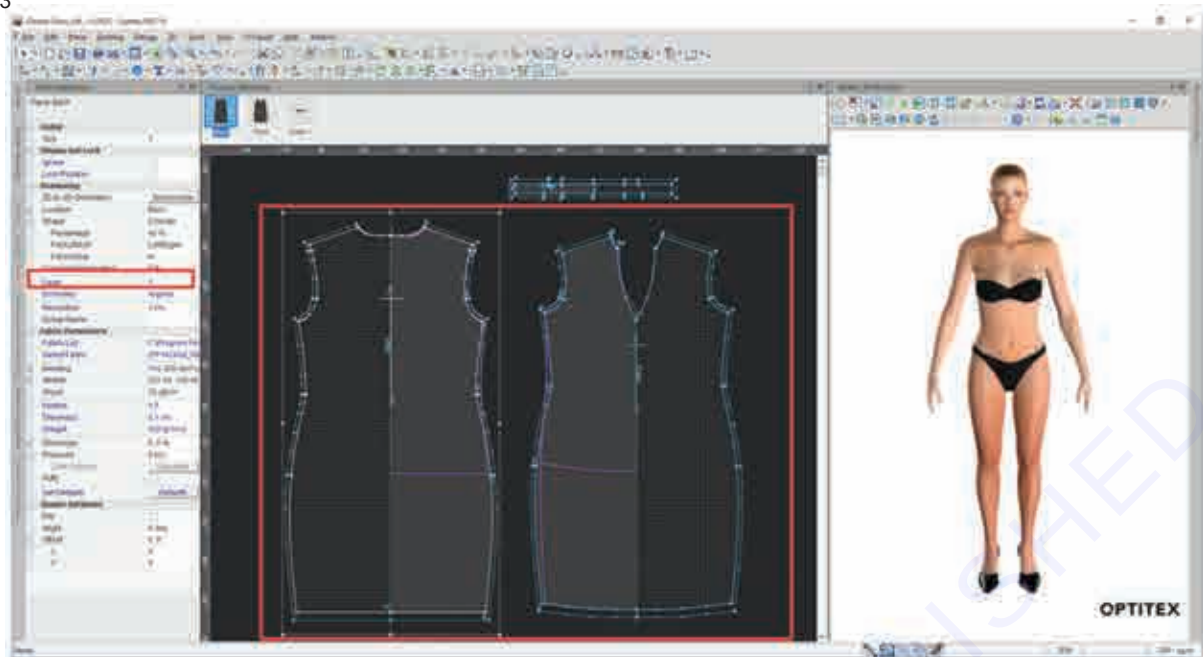
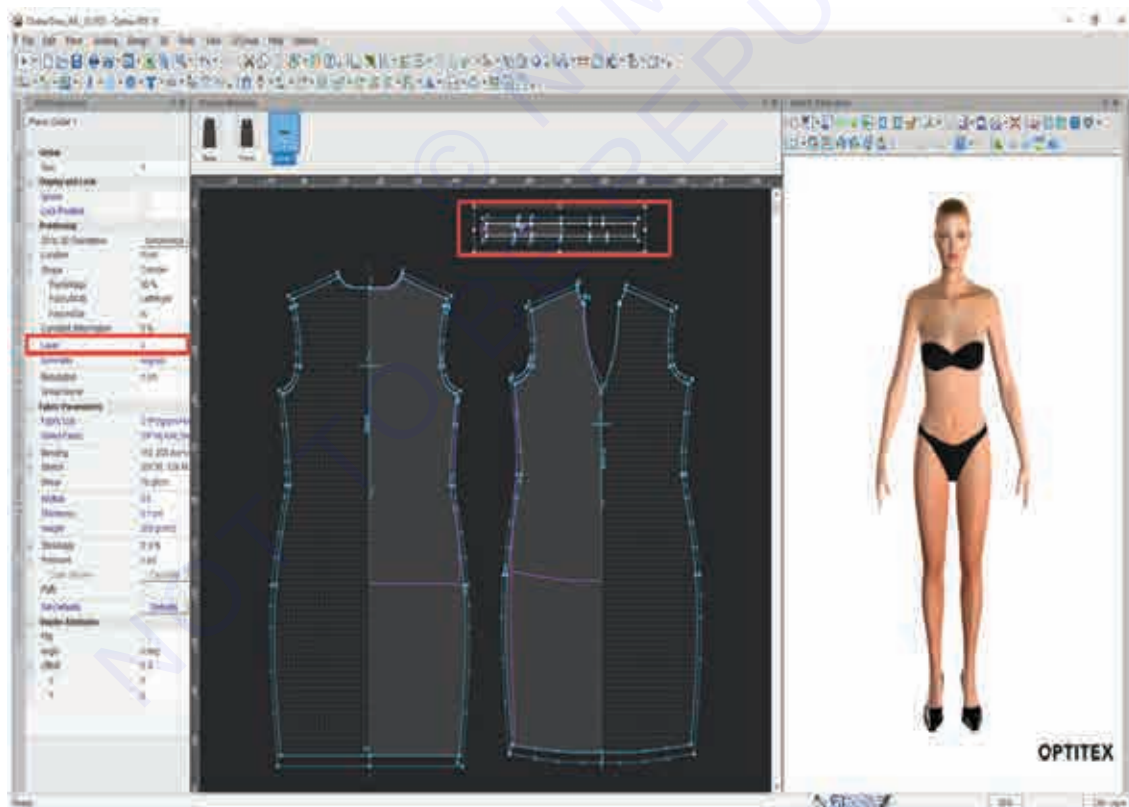
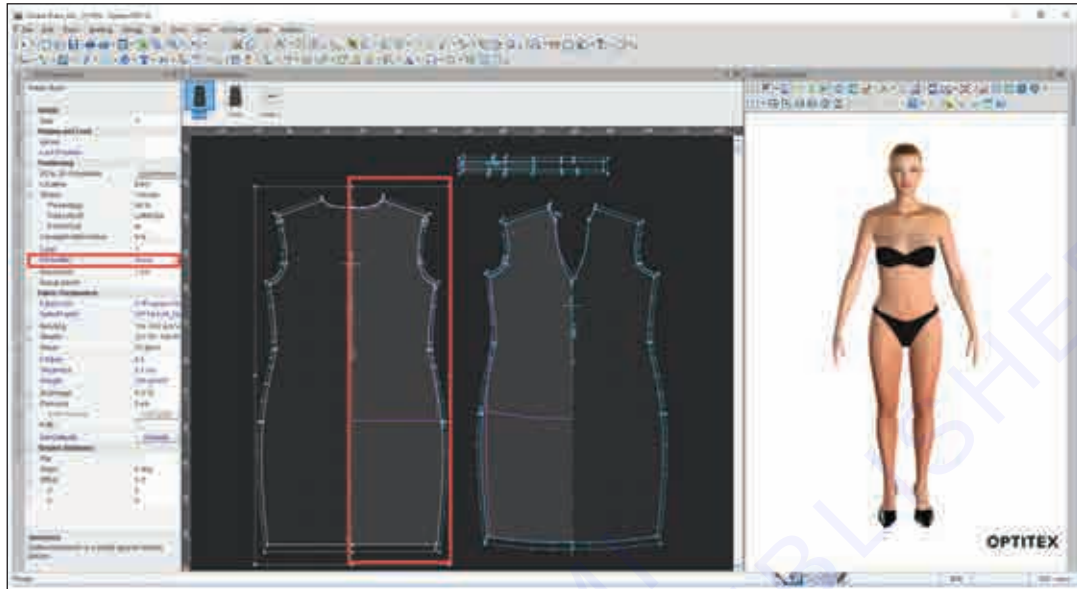


Fig 4

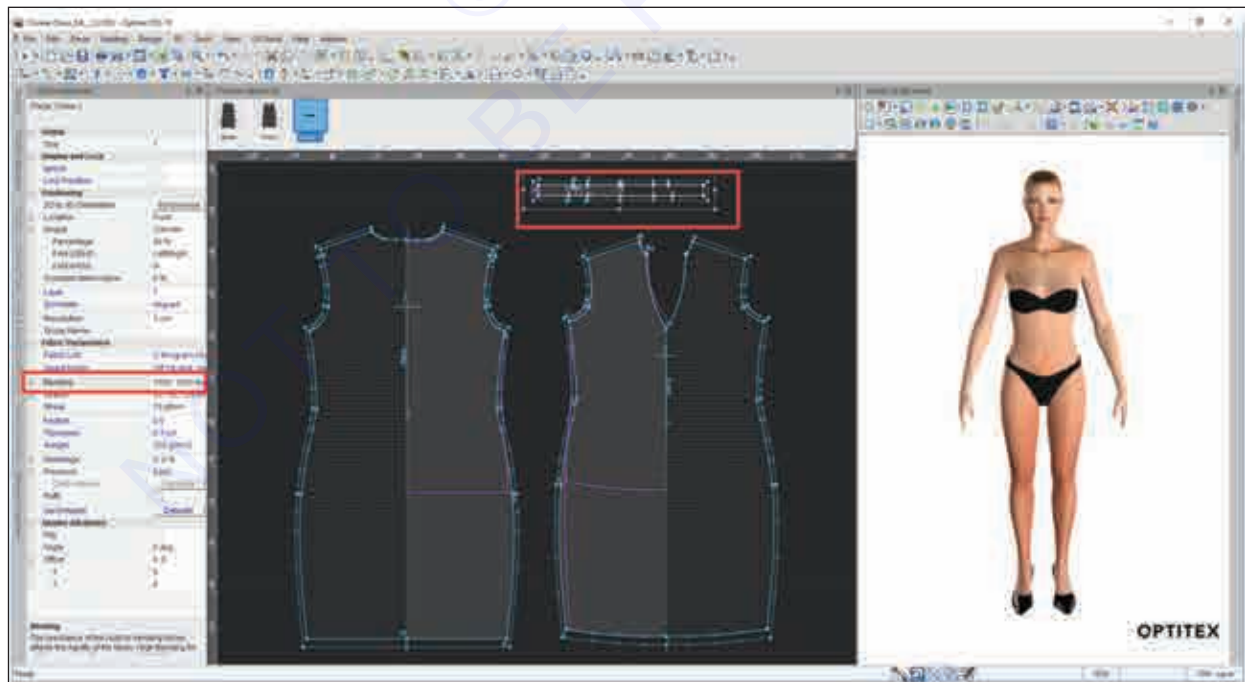


- 6 You can also adjust the symmetry of the pieces. The symmetry varies according to the piece and who the pattern is for. The rule of thumb is when creating women's patterns, the right side of the piece should be defined as **Above** and when creating men's patterns, the right side of the piece should be defined as **Below**. In this example, you can see that the right side of the piece is defined with **Symmetry** as **Above**:

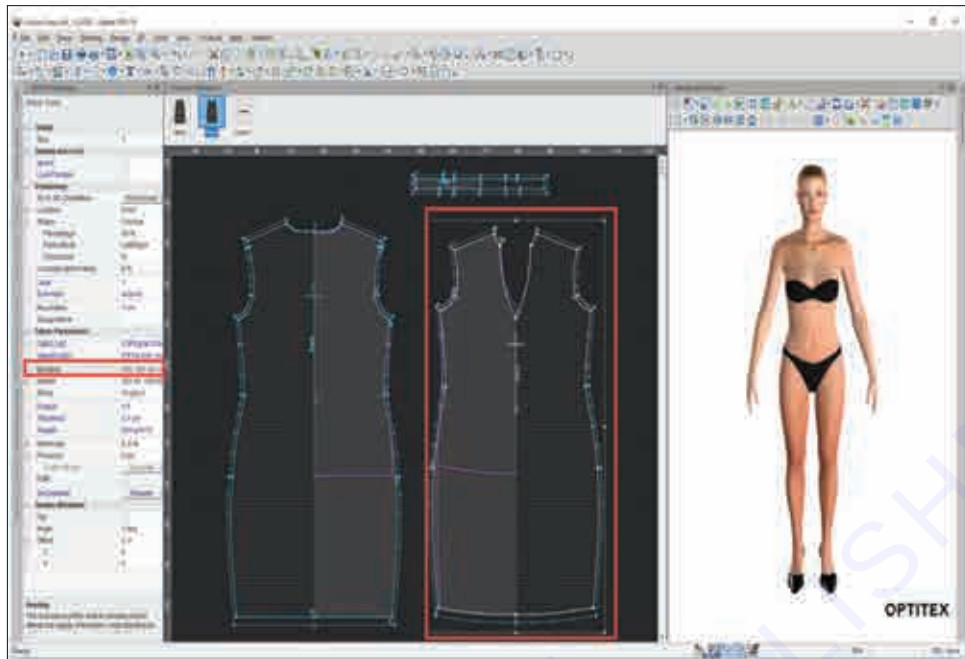


- 7 If you want to select a fabric for your pattern, you can do so under the **Fabric Parameters** area.
- 8 You can also define fabric properties. Collars, waistbands and cuffs should always have a hard bend. In this example, you can see that the collar is defined with a higher bend compared to the other pieces:

Collar Piece - Bend of 1,000 ; 1,000 DYN/CM



Front Piece -Bend of 500 ; 500 DYN/CM



Stitching Your Pattern

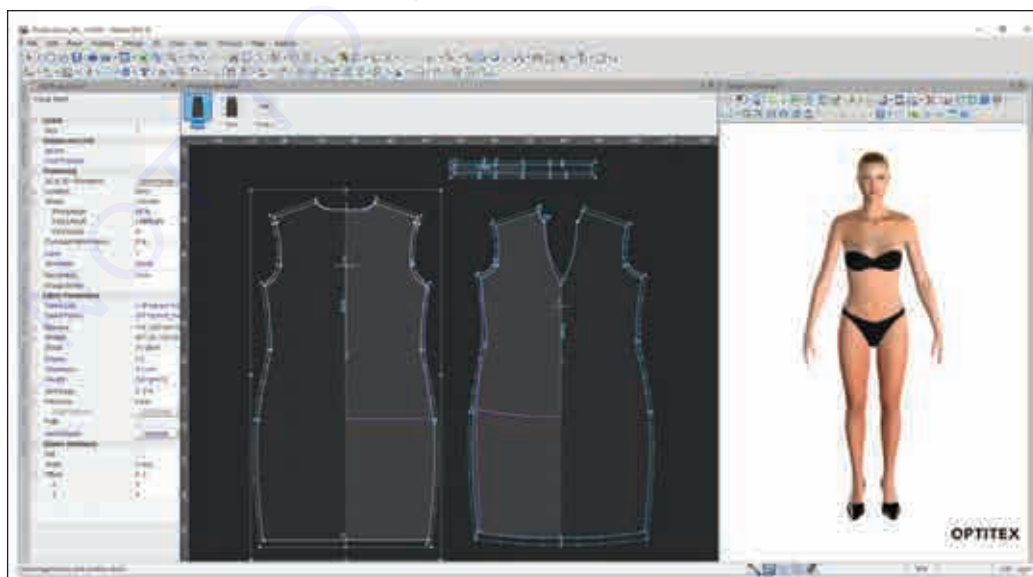
Once you have assigned piece location, you can now stitch your pattern together. There are a few different ways you can stitch, for more information about stitching, see [Stitching Your Pieces Together](#).

Tips for Stitching:

- Darts are stitched automatically, you do not need to manually stitch them.
- Fish darts need to be stitched.
- Buttons that are closed need to be stitched to self. For more information see [Using the Stitch to Self Symmetry Tool](#).
- The center back piece needs to be stitched to self. For more information see [Using the Stitch to Self Symmetry Tool](#).

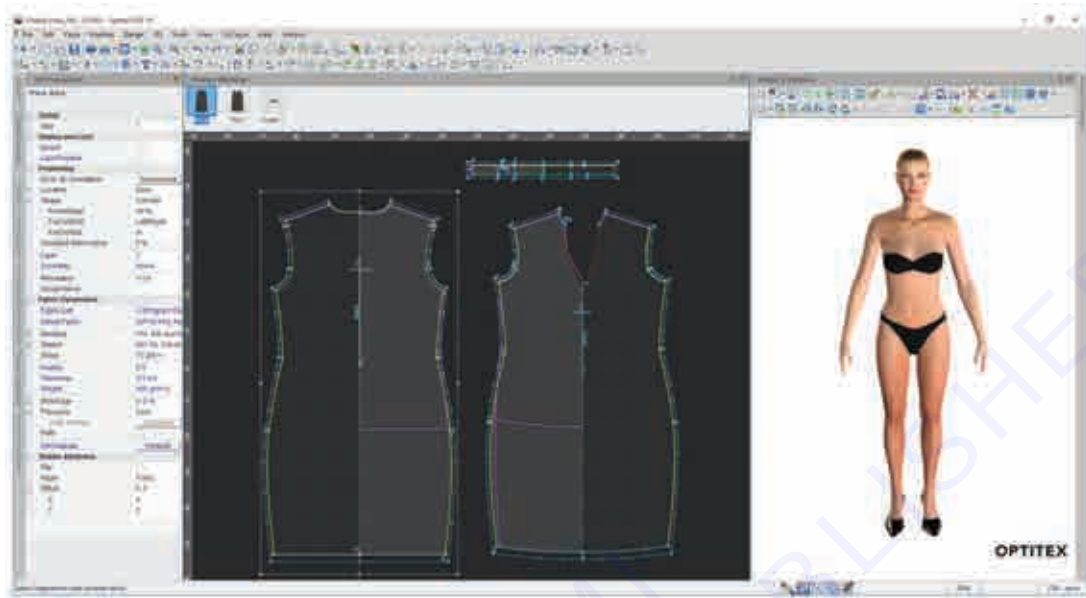
To stitch your pattern:

- 1 To start stitching, we first need to turn on Stitch Mode, so from the 3D toolbar click .



- 2 Use one of the stitching methods to stitch your pattern.

When you are done, your pattern should look like this: (Notice the stitches appear in colors so you can recognize them as stitches).



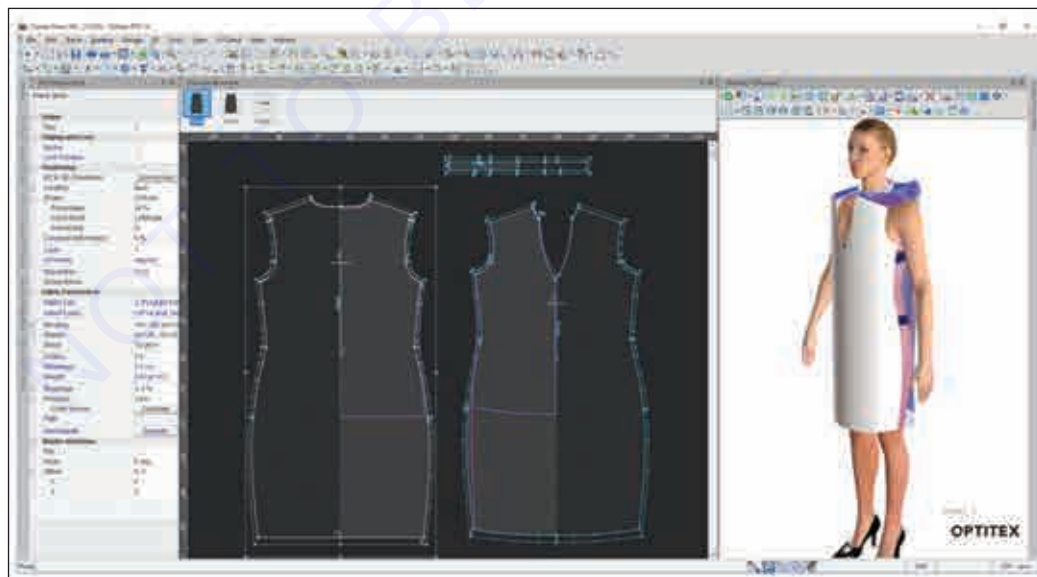
Positioning Pieces in 3D and Adjusting

Once you have stitched your pattern, you can now place the cloth on the avatar and adjust the pieces on the avatar in preparation for simulation.

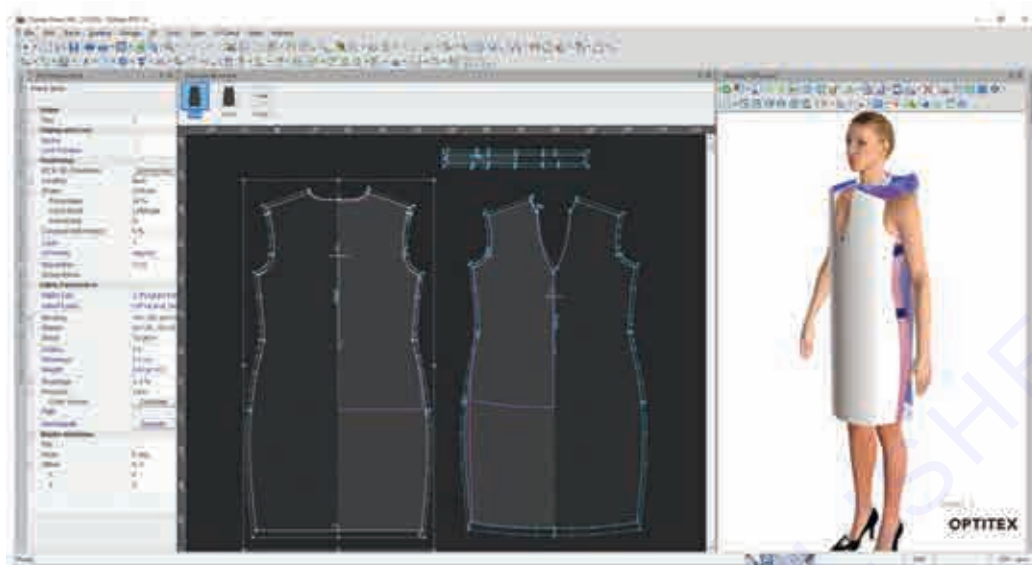
To position pieces in 3D:

- 1 From the 3D toolbar, click .

The pattern is placed in the 3D window:



- 2 You can now move the pieces on the avatar so they sit correctly.
- 3 To move the pieces in 3D, you first have to press Ctrl on your keyboard, and then left click with your mouse to select a piece.



- 4 Now you can adjust the pieces. For example, if the arm piece is too wide and cannot go inside the body, you can change the shape of the piece in the 3D Properties dialog.
- 5 At this point you can check that there are no flipped stitches, intersections, etc.

Simulating and Checking Fit

Once you have positioned the pattern on the avatar and adjusted accordingly, you can now simulate your pattern to see how it looks stitched.

To simulate and check fit:

- 1 From the 3D toolbar, click  (Simulate).

The pattern starts the simulation process.



The pattern reaches full simulation at 100%:



Once the pattern is fully simulated, you can now check fit.

- 2 Turn on **Tension Map**  and check stretching, tension and distance between the cloth and the avatar. For more information, see Using the Tension Map:



- 3 Now see how the pattern looks when in the final pose.
- 4 Open the Model Properties dialog (click ) , then expand Final Poses, and select the checkbox of the final pose you require.
- 5 Click  (Simulate) to continue the simulation.

2D 3D Modifications

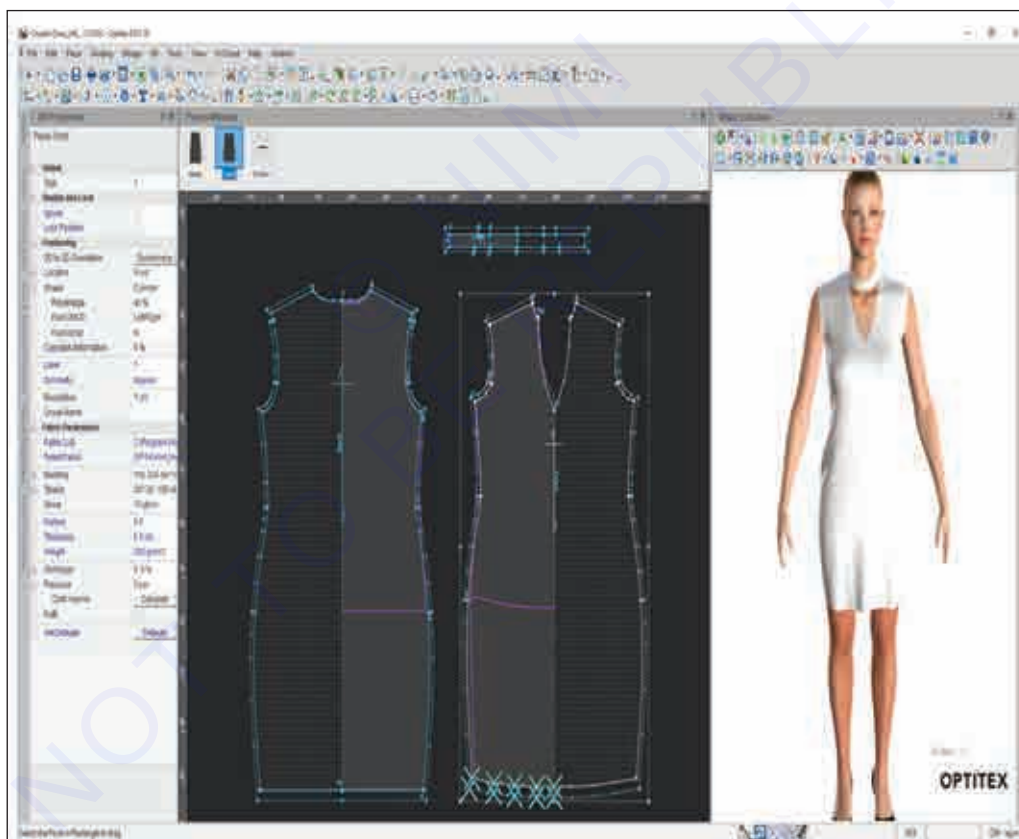
You can easily make changes to your pattern even after you have simulated and accessorized. Some of the changes you make may change the geometry of the pattern; therefore you may have to refresh the cloth to see the changes, other changes may be automatically updated using Dynamic Updates. Dynamic Updates allows you to make changes in 2D and automatically update the 3D window (without having to refresh). For more information about Dynamic Updates, see Viewing Changes in 3D.

Since Dynamic Updates slows down PDS reaction time, it is highly recommended you use the Update All Now button when you have a lot of changes you need to make in 2D (instead of turning Dynamic Updates on all the time).

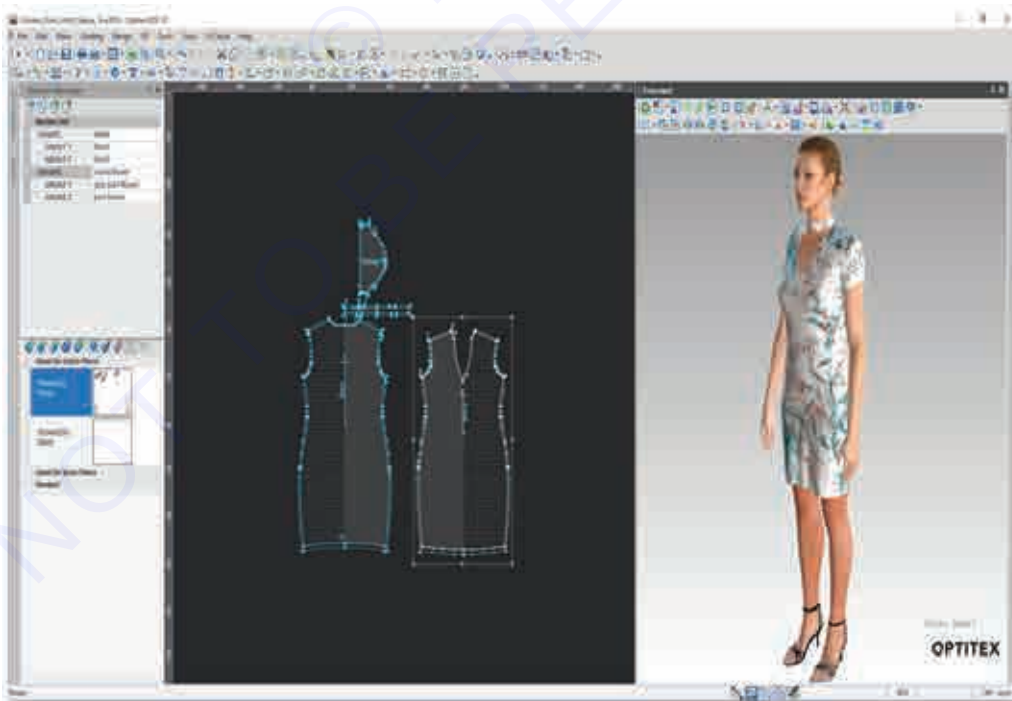
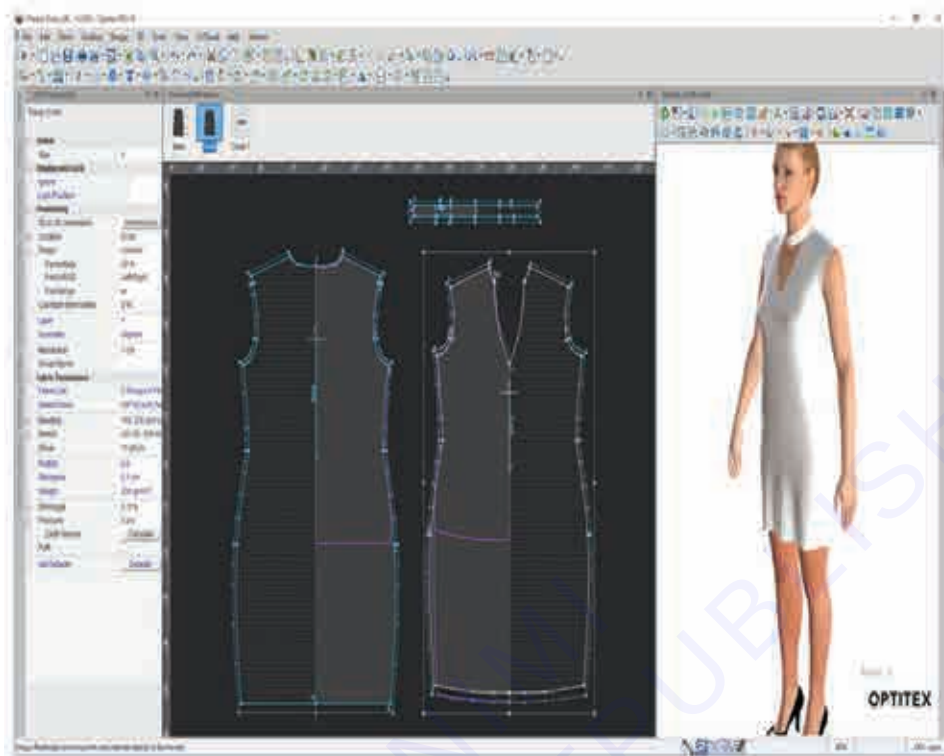
In this example, we will shorten the front of the dress. You can remove the sleeves, modify the collar, etc.

To make modifications to your pattern:

- 1 To change the length of the front piece of the dress, use the Multi Move tool and move all the points.



- 2 Now let's update all the changes that we made in 2D, click (Update 2D to 3D Now).
You can see the changes were updated in the 3D window.

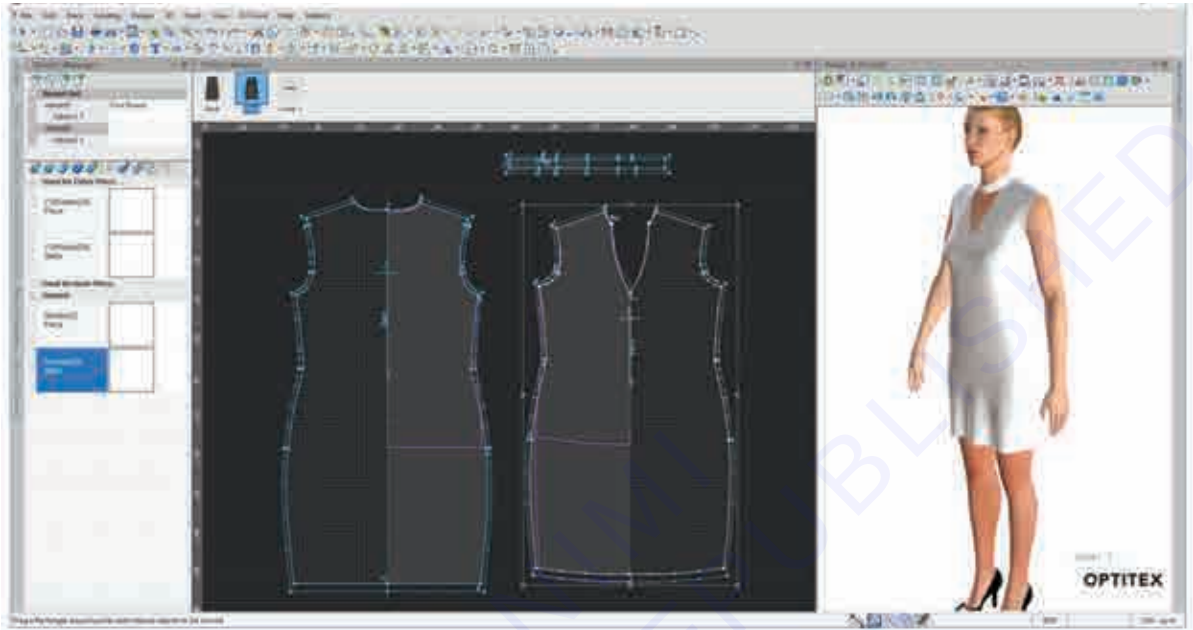


Assigning Shaders and Colorways

You can now apply textures, and shaders and assign them to different objects in your pattern. This is done using the Shader Manager. For more information about how to use the Shader Manager, see Adding Shaders and Textures.

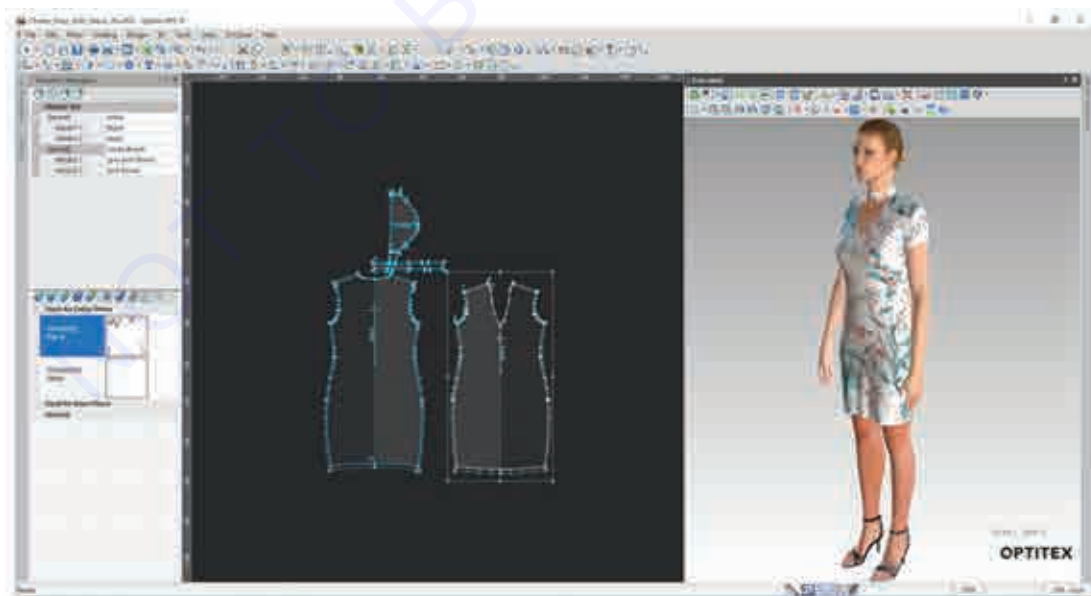
To assign shaders and colorways:

- 1 Open the Shader Manager. Press 9 on your keyboard.



- 2 Create an article. In this example we created an article and named it Vanilla Flower.
- 3 Assign different shaders to your stitches, buttons, and pieces. For more information about how to assign shaders, see Assigning Shaders to Different Objects in Your Pattern.

Here is an example of a shader that we created:



Viewing Your Pattern in Different Poses

Once you have simulated your pattern and checked to make sure the pattern fits the avatar correctly, you can now see how your pattern looks in different poses. The poses are defined with your avatar just like sizes, and you can select from a variety of poses. If you need additional poses, this must be done in the Avatar Editor.

There is a difference between the initial pose and the final pose. The initial pose is the same for all poses, no matter which pose you select. The final poses are according to the poses that were defined when the avatar was created.

 **Note:** Each time you switch from pose to pose, the avatar automatically goes back to the initial positioning in order to simulate correctly.

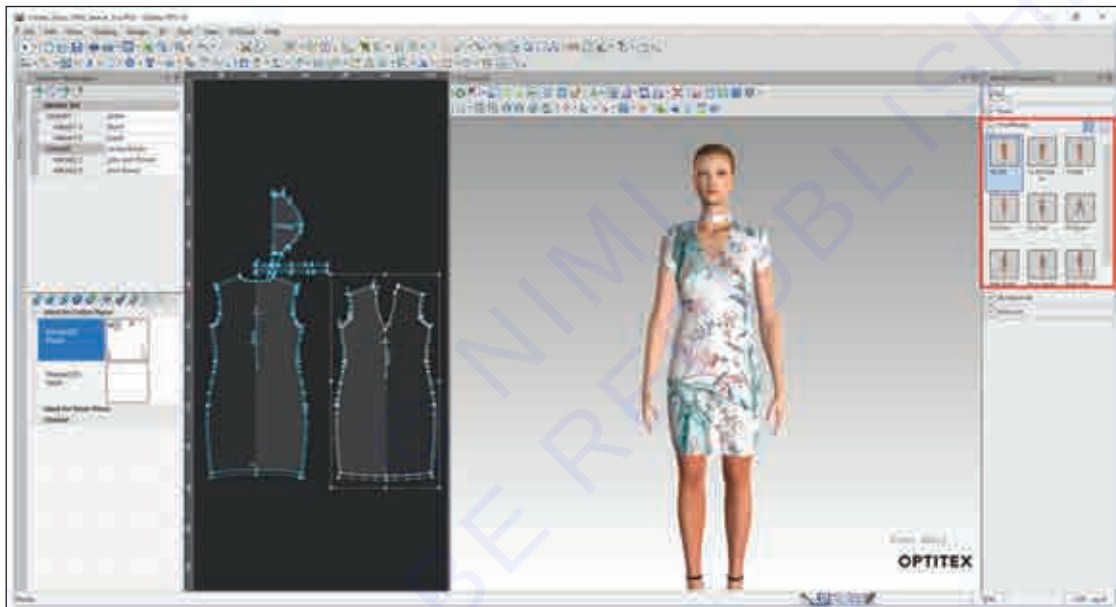


Click here to view the video tutorial

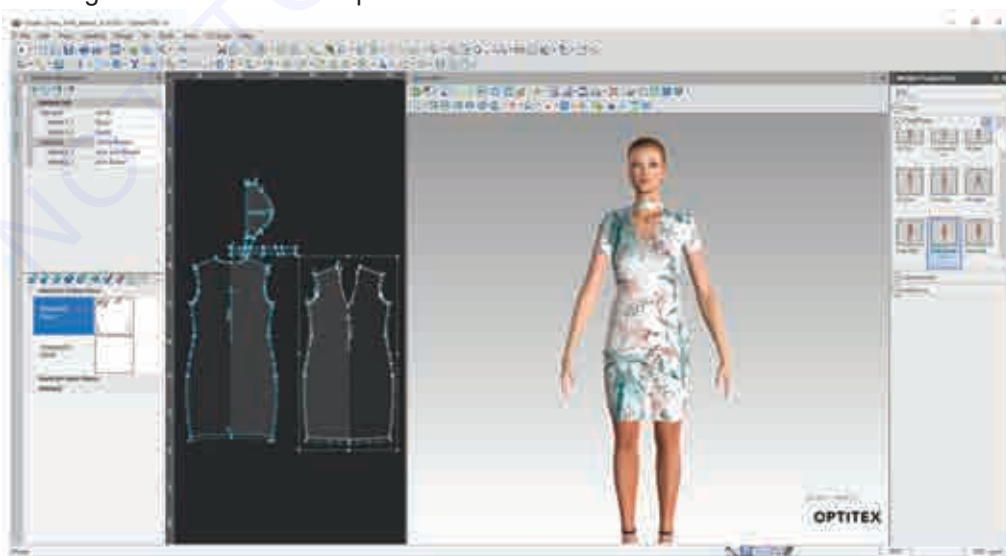
To view your pattern in different poses:

- 1 Click  to open the **Model Properties** dialog.

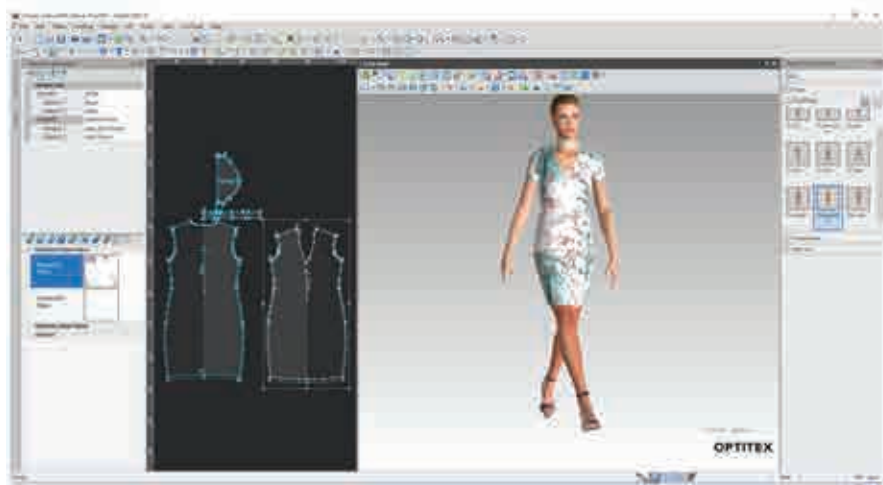
Notice all the final poses appear under the **Final Poses** section.



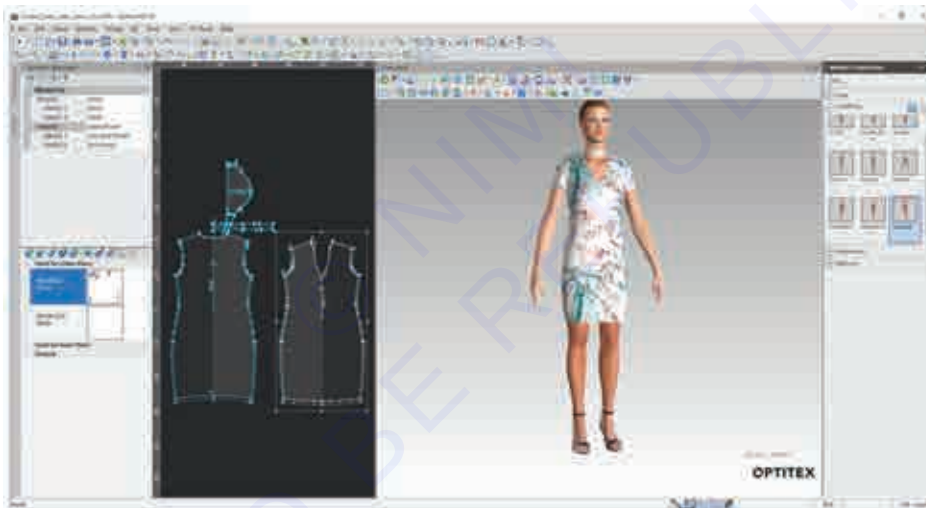
- 2 Click on another pose, for example Catwalk.
Notice the avatar goes back to the initial position:



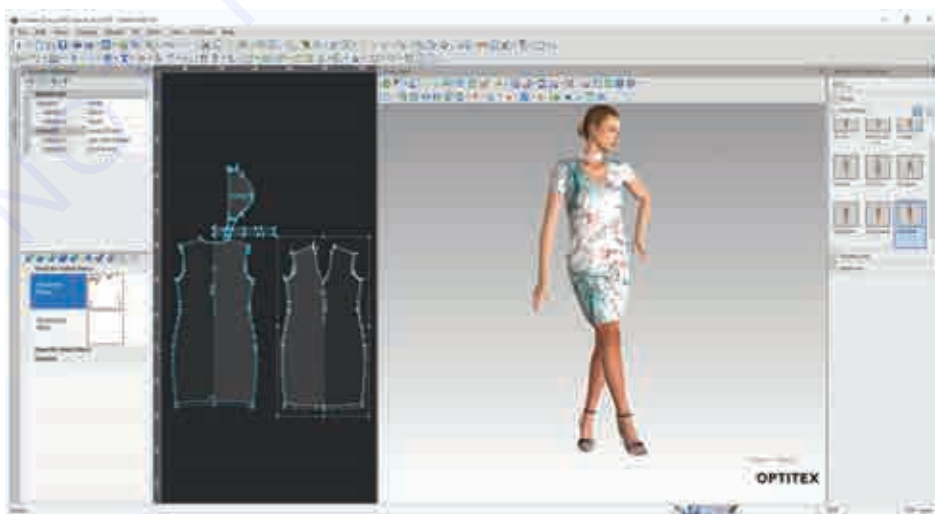
- 3 Click  Simulate to continue the simulation.



- 4 Click on another pose for example Pose Side.
Again the avatar goes back to the initial position.



- 5 Click  and simulate again.



Getting Real Life Results

Once you are satisfied with your pattern you can view the pattern using different rendering machines to see how it looks in “real-life”. Optitex offers three rendering options: HPGL (this is the default rendering that is available when you simulate your pattern), HQR (High Quality Rendering) and PRR (Photorealistic Rendering).

To get real life results:

To view your pattern in HQR, click  . For more information, see Viewing Your 3D Model in HQR.



To view your pattern in PRR, click  . For more information, see Viewing Your Model in PhotoRealistic 3D Mode.



◆ Module 4: Apparel Enterprise & Market Survey ◆

EXERCISE 29 : Collection of samples - swatch book

Objectives

At the end of this exercise you shall be able to:

- convey the purpose of fabric swatch
- create swatch book

Procedure

A fabric swatch is a small piece of fabric (required dimension), that is cut from a larger roll of fabric. This sample provides a representative piece of the fabric, allowing individuals to physically examine and feel the material before making a purchase or using it for a project. It also give detailed information on fibers, basic construction of fabrics, weights, construction, and weave comparison.

Purpose of fabric swatches:

- Fabric swatches are essential in the cloth industry and the design process. They help designers showcase the type of fabric to be used.
- By examining a fabric swatch, designers can assess how colors and materials will look in reality before creating the actual garment or textile.
- Swatches also demonstrate how colors and patterns will appear on the fabric, which may not be evident on paper or a digital screen.

Obtaining fabric swatches:

- Obtain swatches from stores (both offline and online).
- Local fabric stores may provide swatches for free or at a negligible cost.
- Textile Manufactures , Wholesalers
- Online stores usually charge a small amount for fabric swatches.

Swatch library - storing and organizing fabric swatches:

- Create a swatch library or a swatch book.
- Attach swatches to a single piece of paper using double-sided tape, pins, or staples.
- Label each swatch with relevant information (fabric type, composition, color).
- Store the swatch book in plastic sleeves or a binder for easy reference when shopping for fabrics.

Details to be in a fabric swatch file:

- 1 Code no :
- 2 Fabric name :
- 3 Fabric description :
- 4 Colors :
- 5 Yardage :
- 6 PPI & EPI :
- 7 Weight :
- 8 Price :
- 9 Vendor name :
- 10 Fabric composition :

- 11 Properties & finishes :
- 12 Care instructions :
- 13 Washed/unwashed :
- 14 Shrinkage % before & after properties and finishing

Note: Fabric should not be pasted fully to the paper because the back of the fabric is to be seen for construction observations

How to create a swatch book

Use the template of swatch book. Collect Fabric samples.

Use staples, double sided tape, pins or paperclip to attach the swatches to a piece of paper.

Write the detail information of the fabric collected.

Collect Fabric samples (Fig 1)



Template of swatch book

Place sample here	Bin stored in:	
	Description:	
	Width:	In inches:
	Length:	In inches:
	Length:	In yards:
	Price:	
	Where purchased	
	Date purchased:	
	Notes:	

Template of Swatch book

Fabric Stash		
Fabric Name:		
SWATCH	store:	notes/instructions
	price:	
	color:	
	yards:	
	care:	
Fabric Name:		
SWATCH	store:	notes/instructions
	price:	
	color:	
	yards:	
	care:	
Fabric Name:		
SWATCH	store:	notes/instructions
	price:	
	color:	
	yards:	
	care:	
Fabric Name:		
SWATCH	store:	notes/instructions
	price:	
	color:	
	yards:	
	care:	

Write the detail information of the fabric collected (Fig 2 & 3)

Fig 2

fabric details		swatch	
name	thorpe tana lawn		
designer	Liberty London		
seller			
composition	100% cotton		
length	2m 0,5m		width 1,56m
care	wash 40°C, line dry		washed ☐
notes			

Fig 3



Market survey

Objectives : At the end of this exercise, you shall be able to:

- prepare questioner to collect information
- conduct market survey

A market research survey is a questionnaire used by companies to collect information about their customers and their market. Here's a quick market research form that focuses on a few demographic statistics. This survey form will ask for the respondents' age, gender, household income, and educational attainment. The survey format is multiple-choice, giving your respondents an easy way of completing it in a few minutes. Use the market research template and use the collected submission data to your advantage.

Survey -1

Depending on the type of fashion survey, you might ask the following fashion questions:

- What do you think about this new line of clothing?
- How often do you purchase new fashions?
- Why do you purchase new fashions?
- Do you consider yourself "fashionable"?
- What type of clothing do you buy most often?
- What is your favorite brand of clothing?
- Have you ever attended a fashion show?
- Do you consider yourself contemporary or classic?
- How much do you estimate you spend on clothing per year?
- What is your favorite color of clothing?
- Do you have a favorite pattern you like to wear?
- Are you familiar with the term "fast fashion"?
- How many pairs of shoes do you own?
- Have you ever watched a fashion-themed reality television show?
- Do you dress your children for function or fashion?

Survey -2

Questions asked in Survey

Reasons for why choosing the company

1. How often do you shop from us?

- Once a week
- Twice a week
- Once a month
- Twice a month
- Once every two months
- Once every three months
- Once every six months
- Once a year

2 What is your favourite product/service?

3 Why do you choose us?

- Your reputation for quality products and services
- Your competitive pricing
- Your commitment to customer service
- Your convenient location
- Your wide selection of products and services
- Your knowledgeable staff
- Your experience in the industry
- Your commitment to innovation
- Your commitment to sustainability

4. Would you recommend us to your friends/family?

5. Since when do you choose us?

- Last Month
- Last Year
- Two Years Ago
- Three Years Ago

6. Overall, from 1-10, how do you rate us?



An opinion scale question example about satisfaction

New product market research survey questions

New product market research survey questions are perfect for your company if you plan for a new product. Imagine that you are about to launch a new product. You can take fewer risks if you ask questions about the new product before launching it. So you might need these market research questionnaire questions for your new product:

7 Have you seen a similar product?

8 How likely are you to use this product for your business activities?

- Very Likely
- Likely
- Unlikely
- Very Unlikely

9 What do you think is the best feature of this new product?

10 What do you think is the least favourite feature of this new product?

11 Do you find the price reasonable?

12 Are you excited about this product?

13 Overall, from 1-10, how do you rate this new product?

A question example about later use**Social media survey questions for market research**

Social media is an excellent way of collecting helpful data from your customers because, today, nearly everybody has a social media account. You can have insightful data as long as you know which platform to use and how to use it. So, here are your social media survey questions for market research:

14 Which social media platforms do you use? (you can choose more than 1)

- Facebook
- Twitter
- Instagram
- LinkedIn
- YouTube
- Pinterest
- Snapchat
- Reddit
- TikTok

15 In which social media platforms do you spend time the most?

- Facebook
- Twitter
- Instagram
- LinkedIn
- YouTube
- Pinterest
- Snapchat
- Reddit
- TikTok

16 Do you follow us on your social media accounts?

17 What do you think about our company's social media account?

- It's great!
- It could use some improvement.
- It's okay.
- I haven't seen it

18 Do you believe we can use social media effectively?

19 What can we do to improve our social media accounts?

- Post regularly
- Run contests and giveaways
- Use relevant hashtags
- Optimize profile information
- Respond to comments
- Collaborate with influencers

20 Which influencers do you relate to us the most?

Market Survey Report

Objectives : At the end of this exercise, you shall be able to:

- collect the information from customers
- record the details and prepare report.

Survey Report 1

Sl. No.	Surveyor Questions	Respondent Answer 1	Respondent Answer 2	Respondent Answer 3	Respondent Answer 4	Respondent Answer 5
1	What do you think about this new line of clothing?	Very Modern	Innovative	New design	Trendy	Good Design
2	How often do you purchase new fashions?	Twice a Year	Occasionally	Yearly	For Functions & Festivals	For Functions & Festivals
3	Why do you purchase new fashions?	To look fashionable	I prefer new fashions	Be Trendy	To be outstanding	To look like celebrity
4	Do you consider yourself "fashionable"?	No	Yes	No	Yes	Yes
5	What type of clothing do you buy most often?	Designer Clothes	Cotton	Cotton	Kurthis	Sarees, Kurthis
6	What is your favorite brand of clothing?	Avasa	Fab India	Global Desi	Diva	W
7	Have you ever attended a fashion show?	No	No	No	Yes	No
8	Do you consider yourself contemporary or classic?	Classic	Contemporary	Contemporary	Contemporary	Classic
9	How much do you estimate you spend on clothing per year?	4,000	6,000	3000	3500	10,000
10	What is your favorite color of clothing?	Orange	Dark colours	Orange	Blue	Light Colours
11	Do you have a favorite pattern you like to wear?	No	Dart variations	Designer Kurthi	Block Pattern	Designer Saree
12	Are you familiar with the term "fast fashion"?	Yes	yes	No	Yes	No
13	How many pairs of shoes do you own?	4	3	2	3	5
14	Have you ever watched a fashion-themed reality television show?	Yes	No	Yes	Yes	Yes
15	Do you dress your children for function or fashion?	Function	Function	Function	Fashion	Fashion

Survey Report 2

Sl. No.	Surveyor Questions	Respondent Answer 1	Respondent Answer 2	Respondent Answer 3	Respondent Answer 4	Respondent Answer 5
1	How often do you shop from us?					
	• Once a week					
	• Twice a week				✓	
	• Once a month		✓			✓
	• Twice a month					
	• Once every two months					
	• Once every three months					
	• Once every six months	✓		✓		
	• Once a year					
2	What is your favourite product/service?	Designer wear	Quality products	Good Quality	Fashionable products	Comfort wear
3	Why do you choose us?					
	• Your reputation for quality products and services				✓	
	• Your competitive pricing			✓		
	• Your commitment to customer service					✓
	• Your convenient location	✓				
	• Your wide selection of products and services					
	• Your knowledgeable staff					
	• Your experience in the industry					
	• Your commitment to innovation		✓			
	• Your commitment to sustainability					
4	Would you recommend us to your friends/family?	Yes	Yes	Yes	Yes	Yes

5	Since when do you choose us?					
	• Last Month			✓		✓
	• Last Year		✓		✓	
	• Two Years Ago					
	• Three Years Ago	✓				
6	Overall, from 1-10, how do you rate us?	7	9	8	9	7
7	Have you seen a similar product?	Yes	Yes	Yes	Yes	No
8	How likely are you to use this product for your business activities?					
	• Very Likely		✓	✓		✓
	• Likely	✓				
	• Unlikely					
	• Very Unlikely					
9	What do you think is the best feature of this new product?	Quality	Long life	Good quality	Customer satisfaction	Durable
10	What do you think is the least favourite feature of this new product?	luxury	Fast fashion	Out lets	favoring new fashion trends,	Wholesale
11	Do you find the price reasonable?	Yes	affordable	Yes	Yes reasonable	Yes
12	Are you excited about this product?	No	Yes	Yes	Yes	Yes
13	Overall, from 1-10, how do you rate this new product?	6	7	8	9	8

14	Which social media platforms do you use? (you can choose more than 1)					
	• Facebook					✓
	• Twitter					
	• Instagram	✓	✓			
	• LinkedIn					
	• YouTube	✓		✓		✓
	• Pinterest		✓	✓		
	• Snapchat					
	• Reddit					
	• TikTok					
15	In which social media platforms do you spend time the most?					
	• Facebook					
	• Twitter					
	• Instagram	✓	✓			
	• LinkedIn					
	• YouTube			✓	✓	✓
	• Pinterest					
	• Snapchat					
	• Reddit					
	• TikTok					
16	Do you follow us on your social media accounts?	Yes	Yes	Yes	Yes	Yes
17	What do you think about our company's social media account?					
	• It's great!			✓		✓
	• It could use some improvement.				✓	
	• It's okay.	✓	✓			

	• I haven't seen it					
18	Do you believe we can use social media effectively?	Yes	Yes	Yes	Yes	Yes
19	What can we do to improve our social media accounts?					
	• Post regularly	✓				
	• Run contests and giveaways					
	• Use relevant hashtags					✓
	• Optimize profile information		✓	✓	✓	
	• Respond to comments					
	• Collaborate with influencers					
20	Which influencers do you relate to us the most?	Actress Tammanna	Aakriti Rana	Aashna Shroff	Avantika Mohan	Komal Pandey

Preparation of Sample Folder

Collect all the assignment reports and prepare a sample folder

Prepare assignment report - Fashion Trend

Objectives : At the end of this exercise, you shall be able to:

- identify latest fashion trend
- identify the fabric trend
- identify the colour trend.

Requirements

Tools/Materials

• Cartridge paper of A4 size	- as reqd.
• Pencil	- 1 No.
• Pencil Eraser	- 1 No.
• Pen	- 1 No.
• Pencil sharpener	- 1 No.
• Record note	- 1 No.

Procedure

TASK 1 : Collect information of the latest fashion trend

- 1 Report to the latest fashion trend.
- 2 Collect the detail about famous fashion capital.
- 3 Identify the famous style and time period.
- 4 Research and collect the details about forming of fashion trend.

— — — — —

TASK 2 : Report of the fabric trend

- 1 Collect and place the famous fabric

- 2 Identify the fabric Trend, fabric texture and durability.
- 3 Collect and place the 10 different types of fabric swatch.

- 4 Collect the details about present and upcoming fabric trend.

Latest fabric trend	Upcoming fabric trend

TASK 3 : Report of the colour trend

- 1 Identify the colour trend.
- 2 Collect the detail about colour trend.
- 3 Collect and place the present, upcoming colour swatch.

Latest colour trend	Upcoming colour trend

Prepare assignment report - Trade fair

Objectives : At the end of this exercise, you shall be able to

- collect the details about famous country in trade fair
- identify the procedure of trade fair
- collect the trade fair details.

Procedure

TASK 1 : Collect the details about famous country in trade fair

- 1 Collect the photos and details about famous country in trade fair.
- 2 Collect the details from who started the trade fair.
- 3 Collect some details about world level trade fair organisation.
- 4 Find out the famous country and how they are developing on trade fair.

— — — — —

TASK 2 : Identify the procedure of trade fair

- 1 Report to the trade fair what are the procedure its followed.
- 2 Collect the details about trade fair organizer.
- 3 Discuss with trade fair organizer and how to form the trade fair shows.
- 4 Collect the details from owner.
- 5 Find out the contribution of owners.

Date	Place	Name of the Organizer	Name of the Co-ordinator	Details about advertisement

Prepare assignment report - Fashion show

Objectives : At the end of this exercise you shall be able to:

- collect the details and picture from fashion show
- discuss with fashion designer and collect the details
- discuss with models and collect the details
- discuss with other designer
- list out the requirements for a successful style
- report to the fashion shows and its types for lasting and classification of fashion.

Procedure**TASK 1 : Collect the details and picture from fashion show**

Date	Place	Show organizer	Picture	Types of shows	Fashion style	Season of trend	Purpose of show

TASK 2 : Discuss with fashion designer and collect the report

Date	Place	Designer Name	Pictures	No. of Shows participated	Goal

TASK 3 : Discuss with models and collect the details

Date	Place	Name of the model	Pictures	No. of Shows participated	Goal

TASK 4 : Discuss with other designer

	Hair stylist	Beautician	Alteration specialist	Wardrobe consultant	Photographer	Fashion Journalist	Show trainer	Show co-ordinator
Name								
Place								
No. of shows								
Experience								
New style								

Prepare assignment report - Garment production unit

Objectives : At the end of this exercise you shall be able to:

- identify appropriate fabrics collect the samples from the garment production unit
- identify the various accessories of garment production unit
- collect the details about group production of a lay plan
- collect the quality improvement report
- research and report quality Inspection
- report to the lay and cut plan
- collect and place the different types of tables and its uses.

Procedure

TASK 1 : Identify appropriate fabrics collect the samples from the garment production unit

Sl.No.	Samples	Style	Identify the weave	Characteristic of fabric	Description	Size range	Season
1							
2							
3							
4							
5							
6							
7							

TASK 2 : Identify the various accessories of garments production unit

1 Collect and place the sample of accessories from the garment production unit.

Sl. No.	Samples	Name of Accessories	Purpose of Accessories	Placed on Accessories	Identify the problem

TASK 3 : Group production of a lay plan collect the details about pattern on to the fabric and calculate a cost effective lay

Lay out plan of _____

TASK 4 : Quality improvement report

- 1 Discuss and collect the details about quality checking.
 - a Fabric checking unit
 - b Layout unit
 - c Garment production unit
 - d Measurement checking unit
 - e Defect checking unit
 - f Pressing unit
 - g Packing unit
 - h Final inspection unit
- _____

TASK 5 : Research and report quality inspection within the garment production unit

- 1 Prepare quality inspection sheet format.
 - 2 Identify the quality fault.
- _____

TASK 6 : Report to the lay and cut plan

- 1 Identify the lay procedure
 - 2 Identify the lay out fault.
- _____

TASK 7 : Prepare garment production report

- 1 Research Individual plan for the production process.
- 2 Collect the decorate details and then applicable.
- 3 Check the press and present finished garment
- 4 Find the evaluate the production process.

— — — — —

TASK 8 : Identify the label and position of labels

Sl. No.	Garments	Placement

— — — — —

TASK 9 : Collect and place the different types of labels

Sl. No.	Garments	Name of the label	Purpose of label	Position of label
1	Coats			
2	Suits			
3	Dresses			
4	Blouses			
5	Trousers			
6	Skirts			
7	Overall and jumpers			
8	Underwears			
9	Pinafore dresses			
10	Aprons			

◆ Module 5: Quality Control & Inspection ◆

EXERCISE 30: Quality control - Fabric Defects

Objectives

At the end of this exercise you shall be able to

- know about fabric inspection and 4-point system
- check the fabric for fabric defect
- list the types of defect
- identify the cause of defect and how to prevent it.

Fabric Inspection

The “quality” of fabric from your supplier doesn’t meet your standards. In fact, it has a lot of problems. Fabric inspection reveals countless defects ranging from drop stitches to color shading variation.

The 4-point system is the industry standard for evaluating fabric quality in the inspection industry. This system assigns penalty points to a roll of fabric according to defect size, quality and significance.

But you must understand the different types of fabric defects to look for before you can use the 4-point system.

Fabric defects

• Horizontal lines	• Holes
• Shade variation	• Defective selvage
• Dirt/stains	• Snags
• Uneven dyeing	• Thick place/thin place
• Drop stitches	• Bowing and skewing
• Misprinting	• Needle lines
• Crease marks	• Coarse pick
• Barre	• Coarse end
• Neps/knots	• Broken pick
• Abrasion marks	• Broken end
• Splicing	• Missing end/end out
	• Filling bar

1 Horizontal Lines

This fabric defect is defined by irregular lines that run from side to side.(Fig 1)

Causes

Horizontal lines are generally caused by:

- Faults in the bobbin (the barrel used to hold yarn in place)
- Irregular thread tension

Prevention

Preventing the appearance of horizontal lines in fabric is quite straightforward. Regularly replace the bobbin and frequently check thread tension and positioning.

2 Shade Variation

One of the more obvious visual defects that can be found on raw textiles, shade variation is defined by a difference in depth of shade and color from roll to roll or piece to piece. Shade variation in fabric is caused by:(Fig 2)

Fig 1

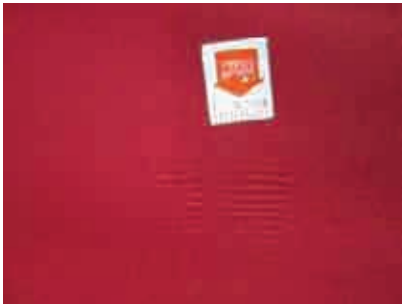


Fig 2



Causes

- Mixing of fabrics used in production
- Variations in the production process with regard to time and speed
- Improper cutting, bundling and/or numbering
- Unequal fabric stretching

Prevention

Using the same base material and set of parameters for each production lot can effectively prevent shade variation.

When visiting a factory that manufactures raw textiles, it's critical to ensure workers are only combining garments of the same color and not taking shortcuts when cutting and bundling. Properly numbering textile types prevents mistakenly combining cuts that vary in shade.

3 Dirt/Stains

Stains are fairly common among dyed textiles and are defined as spots or patches of differing color. Textiles are never truly safe from stains because they can occur anytime during or after production if they're not kept in an area with adequate protection.

Causes: Stains can appear on fabrics from just about any source. Dirt from the factory floor, oil from machinery and dyes are all known sources. Stains are relatively easy to identify and prevent so long as suppliers are vigilant about fabric quality.

Prevention

Your manufacturer can prevent stains during production by regularly cleaning production machines and equipment to ensure no random oils, grease or dyes make their way onto the textile. (Fig 3)

Wrapping the finished rolls of fabric in plastic and storing them in a separate area away from the dyeing area can help avoid post-production stains.

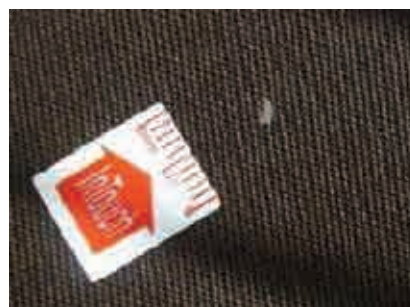
4 Uneven Dyeing/Printing/Dye marks

Dye marks are irregular patches on the surface of raw textiles. Dye marks are typically the result of: (Fig 4)

Fig 3



Fig 4



Causes

- Low quality base fabric
- Improper leveling agents
- Incorrect pH in the production process
- Dye machine entanglement

Prevention

Ensuring there are no initial problems with the base fabric prior to stitching can help prevent dye marks. Any issues missed will be present in later production processes.

Other preventative measures include maintaining the correct pH level, using an appropriate dyeing agent and using a backup power generator to ensure production machines don't shut down during use.

5 Drop Stitches

One of the most common quality issues found in raw textiles, drop stitches are holes or missed stitches that appear randomly in the fabric. (Fig 5)

Causes

Drop stitches are typically caused by:

- Incorrect set-up of yarn carriers
- Slubs and knots
- Yarn overfeeding or underfeeding
- Loose stitching during the production process

Prevention

Checking the yarn carrier and any other machines to verify they're set to the right tension during production can prevent drop stitches. You can minimize the occurrence of drop stitching in your fabric or textile by regulating the yarn feed rate.

Resetting the pattern chain can fix this issue.

6 Misprinting, OFF Printing or Absence Of Printing

Misprint defects are only relevant to printed fabrics. Misprint is when the print of the fabric does not match your specified design. This is usually displayed in one of the following ways:

Causes

- Colors and/or patterns are completely or partially missing
- Colors and patterns are incorrectly positioned relative to each other

Prevention (Fig 6)

Fig 5



Fig 6



Misprints are most often the result of:

- Wrong dyeing recipe
- Wrong leveling agent
- Incorrect dye combinations in lots
- Improper scouring of grey fabric

Implementing uniform dyeing, leveling and scouring processes can help prevent misprinting.

If you're sourcing a printed fabric, make sure to provide clear specifications regarding the colors and patterns of your printed fabric to your factory. Consider providing pantone color numbers and design files as a guide for your supplier.

7 Crease Marks

A crease mark is a visible deformation in fabric. A crease mark differs from a crease streak, as it's unlikely to appear for an entire roll. Rather, it appears in just one spot on the fabric. (Fig 7)

If final pressing cannot restore fabric to the original condition, a crease mark will be left on the final product. Discoloration can also be a problem associated with this fabric defect.

Causes

Crease marks often happen when fabric passes through squeeze rollers in the dyeing process. Creasing is inevitable as fabric is fed through machines in rope form. But if properly handled, crease marks should not be permanent.

Crease marks can be caused by:

- Inadequate preparation, relaxation or bulking of fabric
- Poor quality of fabric: a tight construction, high twist yarns or dense weight
- Poor suitability of machine: not moving folds properly
- Incorrect loading of fabric into machine, resulting in twisted or knotted rope
- Excessively rapid heating or cooling rates

Prevention

Along with rectifying these issues, using anti-crease agents during the scouring process prior to dyeing can help prevent crease marks.

8 Barre

A barre is an unintentional, repetitive visual pattern of continuous bars and stripes. (Fig 8)

Fig 7



Fig 8



Causes: Barre will typically appear as a horizontal streak of light or dark bars running the width of the fabric. The bars must appear in a repetitive pattern to be considered barre. Barre is typically found parallel to the filling of woven fabric or to the courses of circular knit fabric.

Barre is usually not detected until after the processing of fabric at the end of production.

Prevention: Barre is a result of physical, optical or dye differences in yarns or geometric differences in fabric structure. Any combination of these differences can cause this fabric defect.

Like many fabric defects, it's easier to prevent barre than to try and rectify it after production. Consistency in raw material organization and labeling can help prevent mix-ups leading to barre, as well as continual equipment maintenance. Following a First In First Out (FIFO) inventory system can help ensure consistent material flow and usage.

9 Neps/Knots

Neps are small, tightly tangled knot-like masses of unorganized fibers that form a pinhead shape. These knots are usually comprised of dead or immature fibers. (Fig 9)

Neps can be categorized into three types:

- **Biological:** Found in raw materials, these neps contain foreign material such as seed coat fragments, leaf or stem materials. The manufacturer can usually remove them through wet processing.
- **Mechanical:** Found in ginned lint, card web, yarns and cloth, these neps are largely a result of mechanical processing.
- **White speck neps:** Generally not visible until dyeing, white speck neps contain immature clusters of fibers and are considered the most severe type of neps.

Causes and of neps

Neps are caused when spools of yarn are tied together. This might be a result of:

- Accumulation of fly and fluff on machinery
- Poor lint cleaning
- Poor carding and incomplete removal of neps before processing

Prevention: To prevent neps and knots, ensure proper maintenance and cleaning of machinery and roller clearers. Neps can be removed through combing before processing, so early detection of neps is critical to preventing neps in finished fabrics.

10 Abrasion Marks

An abrasion mark is a discolored area damaged by friction or rubbing. (Fig 10)

Fig 9

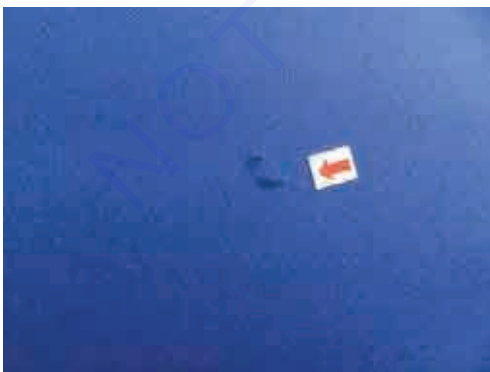


Fig 10



Abrasion marks are sometimes also referred to as chafe marks or bruised places.

Causes and of abrasion marks

Chafing or impact with a hard or rough surface usually causes abrasion marks. For instance, scratches on the breast beam of the loom might cause chafing.

Abrasion resistance is the ability of a fabric to withstand surface wear and rubbing. Fiber, yarn and fabric properties and finishing processes are the main factors that determine abrasion resistance.

Prevention: Using fabrics that are more abrasion resistant can help reduce abrasion marks. Nylon is generally regarded as having the best abrasion resistance, followed by polyester.

11 Splicing

Splicing is the overlapping of the cut ends of two pieces of fabric (the end of one length of fabric and the beginning of another) to ensure continuous spreading. Splicing is necessary as one roll of fabric finishes and the next is taken into use.

Causes: The overlapping ends of fabric produce a waste material in manufacturing. Splicing losses can vary up to five percent of total fabric usage. Importers can ensure greater manufacturing efficiency by minimizing splicing in their fabric. (Fig 11)

Many importers assign four penalty points under the 4-point system for each splice found during fabric inspection.

Prevention: The position of the splice in a roll of fabric often depends on the overall fabric quality. Splicing is often used to compensate for other fabric defects, like stains or holes, by removing these from the final roll.

So improving overall fabric quality and preventing other fabric defects can often help to minimize splicing losses.

Setting a maximum length tolerance for splicing in each roll of fabric with your supplier can help to clarify your expectations (e.g. no more than one splice every 30 meters). Be sure to consult your supplier on this tolerance before production to ensure it is achievable.

12 Holes

A hole is an imperfection where one or more yarns are sufficiently damaged to create an opening in the fabric. (Fig 12)

Fig 11



Fig 12



Holes are typically treated as a major defect in the fabric and are assigned either two or four penalty points during fabric inspection, depending on their size.

Causes

Holes are usually caused by an accidental cut or tear to the fabric. Broken needles or rough mechanical parts are common culprits for fabric tearing during manufacturing.

Prevention: Prevent future holes by ensuring your supplier has procedures in place to regularly check needles and machinery prior to production.

13 Defective Selvage (Cut, Waved or Creased)

Selvage is the densely woven edge of a piece of fabric. Most often used in reference to woven fabrics, the selvage is supposed to keep the fabric from unraveling or fraying. (Fig 13)

Selvage can be defective in a number of ways, including cut, waved or creased. Cut selvage might also be referred to as broken selvage or ripped selvage.

Causes

There are two main culprits for defective selvage:

- An incorrect loom adjustment during weaving
- Improper edge construction

Prevention: Correctly adjusting the loom and properly constructing the edges of the fabric should prevent this defect.

14 Snags

A snag is a part of the yarn that is accidentally pulled or plucked from the surface. Usually it appears as a large loop of yarn above the surface of the fabric. (Fig 13)

In warp knits, the snag occurs in the wale direction. In weft knits, the snag occurs in the course direction.

Causes

In the case of continuous filament yarns, snagging is typically caused by mechanical strain during knitting. Sharp points and objects can cause the fabric snag at any time. Inspect the fabric contact points on all the processing machines to identify and fix any sharp points.

Prevention: Some fabrics are more prone to snagging than others due to their composition. You can conduct a mace snag test to determine a fabric's resistance to snagging. During this test, a miniature mace (a spiked ball) will track randomly across a fabric sample to predict actual wear and snagging.

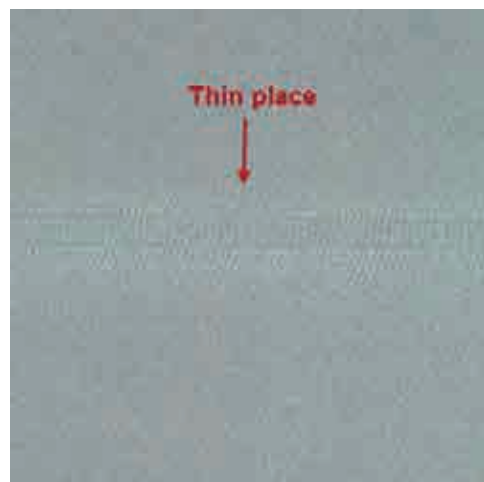
15 Thick Place/Thin Place

These are unintentional changes in fabric appearance as compared to adjacent construction. If the thick or thin place is more than one inch wide, it is typically classified as a major defect in fabric inspection. (Fig 14)

Fig 13



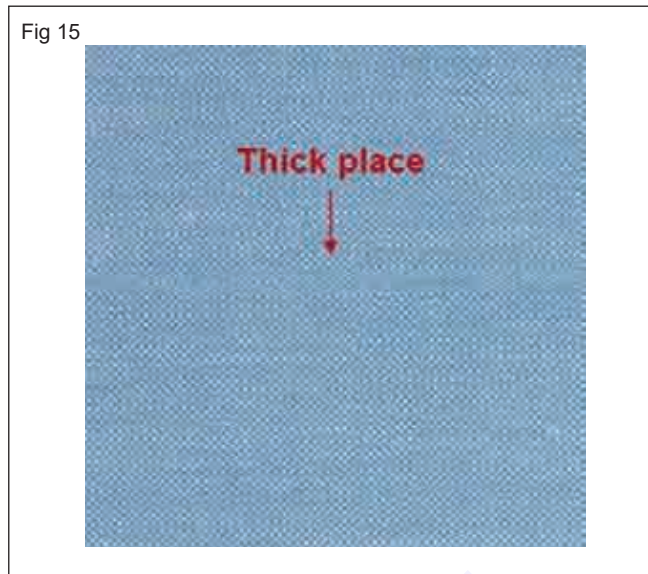
Fig 14



A thick place will appear as a small area of more closely spaced yarns or by a congregation of thick yarns. A thin place is the opposite, as the fabric will appear to have loosely spaced yarns or a congregation of thin yarns.

Causes

Main causes of thick and thin places include (Fig15)

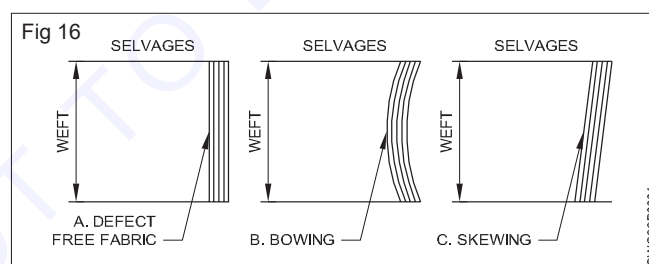


- Irregular let-off
- Incorrect setting of holding and releasing pawls on the ratchet wheel of take-up motion
- Gears of take-up motion not meshing properly
- Gear wheel teeth worn out or broken

Prevention: Ensuring proper training of factory personnel to set the let-off and/or take-up motion properly can help prevent this fabric defect.

16 Bowing and Skewing

Bowing is a condition in woven textiles where filling yarns are displaced from a line perpendicular to the selvages and lie in an arc across the width of the fabric. Bowing appears as rows of courses or yarn-dyed stripes forming a bow shaped curvature along the fabric width. (Fig 16)



Skewing is a similar condition in which filling yarns are angularly displaced from a line perpendicular to the edge or side of the fabric.

Bowing and skewing affects striped or patterned fabric quality more than for solid color fabrics, as the greater contrast in patterns makes the distortion more prominent.

Causes: Bowing and skewing can be caused by an uneven distribution of tension across the fabric width during dyeing or finishing processes. Improper stretching during scouring, dyeing or finishing might also cause bowing or skewing.

Prevention: Correcting the tension settings on processing machines should rectify these defects. You can also ask your supplier to fix bowing and skewing found during fabric inspection by reprocessing the fabric through a compactor or straightening machine.

17 Needle Lines

Needle lines appear in weft knit fabrics, and appear as prominent vertical streaks or lines in the fabric.

Causes

Defective needles are a direct cause for needle lines. Needle latches, hooks or stems might be: (Fig 17)

- Mixed
- New
- Dirty or contaminated with lint
- Bent
- Worn

Prevention: If needle lines occur individually, you'll likely only need to trace the needle line to the associated defective needle and replace it to prevent further needle lines. If needle lines appear in a band, you'll likely need to replace multiple defective needles.

An improper dial or cylinder condition with the machine might also cause needle lines. Verify that your supplier has established and maintained proper maintenance and cleaning policies to prevent future issues with needles and equipment.

18 Coarse Pick

A coarse pick is where the filling yarn used in the fabric is unusually large in diameter. (Fig 18)

Fig 17

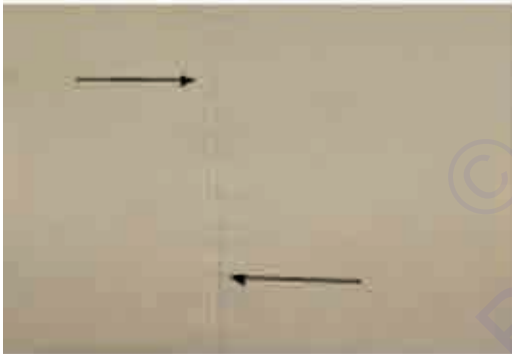


Fig 18



This defect is also known as coarse filling or thick filling.

Coarse pick is usually classified as a major defect during fabric inspection.

Causes and Prevention

Probable causes for coarse pick include:

- Lashing of broken end with adjoining end at roving frame
- Disturbed weight of back-top rollers at roving frame and ring frame cause the material to slip under the back-top roller and crease a coarse yarn

19 Coarse End

Coarse end appears in fabric with warp yarn. (Fig 19)

Also known as heavy end, this is when the warp end is larger than normal in diameter, even sometimes double in size. The opposite is a fine end, when the warp end is smaller in diameter than normal.

The diameter of the yarn is too large, irregular or contains foreign material, which inhibits a smooth, even fabric.

Causes

Coarse end is caused when two bobbins of roving (wool that has been run through a mill on a carding machine) are running together during spinning. The process of running two bobbins together during spinning is commonly referred to as doubling and is used to remove variations in thickness.

Prevention: To prevent coarse ends, ensure there are no knots, irregularities or foreign materials in the roving prior to doubling.

20 Broken Pick

This defect appears as a broken filling yarn in the fabric weaving. It appears as a sharp discontinuity in the weave pattern over the pick length. (Fig 20)

Fig 19

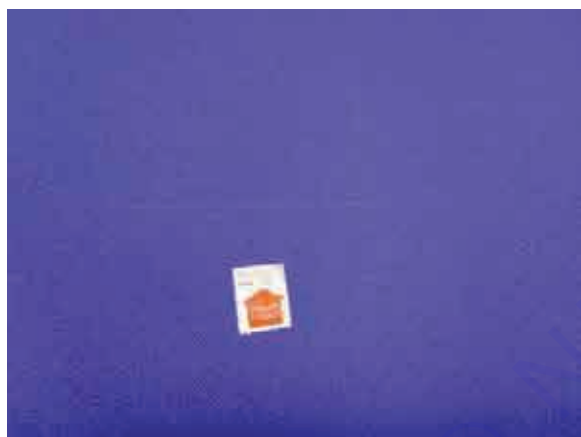


Fig 20



Causes: and prevention of broken pick

A broken pick is the result of a break or cut in filling yarn, which results in the insertion of a partial pick in the fabric. This can happen after weft break, weft exhaustion or a faulty weft fork mechanism. Correcting weft stop motion will ensure broken picks are detected before they're inserted into the fabric.

Prevention: Ensuring weaving personnel are trained to identify and replace a broken pick during production can also help prevent the appearance of this defect in the finished goods.

21 Broken End

A broken end appears as a broken, untied warp end of a fabric. (Fig 21)

The yarn is usually broken during weaving or finishing. Broken ends appear as equidistant horizontal lines along the fabric width.

Causes and prevention : This defect is caused by yarn breakage. When the yarn breaks during weaving or finishing and is then woven into fabric the result is a broken end.

Some possible causes for broken ends include:

- Poor preparation
- Weak or irregular yarn
- Excessive warp tension

22 Missing End/End Out

This defect will appear in fabric as a fine warp-way crack until the weaver rectifies it. (Fig 22)

Fig 21

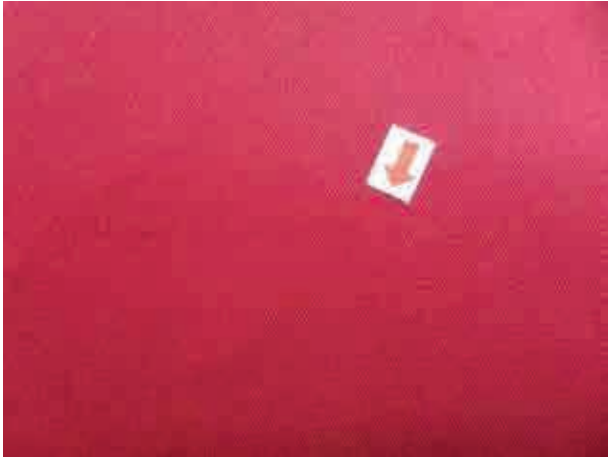
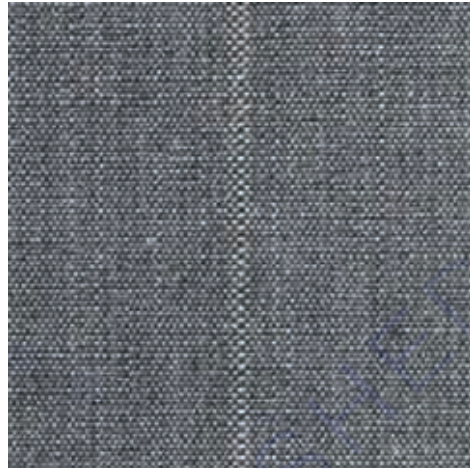


Fig 22



A missing end typically appears at the selvage of the fabric. Missing end is also known as “end out” and is typically classified as a major defect during fabric inspection.

Causes and Prevention

A missing end occurs when an extra piece of filling yarn is jerked into the fabric by the shuttle. This happens when a warp yarn is broken or missing during weaving.

Your fabric may end up with missing ends if a weaver improperly draws broken ends in place or the warp stop motion isn't properly functioning. Weaving should stop immediately when a yarn breaks to prevent introducing missing ends into the fabric.

23 Filling Bar

A filling bar, also known as a weft bar, is a visual band or bar across the full width of fabric. (Fig 23)

Fig 23



The area will contain less than the normal number of picks, appearing different from the rest of the fabric.

Causes and Prevention

There are three main causes of a filling bar:

- Defective spinning processes that lead to a variation in the count of weft yarn
- Mixing of different counts or different twist yarns
- Faulty take up motion on the looms

Ensure your supplier has proper controls and organizational processes to eliminate mix-ups and segregate yarn to prevent this fabric defect. In addition, ensure proper operation of spinning and loom machinery to eliminate mechanical causes.

Defects of Accessories

Objectives : At the end of this exercise you shall be able to

- define about defects of accessories

Button & Button hole

The buttons are not fitting in the button holes resulting change in the shape or forming wrinkles.

Cause

- Carelessness of the Operator
- Wrong marking of buttons/holes
- Wrong cutting for making the button holes., (Fig 1)

Fig 1



Broken Buttons

Cause

- Due to excess pressure of the pressure foot of the machine
- Due to high speed of the machine (Fig 2)

Zip

Use of defective or damaged accessories like zip during stitching operation.

Cause

- Carelessness of the operator
- Poor quality of accessories. (Fig 3)

Fig 2



Fig 3



EXERCISE 31: Measurement checking as per specification sheet

Objectives

At the end of this exercise you shall be able to

- analyse a specification sheet
- check the measurement of a garment as per specification sheet.

Specification Sheet

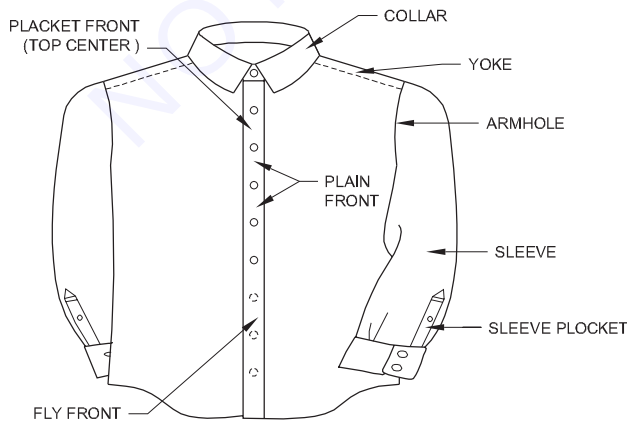
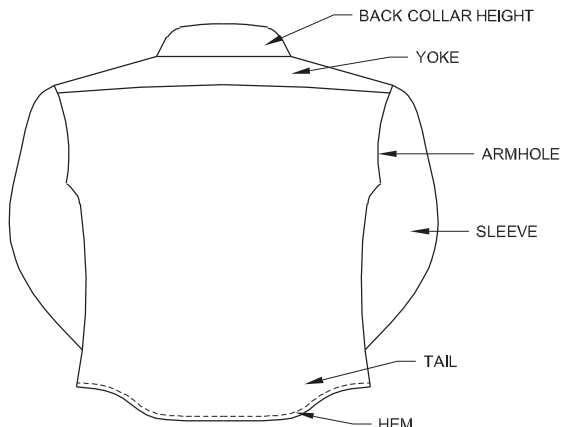
A garment specification sheet or spec sheet is a technical document that contains the construction details of a product, a technical diagram/sketch of the garment and the measurements of a product. The industry norm is a tolerance of 2cm, i.e. 2cm smaller or bigger than the spec.

Tolerance

There can be hundreds of factors that can cause variation in garment measurement. Sewing and garment construction, small error in cutting and so on. So, technical designer should consider those variations in the spec sheet. It is important to keep some tolerance to cover the errors that may cause during the processing. To give you an example when giving body measurement chest, waist or bottom should have $\pm 1/2"$. While small parts of the garment should have relatively smaller tolerance. It is up to the tech pack designer to give tolerance that can cover a variation during production.

Measuring garment as per size specs is a critical aspect in the quality control. Quality garment exporters keep QCs who can check the fits. During bulk production it is impossible to have all the garments identical. So in a garment specs designers set a tolerance for each point of measurement. This allows a small margin for error which is acceptable during bulk production. When we prepare the spec sheet it is important that we keep certain acceptable margin. We call it tolerance and this is given in certain garment spec sheets. Technical designer should keep in mind the tolerance needed in when creating spec-sheet. Tolerance is often expressed as $(+/-)$ in the spec sheet with acceptable amount.

Specification Sheet Of Shirt

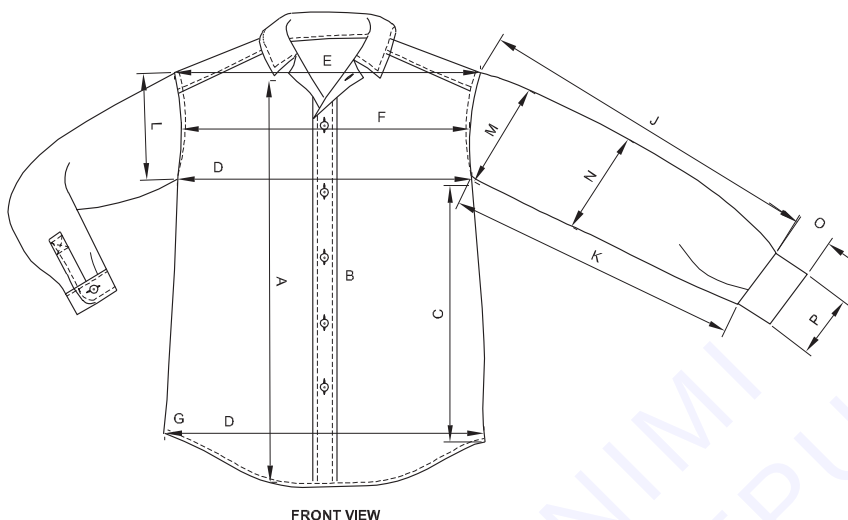
Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand:
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL	
Description: Part Identification Details			
Please follow our sketch styling & Specs for measurement		Developed from: Sketch	Order quantity: 100000Pcs
 FRONT VIEW		 BACK VIEW	

Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand:
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL	

Description: Measurement Area details (Front part)

Please follow our sketch styling & Specs for measurement

Developed from: Sketch

 Orderquantity:
100000Pcs


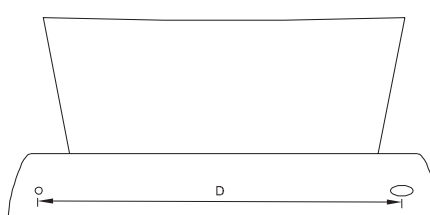
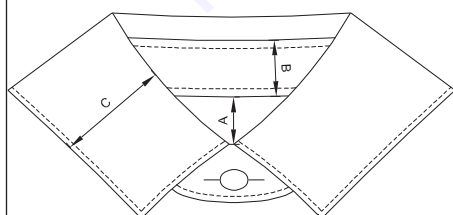
Measurement Area	Marked symbol
Front length	A
Center Front length	B
Side length	C
Chest width	D
Across shoulder	E
Across chest	F
Bottom opening	G
Sleeve length	J
Sleeve length under arm	K
Curve armhole	L
Muscle Width	M
Elbow width	N
Cuff length	O
Cuff width	P

Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
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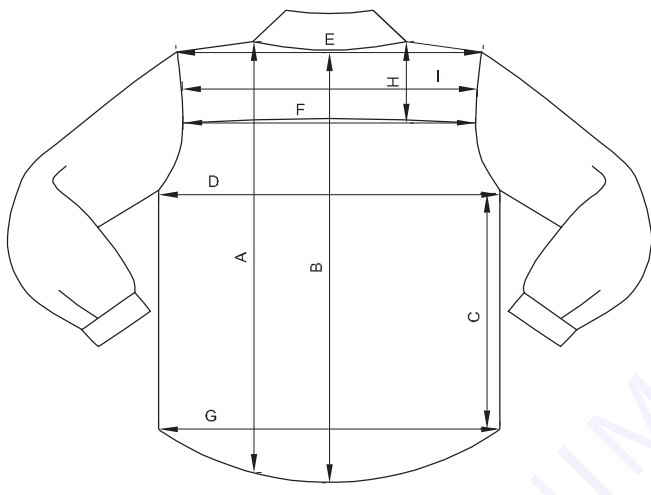
Description: Measurement area details (Collar Part)

Please follow our sketch styling & Specs for measurement

Developed from: Sketch

 Orderquantity:
100000Pcs


Measurement area	Marked symbol
Neck depth	A
Collar band height	B
Collar height	C
Collar closed around	D

Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016																				
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand:																				
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL																					
Description: Measurement Area details (Back part)																							
Please follow our sketch styling & Specs for measurement		Developed from: Sketch	Orderquantity: 100000Pcs																				
 <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Measurement Area</th> <th>Marked symbol</th> </tr> </thead> <tbody> <tr> <td>Back length from HPS</td> <td>A</td> </tr> <tr> <td>CB Length</td> <td>B</td> </tr> <tr> <td>Side length</td> <td>C</td> </tr> <tr> <td>Back width</td> <td>D</td> </tr> <tr> <td>Across shoulder</td> <td>E</td> </tr> <tr> <td>Across back</td> <td>F</td> </tr> <tr> <td>Bottom opening</td> <td>G</td> </tr> <tr> <td>Toke width</td> <td>H</td> </tr> <tr> <td>Yoke depth</td> <td>I</td> </tr> </tbody> </table> BACK VIEW				Measurement Area	Marked symbol	Back length from HPS	A	CB Length	B	Side length	C	Back width	D	Across shoulder	E	Across back	F	Bottom opening	G	Toke width	H	Yoke depth	I
Measurement Area	Marked symbol																						
Back length from HPS	A																						
CB Length	B																						
Side length	C																						
Back width	D																						
Across shoulder	E																						
Across back	F																						
Bottom opening	G																						
Toke width	H																						
Yoke depth	I																						

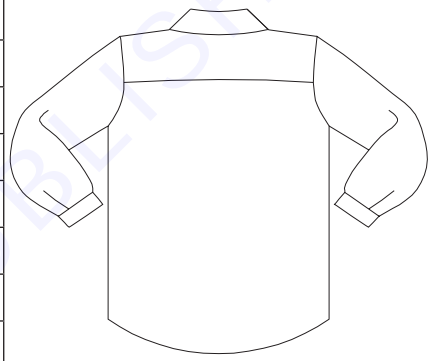
Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand:
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL	
Description: Fabrication, Trims & Accessories details			
Please follow our sketch styling & Specs for measurement		Developed from: Sketch	Orderquantity: 100000Pcs

Fabrication Details	Trims Details
Fabric name/Construction: Canvas Composition: 100% Cotton Finish Type: Regular Fabric Color: White Pantone 13- 5028TCX Embellishment Details Wash Garments Wash Print Not Required Embroidery Not Required	Button Size: 16L No of Hole in Button : 4 Button Materials: Plastic Button Color: Off-White No of 16L Button: 9 Cuff Placket Button Size:12L Interlining: Soft Fusible Yarn: 40NE Male label, Size label, Care label

Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand: 
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL	
Description: Measurement chart			
Please follow our sketch styling & Specs for measurement			Developed from: Sketch Order quantity: 100000Pcs

SL	Flat Measurement	Marked symbol	Measurement (in Inch)	Technical Sketch
Front Part				
1	Front length	A	30 3/8"	
2	Center Front Length	B	27 1/2"	
3	Side length	C	18 3/8"	
4	Chest width	D	19 3/4"	
5	Across shoulder	E	18 1/4"	
6	Across Chest	F	17 1/4"	
7	Bottom Opening	G	19 1/2"	
8	Sleeve length	J	26"	
9	Sleeve length underarm	K	20 1/4"	
10	Curve armhole	L	8 1/2"	
11	Muscle width	M	6 1/2"	
12	Elbow width	N	5 1/4"	
13	Button to button position	O	3 1/4"	
14	Button distance from first button	P	1 7/8"	
15	Button distance from bottom edge	Q	5 5/8"	
16	Cuff length	O	2"	
17	Cuff width	P	4 7/8"	

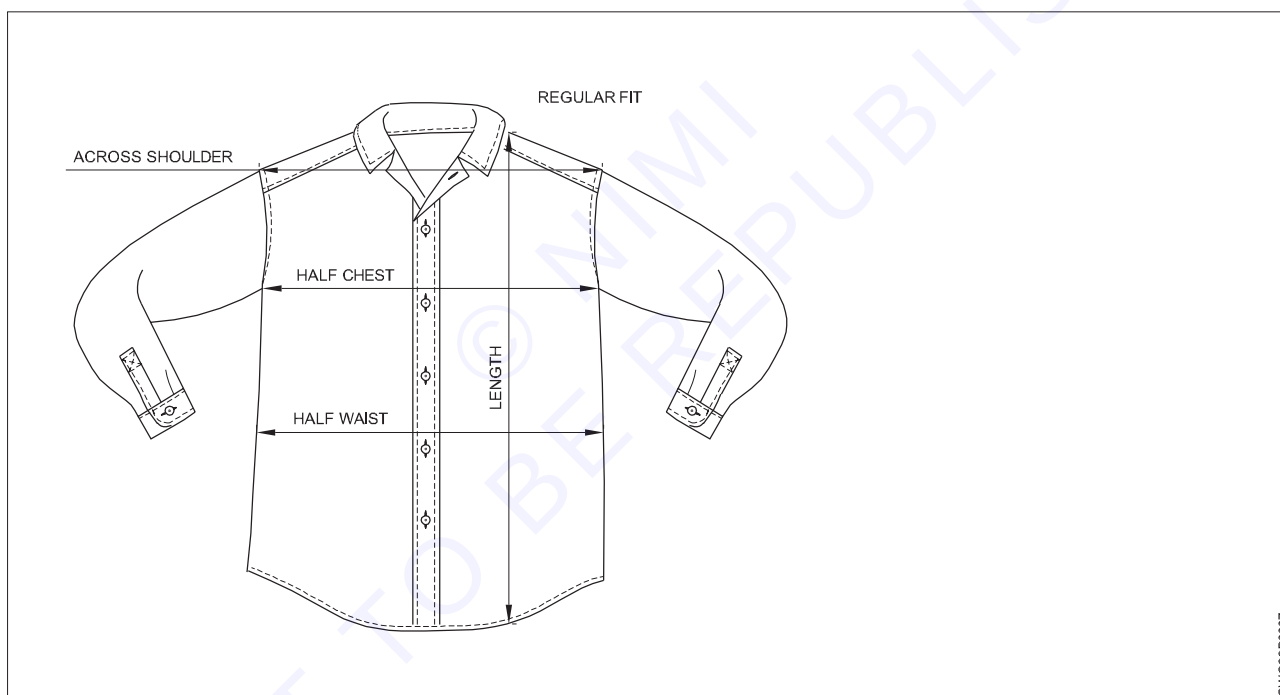
Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand: 
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL	
Description: Measurement chart			
Please follow our sketch styling & Specs for measurement		Developed from: Sketch	Orderquantity: 100000Pcs

SL	Flat Measurement	Marked symbol	Measurement (in Inch)	Technical Sketch
Back Part				
1	Back length from HPS	A	31"	
2	CB length	B	30 3/8"	
3	Side length	C	18 3/8"	
4	Back width	D	20"	
5	Across shoulder	E	18 1/4"	
6	Across Back	F	18 1/2"	
7	Bottom Opening	G	19 1/4"	
8	Yoke width	H	17 7/8"	
9	Yoke depth	I	3 5/8"	
Collar Part:				
10	Neck depth	A	2"	
11	Collar band height	B	1 1/2"	
13	Collar height	C	1 1/8"	
14	Collar closed around	D	16 1/4"	

Buyer's Name: COS	Style No: 011-89836 (Men's Shirt)	Designer: Md.Sajjadul karim bhuiyan (Id. No. 131-112-0-145	Date: 20.07.2016
Fabrication: 100% Cotton Canvas		Season: Spring summer	Brand: 
Label: COS	Color: White Pantone 13-5028TCX	Size Range: S-XXL	
Description: Labelling details			
Please follow our sketch styling & Specs for measurement		Developed from: Sketch	Orderquantity: 100000Pcs

Main and size label particulars	Care label particulars
Main label: Length 1 7/8", Width 1/2" (Finish) Main label format: COS Main label (Original size): Length 2" Width 1/2" Main label fold type: End fold Size label: Length 1/2", Width 5/8" (Finish) Size label (Original size): Length 5/8" Width 5/8" Size label format: M Size label fold type: Loop fold Main and size label attaching format: COS M	Care label size: Length 2 1/2", Width 1 1/8" Care label format:  Symbol description:  WASHING BLEACHING DRYING IRONING DRY CLEANING

Measurement Chart Of Shirt



SW/C22P0007

Size	Chest	Waist	Shoulder	Length
M/38	42 "	39 "	17.7 "	28 "
L/40	45 "	43 "	18.5 "	28.5 "
XL/42	48 "	48 "	19.2 "	29.2 "
XXL/44	51 "	51 "	20 "	30 "
3XL/46	53 "	53 "	21 "	30.7 "
4XL/48	55 "	55 "	21.2 "	31.5 "
5XL/50	57 "	57 "	21.7 "	32 "

The basic measurements you will need to compare against a shirt measurements size chart include

- Neck
- Sleeve
- Chest
- Waist
- Shirt length
- Shoulder width

Checking of measurement as per spec-sheet

Collar circumference

First, unbutton your collar. The next step is to measure between the two points where the collar attaches to the collar band (i.e) from button to button hole in the band. (Fig 1)

Fig 1



Sleeve length

Neatly fold down your shirt sleeves, then place your tape measure where the sleeve meets the shoulder down to the edge of the cuff to get sleeve length. (Fig 2)

Fig 2



Chest circumference

Neatly button up or button down your shirt and lay it flat (flatten out any creases). Place your tape measure just below the point where your sleeve meets the armpit, then measure evenly from one edge to the other and double the number obtained to get your final chest size. (Fig 3)

Fig 3

**Waist circumference**

The waist area is usually about 8 inches from your shirt's armhole. Thus, place your measuring tape 8 inches below each of your shirt's armpits, then measure across, from one end to the other and double the result for your final waist size. (Fig 4)

Fig 4



Shirt length

Place your tape measure where the shoulder seam and collar connect and measure down to your desired length. Tip- an ideal shirt should lay right at the middle of your pant's zipper. (Fig 5)

Fig 5

**Shoulder width**

Neatly button-up or button-down your shirt and lay it flat with its backside at the top. Place your tape measure at an inch below the shoulder tip and measure across the shirt to the other end to obtain your shoulder size. (Fig 6)

Fig 6



EXERCISE 32: Cost Sheet

Objectives

At the end of this exercise you shall be able to

- know about cost sheet
- importance of cost sheet
- analyse samples of cost sheet
- prepare cost sheet.

Cost Sheet

A cost sheet for fashion design is a comprehensive document that outlines all the expenses associated with creating and producing a garment. It includes material costs, labor costs, overheads, and other miscellaneous expenses. This helps designers make informed decisions about pricing strategies and profitability.

A Cost Sheet depicts the following facts:

1. Total cost and cost per unit for a product.
2. The various elements of cost such as prime cost, factory cost, production cost, cost of goods sold, total cost, etc.
3. Percentage of every expenditure to the total cost.
4. Compare the cost of any two periods and ascertain the inefficiencies if any.
5. Information to management for cost control
6. Calculate and summarize the total cost of the product.

Importance and Objectives of Cost Sheet

1 For calculating the total cost break-up

A cost sheet shows the break-up of the total cost into different elements, i.e. material, labour, overheads, etc. It also depicts the total cost and cost per unit of the units produced.

2 For determining the selling price

A cost sheet helps in determining the selling price of a product or of a service. The cost sheet ascertains cost at each stage of the product and also the total cost of the product, where a margin of profit is added and thus the selling price is ascertained.

3 It facilitates comparison

It helps in comparing the costs of the product over a period of time. This helps the organisation to investigate the reasons for increasing costs and also control them on the basis of them.

4 Facilitating managerial decision making

Preparation of cost sheet helps managers at various levels in their decision-making process such as

1. to produce or buy a component,
2. what price of goods to quote in the tender,
3. whether to retain or replace an existing machine,
4. how to reduce costs and maximize profit.
5. identify and make decisions whether they need to continue with the product or not.

5 Preparation of budgets

Organizations can prepare a budget with the help of a cost sheet. We can prepare the budget by using the current or previous year's data.

Based on our existing cost sheet, we can make estimates of our costs for the next financial year. It helps to prepare and make the necessary arrangement of funds for costs of the next financial year.

Elements of Cost

Prime Cost: It comprises direct material, direct wages, and direct expenses. Alternatively, the Prime cost is the cost of material consumed, productive wages, and direct expenses.

Factory Cost: Factory cost or works cost or manufacturing cost or production cost includes in addition to the prime cost, the cost of indirect material, indirect labour, and indirect expenses. It also includes the amount or units of WIP or incomplete units at the end of the period.

Cost of Production: When Office and administration cost at the end of the period are added to the Factory cost, we arrive at the cost of production or cost of goods sold. Here, we make an adjustment for opening and Closing finished goods.

Total Cost: Total cost or alternatively cost of sales is the cost of production plus selling and distribution overheads.

Sample - 1

Cost Sheet For A Frock

Sl.No.		Qty Req.	Unit Price	Amount in Rs	
1	Materials				
	Cotton	1.8 mts	140/p.m	252.00	
	Interfacing	0.5 mts	50/p.m	25.00	
2	Trimming				
	Zipper	1 No.	20	20.00	
	Labels, Hang tags,			5.00	
	Size tickets, Poly bags			10.00	
	Cost of Materials			312.00	
3	Labour				
	Cutting			40.00	
	Sewing			100.00	
	Production Cost			140.00	
4	Total Cost (Cost of material + Production cost)			452.00.	
5	Profit & Tax 60%			271.00	
6	Sale Price			723.00	
	Rounded Off			725.00	

Sample - 2
Cost Sheet For Boys T-Shirt

COST SHEET				
BUYER		DATE		
STYLE		DELIVERY	FOB	
DESCRIPTION	BOYS T SHIRT	QUANTITY	4000	
FABRICATION	100% Cotton single jersey, 180 GSM			
SIZE	S, M, L, XL, 2XL			
FACTORY				
YARN	100% Cotton 30/1 (carded)			
GSM	180			
	ITEM	CONSUMPTION	UNIT PRICE	PRICE
100% Cotton single jersey, 180 GSM	YARN	4.0	Rs. 180	Rs. 720
	KNITTING	4.0	Rs. 165	Rs. 660
	DYEING	4.0	Rs. 235	Rs. 940
100% Cotton 1 X 1 rib, 200 GSM		1.6	Rs. 370	Rs. 592
TOTAL (fabric in dozen)				Rs. 2912
ACCESSORIES, TRIMS, PACKAGING, EMBELISHMENT	MAIN LABEL	12	Rs. 1	Rs. 12
	CARE LABEL	12	Rs. 0.50	Rs. 6
	SEWING THREAD	12	Rs. 10	Rs. 120
	DRAWSTRING			
	EYELET			
	ELASTIC			
	TWILL TAPE	12	Rs. 1.25	Rs. 15
	PRINT	12	Rs. 30	Rs. 360
	EMBROIDERY			
	WASHING	12	Rs. 60	Rs. 720
	BUTTON			
	ZIPPER			
	HANGER	12	Rs. 40	Rs. 480
	HAND TAG	12	Rs. 2	Rs. 24
	POLY	12	Rs. 10	Rs. 120
	CARTON	1	Rs. 20	Rs. 20
	OTHER		Rs. 10	Rs. 120
TOTAL ACCESSORIES COST IN DOZEN				Rs. 1897
LAB TEST				Rs. 1000
GARMENTS COST IN DOZEN (fabric+accessories+lab test)				Rs. 5809
CM per dozen including profit 20%				Rs. 2160
COMMERCIAL COST 3%				Rs. 206
BUYING HOUSE COMMISSION 5%				Rs. 300
TOTAL PRICE PER DOZEN				Rs. 8475
PER PIECE FOB PRICE				Rs. 2000

SAMPLE - 3

Cost Sheet For Kids Trouser (In Dollars)

Costing Sheet of Kids Trouser					
FABRICS DETAILS: 73% cotton, 25% poly, 2% elasthan denim 7.5 oZ (YR-1923/3)					
Sl No.	Particulars	COST SHEET FOR PER PCS+DZN			
		YV/YDS	PRICE/YD \$	COST/PCS	COST IN DZN
1	Self Fabric	1.2	\$1.85	\$2.22	\$26.64
	Total Fabrics Cost-			\$2.22	\$26.64
	Basic Trims				
2	Pocketing	0.15	\$0.70	\$0.11	\$1.26
3	Interlining			\$0.03	\$0.36
4	Metal Zipper			\$0.12	\$1.44
5	Plastic Button			\$0.02	\$0.24
6	Metal button			\$0.04	\$0.48
7	Metal Rivet			\$0.05	\$0.60
8	Thread			\$0.08	\$0.96
9	Hole elastic			\$0.06	\$0.72
10	String with plastic tipping				\$ -
11	Special label EF, Yigga girls+SIZE WOVEN			\$0.03	\$0.36
12	WASH CARE LABEL (LEFT SS INSIDE)			\$0.03	\$0.36
13	WASH CARE LABEL (UNDER WCL1)			\$0.03	\$0.36
14	HANG TAG EF, Yigga girls			\$0.04	\$0.48
15	PRICE STICKER			\$0.01	\$0.12
16	Waist tag (double)			\$0.08	\$0.96
17	EMBROIDERY			\$0.10	\$1.20
18	String			\$0.03	\$0.36
19	Poly			\$0.08	\$0.96
20	Carton			\$0.07	\$0.84
21	Carto STKR, Tagpin, Gumtape			\$0.06	\$0.72
	Total-			\$1.07	\$12.78
	Embroidery/Print				\$ -
	Total-			\$ -	\$ -
	Wash	TOWEL BEACH WITH/PP		\$0.75	\$9.00
	Total-			\$0.75	\$9.00
	ALL FABRICS+TRIMS COST			\$4.04	
	Commercial Cost			\$0.08	\$0.97
	CM			\$1.35	\$16.20
	Total-			\$1.35	\$16.20
	EXTRA-			\$0.03	
	FINAL FOB:			\$5.50	\$65.90

Procedure

Prepare & Design cost sheet

TASK 1: Analyse the historical cost and estimated cost

- 1 Historical sheet is prepared on basis of actual cost
- 2 Estimated cost sheet is prepare on the basic of estimated cost.

TASK 2 : Analyse the components of total cost

- 1 Prime cost (Prime cost= Direct material + Direct wages = Direct expenses)

TASK 3: Calculate prime cost from the following particulars for a production unit

Cost of material purchased	31,000
Opening stock of material	5,000
Closing stock of material	4,000
Wages paid	3,000
Rent of line of a special machine for production	6,000

Statement of prime cost

Material consumed		
Opening stock of material	5,000	
Material purchased	31,000	
Material available for consumption	36,000	
Closing stock of material	4,000	
Material consumed		32,000
Cost labour : wages		3,000
Cost expenses : Rent of hire a special machine		6,000
		41,000

TASK 4 : Analyse the types of accessories

Sl.No.	No Accessories
1	Inside collar card
2	Back support
3	Plastic butterfly
4	Tissue paper
5	Poly bags
6	Hang tag
7	Plastic bullets
8	Collar film
9	Pins
10	Clips
11	Hanger
12	Size Rings
13	Gum tapes
13	Carton Box

TASK 5 : Analyse the actual cost of accessories

Sl.No.	Accessories	Actual cost
1		
2		
3		
4		
5		
6		
7		
8		
9		

— — — — —

TASK 6 : Analyse the estimated cost of accessories

Packing accessories Cost

Sl.No.	Description	Quality	Quantity	Approximate Range Price
1	Inside collar card	1" x 20"	One	20 Paise each
2				
3				
4				
5				
6				
7				
8				
9				

EXERCISE 33: Various sheets used In garment export house

Objectives

At the end of this exercise you shall be able to

- analyse the sheets used in garment export house.

Here are some of the key sheets:

1 Purchase Order Sheet (PO Sheet)

- A purchase order sheet (or PO sheet) is an essential document used in garment manufacturing to handle export orders and shipments.
- Brands generate PO sheets for their manufacturers, containing information
- About production goals for the garment, including quantity, size breakdown, and color combinations

2 Specification Sheet (Spec Sheet)

- A specification sheet (or spec sheet) provides detailed information about the garment design and construction.
- It includes a sketch of the garment design and specifies how the garment should be constructed.

3 Documentation Procedure Sheet

- This sheet is used for obtaining approval from the central excise authority to remove goods from the factory for export shipments.
- It ensures compliance with export regulations and facilitates the smooth movement of goods.

Purchase order sheet in the garment industry

A purchase order sheet (or PO sheet) is an important document commonly used in garment manufacturing to handle garment export orders and shipments. A PO sheet is generated by the brand for their manufacturer with all the information about production goals for the garment, including quantity, size breakdown and color combos.

In general, the PO sheet includes all necessary information on a specific order lot and is followed by the merchandiser from raw materials booking to packing and preparing for export.

Some important aspects of a PO sheet in garment manufacturing include

1. The sheet organizes size breakdowns and order quantities.
2. It also arranged lot-wise or color-wise orders.
3. Very often a PO sheet includes packing specifications.
4. The shipment date can be also included in a PO sheet, to ensure the order is packed and shipped on time.

Garment manufacturers use the PO sheet to plan the cutting and sewing process. For large orders, the fabric is cut in bulk for each size. Weight, width and fabric type are taken into consideration before the cutting begins. The factory then creates a lay plan to determine how much fabric is needed to avoid excess waste. After the lay plan is finalized, the cutting of the fabric finally begins. Depending on the factory's capacities either a manual or computerized method of fabric cutting is used. (Fg 1)

Fig 1



Digital layplan optimizing

Once your purchase order sheet is complete, you will have a complete tech pack to share with your manufacturer. This will allow you to start a production run. By adding a preferred shipment date to your order sheet, you will also ensure your order ships on time.

Sample format of purchase order sheet

[illegible]

That covers everything you need to know about purchase order sheets and adding them into your tech pack.

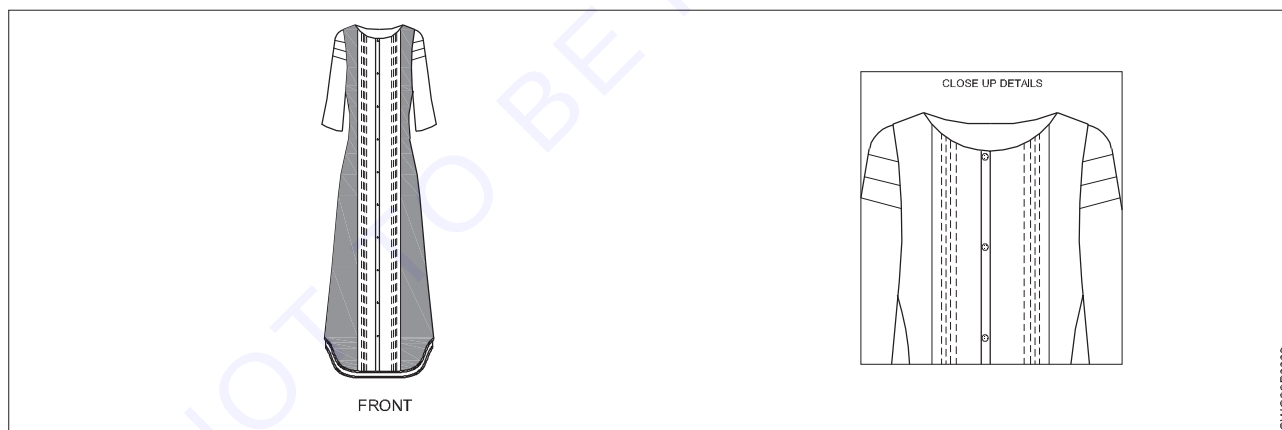
Specification Sheet

A garment specification sheet, is a technical document that contains all construction details of the garment. It looks like a technical diagram or a sketch of a garment, including all of its measurements. Spec sheets are used by designers to communicate design concepts to manufacturers

List of information/ data found in a Garments specification sheet

1. Product sketch or design of front and back
2. Product Description
3. Product category, group, product code, and style name
4. Bill of material (BOM)
5. Garments Construction and necessary instruction to sew
6. Fabrics Specification
7. Label instruction
8. Points of measurements and their upper & lower tolerances
9. Size-wise measurements
10. Art-work
11. Sticker attaching instruction
12. Wash and Ironing/ pressing instruction
13. Embroidery and printing placement (If any)
14. Folding instruction
15. Packing instruction

Sample 1 : Format of specification sheet



Garment technical data sheet

Season:

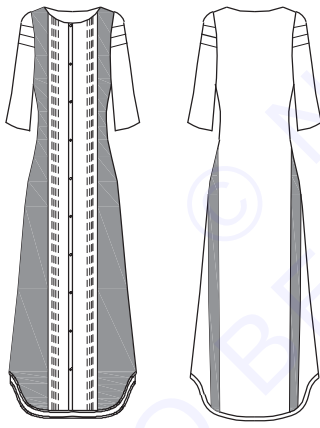
Date:

Category:

Design code:

Embroidery Details

Embroidery details						Printed details			
Colour Way 1	Colour	Shade No.	Colour Way 2	Colour	Shade No.	Colour Way 1	Shade	Colour Way 1	Shade
Thread Code (A)			Thread Code (A)			Thread Code (A)			
Thread Code (B)			Thread Code (B)			Thread Code (B)			
Thread Code (C)			Thread Code (C)			Thread Code (C)			
Thread Code (D)			Thread Code (D)			Thread Code (D)			
Embroidery vendor						Printing vendor:			

Garment technical data sheet			
Season:	Date	Category:	Design code:
 FRONT BACK			A Description
			B Style
			C Cut
			D Front dart
			E Back dart
			F Pocket
			G Total length
			H Sleeve length
			J Neckline
			K Neck DPTH/With
			L Hemline
			M Side slit
			N Back
			Comments

Colour Way 1	Colour	Content	Code	Width	Quantity	Colour Way 2	Colour	Content	Code	Width	Quantity
Fabric detail A						Fabric detail A					
Fabric detail B						Fabric detail B					
Lining fabric						Lining fabric					
Trim fabric						Trim fabric					
Trims 1		Trims 2		Button		Thread		Txt		SPI	

Sample : 2 - Format of specification sheet

Name: Shelley Koh

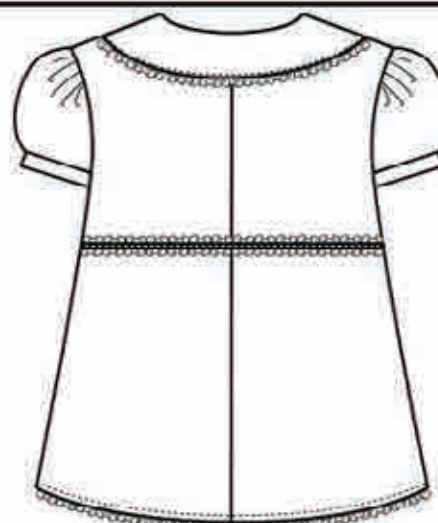
Spec Sheet - Top

Date:	22-Feb-2011	Revised Date:	1-Jul-2011
Style #	411-009	Season:	Spring 2012
Size Range:	2T-5T	Classification:	Toddler
Label:	Janie and Jack	Group Name:	Sunkissed Blooms
Description:	classic buttondown plus a springtime twist with ruffles and puffy sleeves		

Sample Size: 5T

[illegible]

Front Sketch



Documentation Procedure Sheet

This sheet is used for obtaining approval from the central excise authority to remove goods from the factory for export shipments.

Required Shipping Documents

- Commercial Invoice
- Bill of Lading (BOL)
- Air way bill
- Certificated of Origin
- Export Packing List
- Inspection Certificate
- Export & Import License

[illegible]

◆ Module 6: Special Sewing Machine and their Working Principle ◆

EXERCISE 34 : Stitches

Objectives

At the end of this exercise you shall be able to

- classify the stitch types
- learn the stitch formation
- learn about different machines for different stitch types
- practice stitch types on different sewing machines.

Procedure

Stitch Forming Devices

The basic principle of all machine sewing depends on consistent loop formation. During sewing the needle descends through the fabric to the bottom of its stroke and as the needle rises a loop of sewing thread is formed in the scarf of the needle. This loop of sewing thread is picked up by one of two stitch forming devices namely the hook or the looper. A third stitch forming device known as a spreader is used in some stitch types to carry the sewing thread from one stitch forming device to another.

The sewing machine hook be it rotary or oscillating shuttle interlocks the needle thread with the bobbin thread. A looper, used in chain stitch formations, interloops the thread that it carries with another thread.

Steps of Stitch Formation

There are five basic steps to the formation of all stitch types. They are:

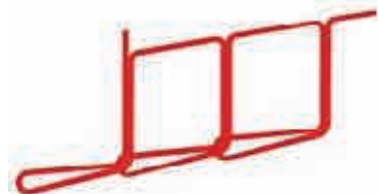
- 1 **Penetration** – the needle penetrates the fabric carrying the needle thread
- 2 **Loop formation** – a loop of sewing thread is formed in the scarf of the needle as the needle begins to rise from the bottom of its stroke
- 3 **Conformation** – this is where the threads are arranged above, below or around the material being sewn
- 4 **Cast off** – is where the needle thread loop is freed from the lower stitch forming device
- 5 **Stitch setting** – when the thread is drawn onto or into the material

Stitch Types

101 – Single Thread Chainstitch

The 101 Single thread chainstitch is formed using just one sewing thread introduced by the sewing needle. Stitch Type 101 is most often used for temporary stitching [or basting]. Its main disadvantage is its tendency to run back from the finishing end of the seam. (Fig 1)

Fig 1



103 – Single Thread Blind hemming

The stitch type 103 known as single thread Blindstitch or Blind Hemming. Again its main disadvantage is seam runback. This stitch is formed by using a curved needle which enters and exits the fabric from the same side carrying a needle thread. The needle thread interloops with a blind looper on the surface of the material. Typical applications are hemming and lapel padding operations. (Fig 2)

Fig 2



301 – Lockstitch

The most common stitch type is without doubt the 301 single needle lockstitch. Its main advantage is that it looks the same on the top as it does on the bottom [it is reversible]. It produces tight, strong, low-bulk seams but its main disadvantages are low elongation and low productivity due to the need to frequently change the under thread bobbin. (Fig 3)

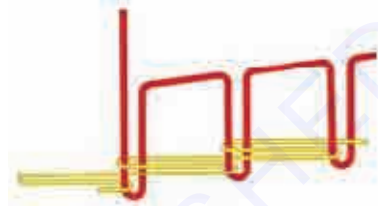
Fig 3



401 – Chainstitch

Higher productivity and greater seam elongation can be achieved by using a 401 single needle chainstitch. The disadvantages of using this stitch type are that it isn't reversible and being a chainstitch it is prone to seam runback and the seams it produces tend to be bulkier than those created by a lockstitch. It is true to say that the 401 chainstitch has higher elongation than the 301 lockstitch and delivers lower seam pucker when the cause of the pucker is structural jamming. (Fig 4)

Fig 4



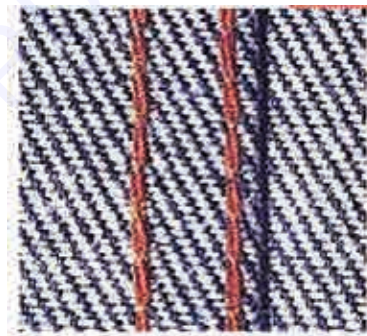
Multi needle lockstitch and chainstitch

Both 301 lockstitch and 401 chainstitch machines are available to produce multiple rows of stitching. The most common is twin needle but multiple needle chainstitch machines are readily available. (Fig 5)

Fig 5



Double Needle Lockstitch



Double Needle Chainstitch

Zig Zag Stitch – Stitch types 304 and 404

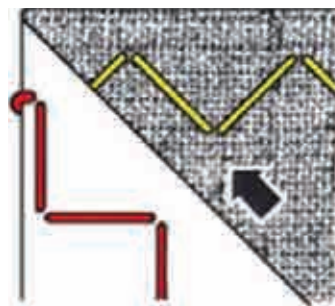
Where there is a requirement for higher seam elongation with either lockstitch or chainstitch, a zig zag formation may be used. For example, in corsetry. To produce either zig zag formation the needle bar moves laterally as the material is fed. The main drawback is that the zig zag stitch formation may not deliver the desired appearance.

Zig zag stitch (Fig 6)

Fig 6



Zig Zag Stitch – Stitch

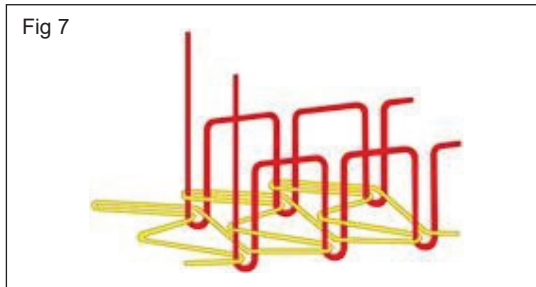


304 stitch

406 – Coverseam

Derivatives of the 401 chainstitch are the chainstitch coverseam stitch formations. The most common of these is the 406 twin needle coverseam. This stitch type is formed using two needle threads and one looper thread and its main uses are hemming of garments made from knitted fabric and elastic/lace attaching on underwear and lingerie. (Fig 7)

Fig 7



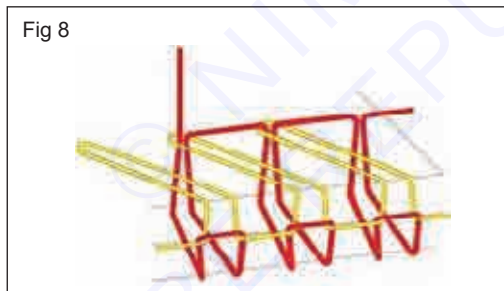
Stitch type 407 coverseam is a three needle version of this stitch type. A four needle version is available but it is not in common use.

503 – Two thread overedge (serging)

Overedge stitch formations are all contained under the 500 classification. 503 two thread overedge is the stitch type used for single ply serging and the hemming of tee shirts. This is sometimes known as welting.

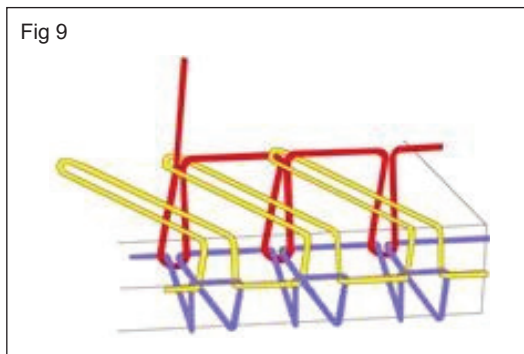
Stitch type 503 is not suitable for seaming operations as it is designed to collapse and flatten when a seam is loaded laterally. (Fig 8)

Fig 8

**504 – Three thread overedge**

This stitch type is formed with three thread; it has one needle thread and two looper threads. Stitch type 504 has excellent extension and does not unravel easily. It is generally used for serging to stop fabric fraying and for joining 2 or more plies together. These machines are capable of running at higher speeds which can aid in increased productivity. (Fig 9)

Fig 9



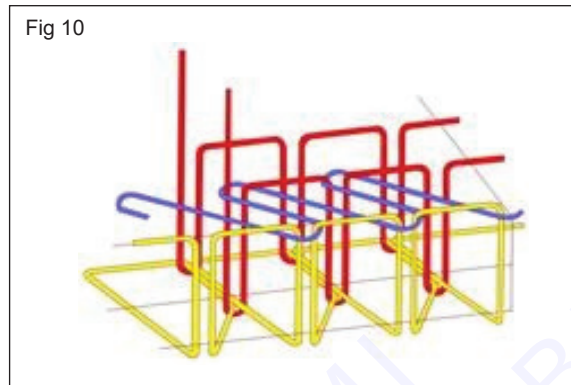
Four thread overedge

For over edge seams requiring greater seam security a four thread version of stitch type 504 is used. There are three, four thread over edge stitch types.

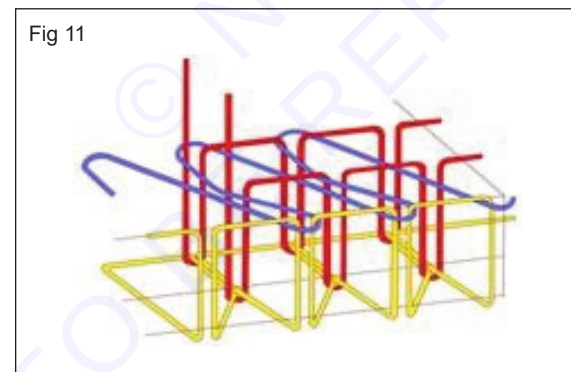
Stitch type 512 is known as four thread mock safety because the upper side of the stitch type resembles the upper side of stitch type 516 which is an overedge true safety stitch. Stitch type 512 is also known as four thread overedge, half cover.

The second overedge stitch type is Stitch type 514. This is known as four thread overedge, full cover. This is because the top looper extends its thread to the left hand sewing needle whereas stitch type 512 only extends its upper looper thread to the right hand sewing needle.

Stitch 512 (Fig 10)



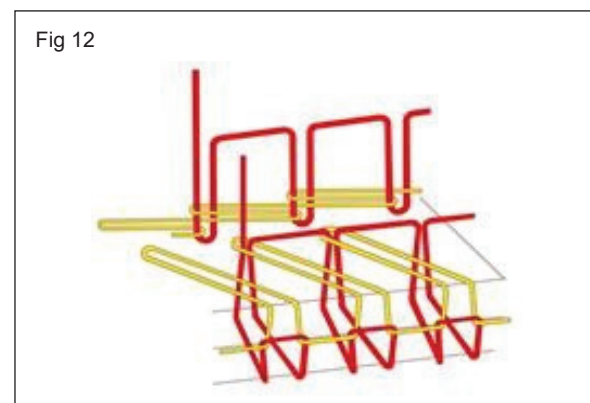
Stitch 514 (Fig 11)



The third of these stitch types is Stitch type 515. (Fig 12)

515 - Four thread safety stitch

This stitch type is formed simultaneously using one row of stitch type 401 and one row of 503.

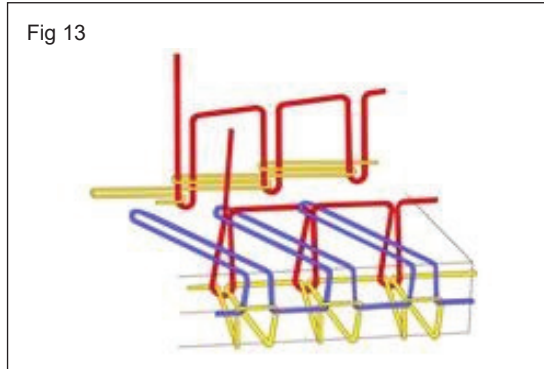


516 – Five Thread full safety (Fig 13)

For over edge seams requiring greater seam security a four thread version of stitch type 504 is used. There are three, four thread over edge stitch types.

Stitch type 516 is another combination stitch type. This stitch type combines 401 chainstitch with 504 three thread overedge. It is known as five thread overedge full safety stitch. The 401 element bears the load while the 504 element covers the edge of the material and provides additional seam security.

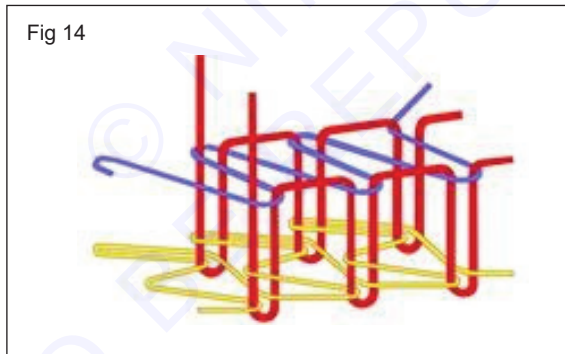
Fig 13

**602 – Twin needle coverseam with top cover (Fig 14)**

The stitch type classifications known as 600 are basic coverseam stitch types with the addition of a top covering thread produced using a top cover or spreader device. This top cover element provides decoration and also protection where required to the upper surface of the seam.

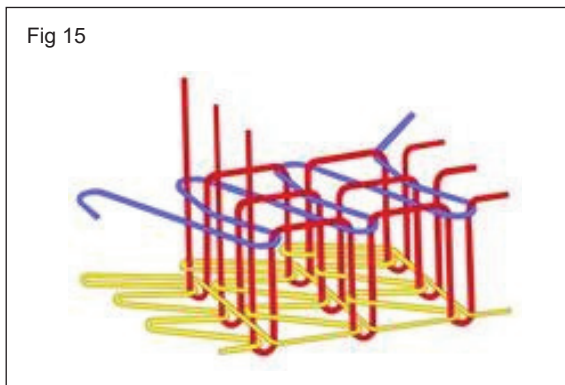
Stitch type 602 is the same as stitch type 406 but with the addition of a top covering thread.

Fig 14

**605 – Three needle coverseam with top cover (Fig 15)**

This stitch type is formed with five threads. Three needles, one looper and one cover thread. Stitch type 605 has high seam elasticity and has an higher than average thread usage. This stitch formation is flat and comfortable and is a popular choice for stretch garments. This stitch type can also be used as a decorative seam due to the top cover thread.

Fig 15

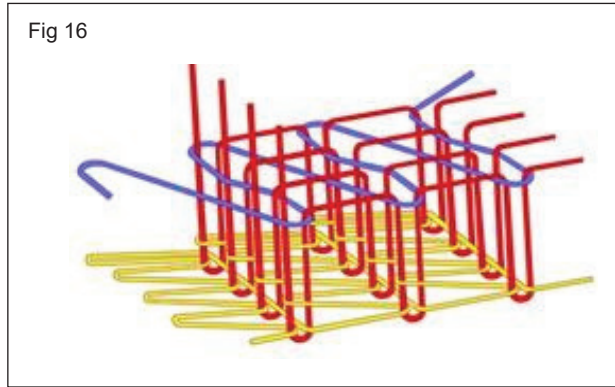


607 – Flatseam

The 606 flatlock has over the years been replaced to a large extent with stitch type 607 flatseam. This stitch type is produced using four needles, one looper, and one top covering thread.

Whilst thread consumption remains high with this stitch type it is lower than the 606 flatseam at 32 metres of thread per metre of seam. The 600 stitch type classifications have the advantage of delivering flat, comfortable seams with high seam elongation. (Fig 16)

Fig 16



Practice on Different Sewing Machines

Practice on Single Thread Chain stitch Sewing Machine

Steps for working with a 101 Single Thread Chainstitch Sewing Machine. This type of stitch is often used for temporary stitching or basting. Here's how you can operate it:

1 Thread the Machine:

- Begin by threading the sewing machine. Make sure the needle is properly inserted.
- Ensure that the tension settings are appropriate for the fabric you're working with.

2 Position Your Fabric:

- Place your fabric under the presser foot, aligning the edge you want to stitch.
- Lower the presser foot to secure the fabric in place.

3 Start Stitching:

- Gently press the foot pedal to start the machine.
- As the needle descends through the fabric, it carries the needle thread with it.
- A loop of sewing thread is formed in the scarf of the needle as the needle begins to rise from the bottom of its stroke.

4 Continue Stitching:

- Keep guiding the fabric along the desired stitching line.
- The single thread chainstitch is formed using just one sewing thread introduced by the needle.
- Be mindful of the seam runback tendency—this stitch may loosen from the finishing end of the seam.

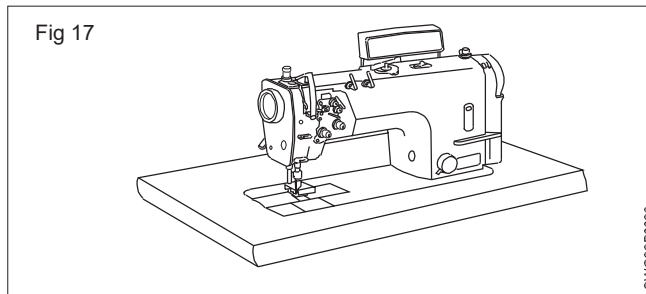
5 Finishing:

- When you reach the end of your stitching line, lift the presser foot.
- Trim the excess thread, leaving a tail.
- Secure the stitch by tying a knot or using a backstitch.

Remember that the 101 Single Thread Chainstitch is primarily for temporary purposes (Fig 17)

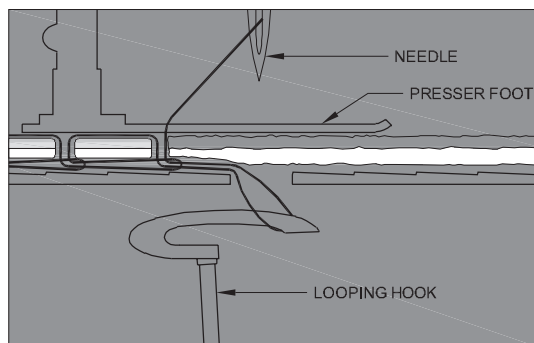
Single Thread Chainstitch Machine

Fig 17



Chain Stitch Formation (Figs 18 & 19)

Fig 18



CHAIN STITCH FORMATION

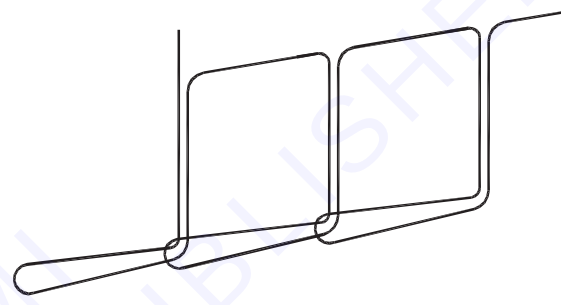


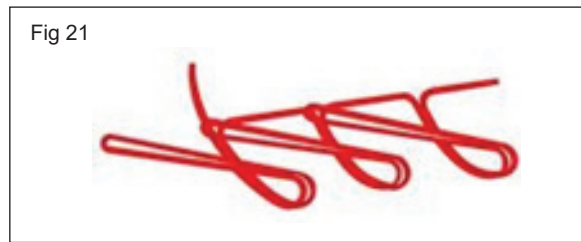
Fig 19



Practice on 103 – Single Thread Blind hemming (Fig 20)

Fig 20



Stitch formation (Fig 21)**Practice on 301 – Lockstitch machine**

Stitching with a lockstitch sewing machine involves creating a secure and durable stitch that prevents seams from unraveling. Here are the practical steps to stitch using a lockstitch machine:

1 Thread the Machine:

- Wind the bobbin with thread and insert it into the bobbin case.
- Thread the upper part of the machine, passing the thread through the tension discs and needle.

2 Prepare the Fabric:

- Place the fabric layers you want to stitch under the presser foot.
- Fold back any lining or interlining if applicable.

3 Position the Needle:

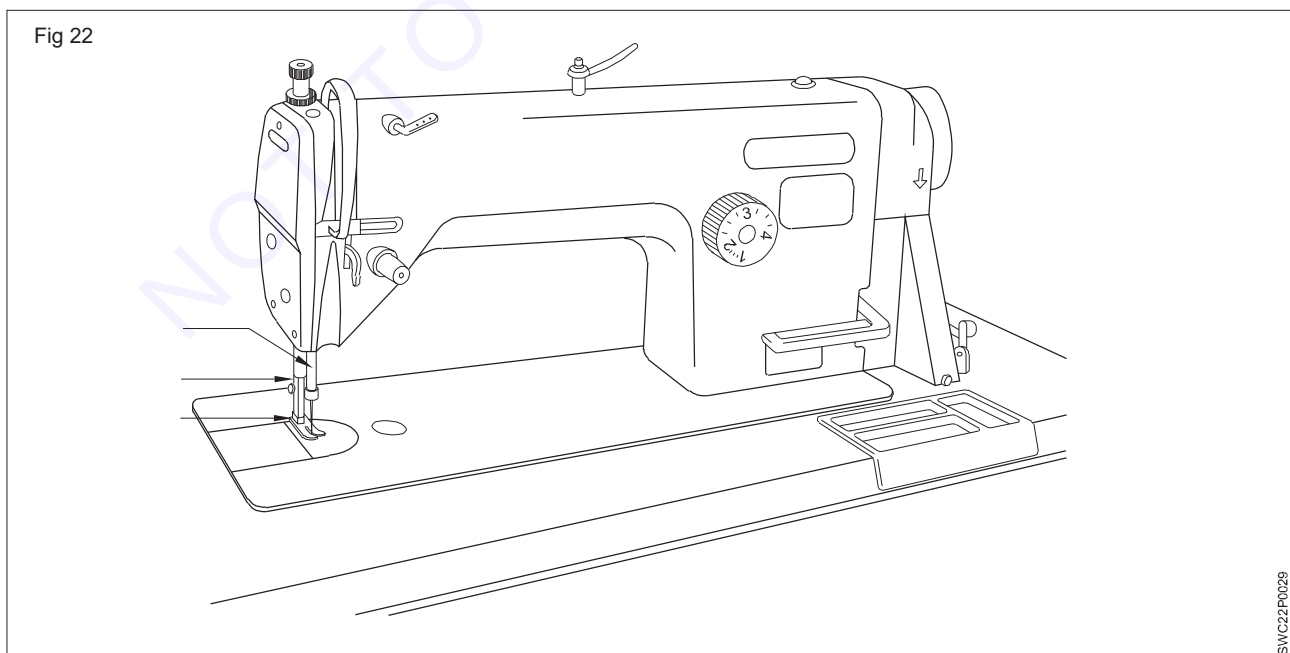
- Lower the presser foot.
- Position the needle above the fabric where you want to start stitching.

4 Stitching Process:

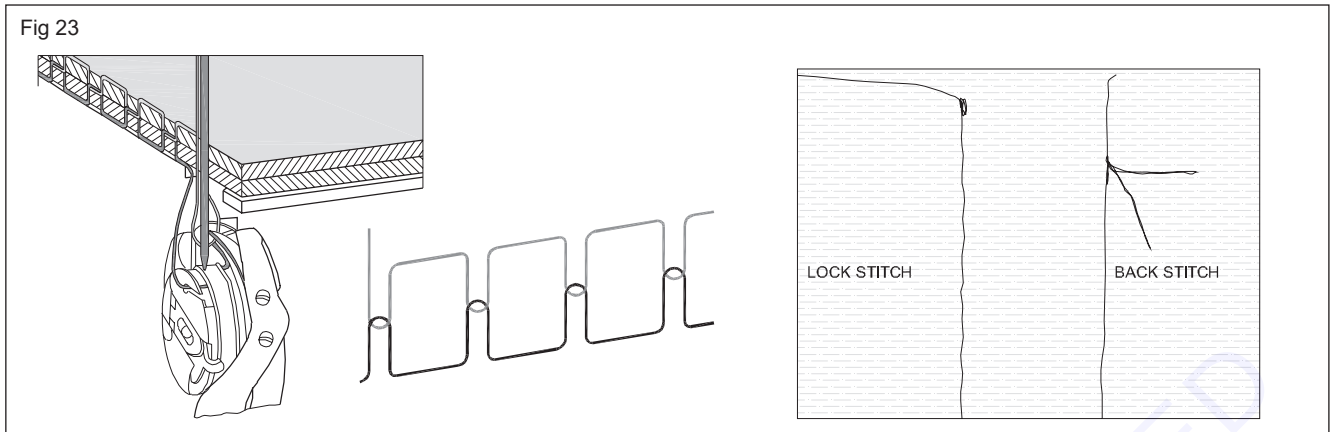
- Start sewing the fabric (always start and end sewing with a backtack).
- Stitch through both the lining/interlining and the main fabric.
- Continue this process all the way from the base to the top of the fabric.

5 Finishing:

- Trim any excess thread.

Lock Stitch Sewing Machine (Fig 22)

Lock Stitch Formation (Fig 23)



Practice on 401 – Chainstitch machine

The practical steps for stitching using a 401 multi-thread chain stitch sewing machine. This type of stitch is often used in waistbands, linking machines for knitted goods, and even in the production of airbags in the automotive sector. Here's how you can work with it:

1 Thread the Machine:

- Load the machine with the appropriate thread. For a multi-thread chain stitch, you'll need at least two threads.
- Ensure that the needle and looper threads are correctly threaded through their respective guides and tension discs.

2 Fabric Preparation:

- Place your fabric under the presser foot, aligning it according to your desired seam line.
- Lower the presser foot to secure the fabric in place.

3 Select Stitch Type 401:

- On your sewing machine, choose the stitch type labeled as "401" or "Double Chainstitch."
- Adjust the stitch length if needed (usually between 2mm to 4mm).

4 Start Stitching:

- Begin sewing by gently pressing the foot pedal.
- The machine will create stitches as the upper thread (needle thread) passes through the fabric and interlocks with the loop of the lower thread on the underside.
- Maintain consistent speed and tension for even stitches.

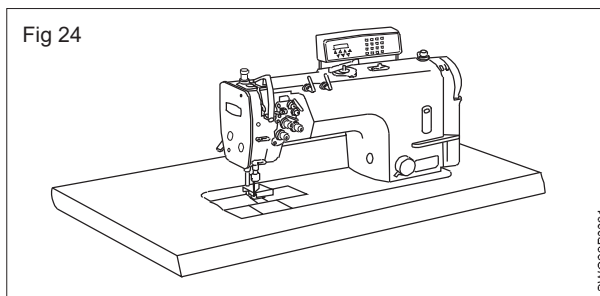
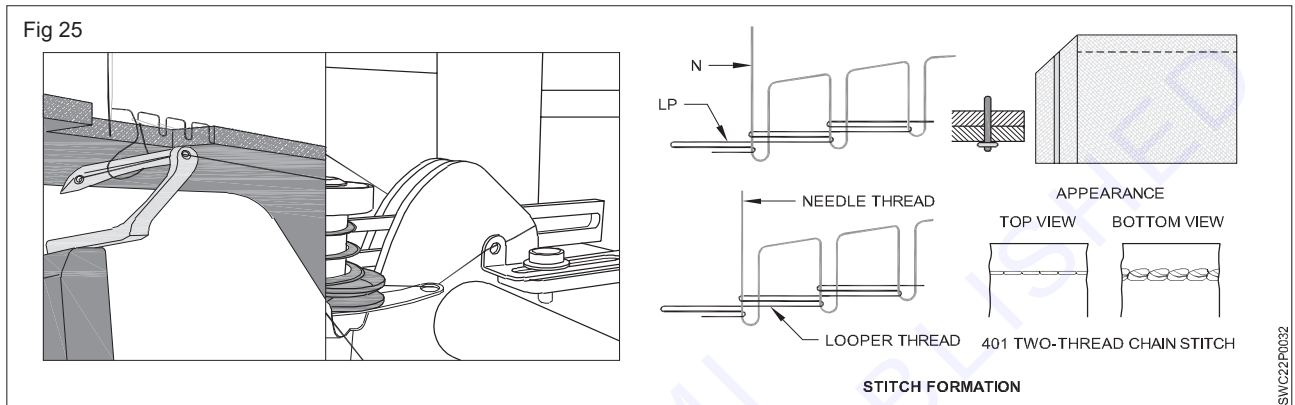
5 End the Seam:

- When you reach the end of your seam, stop sewing.
- Lift the presser foot and pull out the fabric.

6 Secure the Threads:

- To prevent unraveling, tie the needle and looper threads together at the end of the seam.
- Trim any excess thread.

Remember that practice makes perfect! Experiment with scrap fabric to get comfortable with the tension, speed, and stitch quality

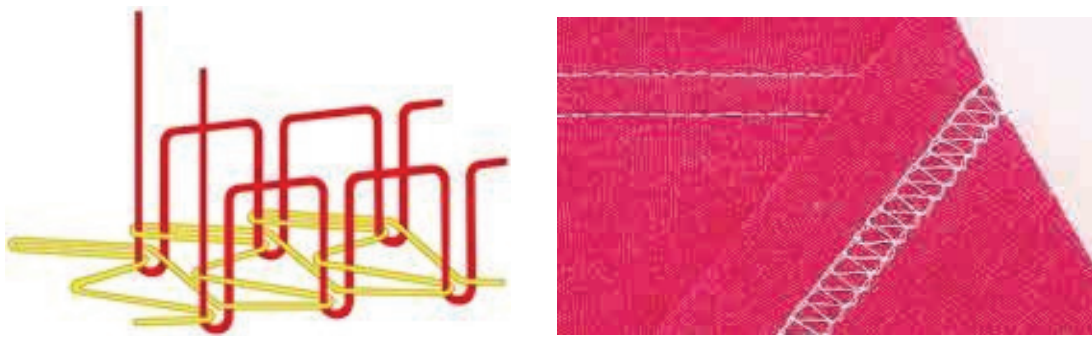
Multi-thread chain stitch sewing machine (Fig 24)**Stitch formation (Fig 25)****Practice on 406 – Coverseam machine**

This stitch type is formed using two needle threads and one looper thread and its main uses are hemming of garments made from knitted fabric and elastic/lace attaching on underwear and lingerie. (Figs 26 & 27)

Fig 26



Fig 27



Practice on 504 – Three thread overedge machine

This stitch type is formed with three thread; it has one needle thread and two looper threads.

To perform work on a three-thread overlock machine, follow these steps:

1 Threading the Machine:

- Thread the machine in the proper order as specified in your machine's manual.
- Set the tensions, stitch width, and stitch length to the recommended settings.

2 Align the Fabric Edge:

- Begin by aligning the fabric edge under the presser foot of your overlock machine.
- Make sure the fabric is positioned correctly to start sewing.

3 Sew Slowly:

- When sewing an overlock stitch, maintain a steady and controlled pace.
- Sewing too fast can lead to uneven stitches or fabric bunching.

4 Trim the Excess Fabric:

- As you sew, the overlock machine will simultaneously trim the fabric edges and encase them with thread.
- This creates a neat and secure finish that prevents fraying.

5 Use an Overlock Foot:

- To sew an overlock stitch, you'll need a specialty overlock sewing machine or an overlock foot attachment for a regular sewing machine.
- Attach the overlock foot to your machine according to the manufacturer's instructions.

6 Stitch Settings:

- Set your machine to the overlock stitch mode.
- Adjust the stitch length and width as needed for your project.

7 Stitch Along the Edge:

- Line up the fabric edge with the guide bar on the overlock foot.
- Sew slowly, maintaining control as you stitch along the edge.
- If sewing a curved seam, stop periodically to pivot and realign the fabric edge.

8 Finishing Touches:

- Once you've completed the seam, trim any excess fabric threads.
- Press the seam with an iron to set the stitches.

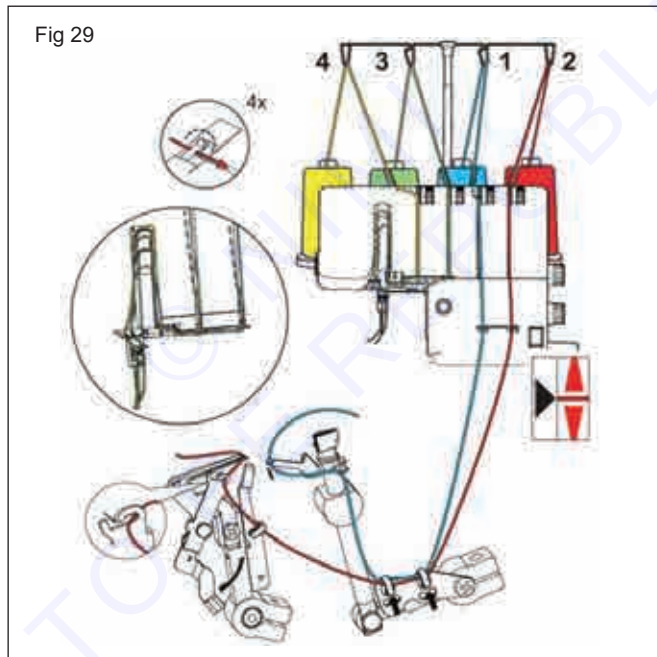
Remember that the overlock stitch is especially useful for preventing fraying and creating durable seams. It's commonly used in garment construction and works well with both woven fabrics and stretch materials. (Fig 28)

Fig 28



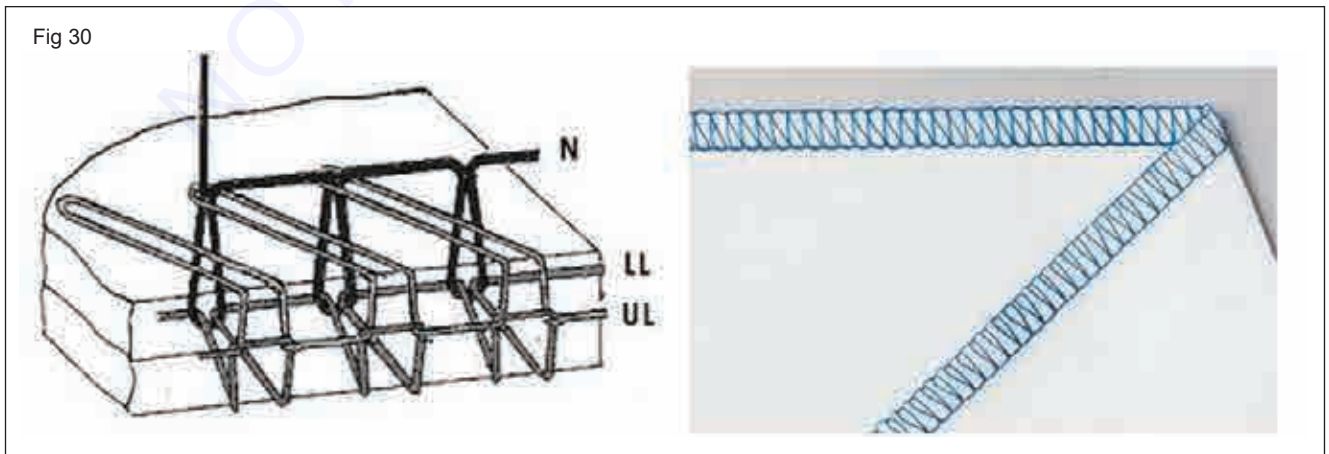
Threading the Overlock machine (Fig 29)

Fig 29



Stitch formation (Fig 30)

Fig 30



Practice on 605 – Three needle cover seam with top cover machine

This stitch type is formed with five threads. Three needles, one looper and one cover thread. Stitch type 605 has high seam elasticity and has an higher than average thread usage

1 Machine Setup:

- Ensure you have a coverstitch machine with three needles and a top cover thread capability.
- Thread the machine with the appropriate threads: three needles with matching colors and a top cover thread.
- Set the stitch length and tension according to your fabric type and desired seam appearance.

2 Fabric Preparation:

- Place the fabric layers you want to join under the presser foot.
- Align the raw edges of the fabric layers.

3 Stitch Formation:

- Lower the presser foot.
- Start sewing by activating the machine.
- The three needles will create parallel lines of stitching on the upper side of the fabric.
- Simultaneously, the looper will interloop the threads on the underside of the fabric.
- The top cover thread will add an additional decorative layer on the upper surface of the seam.

4 Stitch Characteristics:

- The 605 stitch combines the functionality of a coverstitch (with three needles) and adds a top cover thread for decoration and protection.
- It's commonly used for hems, seams, and decorative stitching on knit fabrics.
- The top cover element enhances the appearance of the seam.

5 Finishing:

- Trim any excess threads.
- Press the seam if necessary to flatten it.

Remember to adjust the machine settings based on your specific fabric and project requirements

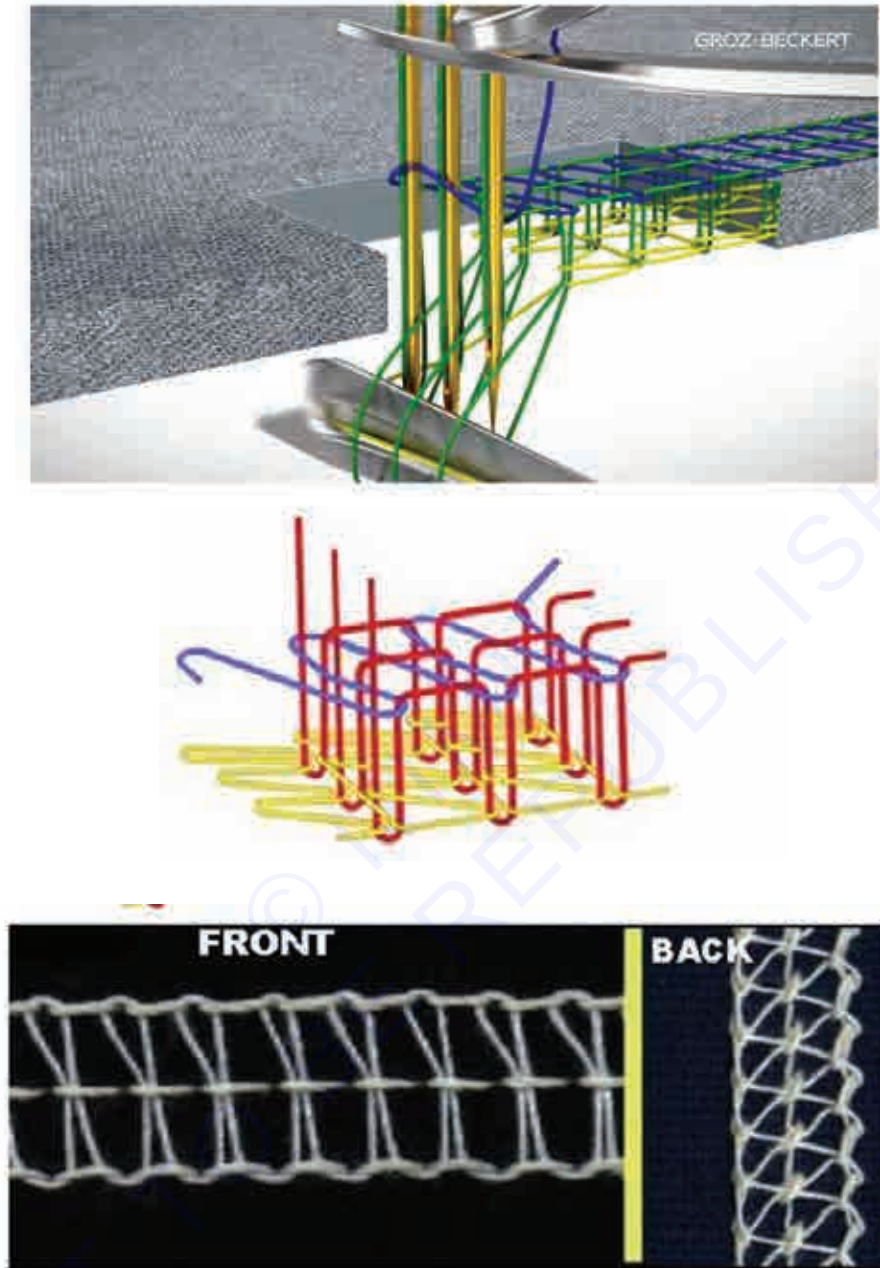
Flat Lock Sewing machine (Fig 31)

Fig 31



Stitch Formation (Fig 32)

Fig 32



Seams

Objectives: At the end of this exercise you shall be able to:

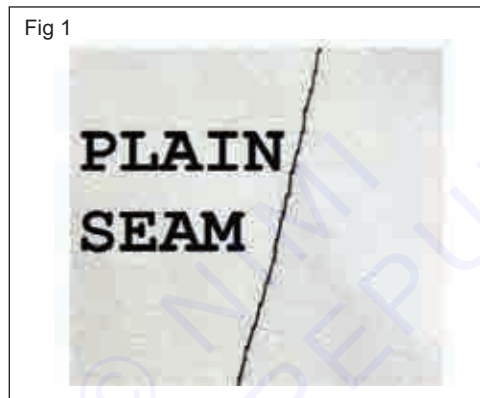
- classify the seam types
- learn and sew the different types of seams.

Stitch the seams and seam finish given below:

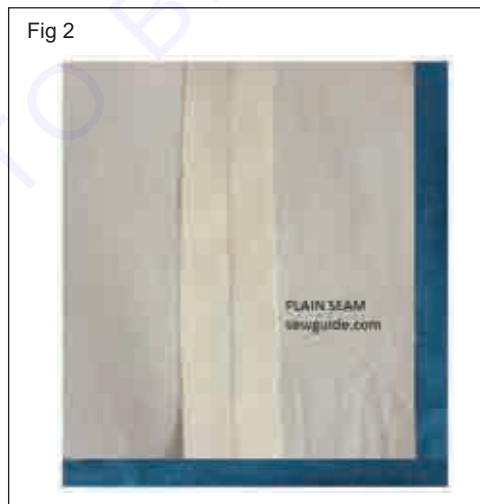
– Plain seam	– Mock Flat fell seam
– Plain seam with Single Top stitch	– Corded or Piped seam
– Plain seam with Double Top seam	– Faced Seam
– Hairline seam	– Mock French seam
– Lapped seam	– Serged seam
– French seam	– Slot seam
– Flat and felled seam	– Strap seam
	– Taped seam

Types of Seams

1 Plain seam (Fig 1)



In a Plain seam, two fabrics are joined together along the seam line by a line of stitching. It is also called a single needle Butterfly stitch as once the seam is made the seam allowances are pressed open to either side of the seam line to look like a butterfly. This is the simplest and easiest seam to make. It can be made by hand or machine. (Fig 2)



How to sew a Plain seam

Keep the two fabrics together with right sides together. Make sure that stitching lines are aligned. Pin in place

Stitch along the line you have made marking of the seam line.

Start and end with the back tack for strength and reinforcement .

Do not forget to press the seam open with a hot iron.

2 Plain seam with a single Top stitch

A single topstitching seam, this seam is a strong seam as well as a decorative one. (Fig 3)

Fig 3



How to sew a Plain seam with a single Top stitch

To get this effect, after plain seam is done, press both the seam allowances to one side and give top stitching on that side.

3 Plain seam with double top stitch (Fig 4)

Double top stitching seam; This is a decorative seam which also provides great strength to the seam line.

Fig 4



How to sew a Plain seam with double top stitch

To get this seam, after making the plain seam, seam allowances are pressed open on both the sides and top stitched on both sides of the seam at equal distances.

4 Hairline seam

This is a type of enclosed seam which is mostly used for collars and other enclosed areas. The seam allowances are not visible from the outside as it gets enclosed. (Fig 5)

Fig 5



How to sew a Hairline seam

Make a plain seam using a very tight straight stitch, with the fabrics right side together. Trim away very close to the stitching line ($\frac{1}{8}$ "). Clip the extra seam allowance till the stitching line and then Press the seam. Ensure that the stitching line is not cut as you clip.

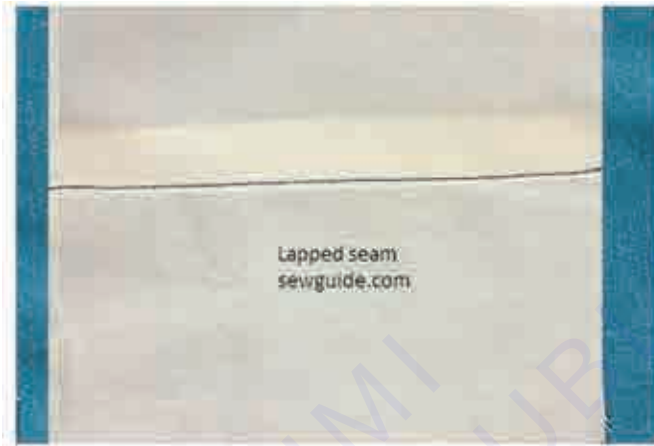
Turn right side out.

You can make a top stitch to secure the seam

5 Lapped seam (also called Tucked seam)

This is a very useful seam when sewing with heavy fabrics like suede, artificial leather, felt. (Fig 6)

Fig 6



How to sew a Lapped seam

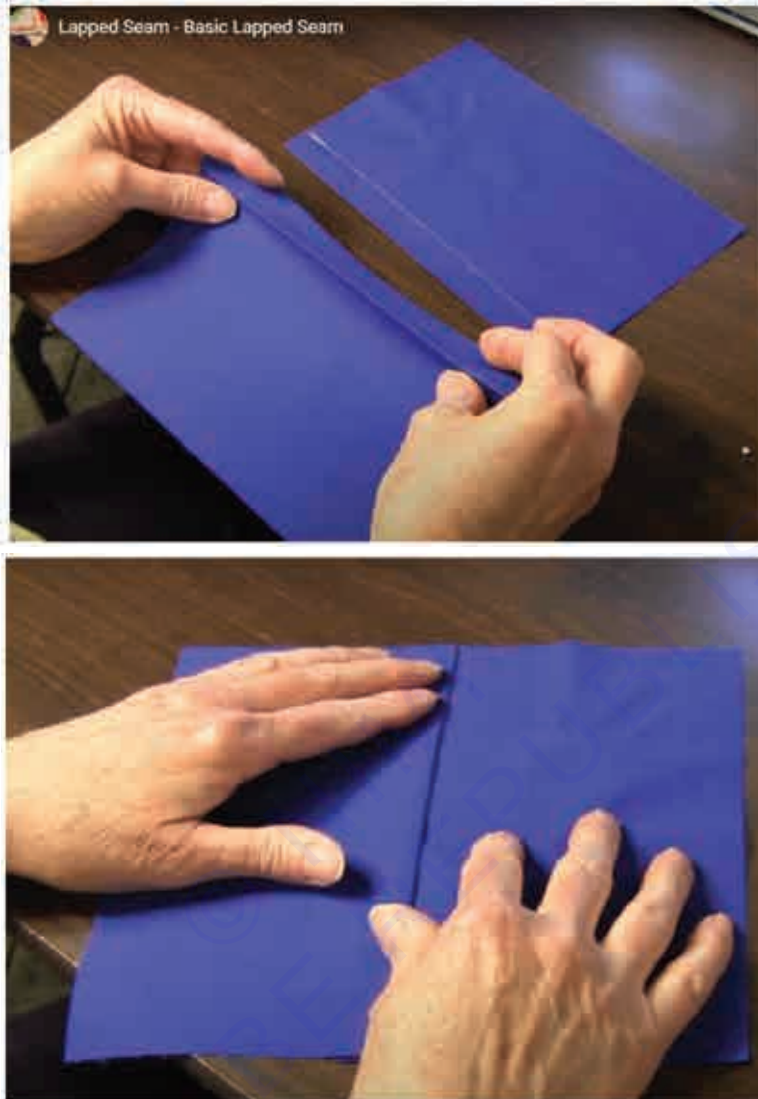
Decide on which fabric piece will be on top with the lapped application. Turn under the seam allowance of that piece along the seam line and press in place. (Fig 7)

Fig 7



Keep the folded fabric on top of the other fabric along the seam line. The seam lines should align. Press. (Fig 8)

Fig 8



Pin together to keep it in place. (Fig 9)

Fig 9



Edge stitch close to the folded edge (Fig 10)

Fig 10



When sewing with heavy fabrics, as the edges of these fabrics do not fray, you can create this seam by trimming the whole seam allowance of the top piece. Now the bulk is eliminated as there is no fabric to turn under.

6 French seam

This is the best seam for sheer fabrics. As this seam encloses the raw edges in a fold, the raw edges are not seen from outside without adding much bulk. This seam is usually done on straight edges but if you clip nicely it can also be done on curved edges. (Fig 11)

Fig 11



How to sew French seams

For this seam unlike other seams, you have to start with the wrong sides of the fabric together matching the stitching lines (instead of right sides together) to make a plain seam.

First on right side of the fabric, mark the stitching line with 1/2" seam allowance. Then on the wrong side, Mark a line half way through the original seam allowance i.e for a 1/2 inch seam allowance mark a stitching line at 1/4"

Stitch the plain seam through this 1/4" line. (picture 1 of the above diagram)

Trim the seam allowance a little bit.

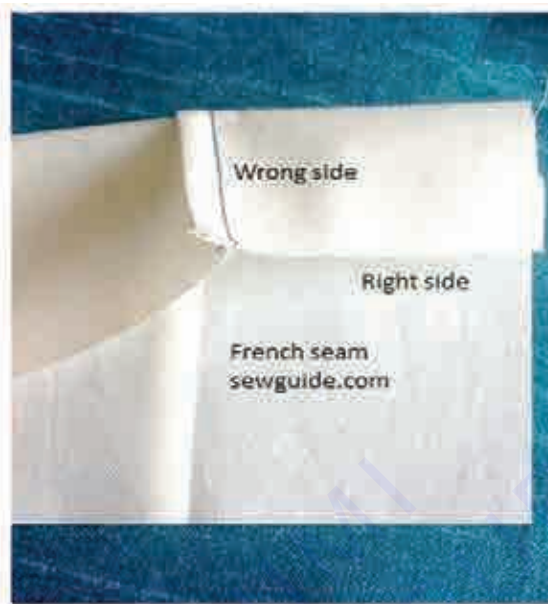
Now fold the fabric over at the seam RIGHT SIDES TOGETHER, covering the raw edges. Press.

Stitch on the original seam line. (at the 1/2" mark) right sides of the fabric together (picture 2 of the above diagram)

Press flat and then to one side.

Now the raw edges are nicely enclosed in the back. (Fig 12)

Fig 12



Step 1

Mark the seam line on the wrong side of one of fabric pieces 1/2 inch (or 3/8 inch). (This will only be sewn in the 7th step. Ignore this marking for the next 5 steps) (Fig 13)

Fig 13



Step 2

Keep the fabric pieces wrong sides together. Make a 1/4 inch seam. (Fig 14)

Fig 14



Keep the fabric pieces right sides to the outside; sew the seam with 1/4 inch seam allowance

Step 3

Trim the seam allowance to 1/8 inch. Trim any loose threads on the fabric cut edges. (Fig 15)

Fig 15



Step 4

Press the seam to one side, setting the threads; remember not to iron but only to press. Ironing will stretch the seams whereas pressing will settle the seam and make the seam line stronger.

Step 5

Bring over the two sides of the fabric to the other side, so that now the seam allowance is enclosed in between the two fabrics.

Ensure that the fabric is folded as close to the first seam as possible. Now the fabrics will be right sides together. Finger press.

The marking you made for 1/2 inch earlier will be visible now, on the wrong side of the fabric facing you. (Fig 48)

Fig 16

**Step 6**

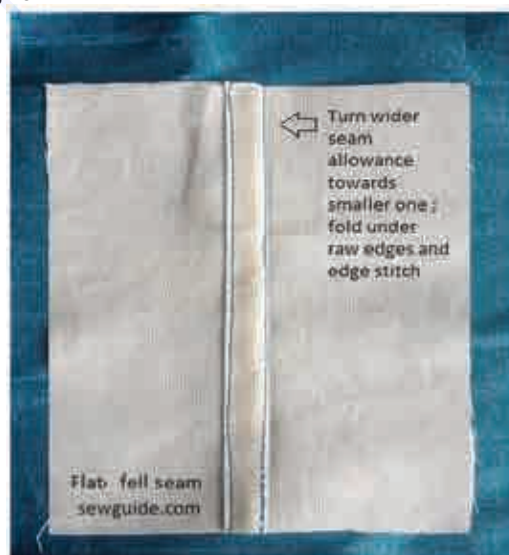
Now stitch a seam line on the mark you have made earlier. This will enclose the cut edges and the first seam line inside the fold of the fabric and the new seam line. (Fig 17)

Fig 17

**7 Flat felled seam or Run and fell seam**

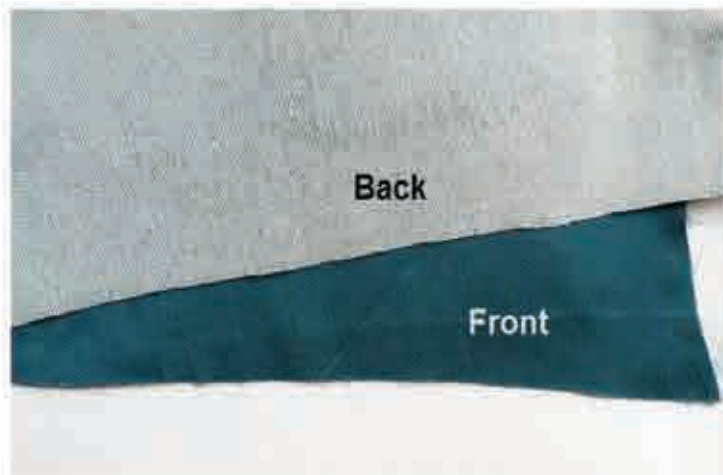
Mostly used in sports wear, men's shirts, jeans kids clothes, pyjamas etc. It provides adequate strength to the seam line. This seam can be stitched inside as well as outside the garment. (Fig 18)

Fig 18



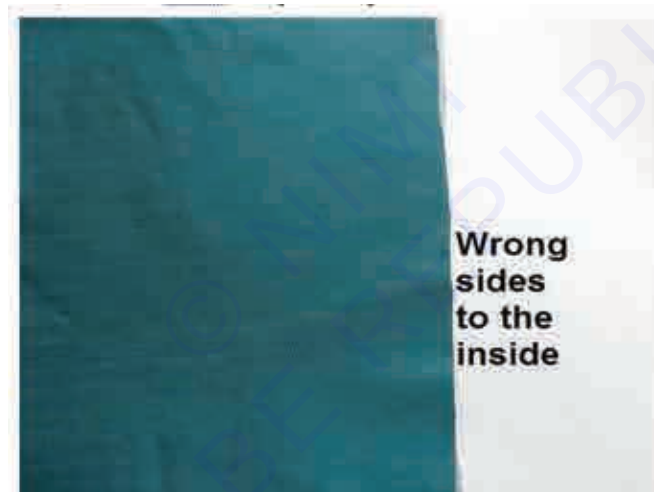
How to sew the Flat fell seam (Fig 19)

Fig 19



Step 1 : Keep the fabric pieces wrong sides together. (Fig 20)

Fig 20



Step 2 : Sew a seam with a 1/2 inch seam allowance. Mark 1/4 inch to the inside on one of the seam allowances. (Fig 21)

Fig 21



Step 3 : Now trim the seam allowance on one side to 1/4 inch ; (this will be kept underneath the other seam allowance, when you finish the whole thing) (Fig 22)

Fig 22



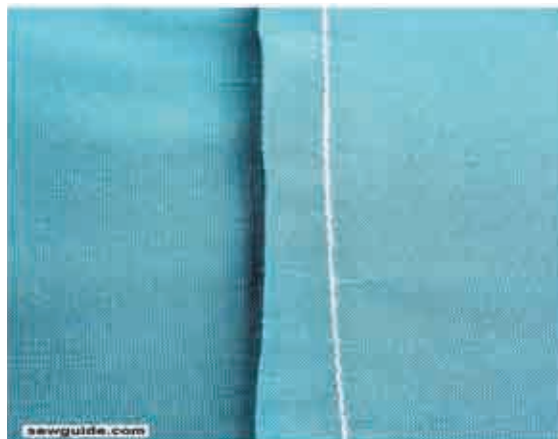
Step 4 : Press the seam allowances to the side of the smaller seam allowance (which you just now trimmed) Now fold the top seam allowance over this trimmed seam allowance. Press in place. it will look like this. (Fig 23)

Fig 23



Step 5 : Press the whole thing to the side of the trimmed seam allowance, (Fig 24)

Fig 24



Step 6 : You now will have to top stitch over this fold. (Fig 25)

Fig 25



Step 7 : You have to Edge stitch over this along the fold – Make sure that you are sewing equidistant from the fold. (Fig 26)

Fig 26



8 Mock flat fell seam (also Welt seam)

This is a seam which looks a lot like Flat fell seam but is easier to make.

Unlike the flat fell seam here the raw edge is not turned under. So this seam will have exposed raw edges of the seams on the wrong side. Hence it is better to be used with fabrics which do not fray or where the seam will not be seen. This is a great seam for a bulky fabric like felt or synthetic leather. (Fig 27)

Fig 27



How to sew a mock flat fell seam

Stitch a plain seam as usual with right sides together.

Decide on the side you will be sewing the seam allowance to trim the seam allowance of that side to half of what it is. Press the seam allowance to that side. (now the wider seam allowance will be over the smaller one)

Now turn to the right side of the fabric. Edgestitch close to the seam line.

Then turn to the other side and stitch along the raw edge. Now there will be two rows of stitching parallel to the seam line.

Step 1 : Finish the seam of one edge with serger or pinking or zig zag stitches. Be sure that the seam isn't cut away when serging. (Fig 28)

Fig 28



Step 2 : Sew the seam using the required seam allowance. (Fig 29)

Fig 29



Step 3 : Trim the unfinished seam to 1/4" wide. There's no need to finish this seam since it will be encased by the longer seam. (Fig 30)

Fig 30



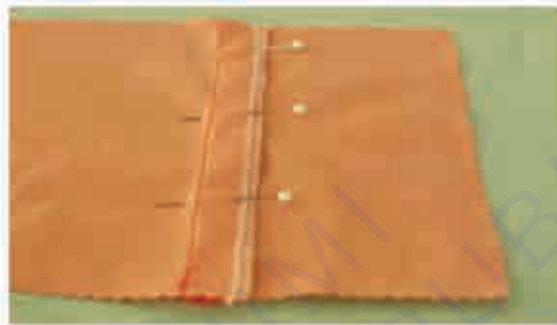
Step 4 : Press the seam allowance to one side. Make sure the seam is flat on the right side before continuing. (Fig 31)

Fig 31



Step 5 : Pin the seam in place. (Fig 32)

Fig 32



Step 6 : The final step is to stitch the seam down. The stitch should be parallel to the initial seam and about 3/8" wide. (Fig 33)

Fig 33



9 Corded or Piped seam

In this seam, a fabric-covered cording is inserted between the seam line. It is a decorative seam and is mostly used in collars, cuffs, pockets and home decorating fabrics. (Fig 34)

Fig 34



How to sew a Corded or piped seam

For this seam bias strip covered cords are used. You can either buy a precovered cording or buy cording and cover it yourself. It is sewn with a zipper foot attachment. The cord is kept snugly inside the bias strip and then using the zipper foot the bias strip is sewn close sandwiching the cord inside. The stitching line should be made as close to the cord as possible without the needle touching the cord.

10 Bound Seam - Press open (Figs 35 & 36)

Fig 35

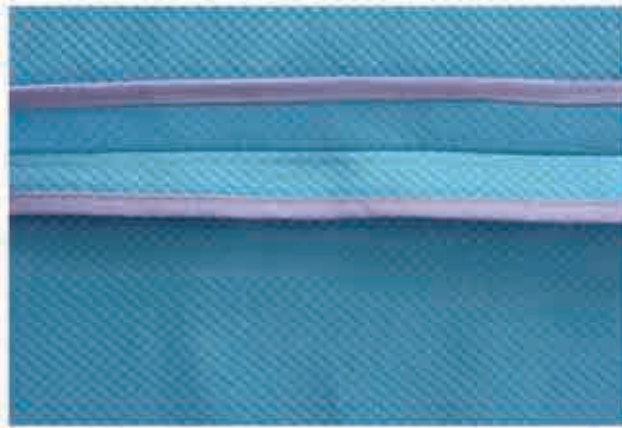
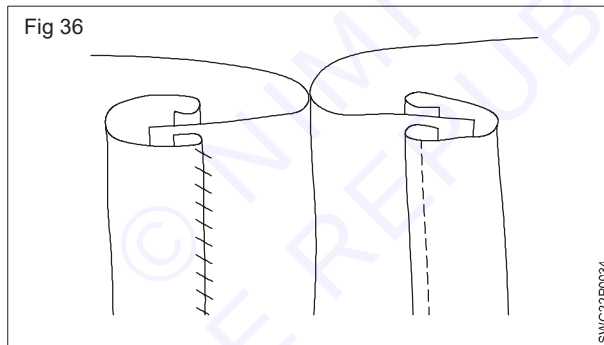


Fig 36



Here is a bound seam which is pressed open. Usually this finish is found in jackets or garments made with thicker fabrics such as cotton twill, or other medium to heavy weight fabrics.

Step 1 : Sew the seam as you would normally. (Fig 37)

Fig 37



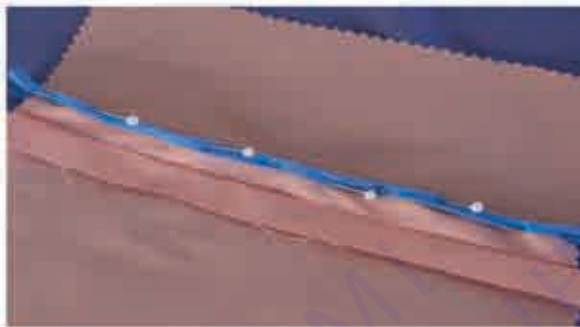
Step 2 : Press the seam open. (Fig 38)

Fig 38



Step 3 : Pin a strip of bias binding to one of the seam allowances. (Fig 39)

Fig 39



Step 4 : Sew the bias binding, being sure the binding is sewn on the back side. (Fig 40)

Fig 40



Step 5 : Follow steps 3 and 4 for the opposite seam allowance.

Step 6 : Press the seam open. (Fig 41)

Fig 41



The seam will remain open on the inside of the garment.

11 Mock French seam

This is a seam which can be used in place of French seam where a French seam may not be possible like in a curved seam line, for eg. armholes of a transparent dress. This will neatly finish the seam line also. (Fig 42)

Fig 42



How to sew mock French seam

Unlike the French seam, here a plain seam with right side together is made first. Place the fabrics right sides together. Stitch a plain seam along the stitching line. Press the seam open and then close. Turn in the edge of the seam allowance of each seam 1/4 inch. Press. Edge Stitch along the folded edge, so that the raw edge is enclosed inside.

12 Serged seam (Fig 43)



You need a Serger or Overlock machine for this seam. In this seam instead of a plain straight stitch the serger stitch is used on the seams and the seam allowance is trimmed by the machine. This seam gives stretch and flexibility to the seam.

This seam can be used under the following conditions

- 1 If it is not important that seams are kept flat or open.
- 2 For loose garments
- 3 On lightweight fabrics
- 4 When sewing with knits

How to sew a Serged seam

Place right sides of the fabrics together matching the stitching lines.

Keep the fabric under the needle

The serger will automatically trim the seam allowance and enclose the fabric edges in a thread.

A 3 thread serged seam will give stretch to the seam and a 4 thread serged seam will give strength to the seam.

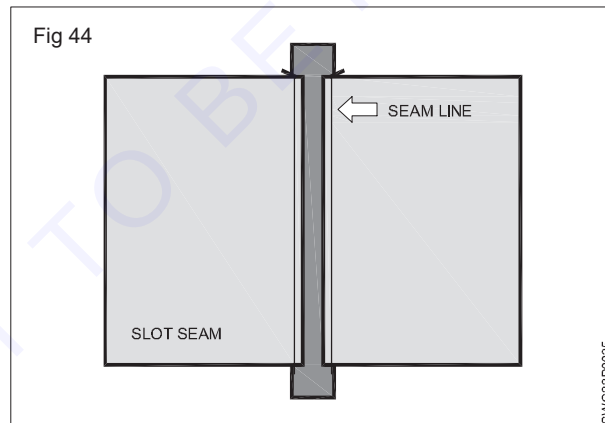
A 3 thread serged seam is usually used for knit fabrics for its stretching property.

13 Slot Seam

This seam which is similar to the lapped seam, is used for its functional as well as decorative properties.

How to sew a slot seam

Keep a 1 1/2" wide cloth, as long as the seam, under the seams. This is used as a backing piece kept between the two fabric lapped along the stitching line. (Fig 44 & 45)



14 Counter seam (Fig 46)

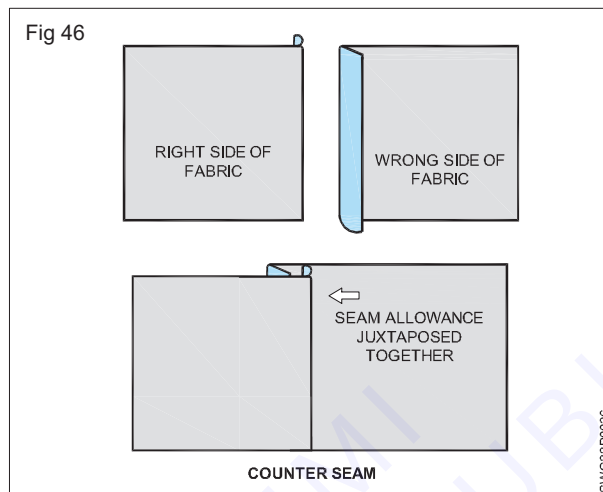
A very suitable seam for heavy materials, in this both the raw edges are enclosed by both the seam allowances along the seam line

How to sew a counter seam

Turn under the seam allowances of both the fabric pieces to the wrong side. finger press.

Place the wrong side of the first piece of fabric on the right side of the second piece along the edges, keeping the seam allowances. Pin in place

Stitch along the folded edge.

**15 Strap seam (Fig 47)**

In this seam an extra strip of fabric is attached on top of the seam line. The fabric strip is prepared by pressing the long edges 1/4 inches to the inside and then kept on top of the seam concealing the seam line and stitching along the edges.

**16 Taped seam**

This refers to any seam sealed with a tape for waterproofing/weather proofing. In this seam a strip of fabric/ tape is sewn to the seam to prevent water or any elements from seeping into the inside of the item. The tape may also be added to prevent distortion.

Fig 48



Make easy bias-binding tape

The easy way to make short-length bias tapes is to find the 45 angle across the fabric surface. Mark the diagonal line.

Mark adjacent parallel lines for the width of the bias strip you want. Cut along the marked lines.

Now, join them together to make the long bias tapes –

- Place the first strip face up on the table.
- Place the 2nd strip face down on the table on top of the first, so it is at a 90-degree angle.
- The resulting two strips should make an L shape. I.e. Keep the strips' right sides across each other, extending at the edges.
- Draw a line with a pencil between the two points where the two strips cross.
- Then sew on this line. Join them together diagonally, as in the picture. (Fig 49)

Fig 49



Make Continuous bias-binding tape

This is a very easy to make long bias tape. No more cutting and joining; the joining is done first and then the tape is cut.

A continuous bias tape is a very easy-to-make long, long bias tape.

No more cutting and joining; the joining is done first, and then the tape is cut.

a square is all you need to make all those lengths of tape. You will have to decide on how long you want the tape and what is the width of the tape. Calculate the size of the square and go about cutting them.

How to calculate the size of the square if you know the length of bias tape you need

It is simple enough. You just multiply the bias tape length and the width of the fully opened tape. Just find the square root of this, which gives you the size of the side of your square.

If you want 2 meters (200 cms)of bias strip needed, how to calculate the size of the square you should cut it from so $200 * 1\text{-inch bias strip} = 200$ (area of the bias tape)you have to find the square root of this area to find the size of the square. So the square root of $200 = 14\text{ cm}$ square piece will yield you 2 meters of binding tape. (Fig 50)

Fig 50



Step 1

Take the square piece of fabric. Cut it into two pieces by diagonally cutting it. You have two triangles now.

Step 2

Join them by short sides (not the diagonal sides)

Step 3

Open it up and press the seam allowance open. Mark the bias strips all along the width.

Step 4

Now join the short sides, right sides together. One end would not meet

Step 5

Start cutting the bias tape strips from one end (the extended, not stitched end). Go on cutting until the end and get this long strip of bias binding tape.

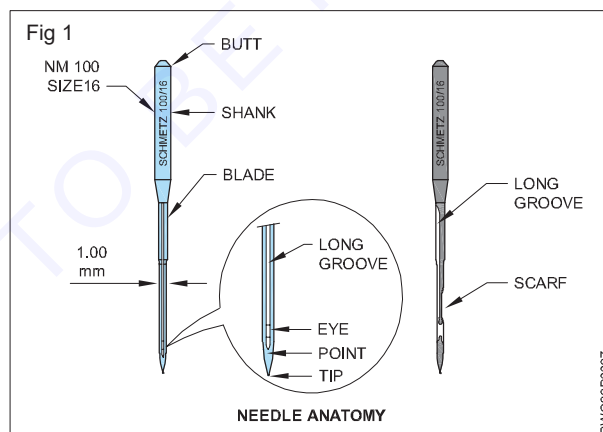
Sewing needles

Objectives: At the end of this exercise, you shall be able to:

- identify the parts and function of the sewing machine needle
- choose the right needle for the fabric
- analyse the different types of sewing machine needles:

A sewing machine needle is designed to be inserted into a sewing machine. It has a pointed tip with a hole through which to insert thread, and a blunt top with a rounded front and flat back. It is inserted into a screw in the machine and held tight.

The Needle which is 2" piece of steel, is one of the most important parts of sewing machine. The sewing machine cannot operate without a needle. If you insert it wrong, and your machine will not work. Use an incorrect needle and your stitches will be less than desirable. Use a dull or bent needle and you risk damaging your machine, fabric and thread. (Fig 1)



Needle parts and their important functions:

- 1 **Butt:** The very top of your needle has a beveled edge for easier insertion into your machine.
- 2 **Shank:** Home sewing needles have a flat shank for perfect positioning in the needle bar in relation to the hook.
- 3 **Shoulder:** The area between the shank and the blade.
- 4 **Blade:** The length of the needle. Needle size is determined by measuring the blade diameter.
- 5 **Groove:** Cradles and guides thread to the eye of the needle.
- 6 **Scarf:** The indentation above the eye that allows the bobbin hook to smoothly grab the thread under the throat plate to create a stitch.

7 **Eye:** The hole through which thread passes.

8 **Point and Tip:** The first area to penetrate the fabric in stitch creation. The point and tip length, shape, and size vary according to needle type.

Choosing the right needle

Choosing the right needle for your sewing machine include Consideration of:

- Fabric type
- Fabric weight
- Thread type

Fabric Type (Fig 2)



For sewing different fabric types will require different needles.

- 1 Woven fabrics – can be sewn with universal, jeans, embroidery or microtex needles
- 2 Knit fabrics – can be sewn with knit, ballpoint or stretch needles
- 3 Leather – should be sewn only with dedicated leather needles

Fabric Weight (Fig 3)



All fabrics comes in different weights, from light weight, super sheer fabrics like chiffon to much heavier, hard wearing fabrics like denim and canvas.

It's important to choose the right needle size for the fabric weight that you will be sewing, as the using the wrong needle can result in your sewing machine needle breaking.

You would not use a 90/14 needle on a fine chiffon and you would use a 70/10 universal on a heavy weight denim.

Thread Type (Fig 4)

Fig 4



The type of thread you plan to sew with, also has an impact on the needle you insert into your sewing machine.

Topstitching thread is much thicker than regular sewing thread, and requires a needle with a bigger eye to accommodate the thread weight.

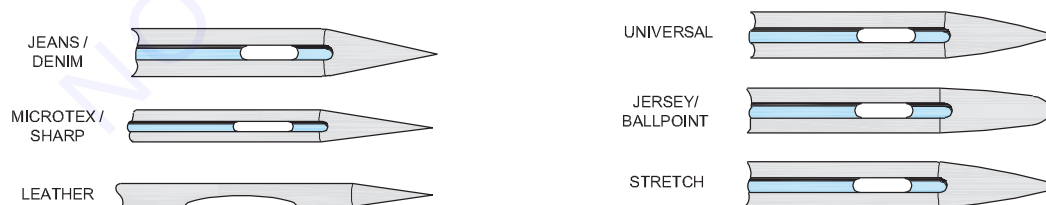
Sewing Machine Needle Types

List of the different types of sewing machine needles:

- Ballpoint needles
- Embroidery needles
- Jeans needles
- Leather needles
- Microtex needles
- Quilting needles
- Stretch needles
- Topstitch needles
- Universal needles

Types of Sewing Machine Needles (Fig 5)

Fig 5



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Universal needles

This type of needle is the most commonly used in sewing machines. They have a slightly rounded tip, and sew well with woven fabrics, cotton, silk, and some knit fabrics.

Ball point needles

A ball point needle is slightly more rounded than a universal needle. They push between the fabric fibres, and ideal to use with knit and stretch fabrics such as rib knits, cotton knits and fleece.

Stretch needles

Stretch needles also have a ball point tip, however they have a distinctive eye and scarf for stretchy fabrics that are hard to sew. Material such as Lycra, spandex, and elastic should be used with this needle for the best results.

Sharp needles

Sharp needles are perfect for woven fabrics as they tend not to pucker and produce an even stitch. They also work well with several layers of the right fabric type due to its strong shaft. It is not recommend using this type of needle with knit fabrics as they can cause missed stitches.

Quilting needles

The reinforced shaft on a quilting needles means they can be easily used with a few layers of fabric and wadding. Their shortness in length gives you the opportunity to achieve a quick and even stitch, especially when sewing with cotton fibres.

Embroidery needles

Designed with a wider eye, embroidery needles accommodate thicker threads such as polyester or cotton. They create intricate designs at a fast pace, without snagging the fabric or breaking the needle.

Leather needles

A leather needle is shaped like a spear to cut through the leather whilst forming the stitch. They are sometimes referred to as a chisel point needle and should only be used with genuine leather and suede. Better avoid using this type of needle for imitation leather or suede as their fibres are quite different to the real deal.

Jeans needles

As the name suggests, this needle is designed for working with denim. A jean needle has a sharp point and stronger shank to push through the fabric and prevent the needle from breaking. They are also suitable for other dense fabrics such as heavy twill, canvas and dense linens.

Top stitch needles

A top stitch needle has a larger eye and deeper groove, which makes it perfect to use with heavier topstitching thread. It will pierce through many different layers of fabrics and give a distinctive finish.

Sewing machine needle size guide

American size	European size	Fabric weight	Fabric types
8	60	Very fine	Fine silk, Chiffon, Organza, Voile, Fine lace
9	65		
10	70		
11	75	Light-weight	Cotton voile, Silk, Synthetics, Spandex and lycra
12	80		
14	90	Medium weight	Quilting fabrics, Cotton, Velvet, Fine corduroy. Linen, muslin, jersey, tericot, knits, light wool, sweatshirt knit, fleece
16	100	Heavy weight	Denim, corduroy, canvas, duck, suiting leather
18	110	Very heavy	Heavy denim, heavy canvas, uphoistery fabric, faux fur
20	120	Very, very heavy	Extra heavy fabrics

Working aids

Objectives: At the end of this exercise you shall be able to:

- categorize the different types of folder used in apparel industry
- practice using different folders.
- practice using guide
- identify different types of specialized foot
- choose the suitable foot for sewing as per requirement & practice with it.

Folders :

A folder is an attachment to a sewing machine for bending and folding the fabric previous to sewing. It belongs to the category of work aids (Additional devices that can be added to basic sewing machines) generally used in situations where fabric must be fold prior to sewing. Can be used for folds ranging from simple to complex. Different types of folders available in different size and thickness. The thickness of the folder is selected depends on the type of fabric.

- 1 Light folder (0.15mm to 0.25mm thickness) – silk, synthetic materials, poplin, shirting, bed sheet
- 2 Medium folder (0.27mm to 0.40mm thickness)–single jersey knit, flannelette, Oxford
- 3 Heavy folder (0.45mm to 1.5mm thickness)–twill, corduroy, rib knit, interlock knit, denim (Fig 1)

Fig 1



Folders in Apparel Industry

Features of a Folder in the Apparel Industry

There are some basic features of a folder, these are-

- 1 It helps to improve the productivity.
- 2 Improve or maintain quality standards.
- 3 Reduce training time of operator.
- 4 Reduce fatigue of the operator.

Different Types of Folders Used in the Apparel Industry

- 1 Hemming folder
- 2 Sleeve attaching folder
- 3 Piping folder
- 4 Belt loop folder
- 5 Bias Binding folder
- 6 Waistband folder
- 7 Tape folder
- 8 Collar setting folder
- 9 Cuff setting folder

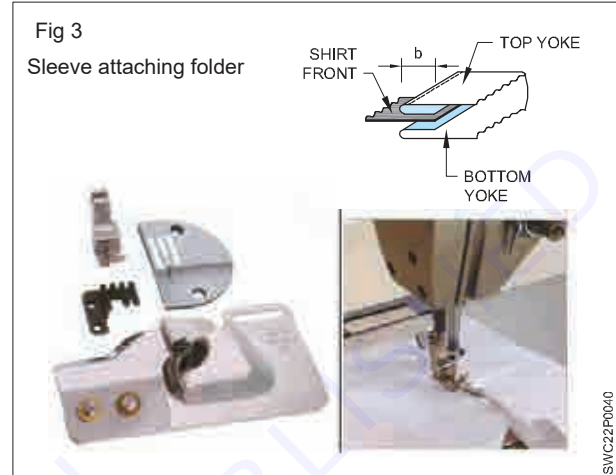
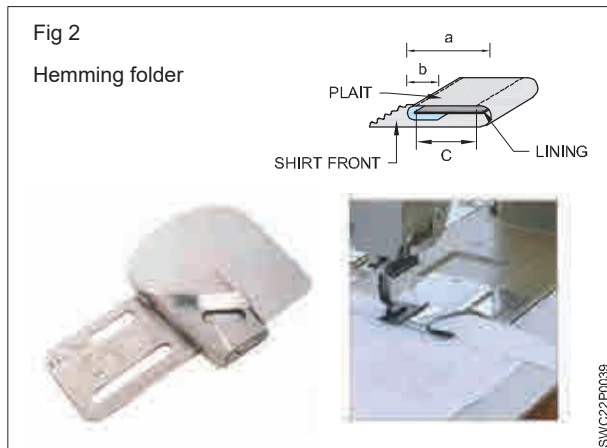
These are some types of folders used in the garment industry.

1 Hemming Folder

It is excellent for continuous hemming on automatic sewing operations. It's suitable for double needle lockstitch machine. Used to make narrow hems, on prior to ruffling, curtains, and other straight hemming operations. Output piece seam line diagram is shown in the image. (Fig 2)

2 Sleeve Attaching Folder

It is used for sleeve attaching operation by using a single needle lock stitch machine. (Fig 3)

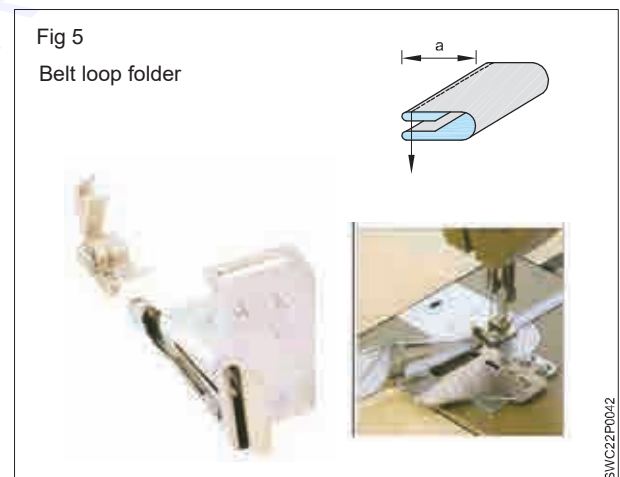
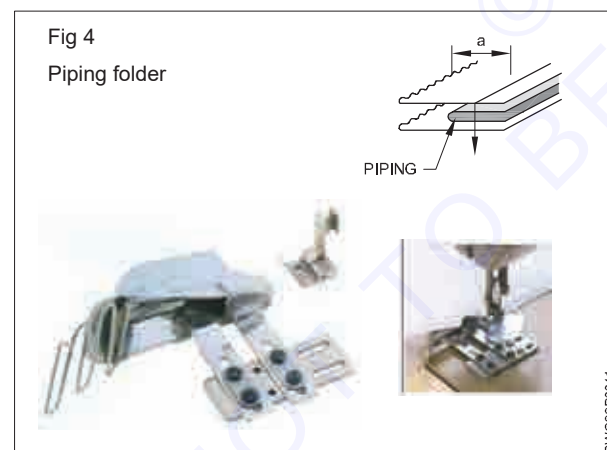


3 Piping Folder

It is used for preparing piping seam by using a single needle lock stitch machine. (Fig 4)

4 Belt Loop Folder

It is used for preparing belt loop by using a single needle lock stitch machine. Here stripe of fabric inserted on the folder. (Fig 5)



5 Bias Binding Folder

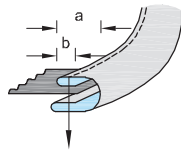
It is used for cover the raw edge by using a single needle lock stitch machine. Here stripe of fabric inserted on the folder. It binds the fabric edge evenly. (Fig 6)

6 Waist Band Folder

It is used for attaching waistband by using double needle lockstitch machine. It binds seam on the waistband. (Fig 7)

Fig 6

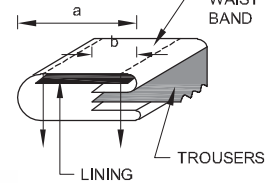
Bias binding folder



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Fig 7

Waist band folder



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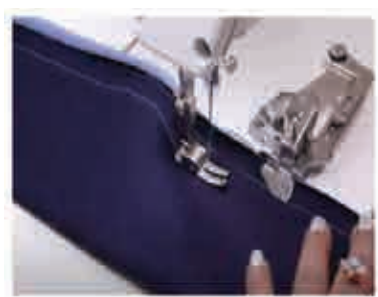
Practice using Folder attachment:

- 1 Select the Appropriate Folder Attachment:
- 2 Attach the Folder to the Sewing Machine:
 - Turn off the sewing machine and unplug it for safety.
 - Locate the folder attachment. It typically fits onto the needle plate or the presser foot bar.
 - Follow the manufacturer's instructions to securely attach the folder to your sewing machine. Usually, there are screws or clamps involved.
- 3 Thread the Fabric or Bias Tape Through the Folder:.
- 4 Adjust the Tension and Stitch Length:
- 5 Practice on Scrap Fabric:
 - Observe how the fabric folds and stitches. Adjust the folder if needed.
- 6 Fold and Sew:
 - Place the fabric or bias tape under the needle, ensuring it passes through the folder.
 - Start sewing, guiding the fabric or tape through the folder as you go.
 - Keep the fabric aligned and taut to achieve consistent folds.
- 7 Inspect Your Work:
 - Make sure they are neat and even. Adjust the folder or stitching as necessary.

Guide:

Guides are majorly used for correct sewing in correct position or in a determined and proper distance from edge of fabric. In sewing process, the fabric is fed to the needle over the needle plate. Fabric guides allow sewing to proceed more rapidly and precisely. Hammers and guides make it easier to feed the material correctly to the needles and to obtain a regular seam line. (Fig 8)

Fig 8



Types of the specialized foot:

Presser foot:

A pressure foot is an attachment used with the sewing machine to hold the fabric flat as it is fed through the needle and stitched. The movement of the fabric in both front and back direction is made possible as the feed dog with its motion presses up against the pressure foot and the sewer provides extra support to the fabric by guiding it with one hand.

The pressure foot keeps the fabric flat so that it does not rise and fall with the needle and pucker as it is stitched. The pressure foot is often single hinged to provide flexibility as the workpiece moves beneath it.

Pressure foot is of numerous types often specialized to adjust with different types of working material, different types of stitches, seams, etc. The most commonly used pressure foot is the all-purpose foot and the zipper foot. Following are the different types of the specialized foot along with their functions.

1 All-purpose foot

The all-purpose sewing foot as the name indicates can be used for any type of sewing. It is most often used in straight single needle machines. It is the most basic of sewing foot and does not include any work aids for easing of tasks (Fig 9).

Fig 9



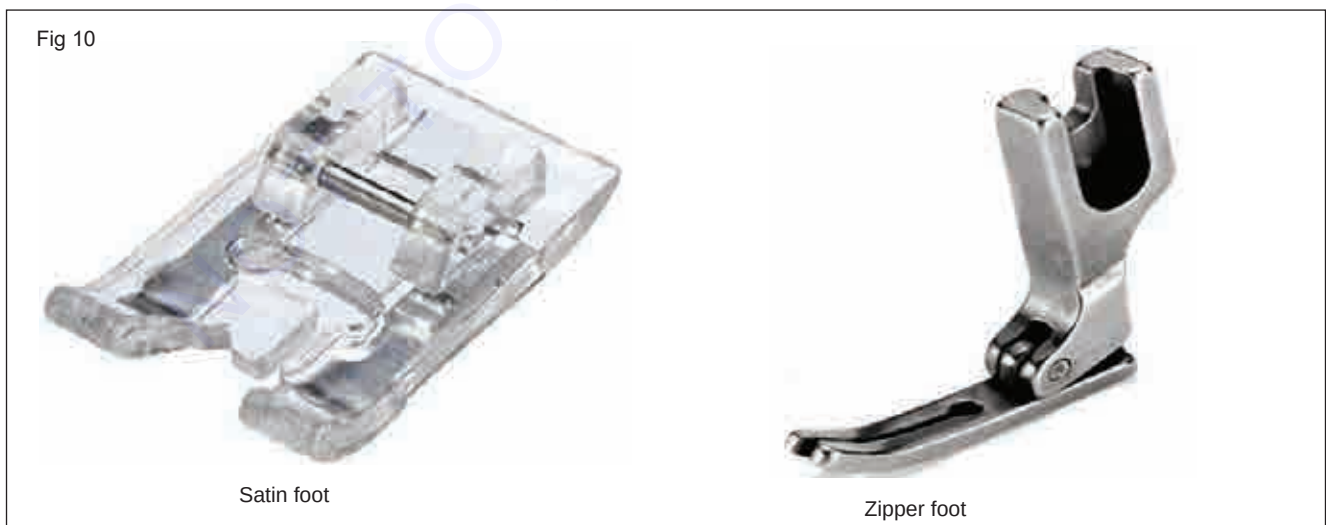
2 Satin foot

It is used for decorative stitching as the stitches have to be dense. This is most commonly used in appliques (Fig 10).

3 Zipper foot

This is one of the most common foot and its narrow foot allows for close stitch around the zipper. (Fig 10)

Fig 10



4 Sew-easy foot

Helps you sew in straight lines, no matter what seam allowance you need. The foot has a “ruler” with an adjustable guide for precision. For beautiful topstitching, place the guide along an already stitched seam or against an edge. (Fig 11)

Fig 11



5 Adjustable zipper cording foot

It has a screw at the back making it possible to move the foot manually to the left or right. It is most often used for piping and cording as the foot can be adjusted manually so that it can be sewn very closely to the piping when creating or inserting it. (Fig 12)

Fig 12



6 Blind hem foot: Blind hem foot makes it easier to sew a hem on garments. There are various styles of blind hem feet but what they have in common is an extension at the front of the foot for guiding the fabric fold. (Fig 13)

7 Overedge foot: Overedge foot is used when adding a seam finish at the edge of a seam allowance. There is a small bridge in the foot which allows more thread into the stitch. Fabric is guided along with the extension at the front of the foot. (Fig 14)

Fig 13

Blind hem foot



Fig 14

Overedge foot



8 Button stitch foot

Button stitch foot is used to easily attach buttons whether they are 2 hole or 4 hole buttons. It holds the button securely in place while a zigzag stitch is used to attach the button. If the machine has a drop feed lever lower the feed dogs, if not use a feed dog cover plate over the feed dog or simply put the stitch length to zero. (Fig 15)

Fig 15



9 Darning embroidery foot

This kind of presser foot is used for free motion work like stippling. (Fig 16)

Fig 16



10 Even feed foot

The even feed foot is sometimes called the walking foot or dual feed foot. It works just like another set of feed dogs helping to feed the fabric to the stitching area. Use this foot to prevent shifting of coat layers or shifting of seams in fabric like velvet or corduroy. It is also used heavier material as only the feed dog is not enough to feed the material through the needle. (Fig 17)

Fig 17



11 Quarter inch foot

The quarter inch foot is most commonly used for quilting but can also be used for craft sewing. Use the edge of the pressure foot as a guide for sewing $\frac{1}{4}$ inch seam. (Fig 18)

Fig 18



12 Open toe foot

The open toe foot has a large open area in the front of the foot providing a large view of your work which is very helpful when decorative stitching or coaching over ribbons and trims. (Fig 19)

Fig 19



13 Edge joining foot

The edge joining foot is used for joining trims or fabrics (Fig 20).

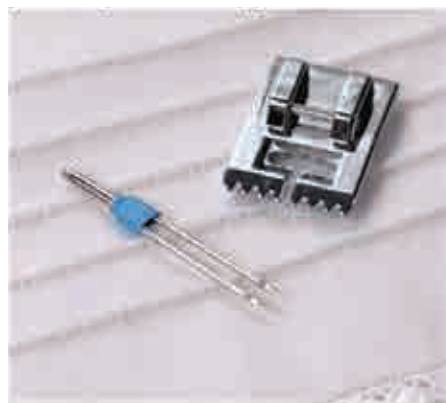
14 Pintuck foot

The pintuck foot has several evenly spaced grooves on the bottom which allows for sewing parallel rows of stitching closely together. It is used along with twin needle to create a wonderful surface texture on the fabrics very commonly found in many garments and home accessories. (Fig 20)

Fig 20



Edge Joining Foot

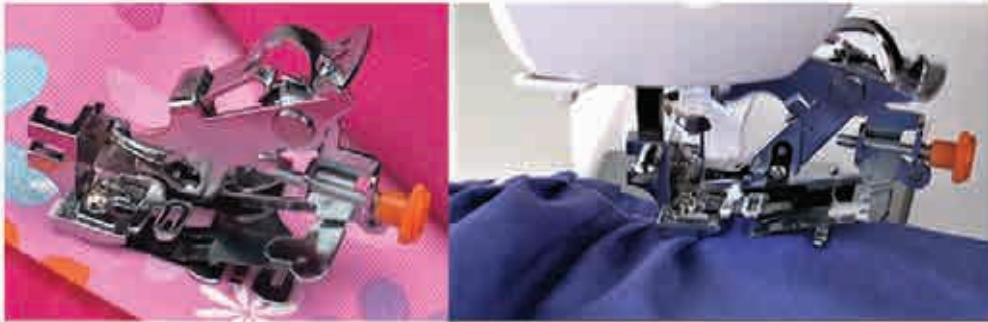


Pintuck Foot

15 Ruffler foot attachment

The ruffler foot attachment is used to create perfectly spaced pleats and gathers at set intervals. It can be used for light-weight as well as medium weight fabrics. (Fig 21)

Fig 21



16 Gathering foot

The gathering foot is simply designed to create fullness in soft light weight fabrics. (Fig 22)

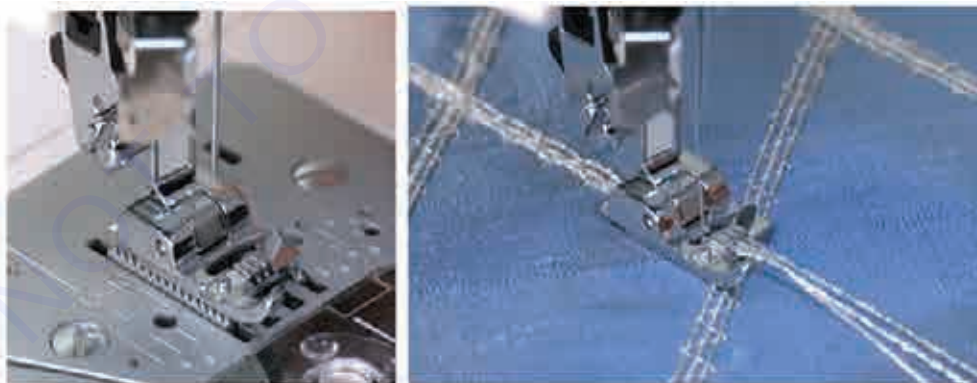
Fig 22



17 Cording foot

The cording foot has grooves on the top which are used to guide a yarn or cord. Stitches are sewn over cords placed into the foot as the foot guides them evenly, the gathering can also be done through this foot. (Fig 23)

Fig 23



18 Sew and serge foot

The sew and serge foot is also known as the side cutter trims the excess fabric while sewing.

There are many other types of pressure foot specialized for various tasks. Most pressure feet are made of steel or clear plastic, but for sewing leather, plastic, vinyl, oilcloth pressure foot made of Teflon or other non-stick materials are also used. To make the transition easier for the pressure foot they are equipped with easy snap features like: (Fig 24)

Fig 24



Some simply snap on or off the machine.

Some are removed by pressing a lever or release button on the shank.

Others are attached to the shank and need to be removed together with a small screwdriver.

Some have the shank already attached and have to be removed completely to put the new foot on.

Practice Using Zipper Foot

1 Choose the Right Zipper Foot:

- There are different types of zipper feet available. Ensure you select the appropriate one for your sewing machine.
- The zipper foot is narrower than a regular presser foot, allowing you to sew close to the zipper coil without stitching over it.

2 Attach the Zipper Foot: Screw-on Zipper Foot:

- Remove the regular presser foot assembly from your machine.
- Attach the narrow zipper foot by screwing it on in place.
- The zipper foot can be adjusted to either side of the needle.

3 Position the Needle:

- Adjust the position of the needle to sew close to the zipper teeth without hitting them.
- You want the stitches to be very close to the zipper coils but not directly on top of them.

4 Sewing with the Zipper Foot:

- Place the fabric pieces with the zipper sandwiched in between.
- Lower the zipper foot onto the fabric, aligning it with the zipper edge.
- Start sewing, ensuring the needle is close to the zipper teeth.
- When you reach the zipper pull, stop with the needle down in the fabric.
- Lift the presser foot and carefully zip the zipper past the foot, keeping the fabric aligned.
- Lower the presser foot again and continue sewing to the end of the zipper seam.

5 Finish and Press:

- Secure the thread ends by backstitching or knotting.
- Press the seam open or to one side, depending on your project.

6 Invisible Zipper Foot (Optional):

- If you're working with an invisible zipper, consider using an invisible zipper foot.
- This foot has grooves on the underside to allow the zipper coil to pass through smoothly.
- It ensures that the seam lines lie very close to the zipper coil, making the zipper nearly invisible when closed.

EXERCISE 35 : Demonstrate samples on motorized industrial sewing machine

Objectives:

At the end of this exercise you shall be able to

- practice on speed control of the lock stitch sewing machine
- perform stitch lines in different shapes on paper and fabric.

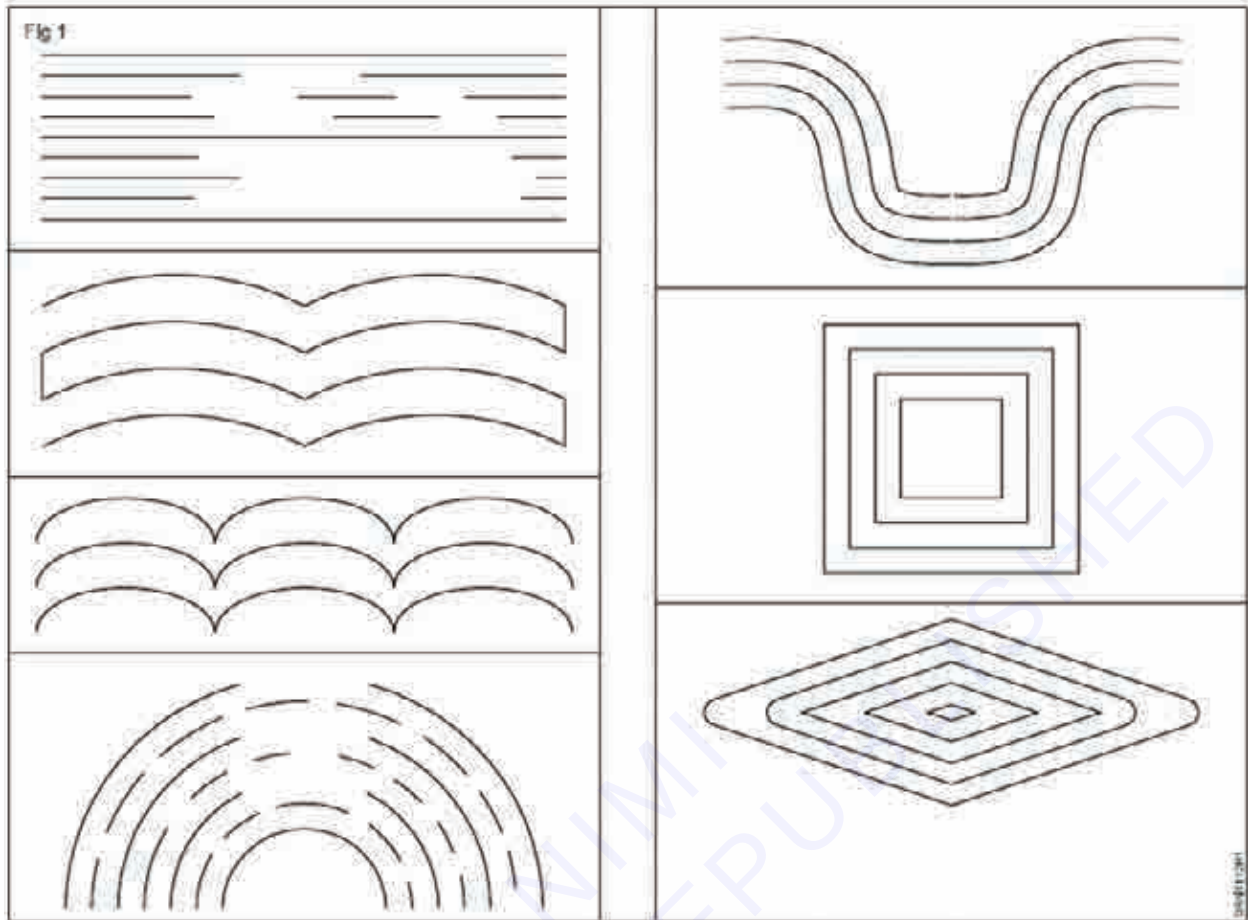
Practice on speed control of the lock stitch sewing machine

- 1 Switch on the sewing machine.
- 2 Raise the pressure foot up. Press the pedal/ accelerator slightly, to have control on the machine. Remove the leg from the accelerator. Repeat the steps often to have pedal control. Once you have got control over the machine and confident then do Paper exercise.
- 3 Take one paper and place it below the presser foot and down the presser foot with the help of Presser foot lifter.
- 4 Keep the both hands on paper. Concentrate and slightly press the pedal.
- 5 Note the needle and paper movement. Also note the speed of the machine.
- 6 Stop the machine by removing the foot from the pedal.
- 7 Practice the above procedure until to get the speed control.

Perform stitch lines in different shape on paper and fabric

- 1 Draw lines on A4 paper
- 2 Draw and take Printout of the following the exercise and Practice it in machine. While stitching on paper don't thread the needle.
- 3 Place the paper under the presser foot.
- 4 Lower the pressure foot lever
- 5 Start moving the treadle, while you push the fly wheel of the machine by right hand towards yourself.
- 6 Continue the movement of the treadle with your feet. While stitching, control the material with both hands. With the movement of machine the feed-dog will automatically transport the material but you have to pay attention on the needle and presser foot to maintain the correct line of the stitches.
- 7 After practicing on paper, repeat the same exercise on fabric. Now you have to thread both the needle and bobbin thread of the machine.

Now perform all the stitch lines once on double layered cloth of 20 x 22.5 cm. Cut the material for 7 sets (i.e. 14 pieces), put two pieces together above each other, best and stitch all around leaving 0.5 cm from all edges. (Fig 1)



In the same way, practice on fabric with threading the needle and bobbin (Figs 2,3 & 4)

Fig 2

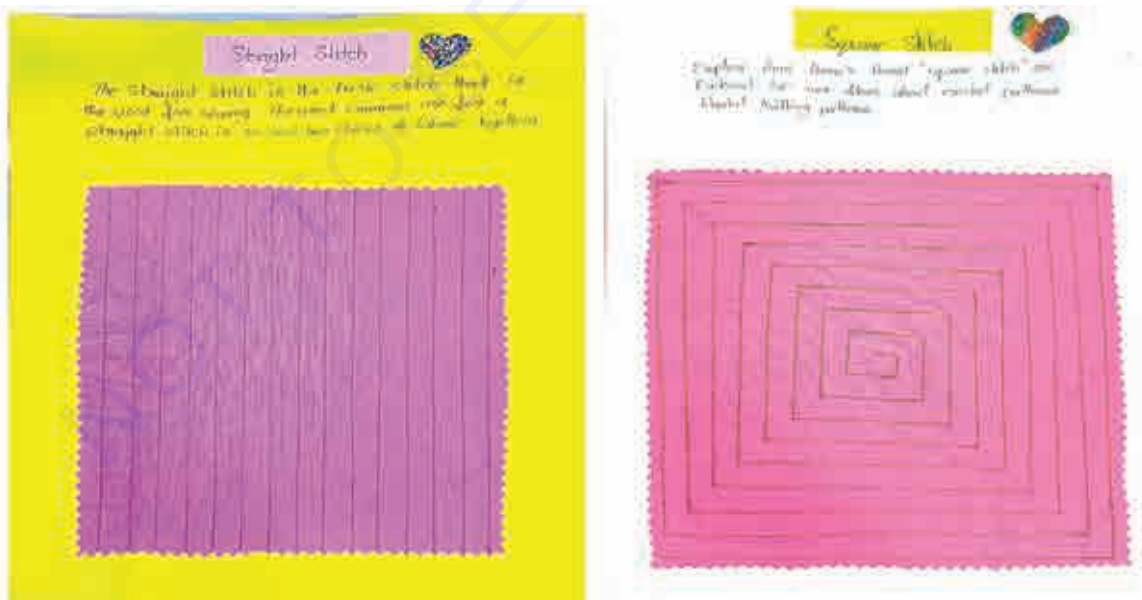


Fig 3

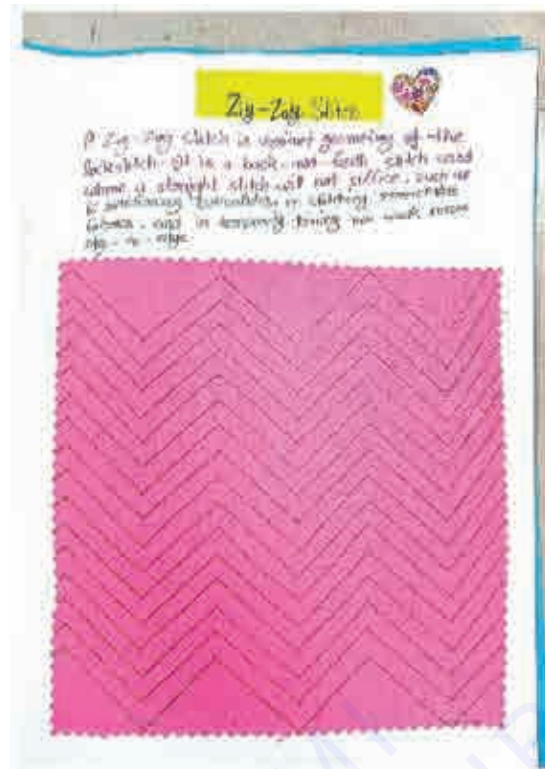


Fig 4



EXERCISE 36 : Special Sewing Machines

General sewing - Single needle lock stitch machine

At the end of this exercise you shall be able to

- identify the major parts of Single needle lock stitch machine and their function.
- learn the function of different machine parts.
- follow the steps to operate the SNLS machine.

Procedure

Features of single needle lock stitch machine

Single needle lock stitch machine is mostly used as an industrial sewing machine. Modern single needle lockstitch has a thread trimmer which operates at the highest speed of its kind. Lockstitch machine is the most commonly used sewing machine in the apparel industry, especially in woven garments.

Types of lock stitch sewing machine

There are two types of lock stitch sewing machine used in a garments factory.

- 1 Single needle lockstitch machine
- 2 Double(two) needle lockstitch machine

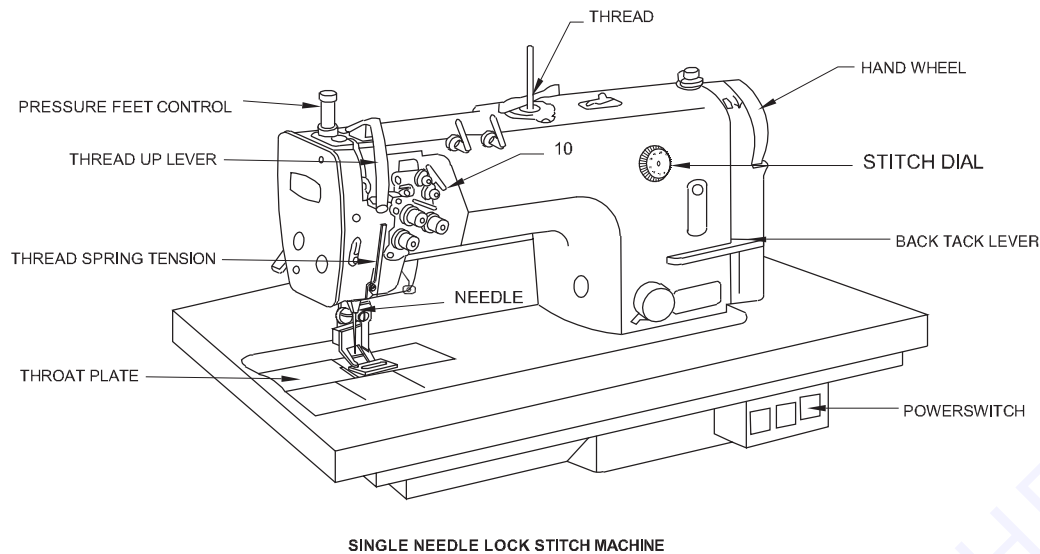
Single Needle Lock Stitch Machine Single needle lock stitch machine is stitch by one needle of a machine by lock stitch.

Double Needle Lock Stitch Machine Double-needle /twin/two needle is a needle with a single shank and two shafts, proceed stitching with the double stitching you will get two parallel rows on the face of the fabric and a zig-zag stitch on the back of the fabric.

Different parts of SNLS sewing machine (Fig 1)

• Feed dog arm	• Thread density tensioner
• Feed Dog	• Stitch density regulator
• Needle Plate	• Back stitch lever
• Throat Plate	• Gear
• Pressure foot	• Pinion
• Pressure foot bar	• Main shaft
• Pressure regulator	• Pump shaft
• Pressure spring	• Feed dog driven shaft
• Hand Lifting	• Hook Shaft
• Leg lifter	• Feed dog arm shaft
• Wait cam	• Rotary hook
• Thread take-up lever	• Bobbin
• Connecting rod	• Bobbin case
• Needle bar	• Hook finger
• Needle	• Oil pump

Fig 1



SWC22P0048

Function of different parts of SNLS machine

- **Feed dog arm:** To hold the feed dog
- **Feed dog:** To pass the fabric
- **Needle Plate:** Keep the needle on the middle point.
- **Throat plate :** To help to pass the fabric
- **Pressure foot:** To produce pressure on the fabric
- **Pressure foot bar:** To hold the pressure foot
- **Pressure regulator :** To maintain the pressure
- **Pressure spring:** To produce pressure on pressure foot
- **Hand Lifter:** Pressure up down by hand
- **Leg lifter:** Pressure up down by leg
- **Wait Cam:** To transfer motion from main shaft to thread take-up lever
- **Thread take-up lever :** To pass the needle plate
- **Connecting rod:** to transfer motion
- **Needle Bar:** To hold the needle
- **Needle:** To form stitch
- **Thread density tensioner:** To maintain needle thread tension
- **Stitch density regulator:** To maintain the stitch density
- **Back stitch lever:** For fabric forward –backward movement
- **Gear:** To transfer motion from main shaft to pinion
- **Pinion :** To transfer motion from gear to pump shaft
- **Main shaft :** To transfer motion from machine to wait cam
- **Pump shaft:** To transfer motion from pinion to oil pump
- **Feed dog driven shaft:** To transfer motion from connecting rod to feed dog.
- **Hook Shaft:** To transfer motion from pump shaft to rotary hook
- **Feed dog arm shaft:** To transfer motion from connecting rod to feed dog arm

- **Rotary hook:** To form stitch
- **Bobbin:** To pass the bobbin thread
- **Bobbin case:** To hold the bobbin
- **Hook finger:** To hold the rotary hook
- **Oil pump:** To supply the oil

Practice operation of single needle lock stitch machine

- Sit comfortably at a proper height.
- Position the machine with the body on the right and the needle end on the left.
- Mount the needle, ensuring the groove faces the direction of threading.
- Wind the bobbin according to your machine's instructions.
- Keep the bobbin in the bobbin case and fix it in the sewing machine
- Thread the machine, following the thread guide and take up lever.
- Adjust the stitch length as required.
- Place your fabric under the needle.
- Lower the needle into the fabric by turning the wheel towards you.
- Begin stitching using a basic stitch.
- Sew until you're about 1/4 inch from the fabric edge.
- Use back tack at starting and ending the sewing.

Practice on operations of Overlock machine/Safety stitching

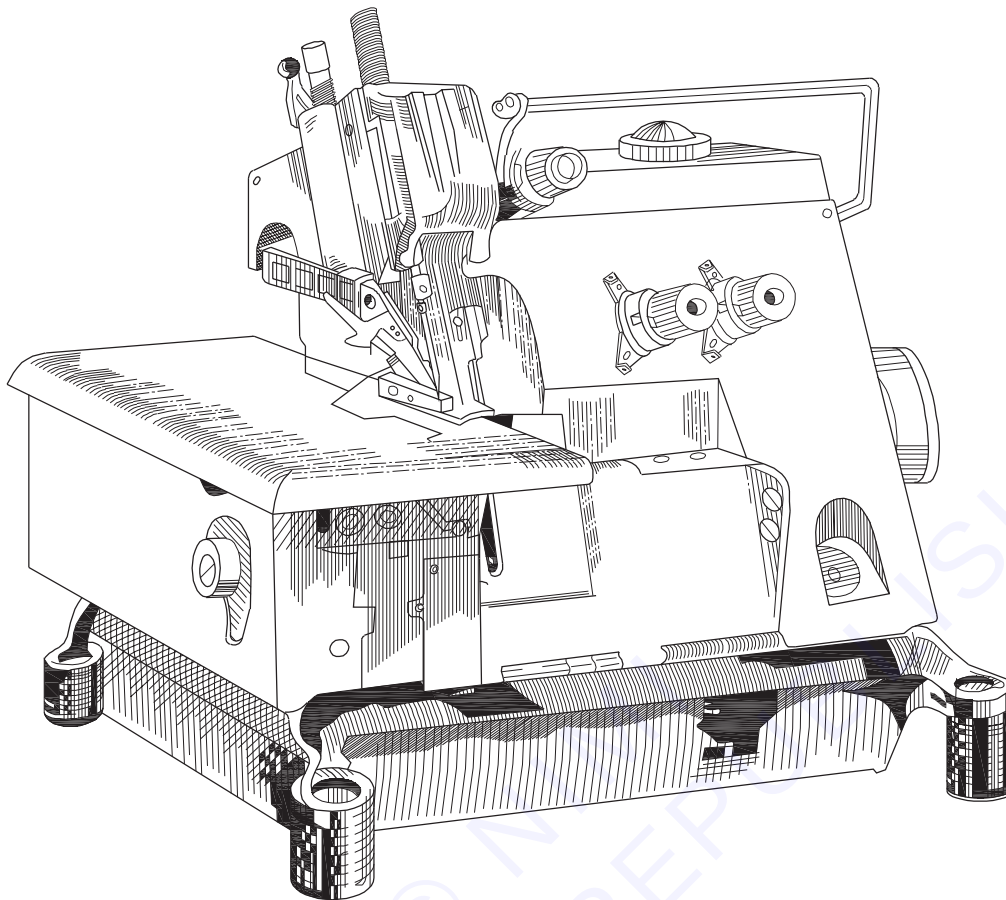
At the end of this exercise you shall be able to

- identify the parts of over lock machine components
- thread the over lock machine
- adjust the stitch length
- change differential feed mechanism.

TASK 1: Identify the major parts of over lock machine (Fig 1)

- 1 Oil window glass :** It is used to indicates the oil level in the oil tank
- 2 Balance wheel:** On the balance wheel the stitch length specification is given.
- 3 Side plate :** After threading the looper and during stitching ensure the plate to be closed completely.
- 4 Tension disc :** For 5 thread over 2 needle thread tension disc and 2 looper tension is given.
- 5 Presser foot pressure hub :** Based on the fabric the tension will be adjusted by using pressure foot hub.
- 6 Presser foot :** Compensating pressure is given to hold the fabric and avoiding ply shift.
- 7 Feed dog :** Differential feed dog is placed.
- 8 Knife :** Adjacent the needle, the blade is placed to cut the raw edges and then start the sewing process.

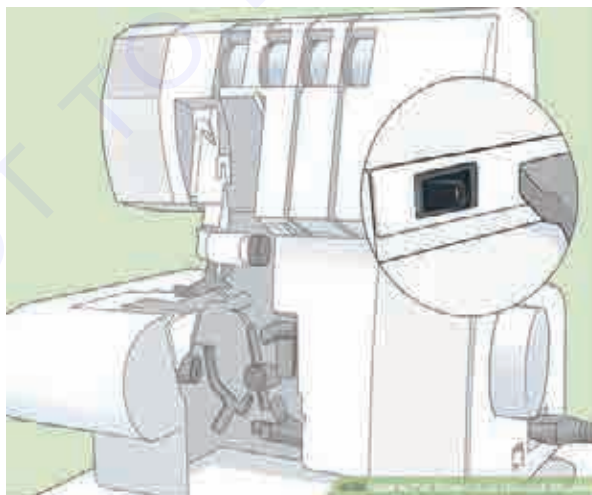
Fig 1



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TASK 2 : Threading the overlock machine (Fig 1)

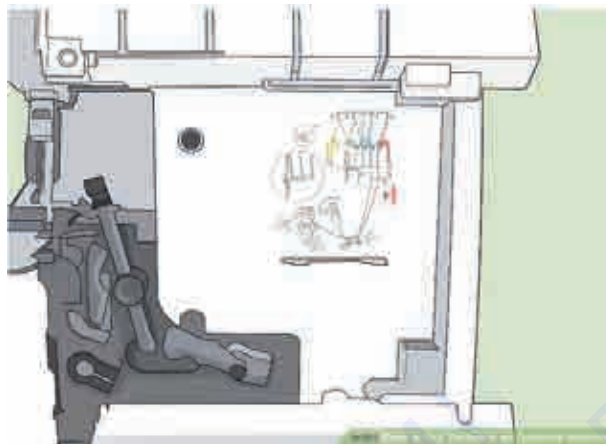
Fig 1



1 Turn off and flip open the cover on your overlock machine. Make sure the machine's power switch is set to the off position. Flip the looper cover door down, which is the door in the bottom right-hand corner of the front of the machine, to expose the threading pathway loops and hooks.

- The threading pathway loops and hooks are what you have to pass the thread through to set up your machine.
- Some overlock machines have handy tools on the inside of the looper cover door that you can use to help you thread it. For example, you might find a pair of tweezers, a screwdriver, and a needle threading tool. (Fig 2)

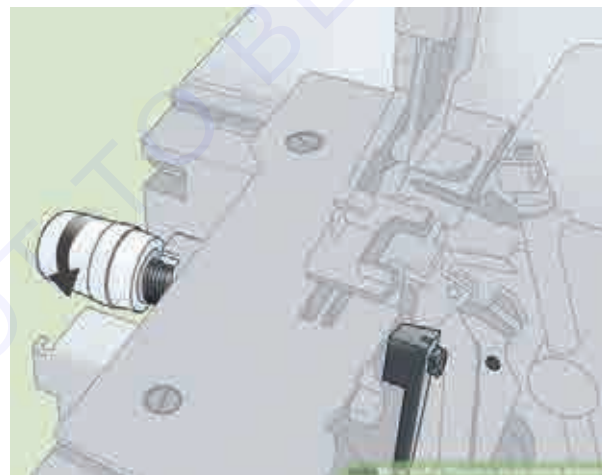
Fig 2



2 Raise the machine's presser foot using its lever. The presser foot is the foot-shaped metal piece that holds the fabric flat while you feed it through the machine to keep your sewing on track. Lift this foot up by raising the lever beside it to release tension on the tension disks and make the machine easier to thread.

- You can also remove the presser foot entirely to expose the threading path at the stitching plate and make it even easier to thread. There is usually a button at the back of the foot that you can press to take it off. (Fig 3)

Fig 3



3 Turn the handwheel to set the needles in the highest position. Move the machine's handwheel until the red line on the wheel lines up with the arrow on the needle position window. This lets you know that the machine's 2 needles are in the highest position.

- Some overlock machines stop with the needles automatically in the highest position. If this is the case for your machine, you don't have to go to the trouble of manually raising the needles. (Fig 4)

Fig 4



- 4 Place your selected thread spools on the thread stand spool holders. Lift up the retractable thread stand at the back of your overlock machine. Put a spool of thread on each one of the spool holders on the thread stand. Pull the end of the thread from each spool into the thread guide on the top of the thread stand.
- Overlock machines can hold from 3-5 thread spools, depending on the make and model. You don't necessarily have to fill all the thread stands, but use at least 2 spools of thread.
 - It's always best to use the same type of thread on all the spools of an overlock machine, so you get the same size of stitch from each thread.
 - If you just want to practice using your overlock machine, try using a different color of thread for each spool. That way, you can see clearly which spool creates which part of the stitch.

TASK 3 : Passing threads through the looper paths (Fig 1)

Fig 1



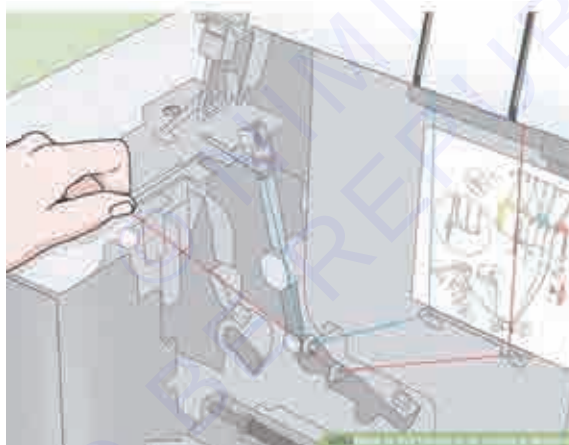
- 1 Slip the threads through the pre-tension guides and the tension disk grooves. Slide the end of each thread into the corresponding pre-tension guide. Pull each thread down through the groove in front of the pre-tension guide and down into the tension disk.
- The pre-tension guides look like little hooks or clips on top of the sewing machine, right in front of each spool holder.
 - The tension disks are round knobs on the front of the machine, directly opposite each spool holder on the back of the machine. (Fig 2)

Fig 2



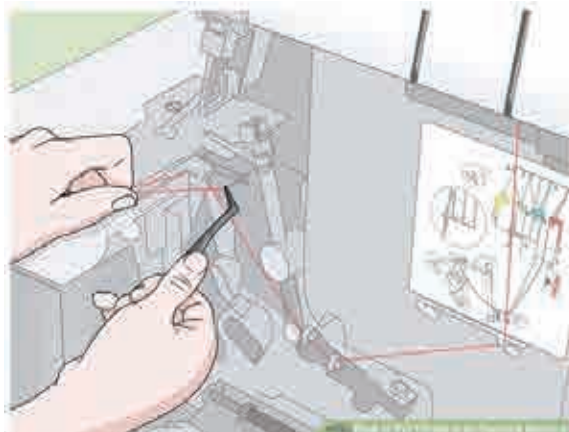
- 2 Pull each thread through the color-coded guides for that spool. Most overlock machines have a handy color-coded diagram and colored dots that show you where each thread is supposed to pass through. Follow this diagram and pass each thread through the color-coded hooks and loops for that spool of thread.
 - You can use a pair of tweezers to make it easier to pass the thread through all the holes. This is especially helpful for the final holes underneath the presser foot. (Fig 3)

Fig 3



- 3 Pass the ends of the threads behind the presser foot. Pull the end of each thread underneath the presser foot and towards the back of the machine. Do this for each thread after you pass it through the final hole near the presser foot.
 - This will allow you to thread the needles correctly. (Fig 4)

Fig 4



- 4 Slide the threads onto the needles using a needle threading tool. Pass the end of the thread horizontally through the slit in the needle threading tool. Slide the tool down the shaft of the needle until the end of the thread is close to the eye of the needle.
- There are 2 needles on an overlock machine. If you're only using 2 spools of thread, you might only use 1 of the needles. If you're using 4 spools, you will need to thread both needles.
 - The color-coded diagram on your machine will show you which thread goes to which needle.
 - If you are only using 1 needle, remove the other needle. Otherwise, you can end up with an ugly stitch. (Fig 5)

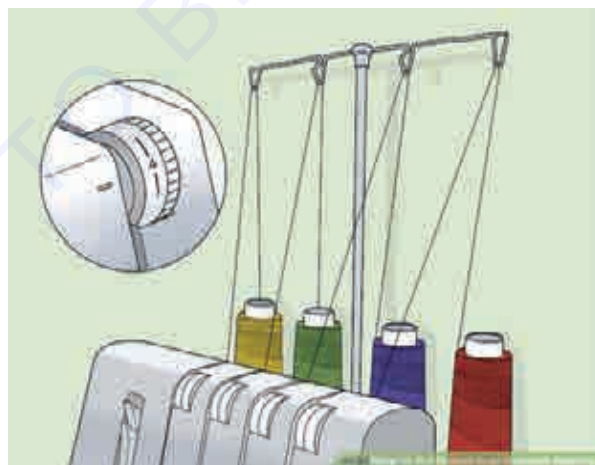
Fig 5



- 5 Use the threading tool's hook to pull the thread through the eye of the needle. Carefully pull the threading tool away from the needle. Grab the end of the thread with the tool's hook and pull it through the eye of the needle to finish threading your overlock machine!
- You don't have to tie the thread once it's through the eye of the needle.
 - Remember to repeat this for each needle if you are using both of them.

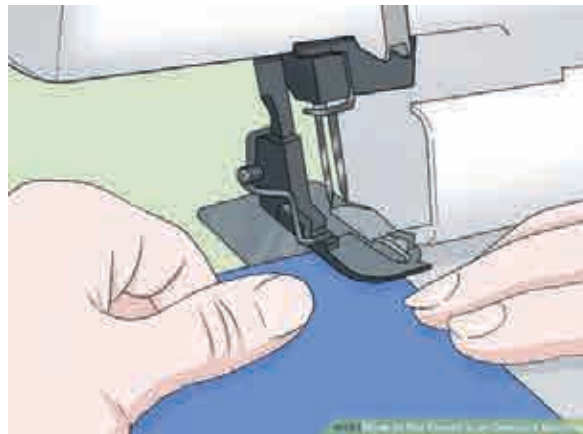
TASK 4 : Getting started sewing (Fig 1)

Fig 1



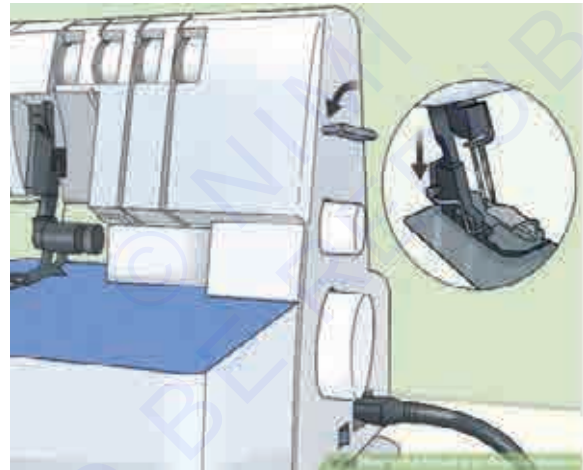
- 1 Set the tension disks to position 4 for a starting default tension setting. Make sure each tension disk for each spool of thread you're using is turned to the number 4. This is the default tension setting for most sewing purposes and a good place to start, unless you already know you want to use a different tension setting.
- With practice, you might choose to increase the tension when you're sewing heavier materials or decrease it when you're sewing more fine materials.
 - Feel free to experiment with the tension to find which tension settings give you a quality of stitch that you're happy with. (Fig 2)

Fig 2



- 2 Position your fabric under the pressure foot. Slide a piece of fabric that you want to sew onto the pressure plate underneath the pressure foot. The pressure foot must still be raised in order for you to slide your fabric under it.
 - It's a good idea to practice sewing on a scrap piece of fabric first. That way, you can check the quality of the stitch and make adjustments to the thread or tension if you want to. (Fig 3)

Fig 3



- 3 Lower the pressure foot back down by moving its lever. Press the lever next to the pressure foot all the way down to lower it. This will put tension on the thread and hold your fabric in place on the pressure plate.
 - If you don't remember to lower the pressure foot back down, there won't be enough tension on the threads and you won't be able to guide your fabric well, so you'll end up with a messy stitch. (Fig 4)

Fig 4



- 4 Sew and check the stitch chain to see that it is neat and uniform. Turn the needle hand wheel towards you 2-3 times to get the stitch started, then use the foot pedal to keep sewing. Guide your fabric underneath the needle, then look at the stitch once it's long enough to see and check for quality.
- If the stitch is not uniform or is messy, double-check that you threaded the machine properly and set the tension disks correctly.
 - If you passed the threads through the wrong threading paths, you will immediately see that you are not getting a proper chain stitch.

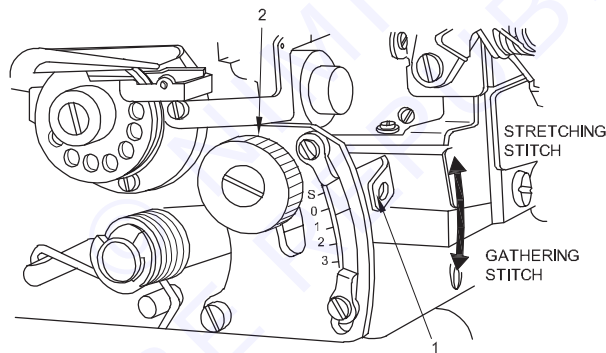
TASK 5: To adjust the stitch length

- 1 Position the needle:** Turn the balance wheel so that the needle is in its highest position.
- 2 Loosen the stitch regulating screw:** Locate the stitch regulating screw (it might be labeled as "stitch length" or similar). Loosen this screw.
- 3 Set the desired length:** Adjust the stitch length to your desired setting. Tighten the stitch regulating screw once you've made the adjustment.

TASK 6 : Change the differential feed mechanism

- 1 Loosen differential feed lock nut . Move lever up for stretching as down form the gather stitch.
- 2 Position 'S' provides a differential feed ratio of 1 : 0, 64, while it provides 1 : 1 stitching stitch.
- 3 Gathering stitch can be set up to a differential feed ratio of 1 : 1 : 76 and up to 1 : 2 : 9 as shown in the Fig 1.

Fig 1



Blind stitch sewing machine

Objectives : At the end of this exercise you shall be able to

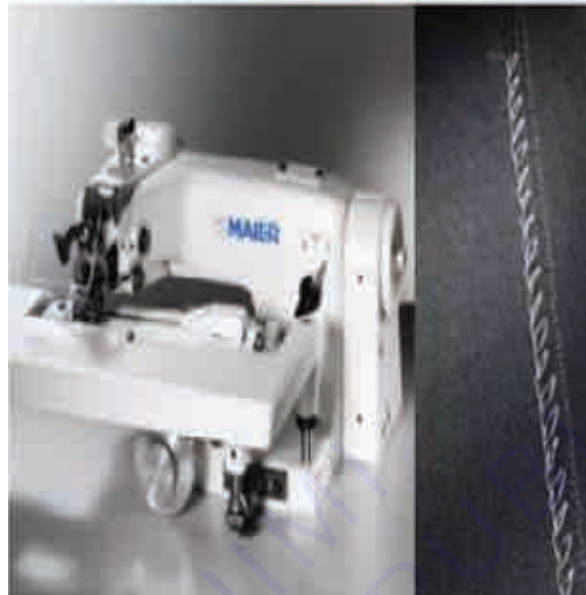
- know about blind stitching machine
- Identify the components of blind stitch machine
- do threading in blind stitch machine
- do the sewing procedure in blind stitch machine.



Introduction to blind stitch sewing machine

- Blind stitch sewing machine for blind stitching is a special type of sewing machine which is used in the garments industries to produce stitches which is not seen on the face side of the fabric is called blind stitch sewing machine. Usually curved needle is used in this machine as it can penetrate in the fabric partially.
- This machine is used for blind stitch hem and attaching the lining to the waistband. Blind sewing machine stitches represent high quality and perform equally well on light to heavy fabrics. (Fig 1)

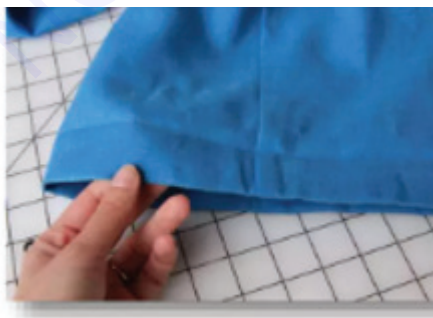
Fig 1



What is a blind stitch?

- A blind stitch in sewing is a method of joining two pieces of fabric so that the stitch thread is invisible, or nearly invisible. Blind stitching hides stitching under folded edges; therefore, this type of stitch can be used to create a blind hem or to join two folded edges together.
- Blind hem stitches are completely hidden on the front of the garment and almost completely hidden on the inside of the garment. The sewer catches only a few threads of the fabric each time the needle is pulled through the fabric, which means that the majority of the stitching is hidden inside the hem.
- Blind stitching is useful when joining two folded edges together, as the thread is only visible when the folded material is pulled away. This technique allows the sewer to invisibly attach pockets, facings and trimmings to a garment.
- A slip stitch or catch stitch can be used to create the blind stitch, except that they are worked inside the hem, 1 to 1 inch (3.2 to 6.4 mm) away from the edge of the hem fabric. (Fig 2)

Fig 2



Features of blind stitch machine

- **Off-stitch prevention:** Off-stitch can be prevented because this is stepped part detection type.
- **Guide fix:** table seam can be obtained and very beautiful sewing will result because the blind-hemming guide is fixed securely with the solenoid during sewing
- **Easy guide operation:** The blind-hemming guide is raised by pressing the knee switch lightly and manual raising is unnecessary, and the beautiful sewing finish.
- **Easy interchanging to plain sewing (with TC device only):** When CH device swings out frontward and the lever of TC device moves to plain sewing direction, the tension changes from blind hemming to plain sewing and easy plain sewing is possible.
- **Easy cleaning:** Swing-out type of CH device can be easy to clean the device.

More technical features are listed below:

- Sewing speed is up to 3000 stitches/min
- Clearance between needle and looper point machine which can be easily lever adjusted when changing the needle count.
- Fabric penetration by the curved needle is partial. (Fig 3)

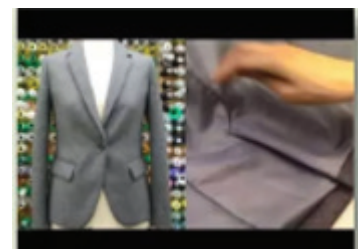
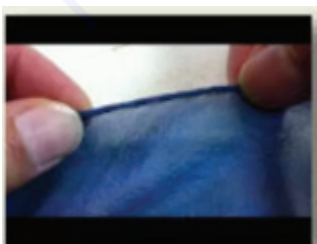
Fig 3



Three basic types of blind stitch machine

- 1 **Blind stitch** - Blind stitch machine makes a 1 thread stitch which on the face side of the fabric appears to be hidden.
- 2 **Hand roll blind stitch** - Hand roll Blind stitch is a specialized machine designed to produce a small rolled stitch on the edge of fabric to resemble hand stitching such as is often found on scarves.
- 3 **Lockstitch blind stitch** - Lockstitch Blind stitch machine is similar to the Blind stitch machine except that it locks each individual stitch, creating a stronger and more durable stitch. This machine, with a top bobbin and curved needle is used to make suit jacket seams. (Fig 4 & 5)

Fig 4



Technical specification

Stitch Specifications	Single thread or double thread chain stitch blind stitch
Speed	Max. 1200 s.p.m.
Bed type	Feed of the arm
Feed mechanism	Elliptical feed
Presser foot	Blind hem foot
Work aid	movable table and presser foot
Stitch Length	3-8 mm
Skip Length	No skip (1:1)
Stitches per inch	7
Seam	Super imposed
Stitch class	100 class
Stitch type	chainstitch
Needle	LW x 6T (Organ Needle Japan)
Motor	Clutch (200 W.4 - poles) or AC/Servo-Motor

Fig 5



How do you use a blind stitch on a sewing machine? (Fig 6)

- 1 Press the raw edge by about 1½ inch or zigzag it if you're using a heavy fabric
- 2 Press the edge again by the seam allowance and pin
- 3 Fold the hem backward, so you'll be left with around 1/8 inch of material poking out the edge
- 4 Select the blind stitch setting on the sewing machine with the stitch set to 2 in width and length
- 5 Remove the current foot and put in the blind hem foot on the sewing machine
- 6 Place the fabric under the machine and align the foot guide with the folded edge
- 7 Begin sewing as usual and then fold the hem down to pull the stitches vertically

Fig 6



TASK 1: Main components of blind stitch machine (Fig 1)

- 1 Needle
- 2 Motor
- 3 Belt
- 4 Presser foot
- 5 Feed dog
- 6 Looper
- 7 Skip stitch selector
- 8 Ridge forming regulator

Adjustment points:

- 1 Thread
- 2 Tension
- 3 Needle
- 4 Pressure foot
- 5 Stitch density
- 6 Looper.

Presser foot

- Hold the fabric
- Keep feeding smoothly.

Blind stitch needle

- It is curve in shape in order to successively penetrate partially into the fabric and then into the hem edge.
- It is minimally shown on right side of the garment.
- Needle size:-LWx6T(11-18)

Blind stitch formation

- A derivative of stitch type 101 is stitch type 103 known as single thread Blind stitch or Blind hemming. The needle thread inter loops with a blind looper on the surface of the material. (Fig 2)

Fig 1

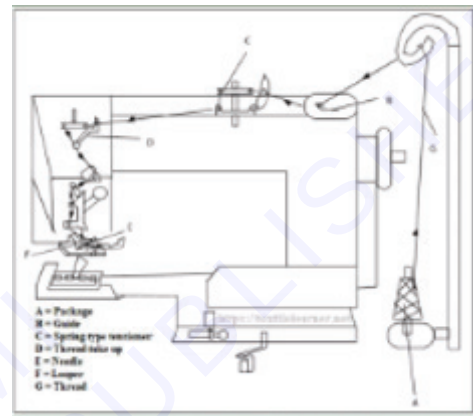
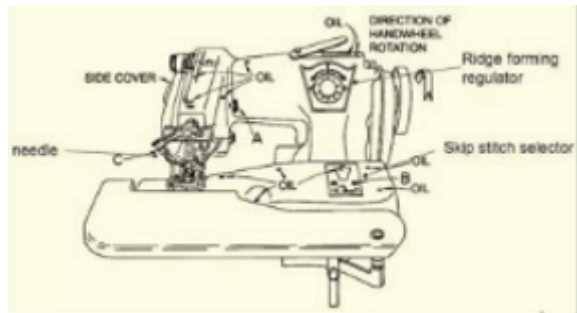


Fig 2

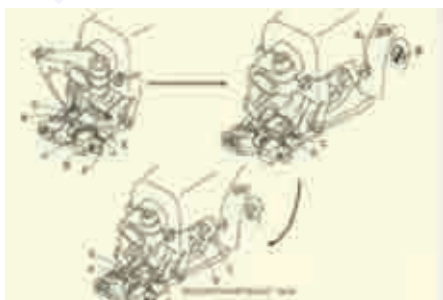
Presser foot



Blind stitch needle



Blind stitch formation



Blind stitch looper

- It catches the loop form by needle thread and help in forming stitch.
- It is situated above the bed of the machine

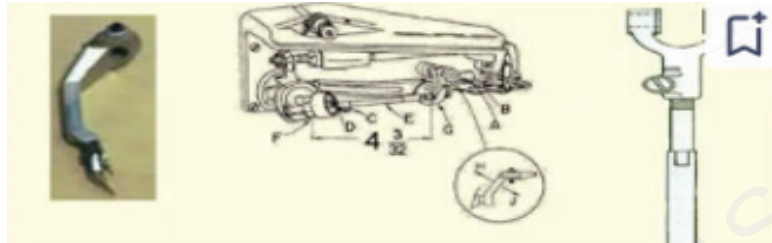
Ridge forming regulator

- To obtain desired depth of felling stitch

Threading

- A total of 12 thread guides.
- Thread tension should be as weak as possible without loosing good balance of sewing. (Fig 3)

Fig 3



Looper

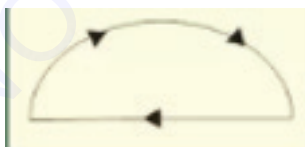


Regulator



Threading

Motion of
Feed dog:



Working principle

The stitch produced by this machine in the fabric is not shown from face side and so this is called blind stitch machine. Usually curved needle is used in this machine as it can penetrate in the fabric partially. The needle comes out from the side of the fabric through which it penetrated. Again in maximum blind stitch machine optional skip device is attested by which it is possible to penetrate the outside layer after one or two stitch. The speed of this type of machine is up to 2500 SPM and the stitch length can be 3 to 8 mm long. Usually one thread is used to make the stitch but two threads may also be used. In case of two threads blind stitch, it is safe from opening. Mainly for attaching hemming or facing this machine is used. (Fig 4)

Fig 4



TASK 2: How do you use a blind stitch sewing machine?

- 1 Refer to the manual of the specific blind stitch sewing machine you have
- 2 Turn on the motor and power switch
- 3 Fold the cloth in two and insert it into the blind-hemming guide of the machine
- 4 Pull the guide down horizontally and raise the presser foot
- 5 Place the fabric under the foot, then lower the foot to secure it for sewing
- 6 The blind-hemming guide on the machine will be fixed with the solenoid, so when the stepped part passes through it, the slide edge guide will move to the right
- 7 Push the knee switch to raise the blind-hemming guide when the starting point is getting near to the guide
- 8 Finish your stitches (Fig 1)

Fig 1

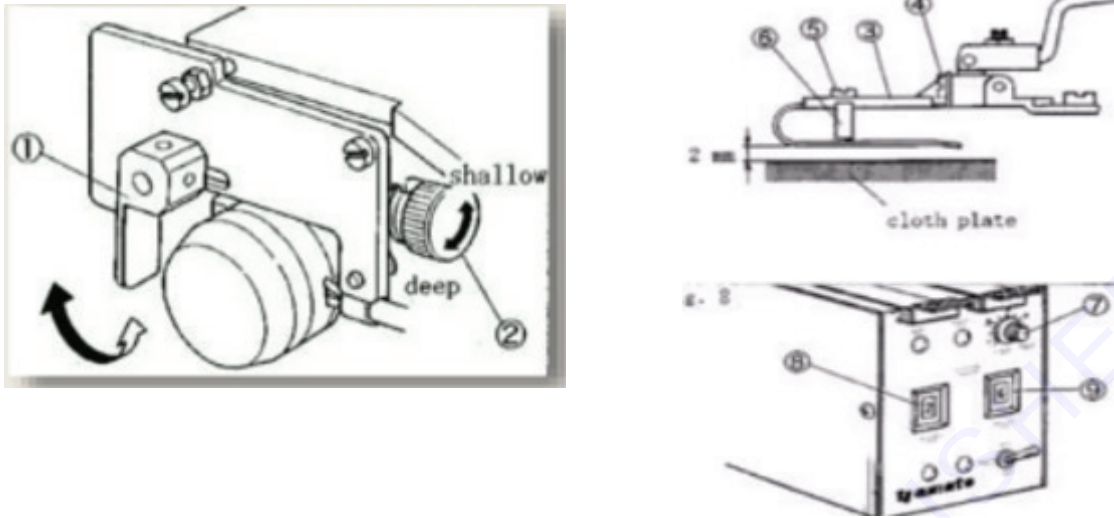


TASK 3: Standard adjustment of hemming operation

- Adjust the differential feeding amount depending on a fabric.
- To set the blind-hemming edge guide as standard, align the left side of the slide edge guide with that of the needle
- Loosen the adjusting lever (1) and turn the adjusting screw depending on the stitch depth.
- To make the stitch deep, turn the adjusting screw (2) towards right.
- To make the stitch shallow, turn the adjusting screw (2) to the left.
- After setting the blind-hemming edge guide, fix the adjusting level (1)

- Make the standard height of the blind-hemming edge (3) 2mm above the top of the cloth plate. Loosen the screw (4) to adjust the height to feed a heavy weight fabric smoothly.
- Loosen the screw (5) and move the hemming positioner (6) right or left to adjust the hemming width. (Fig 1)

Fig 1



Application

- Blind stitching hides stitching under folded edges; therefore, this type of stitch can be used to create a blind hem or to join two folded edges together
- For sewing all types of light to medium- weight materials including synthetics, knits and woolsens.
- Typical sewing operations include pant cuffs, felling slack bottoms, hemming dresses, skirt and coat bottoms, draperies, negligees, undergarments, lapel padding, blouses and sleeves.
- Ideal for alteration rooms, clothing rentals, dry cleaners, department stores, dressmakers and home use. (Fig 2)

Fig 2



Disadvantages

- 1 It uses a bobbin to provide the lower thread.
- 2 Bobbin can only contain a limited length of that thread.
- 3 Running out of thread is very poor, where a join is visually unacceptable.
- 4 Major problems occur on bobbin running, which involved loss of stitching.
- 5 Unsuitability for edge neatening. (Fig 3)

Fig 3

**Safety of blind stitch machine**

- This machine can only be used for the blind stitch purpose.
- Other uses of this machine are not allowed. Any modification or conversion made on this machine must be conformed with the safety standards and regulations. Precaution is necessary.
- For the safety of operators and services persons, please don't open the cover of any electronic control boxes of the motor or other devices and don't touch any components inside to avoid electrical shock hazards.
- Please never operate this machine without belt cover, figure guard or any safety devices to avoid physical injury.

Conclusion

Blind stitch machine is one of the important sewing machines in garment factory of making a complete garment. This type of machine cannot be used for normal purpose. But for making a complete garment their importance cannot be denied. Special care and sufficient knowledge is necessary for proper working. Otherwise faulty sewing may be done.

Practice on operations of button hole machine

Objectives : At the end of this exercise you shall be able to

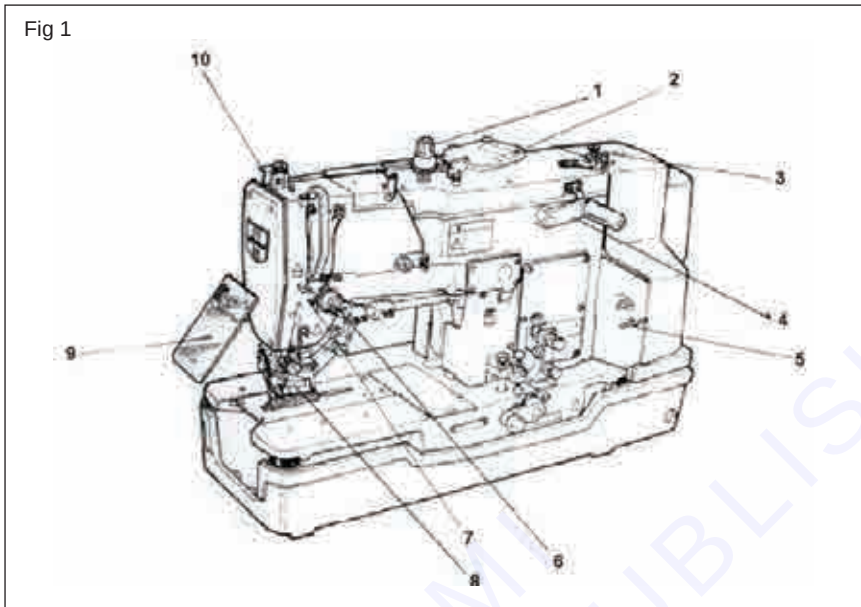
- identify the button hole stitching machine parts
- thread the button hole machine
- install and remove the bobbin case
- reduce the speed of the machine
- change the number of stitch length.

TASK 1: Identify the button hole stitching machine parts (Fig 1)**Machine parts**

- 1 Thread tension disc.
- 2 Speed gear for changing the number stitches in buttonhole.
- 3 Bobbin winder.
- 4 Emergency stopper.
- 5 Bobbin winder.

- 6 Thread tension (needle tension) disc.
- 7 Spring guard.
- 8 Knife for making the hole after stitching the button hole.
- 9 Window glass.
- 10 Knife stop lever.

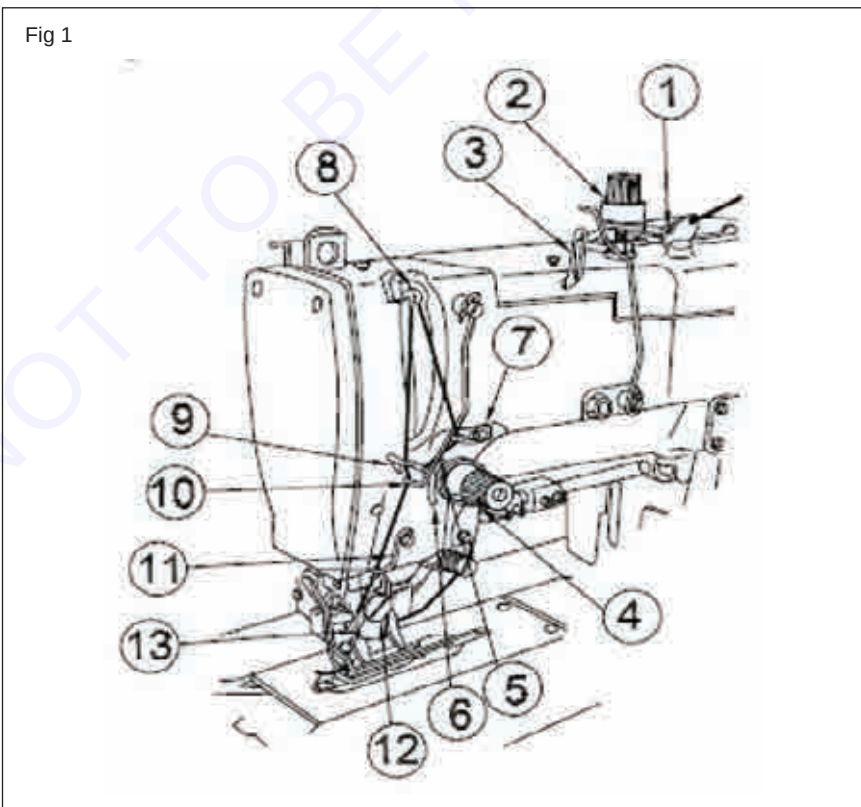
Fig 1



TASK 2: Thread the button hole sewing machine

- 1 Pass the needle thread from the spool stand to the thread guide. (Fig 1)
- 2 Pass the thread from left to right to the thread tension disc.

Fig 1

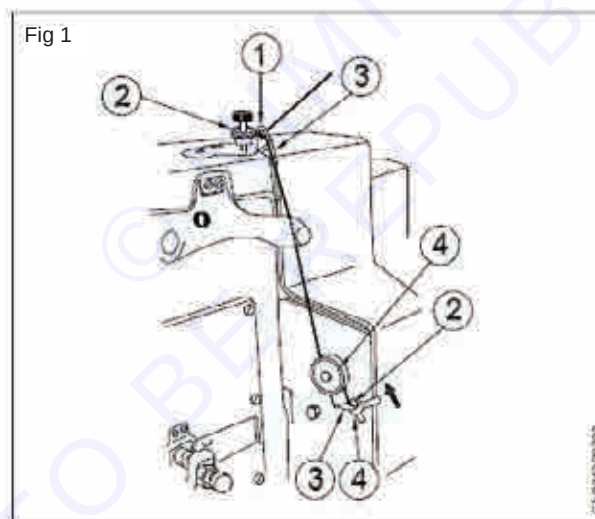


- 3 Then pass the thread to another thread guide from front to back.
- 4 Pass the thread to the thread tension disc from down to top direction.
- 5 Pass the thread from tension disc to spring guide.
- 6 Pass the thread to the thread guide
- 7 From the thread guide to 'T' guard pass the thread
- 8 Bring the thread from 'T' guard to take up lever. Back To front pass the thread.
- 9 Then take up lever to pull the thread towards to down thread guide.
- 10 Finally pass the thread to adjusting thread guide pass the thread.
- 11 Pass the thread to 11 and 12 thread guide (in case of sewing thread cotton pass the thread to 12 guide directly).
- 12 Finally pass the thread into needle from back to front threaded.

Repeat the exercise for four or five times

TASK 3: Install and remove the bobbin case in the button hole machine

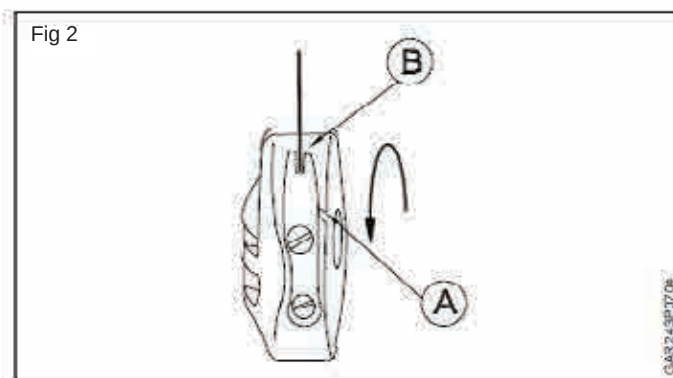
- 1 Fit a bobbin onto the bobbin winder shaft.
- 2 Take the thread from the spool and pass it through the guide. (Fig 1)



- 3 Push bobbin winder trip latch in the arrow direction and then bobbin will be wound.
- 4 Loosening the adjusting nut so that the bobbin is wound about four – fifths full.

Attach the bobbin into the bobbin case

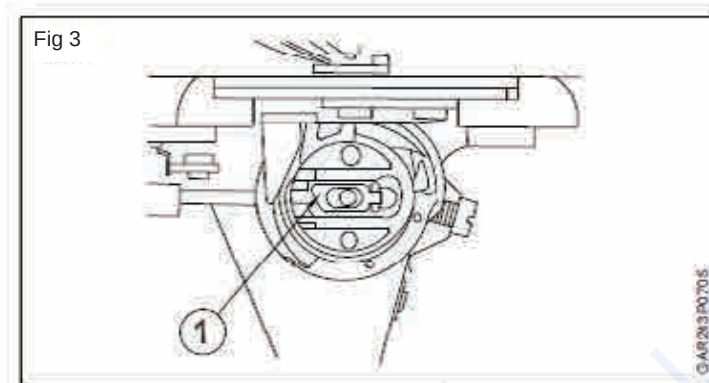
- 1 Hold and place a bobbin into the bobbin case so that the bobbin is wound counter clockwise. (Fig 2)



- 2 Passing the thread through the thread outlet A of the bobbin case, pull the thread and thread can be drawn out from the thread outlet B, passing under the bobbin winder tension spring.
- 3 Set the bobbin so that in the arrow direction when the bobbin thread is pulled.

Installation/Removal of bobbin case

- 1 Lift up and hold bobbin case latch lever between two fingers to remove it from the hook. A bobbin does not fall off the bobbin case while the latch lever is lifted up.
- 2 For installation of the bobbin case push the bobbin case into the hook, so that it is supported by the hook shaft and the snap in the latch cover. (Fig 3)



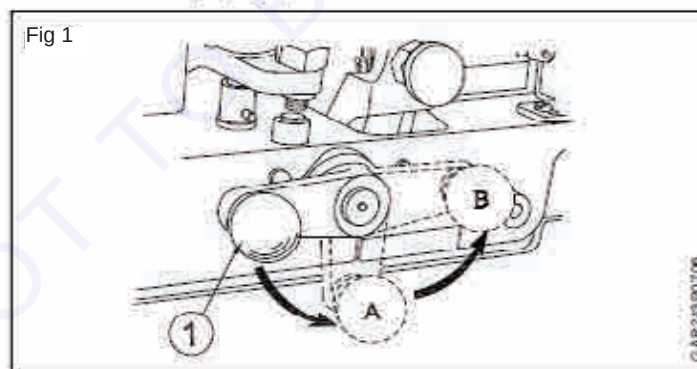
TASK 4: Reduce the speed of button hole sewing machine, emergency stop motion and manual feed handle

Reduce the speed of button hole sewing machine

- 1 To reduce the speed of sewing machine turn hand stop crank downwards to position A and the machine will be immediately slow down.

Emergency stop motion

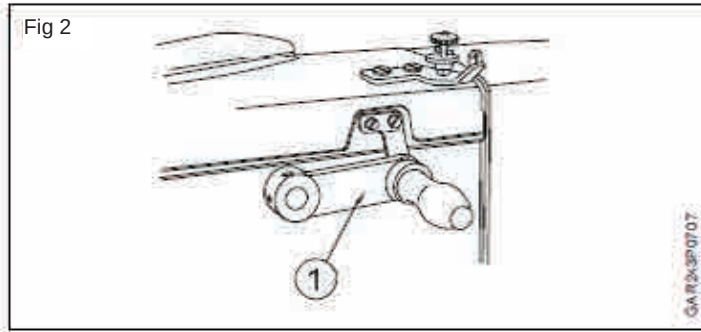
- 2 Turn the hand stop crank downward to position A further upwards to position B and the machine will stop immediately. (Fig 1)



To operate the manual feed handle

- 3 After giving emergency stop to resume sewing from the point at which the thread was broken, rotate the manual feed handle to operate the cloth feeding mechanism. (Fig 2)

Fig 2

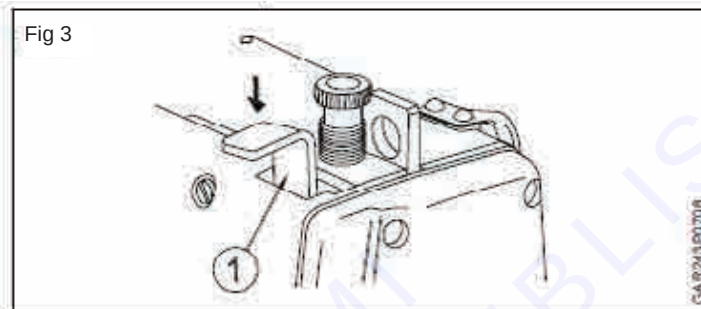


GAR243P0707

To stop the knife descend knife latch

Thread breakage occurs after sewing due to some other reasons, keep on pressing down knife stop lever lightly until the machine stops then the knife will not cut the fabric. (Fig 3)

Fig 3

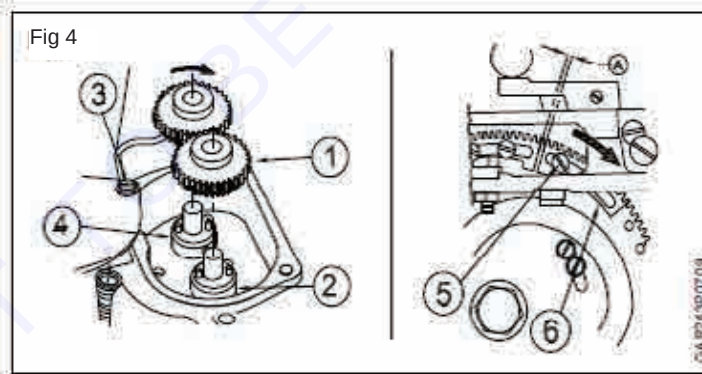


GAR243P0708

Attach speed gear to the shafts

- 1 Push gear into the shaft so that it is securely fixed by the pin on gear bushing.
- 2 Located to an open
- 3 For installing gear on the pin rear gear bushing.
- 4 Push gear into the shaft while turning it the arrow direction. (Fig 4)

Fig 4

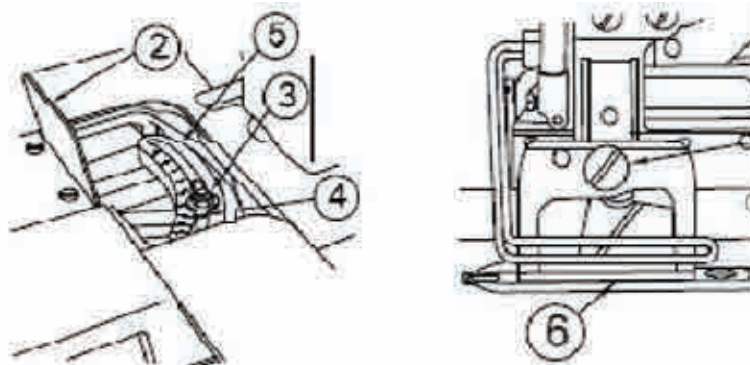


GAR243P0709

Adjust the length of the button hole

- 1 Pull out the cover
- 2 Raise the cover
- 3 Loosen the nut by using spanner
- 4 Set the point to a desired length on scale. Then tighten the nut. Then through the trial sewing adjust the length of button hole as per requirement. (Fig 5)

Fig 5

**TASK 5: Change the number of stitches in the button hole machine**

- 1 The number of stitches in button hole decided by the combination of speed gear. Details are given in the following table. Select the speed gear and decides the number of stitches in the button hole.
- 2 In the table alphabetical marks like A, B, C etc., numerals like 132, 152 etc., are both engraved on each speed gear for identification. Use combination of gears which have the same alphabetical marks.
- 3 The numerical engraved on the gear installed in the rear position will represent the number of stitches provided by the combination of speed gear as shown in the table.

Symbol			Symbol		
I	54	345	A	93	200
J	62	300	B	100	190
K	66	285	C	105	180
L	70	268	D	110	170
M	72	252	E	115	160
N	79	238	F	123	152
O	83	225	G	130	145
	88	212	H		

Practice on operations of bar tack machine

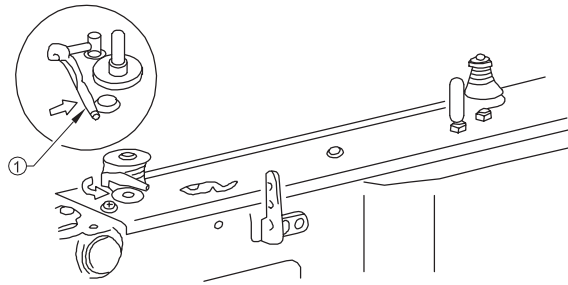
Objectives : At the end of this exercise you shall be able to

- wind the lower thread on bar tacking machine
- practice upper threading on bar tacking machine
- fix the bobbin case on bar tacking machine
- practice sewing on bar tacking machine and adjust the thread tension

TASK 1 : Wind the lower thread on bar tack machine.

- 1 Place the bobbin all the way onto the shaft.
- 2 Fix the sewing thread cone at the spool pin and thread through the thread guide and tensioner and wind the thread around the bobbin several times in the direction of the arrow, and then press the bobbin presser. (Fig 1).

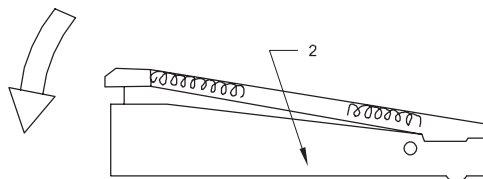
Fig 1



SWC22P0087

- 3 Turn on the power switch. (The POWER indicator on the operation panel will illuminate).
- 4 Depress the foot switch (2) to move the feed mechanism to the sewing start. (Fig 2)

Fig 2



SWC22P0088

- 5 Check that the needle is not touching the presser foot, and then while pressing the BOBBIN.WIND switch (3), depress the foot switch (2) to start the machine. Keep depressing the foot switch (2) until the lower thread stops being wound onto the bobbin. (Fig 3).

Fig 3



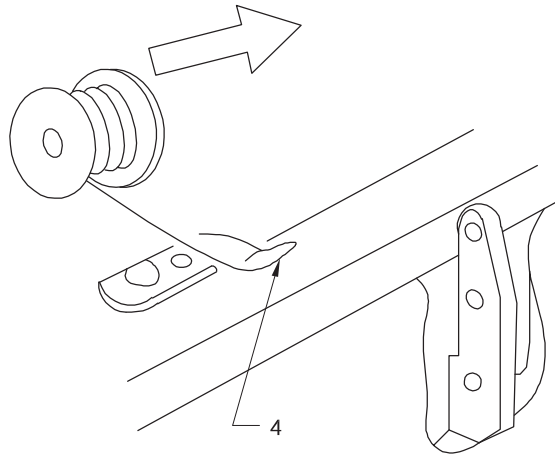
SWC22P0089

(Release the BOBBIN.WIND switch (3) after the machine starts operating. If you release the foot switch before winding is completed, depress it once more while pressing and holding the BOBBIN.WIND switch (3))

The bobbin presser (1) will automatically return to its original position after a set amount of thread (80 - 90% of the bobbin capacity) has been wound on.

- 6 Release the foot switch (2).
- 7 Remove the bobbin, hook the thread onto the knife (4), and then pull the bobbin in the direction of the arrow to cut the thread. (Fig 4).

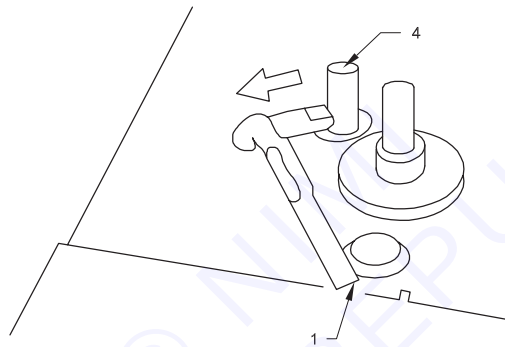
Fig 4



SWC22P0090

- 8 To wind more thread onto the bobbin, loosen the set screw (5) and pull the bobbin presser (1) outward. (Fig 5)

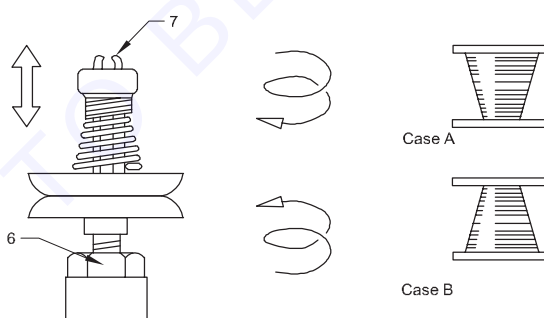
Fig 5



SWC22P0091

- 9 If the thread winds on as shown in A, Turn the bobbin winder thread tension shed (7) clockwise, If it winds an as shown in B turn the bobbin winder thread tension stud (7) counter clockwise (Fig 6)

Fig 6

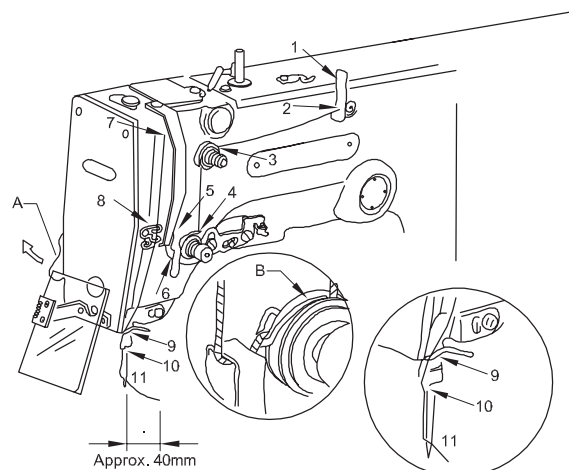


SWC22P0092

TASK 2 : Practice upper threading on bar tacking machine

- 1 Place the sewing thread on spool pin and draw it through thread guides(1) & (2) and through the tensioners (3) & (4).
- 2 Pass the thread through the guides (5) & (6) and take up lever (7). Draw the thread through guides (8), (9) & (10) and finally insert it into the needle hole (11).
- 3 Make the thread has the length atleast 4 cms, from the needle hole. (Fig 1)

Fig 1

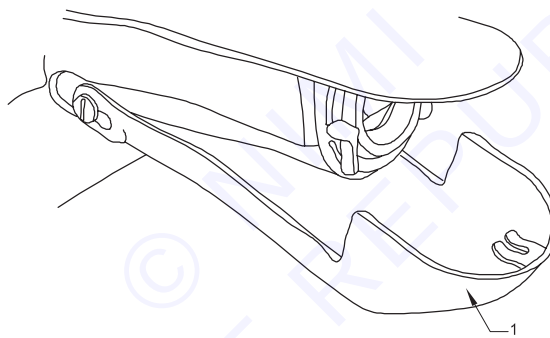


SWC22P093

TASK 3: Fix the bobbin case on bar tacking machine

- 1 Pull the shuttle race cover (1) toward you to open it. (Fig 1)

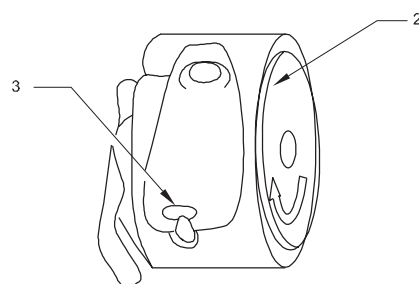
Fig 1



SWC22P094

- 2 Insert a new bobbin into the bobbin case, and then pass the thread through the slot(2) and pull it out from the thread hole (3). Check that the bobbin turns in the direction of the arrow when the thread is pulled at this time. (Fig 2).

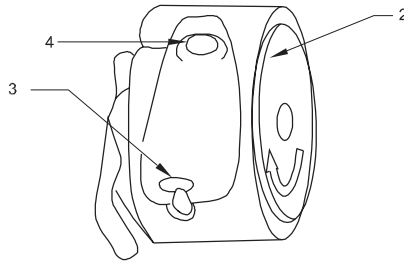
Fig 2



SWC22P095

- 3 Pass the thread through the lever thread hole (4), and then pull out approximately 30 mm of thread. (Fig 3).

Fig 3

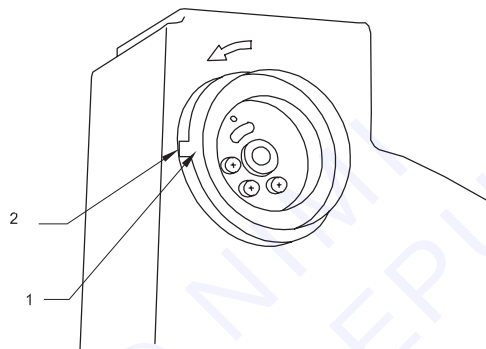


SWC22P0086

TASK 4: Practice sewing on bar tacking machine and adjust the thread tension

- 1 Check that the needle bar is at its highest position. Turn the machine pulley so that the index mark (1) on the pulley is between the marks(2) on the belt cover. (Fig 1)

Fig 1

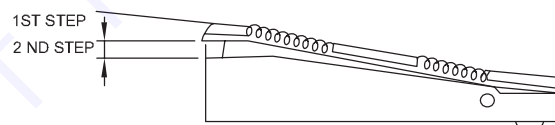


SWC22P0087

If the machine pulley stop position is incorrect, error “E-50” may be displaced, or the wiper may come into contact with the needle and break the tip of the needle.

- 2 Turn on the power switch. (The POWER indicator will illuminate and the program number will flash in the display).
- 3 Depress the foot switch to the 2nd step (For two-pedal foot switch, depress the start switch (right side)) as the feed mechanism will move to the starting position and the work clamp will rise. (Fig 2).

Fig 2



SWC22P0088

Note that if the foot switch is pressed to the 2nd step while the program number is illuminated, the machine will start operating.

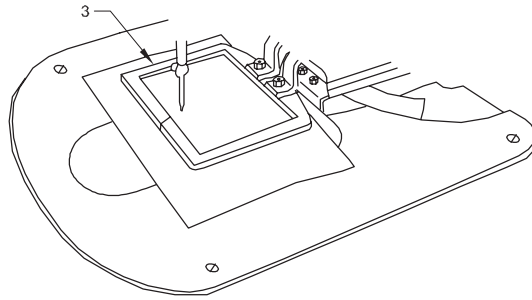
- 4 Place the fabric to be sewn under the work clamp (3), and then depress the foot switch. (Fig 3).

When the foot switch is pressed to the 1st step, the work clamp (3) will lower.

If you would like to shift the position of the material, release the foot switch. The work clamp (3) will then rise again. When the foot switch is pressed to the 2nd step, the machine will start operating.

For two-pedal foot switch, depress the work clamp switch (left side) to lower the work clamp before depressing the start switch (right side) in order to start the machine.

Fig 3



SWC22P0099

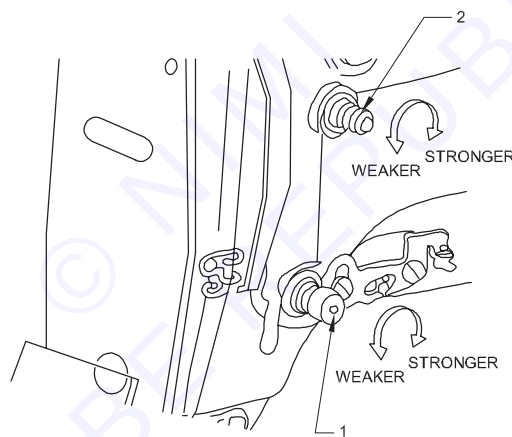
- 5 Observe the stitch appearance and tension of the stitches after completing the sewing. Once sewing is completed and the thread has been trimmed, feed will move automatically to the next starting point and the work clamp (3) will raise.
- 6 Adjust the upper and lower thread tensions if necessary as explained below.

Upper thread tension

Turn the tension nut (1) (main tension) to adjust the tension as appropriate for the material being sewn.

Furthermore, turn the thread nut(2) (sub-tension) to adjust the remaining length of upper thread to 35-40 mm, when the thread take-up lever is not used. (Fig 4)

Fig 4

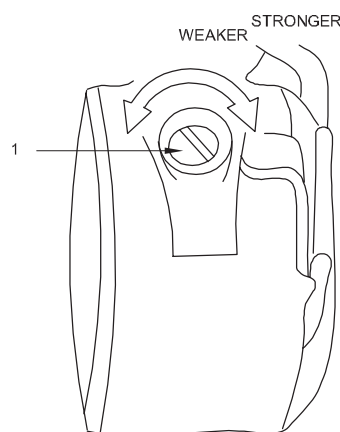


SWC22P0100

Lower thread tension

Adjust the thread tension to the weakest possible tension by turning the thread tension nut (1) until the bobbin case will not drop by its own weight while the thread end coming out of the bobbin case is held. (Fig 5).

Fig 5



SWC22P0101

Turn off the power switch at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

- When threading the needle
- When replacing the needle and bobbin
- When not using the machine and when leaving the machine unattended.

Do not touch any of the moving parts or press any objects against the machine while sewing.

As this may result in personal injury or damage to the machine.

Bartack stitch (Fig 6)

Fig 6



Uses of bar tack machine:

- 1 Attaching belt loops.
- 2 Increasing strength in corner of pocket.
- 3 Closing the two corners of button hole.
- 4 At the end of zipper.
- 5 In that place where more strength is needed to support extra load.

Practice on operations of button sewing machine

Objectives : At the end of this exercise you shall be able to

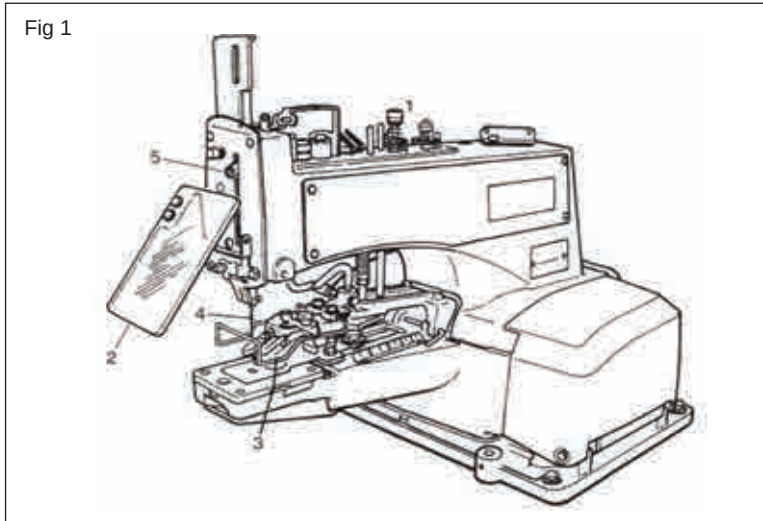
- identify the major parts of button stitching machine
- thread the button stitching machine
- adjust the stitch length.

TASK 1: Identify the major parts of button stitching machine

Name of the machine parts (Fig 1)

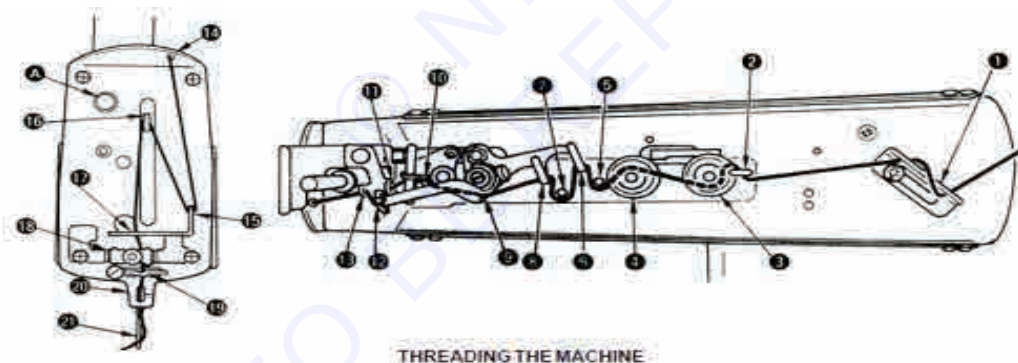
- 1 Needle thread tension disc
- 2 Window glass
- 3 Presser foot
- 4 Needle
- 5 Thread take up lever

Fig 1

**TASK 2: Thread the button stitching machine (Fig 1)**

- 1 Start threading from the spool to thread guide 1 and 2.
- 2 Rotate the thread into tension disc in clockwise direction 3 and 4.
- 3 Put the thread into thread guide 5, 6, 7, 8, 9, 10 and 11, 12, 13.
- 4 Thread the 14th thread guide bring to spring 15, 16, 17 and 18.
- 5 Before threading into needle pass the thread 19 and 20 guide, 21 thread the needle thread from front to back

Fig 1

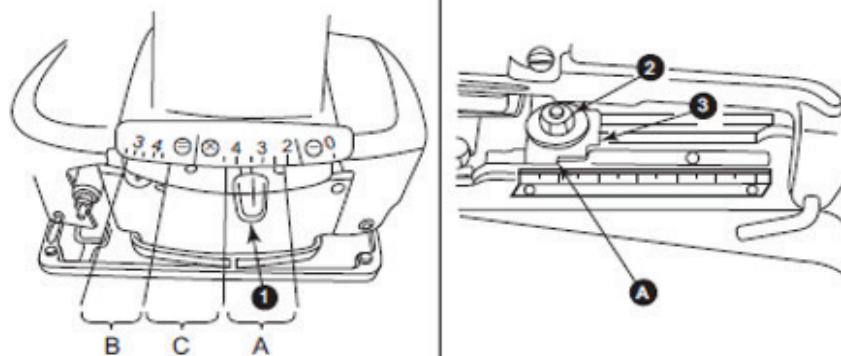
**TASK 3: Adjust the stitch length (Fig 1)****Length wise feed**

- 1 Length wise feed push down the adjusting lever as shown in Fig 1 Pt:1.
- 2 Set the feed to '0' for 2 holes buttons (0) 4 holes buttons

Cross wise feed

Loosen nut as shown in Fig 3 Pt: 2 and set section (a) of pointer (3) to a corresponding amount. Then tighten nut (2) for cross wise feed.

Fig 1



Practice on operation of double needle lock stitch machine

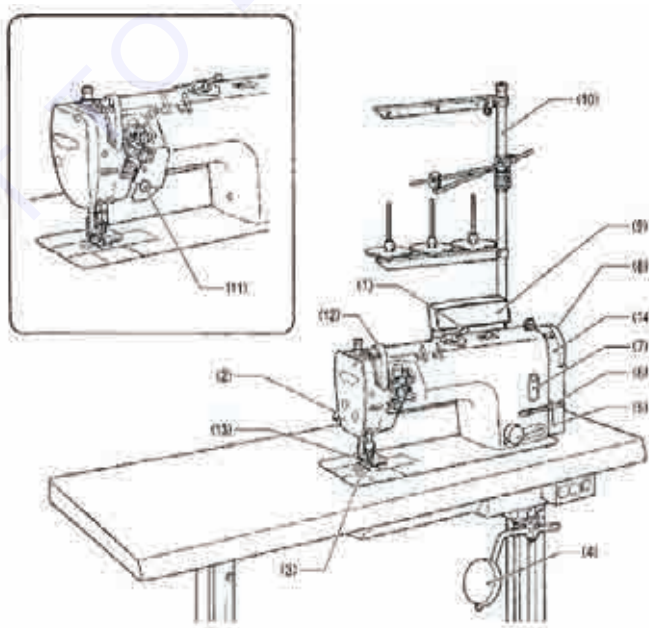
Objectives : At the end of this exercise you shall be able to

- identify the major parts of double needle lock stitch machine and their uses
- wind the lower thread (bobbin) and place bobbin case into lower assembly
- install the bobbin into rotary hook
- remove the bobbin on rotary hook latch
- thread the upper thread
- adjust the stitch length
- identify the corner sewing method
- back tack and adjust the tension of upper and lower thread
- practice stitches per length on different material.

Procedure

TASK 1: Identify the major parts of the double needle lock stitch and their uses. (Fig 1)

Fig 1



Bobbin winder (1)

Wind the Bobbin by placing the Bobbin into Bobbin winder wind around 40 meters of sewing thread.

Ensure the bobbin should not be loaded too much.

Lifting lever (2)

Hand lifter used for lifting the presser foot by hand, while the m/c in ideal condition, use the hand lifter lever.

Presser foot (3)

Presser foot mainly used for hold the fabric during stitching performance.

Knee lifter assembly (4)

Knee lifter is used for lifting the presser foot, ensure. While stitching the knee should not touch the knee lifter. Kneelifter used for to keep the material under the presser to remove the fabric under the needle.

Stitch length dial (5)

It used to maintain the length of stitch as per the fabric. While changing the length of stitch turn the regulator with the right hand and left hand hold the back tack lever.

Reverse lever (6)

It is a reinforcement stitch, used to increase the stitch strength in the end or beginning.

Oil gauge window (7)

It indicates the flow of oil to the internal parts of the machine.

Machine pulley (8)

The diameter of the pulley decides the speed of the sewing machine. The decreasing the size of pulley indicate high speed of machine

Alarm display (9)

It is used to indicate the setting machine stitches and also type of setting is available

Cotton stand (10)

To hold the spool thread. Cotton thread is placed to avoid the vibration of machine.

Stop lever (11)

Stop lever is used to stop the motion of the needle.

Thread – take lever cover (12)

It is used to avoid the accident during the sewing the window glass is placed in a machine thread take up lever.

Finger guard (13)

Safe guard to prevent the finger going under the needle.

Belt cover (14)

To prevent the accident during sewing the belt has cover

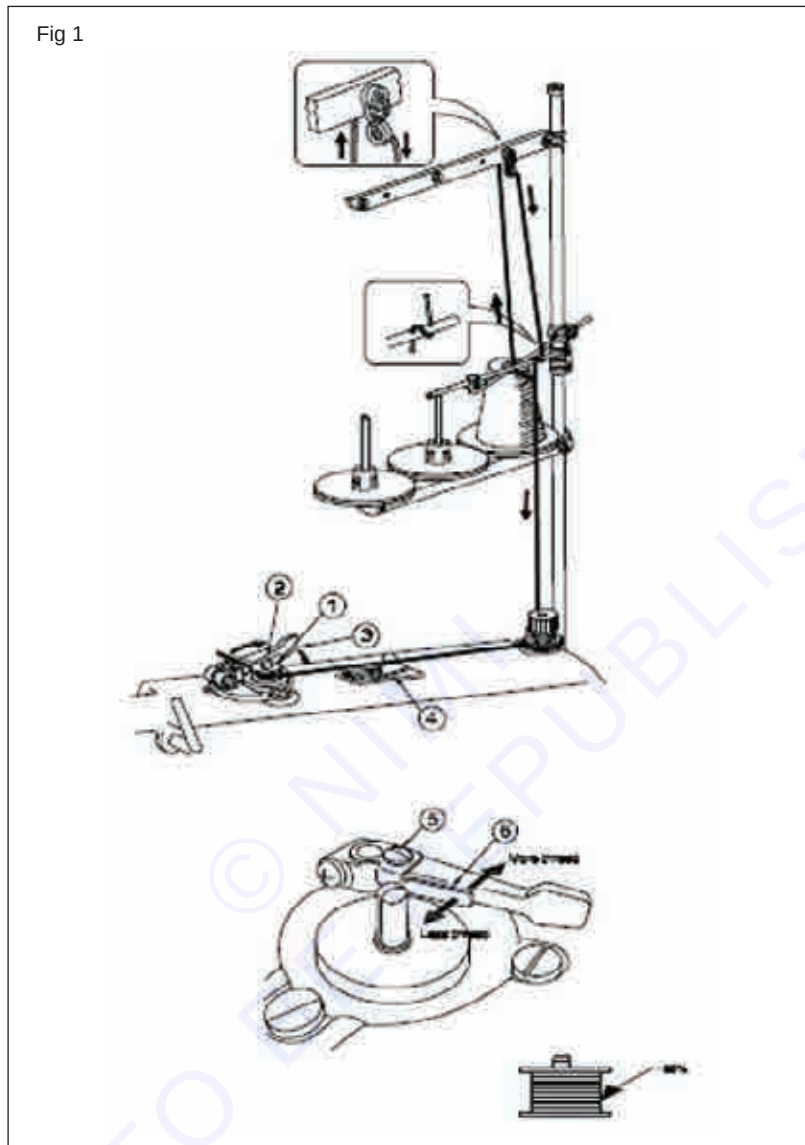
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TASK 2: Wind the bobbin for the lower assembly

- 1 While winding the bobbin ensure that power switch is off as shown in the Fig 1.
- 2 Place the bobbin on to the bobbin winder shaft. (Fig 1 Pt. 1 and 2)
- 3 Wind the thread several times around the bobbin as the direction indicated by arrow. (Fig 1 Pt:3)
- 4 Push the bobbin presser arm towards the bobbin. (Fig 1 Pt.4)
- 5 Raise the presser foot with the lifting lever. (Fig 1 Pt.5)
- 6 Depress the thread, lower thread winding then start. (Fig 1 Pt.6).

- 7 Winding of lower thread is completed the bobbin press arm will return automatically to its position.
- 8 Bobbin thread has been wound on the bobbin remove the bobbin, cut the thread with the help of the trimmer.

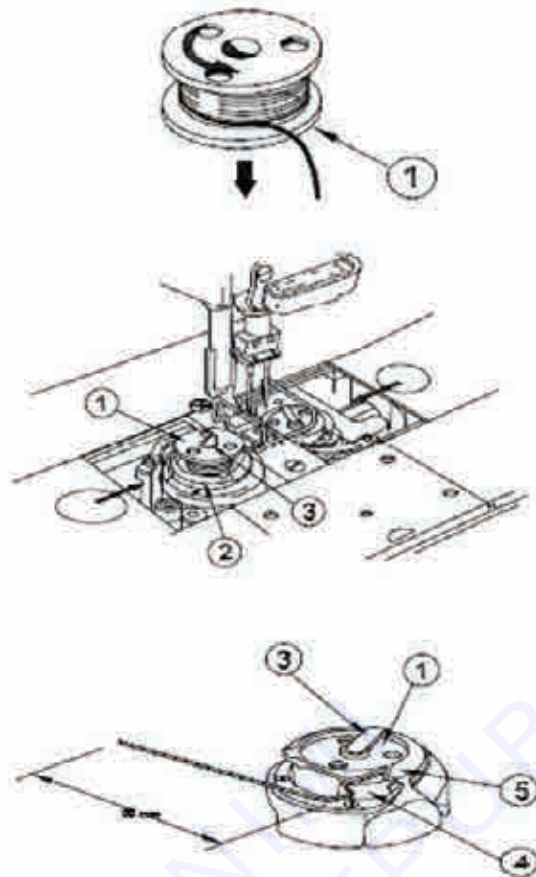
Fig 1



TASK 3: Install the bobbin into rotary hook

- 1 Take the bobbin, open the rotary hook then place the bobbin into rotary hook.
- 2 Turn the Rotary hook latch to its original position.
- 3 Turn the machine pulley to rotate the rotary hook until the tension spring is visible.
- 4 Pass the thread through slit into the rotary hook and then pass it under the tension (thread) spring.
- 5 Pull out the thread to a length of approximately 50mm.
- 6 Close the slide plate.
- 7 Rotate the pulley and bring the bobbin thread to the top with the help of the needle. (Fig 1)

Fig 1

**TASK 4: Remove the bobbin**

- 1 Open the machine slide plate by removing them right and left
- 2 Pull the rotary hook latch upward and then remove the bobbin by pushing upward direction as shown in (Fig 1)
- 3 Ensure the needle is highest position while removing the bobbin.
- 4 Pull the rotary hook upward and remove the bobbin case. (Fig 2)
- 5 Remove the bobbin.

Fig 1

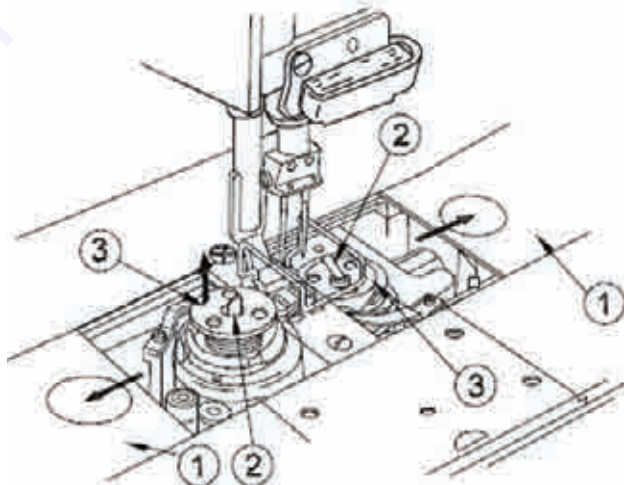
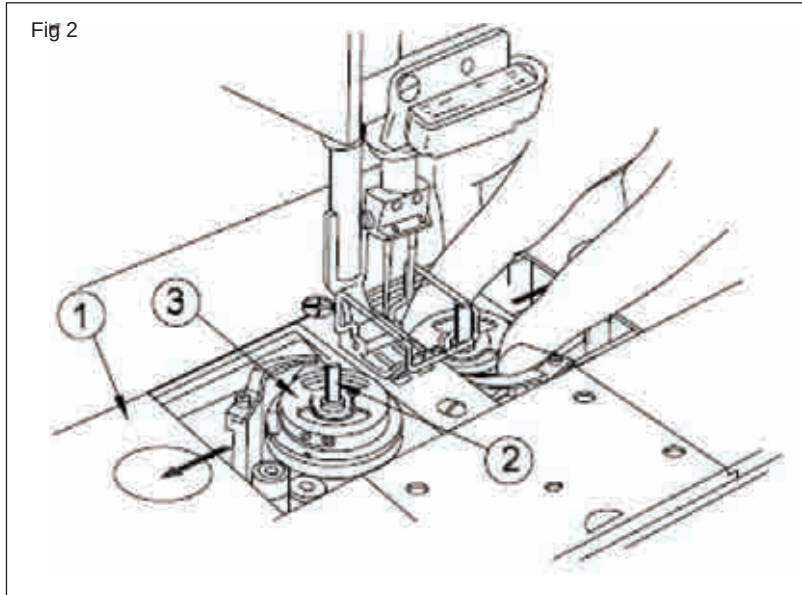


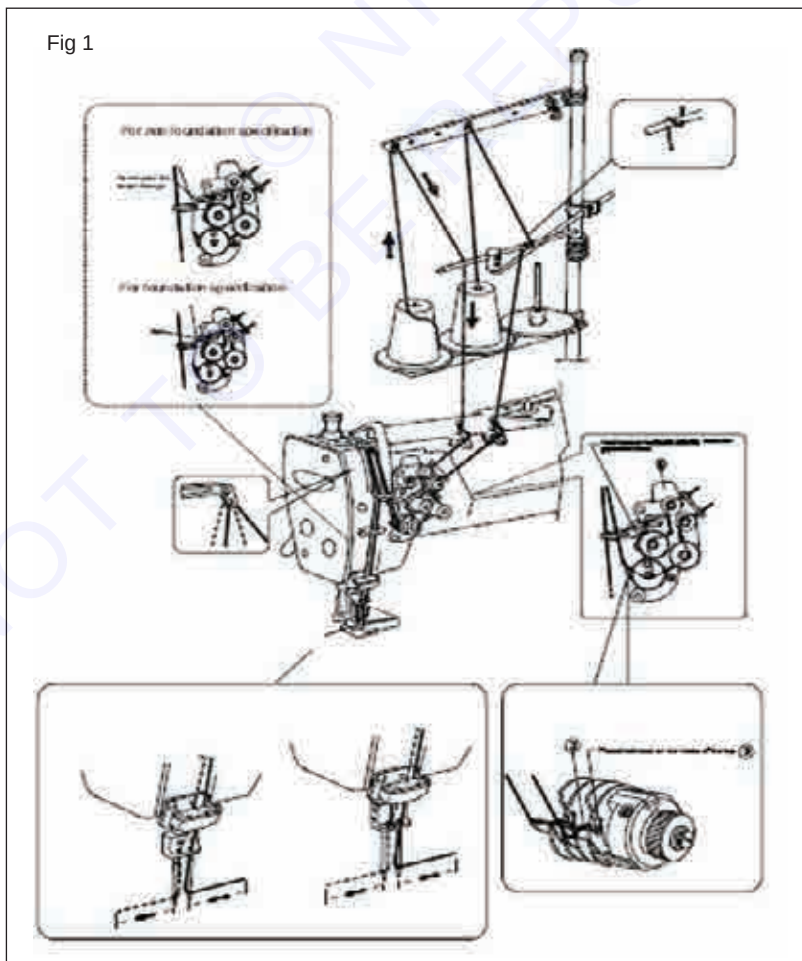
Fig 2



TASK 5: Thread the upper thread

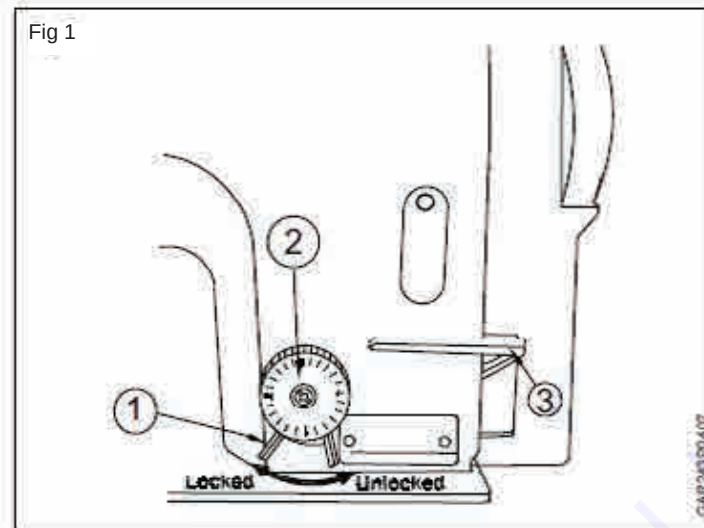
- 1 Thread take up lever the major function is to provide the thread to the needle during the stitch.
- 2 Press the tension release plates before pressing the thread to free tension disc. It will help to pass the threading easily.
- 3 Pass the thread on the inside of the tab. It will help to reduce the tension in sewing thread. (Fig 1)

Fig 1



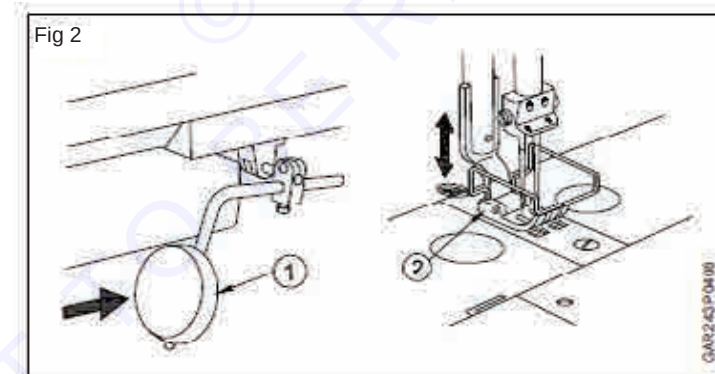
TASK 6: Adjust the stitch length

- 1 Unlock the stitch length dial by turning the dial lock lever to the right until the click sound is heard.
- 2 Turn the stitch length dial clockwise or counter clockwise as per the desired stitch length is at the upper most position on the dial (Fig 1). The larger number indicate in dial is longer stitch. Depending on the fabric the stitch length can be adjusted.



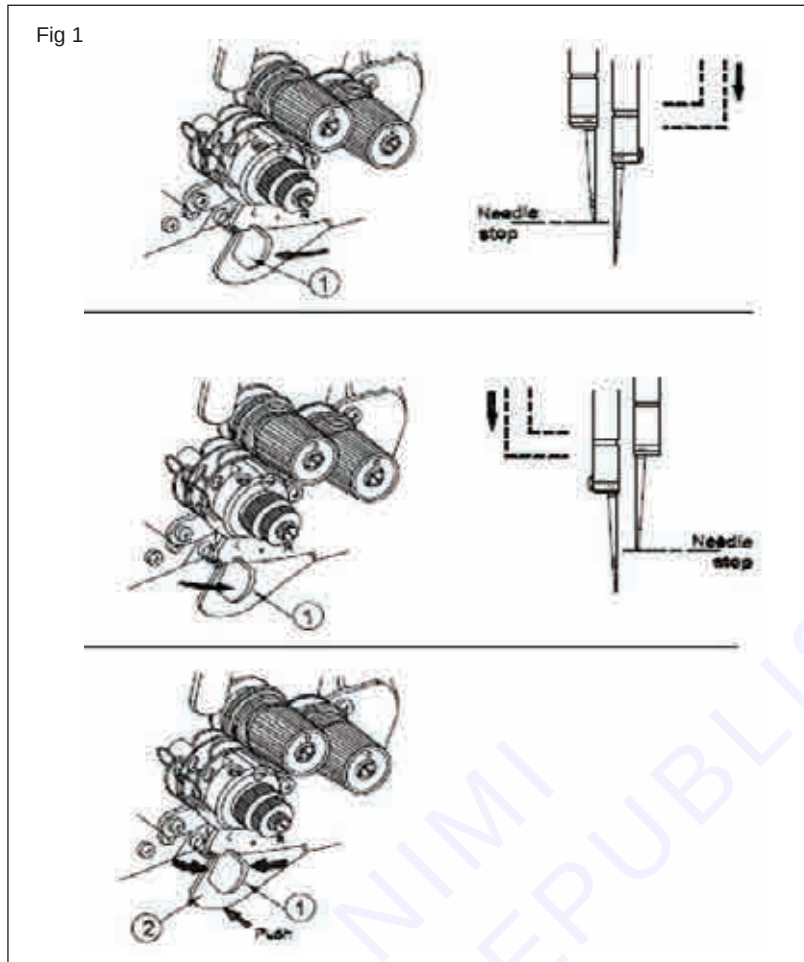
- 3 Turn the dial lock lever firmly to the left to lock the stitch length dial.
- 4 Use the knee lifter. (Fig 2)
- 5 The presser foot lifter is used to lift the presser foot and rotate the machine in a high speed process avoiding the hand lifter lever.

Ensure that at the end of the process the stitch length dial does not rotate.

**TASK 7: Stop the needle bars (right to left) (Fig 1)**

- 1 Operate the stop lever after the needle has penetrated the material is stopped moving.
- 2 While running the machine the speed of the machine should not be more than 1000 r.p.m.
- 3 To stop operation of the left needle bar move the stop lever (1) to the 'L' position.
- 4 To stop operation of the right needle bar move the stop lever (1) to the 'R' position.
- 5 To resume twin – needle sewing
- 6 Press the push lever (2)
- 7 The stop lever (1) will then return to its original position automatically.

Fig 1



Corner sewing method

While using this procedure in single needle machine, remove the needle which is not being used in such cases, do not use the procedures given below to stop the unused needle bar from moving, otherwise damage to the machine may result.

Number of stitches : Quick – reference guide (Fig 2)

For $\frac{1}{4}$ needle width

Determine the stitch length from the chart above to make beautiful corner stitching

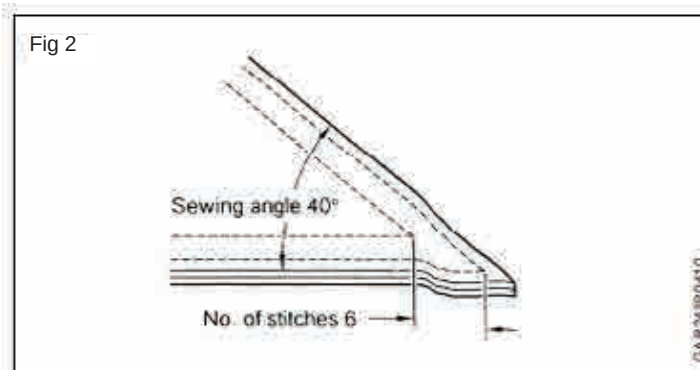
The number of stitches of the outer needle varies according to the combination of sewing angle and stitch length.

Example

For a sewing angle of 40° and a stitch length of 2.9 mm the number of stitches becomes 6.

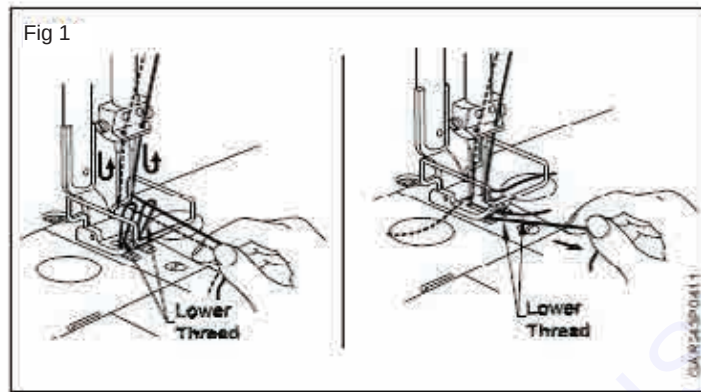
After threading DNLS practice for sewing.

Fig 2

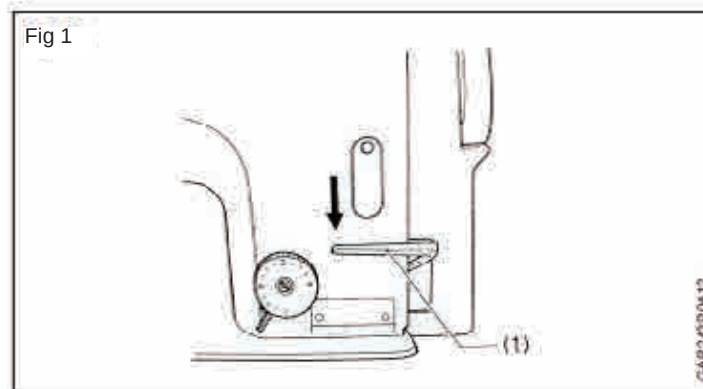


TASK 8: Back tack and adjust the tension of upper and lower thread and back tacking

- 1 While holding the two upper threads with your finger turn the machine pulley by hand towards you until the lower threads come out on to the feed dog.
- 2 Pull the lower thread towards you and check that they put out smoothly.
- 3 Turn on the power switch.
- 4 Depress the treadle to start sewing. (Fig 1)



No. of Stitches	Sewing angle											
	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°
2					4.6	3.8	3.2	2.7	2.2	1.8	1.5	1.1
3			4.6	3.5	3.0	2.5	2.1	1.8	1.5	1.2		
4		4.4	3.4	2.8	2.3	1.9	1.6	1.3				
5	4.8	3.5	2.7	2.2	1.8	1.5	1.3					
6	4.0	2.9	2.3	1.9	1.5	1.3						
7	3.7	2.5	2.0	1.6								
8	3.0	2.2	1.7									

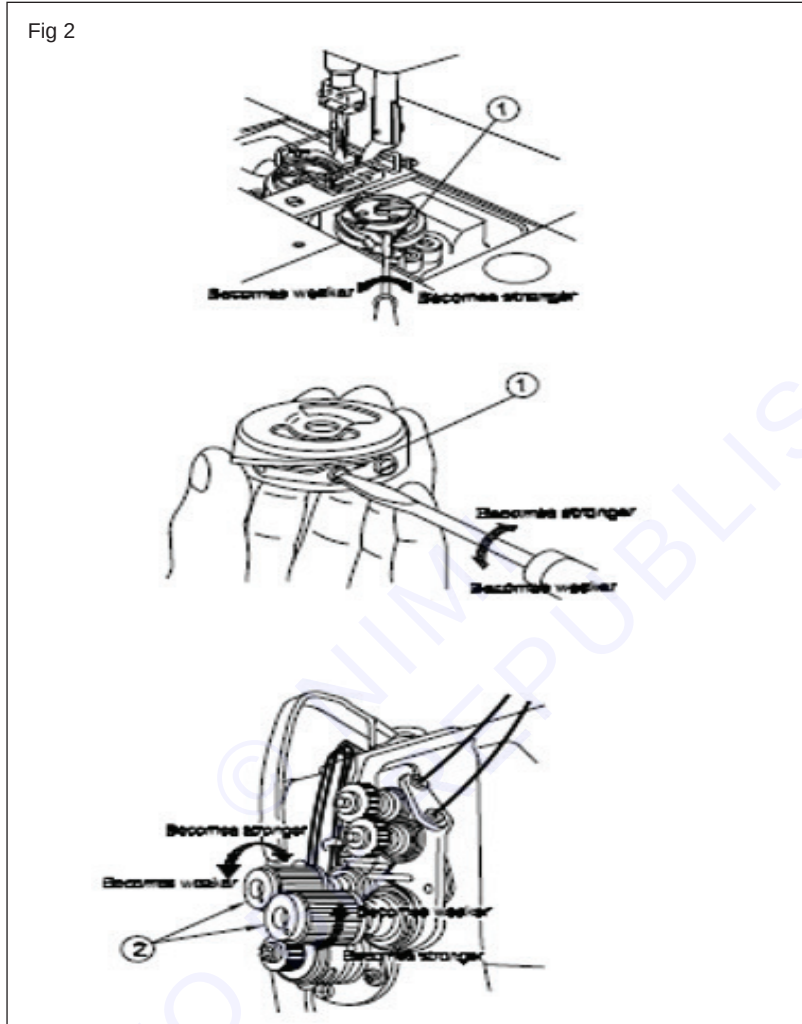
TASK 9: Back tacking during sewing (Fig 1)

- 1 Press the reverse lever during sewing to feed direction will be reversed then it released. The feed direction return to its normal.

Check the thread tension

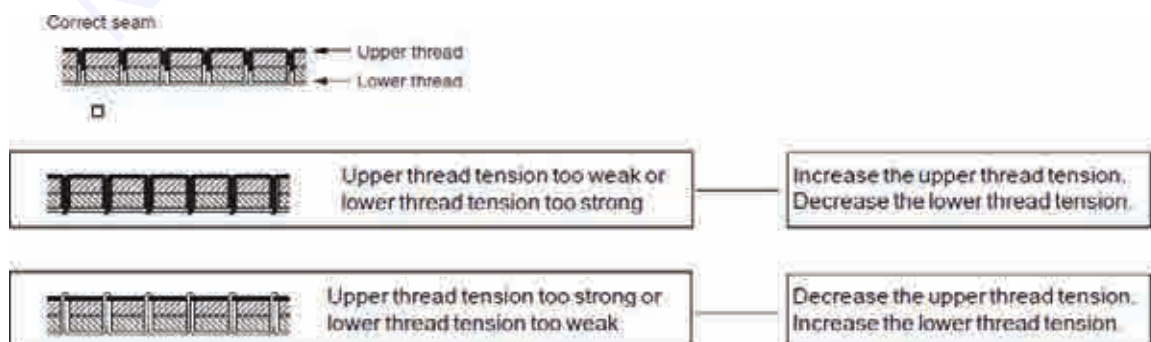
- 1 Check the stitch quality in case the loop formation occurs on the needle side (visible side)
- 2 Adjust and turn the adjusting screw with help screw drive. (Fig 2)

Fig 2



- 3 Incase of stitch loop formation occurs in reverse side of the stitch
- 4 Lower the presser foot.
- 5 Adjust by turning the tension unit.
- 6 Formation of stitches after adjusting the thread tension. (Fig 3)

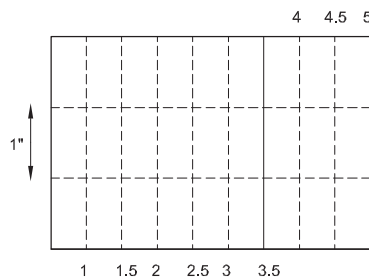
Fig 3



TASK 10: Practice stitches per length on different material

- 1 Start the machine threading and complete the threading process.
- 2 Make samples by changing the stitch regular start from 1 as per the stitch length dial.
- 3 Turn the stitch length dial keep at 1.
- 4 Start stitching the first line of the seam with the backfacing.
- 5 Again change the stitch length regulator 1.5 follow the above stitch.
- 6 Repeat the exercise by changing stitch regular 2, 2.5, 3, 3.5, 4, 4.5, 5. (Fig 1)

Fig 1



SWC22P0062

TASK 11: Stitch and practice the corner sewing

- 1 While stitching the corner change the needle location and make the one needle at dummy position, each time reaching the corner.
- 2 Follow the same procedure on the right and left corner.
- 3 Practice the corner point stitching finally prepare the pocket stitching.

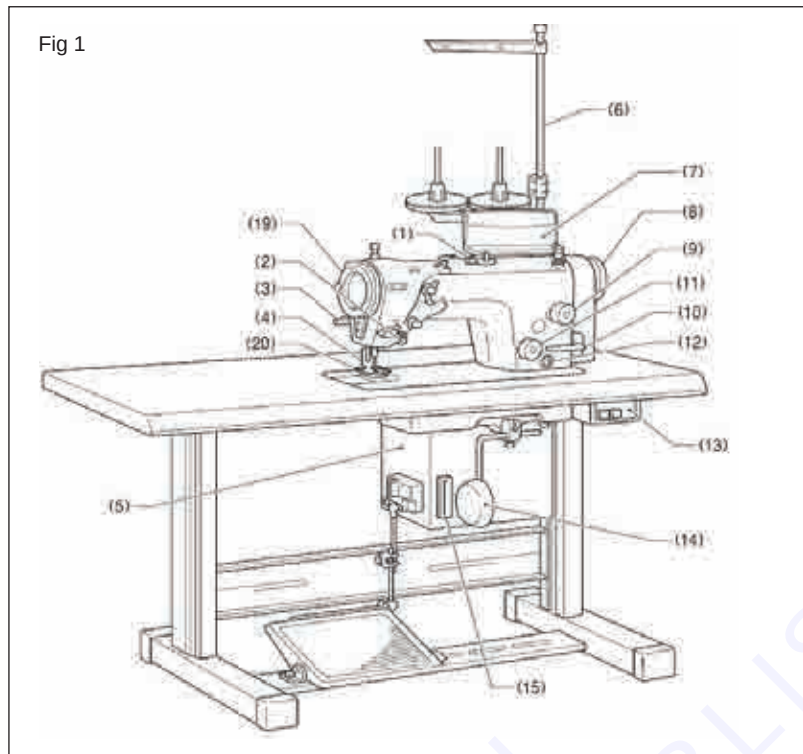
Practice on operations of multi purpose (Zig Zag) machine

Objectives : At the end of this exercise you shall be able to

- identify the parts of a zig zag machine
- practice winding the lower thread on zig zag machine
- practice installing the bobbin case on zig zag machine
- practice upper threading on zig zag machine
- practice adjusting the stitch length on zig zag machine
- practice setting the sewing pattern on zig zag machine
- practice setting the zigzag width on zig zag machine
- practice sewing on zig zag machine.

TASK 1: Identify the parts of zig zag machine

- 1 Identify the parts of a Zig Zag Machine with the help of the following figure. (Fig 1)
- 1 Bobbin winder
- 2 Actuator
- 3 Lifting lever
- 4 Presser foot
- 5 Control box
- 6 Cotton stand
- 7 Operation panel
- 8 Machine pulley
- 9 Stitch length dial
- 10 Reverse lever
- 11 Condense dial
- 12 Oil gauge window

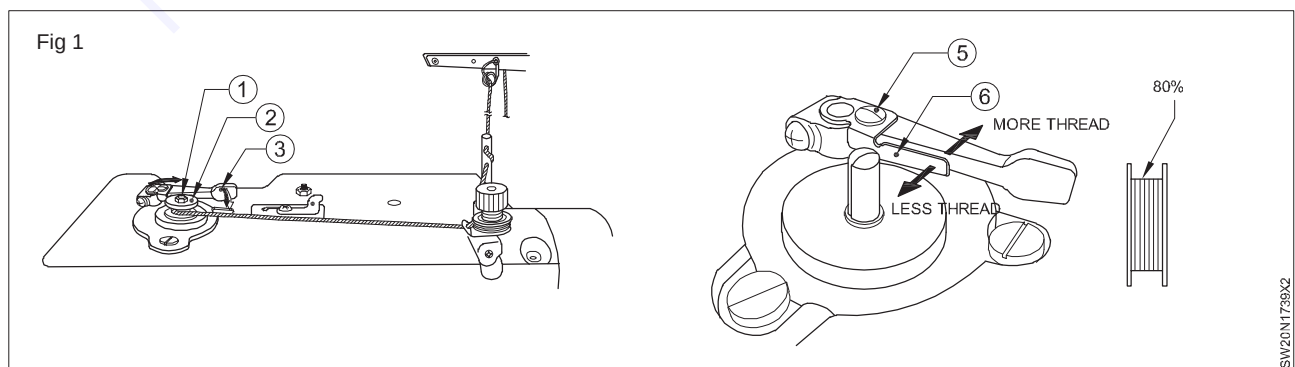


- 13 Power switch
14 Knee lifter assembly
15 CF slot
16 Upper thread feeding device

- 17 Knife unit
- 18 Thread wiper
- Safety devices**
- 19 Thread take-up guard cover
- 20 Finger guard

TASK 2: Practice winding the lower thread on Zig Zag Machine (Fig 1)

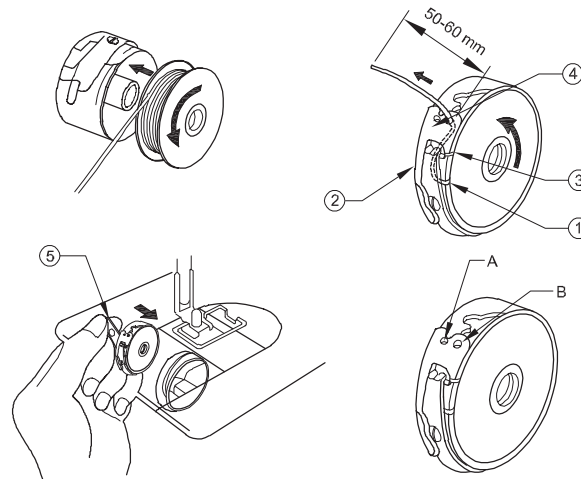
- 1 Turn on the power switch.
- 2 Place the bobbin (1) onto the bobbin winder shaft (2).
- 3 Wind the thread several times around the bobbin (1) in the direction indicated by the arrow.
- 4 Push the bobbin presser arm (3) toward the bobbin (1).
- 5 Raise the presser foot with the lifting lever.
- 6 Depress the treadle. Lower thread winding will then start.
- 7 Once winding of the lower thread is completed, the bobbin presser arm (3) will return automatically.
- 8 After the thread has been wound on, remove the bobbin and cut the thread with the knife (4).
- 9 Loosen the screw (5) and move the bobbin presser (6) to adjust the amount of thread wound onto the bobbin.



TASK 3: Practice installing the bobbin case on Zig Zag Machine (Fig 1)

- 1 Turn the sewing machine pulley to align the reference line on the pulley with the indent in the motor cover.
- 2 Hold the bobbin so that the thread spools out counter clockwise, and place the bobbin into the bobbin case.

Fig 1



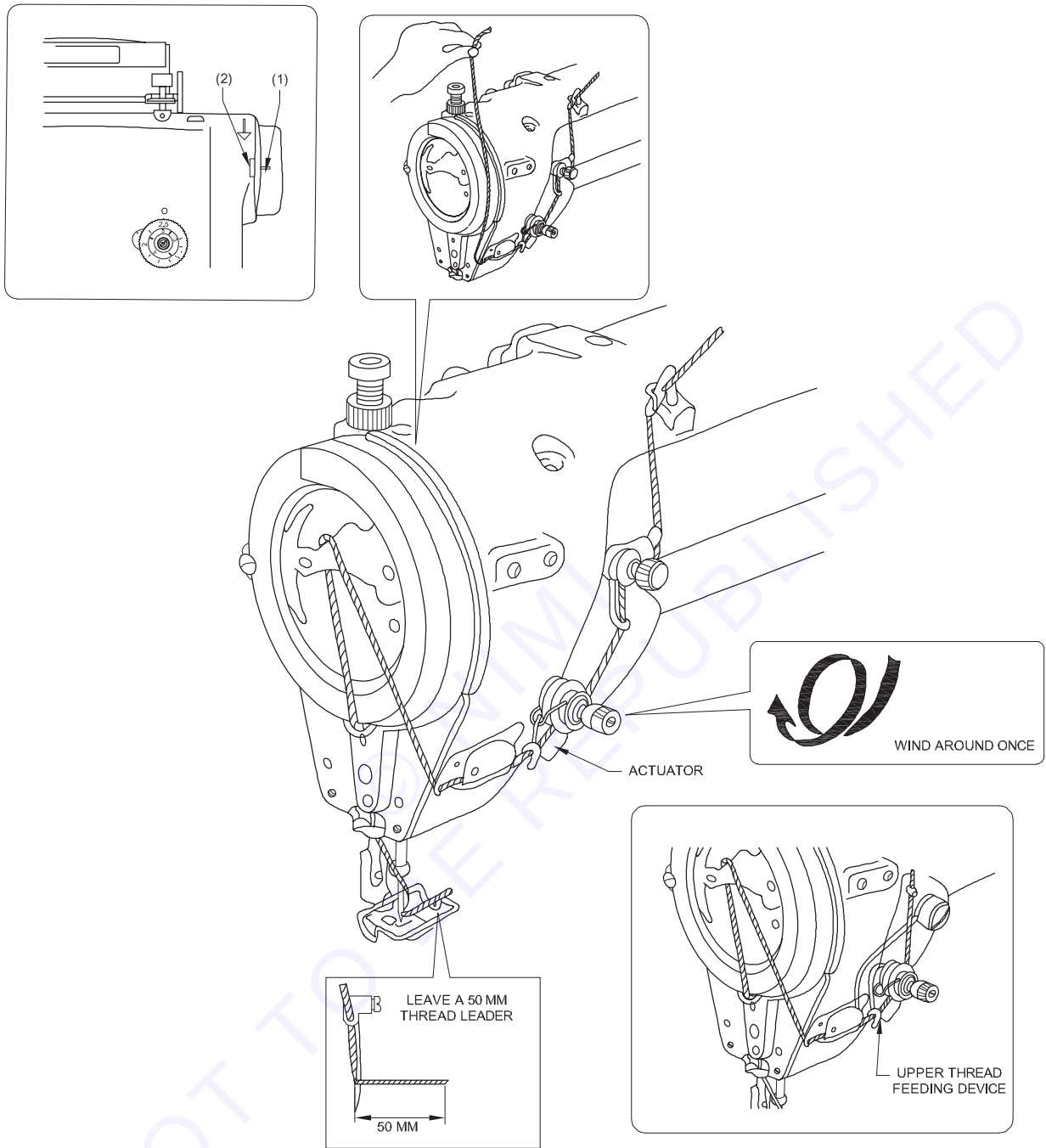
SWC22PD080

- 3 Pass the thread through slot (1) and hook it under the tension spring (2).
- 4 Pass the thread back through the slot (3) and then pull it out from the thread guide.
A and B on the thread guide (4) (Guide to identification)
 - a Normally A should be used.
 - b The amount of lower thread feeding-out is greater than for A, so this is ideal for extremely stretchy materials and medium-weight materials.
- 5 Check that the latch (5) of the bobbin case, insert the bobbin case into the rotary hook.
- 6 While holding the latch (5) of the bobbin case, insert the bobbin case into the rotary hook.
Turn off the power switch before installing the bobbin case.
The machine may operate if the treadle is depressed by mistake, which could result in injury.

TASK 4: Practice upper threading on zig zag machine (Fig 1)

- 1 Turn the sewing machine pulley to align the reference line (1) on the pulley with the indent (2) in the motor cover (needle up stop position)
- 2 This will make threading easier and it will prevent the thread from coming out at the sewing start.

Fig 1



SWC22P0081

TASK 5: Practice adjusting the stitch length on zig zag machine (Fig 1)

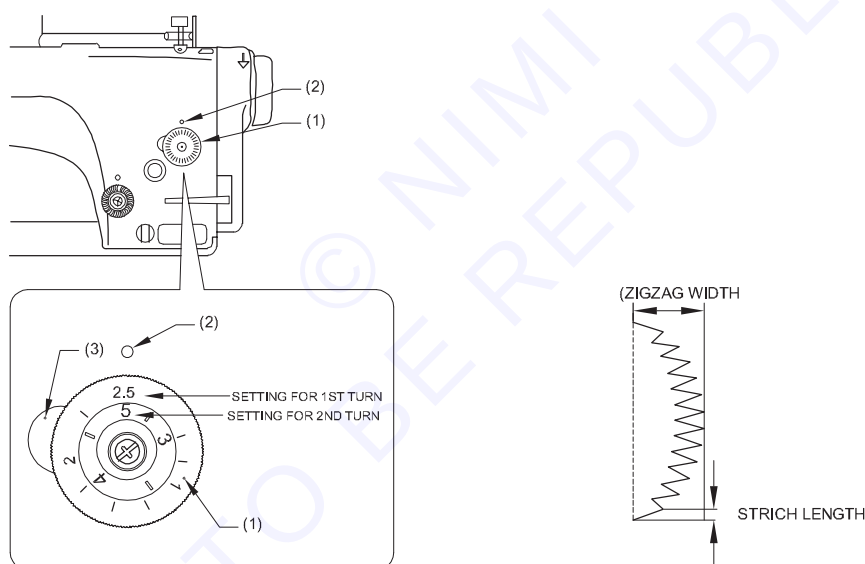
Turn the stitch length dial (1) until the desired stitch length number is aligned with the index mark (2) above the dial.

- 1 The larger the number, the longer the stitch length will be.
- 2 The numbers on the dial are for use as a guide. The length of the finished stitches may vary depending on the type and thickness of material being sewn. Adjust while looking at the finished stitches.

If the stitch length dial (1) is turned to a setting greater than 2.5

- 3 In this case, replace gauge parts such as the feed dog with parts for using with a feed amount of more than 2.0mm.
- 4 In addition, change the maximum feed amount setting while referring to Page 57, and then adjust the stitch length dial (1) as described below.
 - a Turn the stitch length dial (1) all the way to "2.5".
 - b After this, push the left lever (3) while turning the stitch length dial (1) so that it can be turned a second time. When the stitch length dial (1) is turned a second time, the settings will be those on the inside of the scale (3-5).
- 5 When turning the dial from a larger number to a smaller number, it can be turned to the second time setting without pushing the left lever (3).

Fig 1

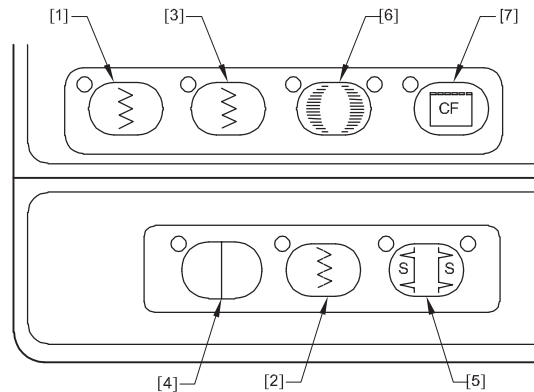


SWC22P0082

TASK 6: Practice setting the sewing pattern on Zig Zag machine (Fig 1)

- 1 Press the sewing pattern select keys ([1] to [7] in the illustration left) to select the sewing pattern. The indicator for the key that was pressed will illuminate and the pattern number that has been set for that key will appear in the main display.
- 2 When a sewing pattern has been set, be sure to set the zig zag width.
- 3 Different zig zag widths and zig zag lengths can be set for each sewing pattern.

Fig 1

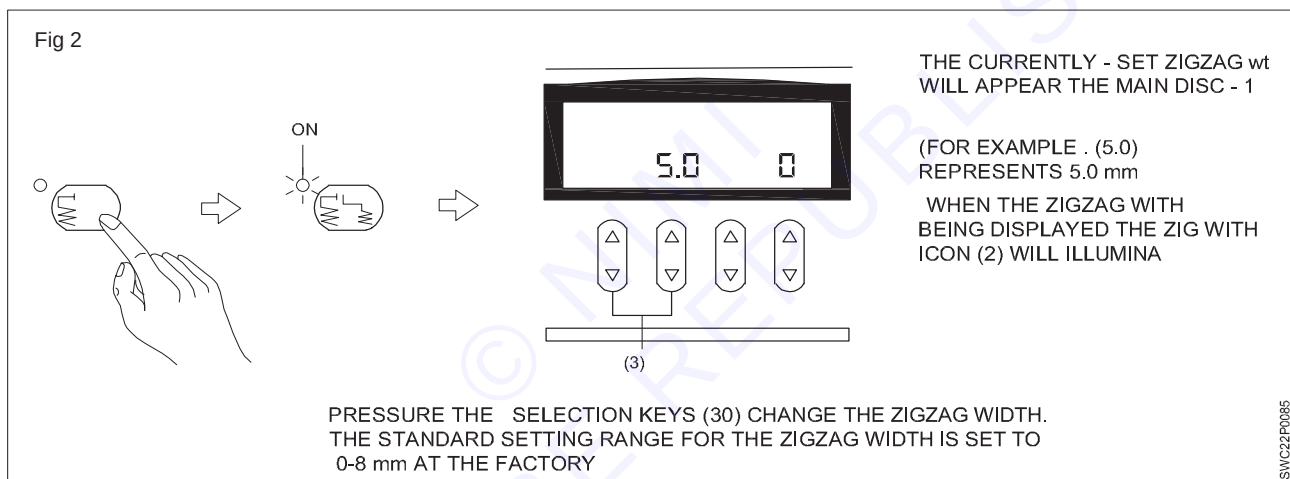
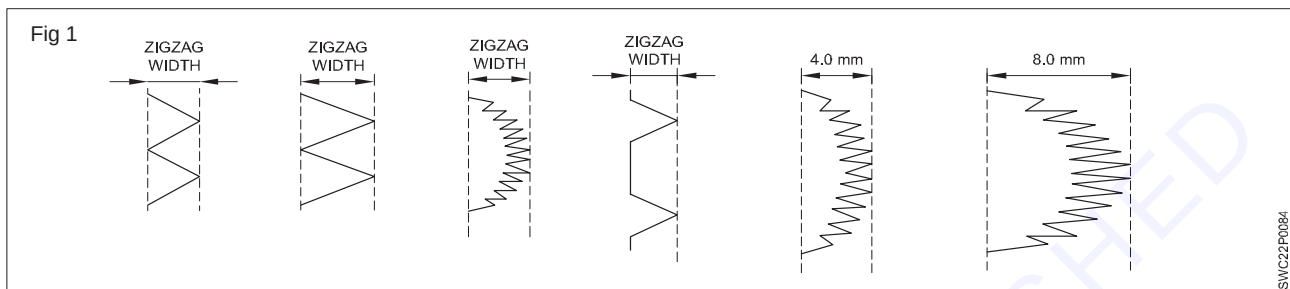


	Sewing pattern	Pattern no. (Main display)	Notes
Straight stitch		1 - - -	
Plain zigzag		2 - - -	
2-step zigzag		3 - - -	
3-step zigzag		4 - - -	
Scallop (left)	Crescent scallop (24sts.)	5 - 1 ■ / 5 - 5 ■	If R is set in the column marked with ■, a reflection pattern can be sewn by stopping the sewing machine and then pressing the actuator. <Reflection pattern> Press the actuator Sewing pattern Sewing direction (Reflection pattern)
	Even scallop (12sts.)	5 - 2 ■ / 5 - 6 ■	
	Standard scallop (24sts.)	5 - 3 ■ / 5 - 7 ■	
	Even scallop (24sts.)	5 - 4 ■ / 5 - 8 ■	
Scallop (right)	Crescent scallop (24sts.)	6 - 1 ■ / 6 - 5 ■	
	Even scallop (12sts.)	6 - 2 ■ / 6 - 6 ■	
	Standard scallop (24sts.)	6 - 3 ■ / 6 - 7 ■	
	Even scallop (24sts.)	6 - 4 ■ / 6 - 8 ■	
Blind stitch (left)		7 - * *	In the columns marked with *, the number of stitches sewn in a straight line can be set within the range of 1 to 99 stitches. 1 - 9 9 (No. of stitches)
Blind stitch (right)		8 - * *	
Custom made pattern	-	9 - * *	Sewing patterns created using the PS-300B (optional device) can be sewn. (The pattern number is set in the columns marked with *.)

SWC22P0083

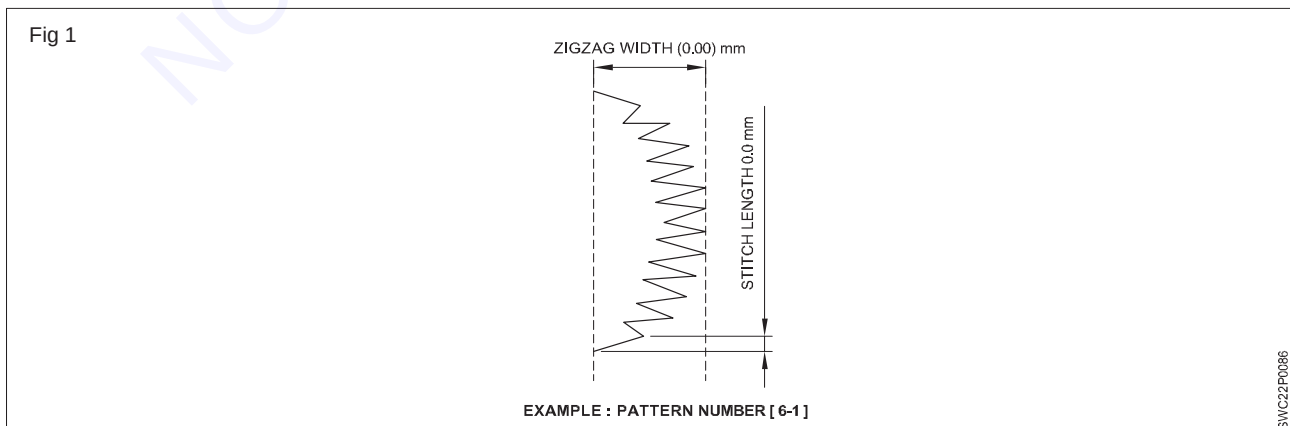
TASK 7: Practice setting the zig zag width on zig zag machine (Figs 1 & 2)

- 1 Set the zig zag width after selecting the pattern number.
- 2 The zig zag width is defined as the distance between the left most needle drop point and the right most needle drop point.
- 3 If the zig zag width is increased or reduced, the width of the sewing pattern is also increased or reduced by the same proportion.
- 4 The zigzag width will be automatically set to (0.0) only when the straight stitch has been selected as the sewing pattern



TASK 8: Practice sewing on zig zag machine

- 1 Press the ON power switch.
- 2 Use the operation panel to make the necessary settings such as sewing pattern and zigzag width.
- 3 Set the stitch length using the stitch length dial.
- 4 Place the cotton fabric under the presser foot.
- 5 Depress the treadle to start sewing. (Fig 1)



◆ Module 7 : Pattern Making Cutting, Stitching of various Garments ◆

EXERCISE 37 : Blouse with yoke

Objectives

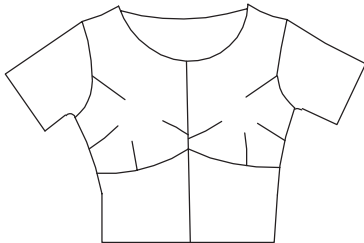
At the end of this exercise you shall be able to:

- take measurements for the Blouse
- draft the Blouse and cut the paper pattern of the blouse
- prepare master pattern
- lay and cut the required components
- sew the sari blouse.

Procedure

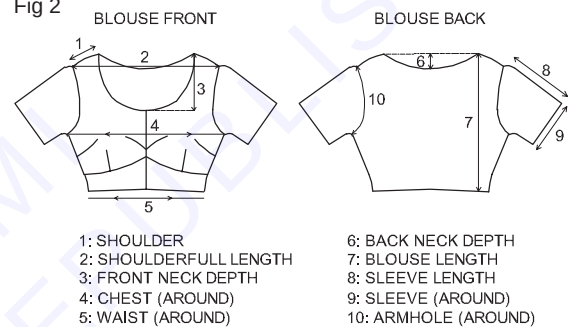
TASK 1: Take measurement (Figs 1 & 2)

Fig 1



SWC22P0108

Fig 2



SWC22P0109

Measurements in cm

Full Length	= 38 cm
Bust Level	= 25 cm
Shoulder	= 38 cm
Bust	= 92 cm
Waist	= 72 cm
Sleeve length	= 25 cm
Sleeve bottom	= 28 cm

Components :

Front Part	- 2 Piece
Back Part	- 1 Piece
Sleeve	- 2 Piece
Yoke	- 4 Piece

Suitable Fabric:

Full Voile, Two by Two, Cotton, Silk, Polyester

Required Material = Brown Sheet , 1 meter fabric, thread, hand needle, hooks

TASK 2: Draft and cut the paper pattern of Blouse**Construction : of Front Part**

0 – 1	= Full length + 1.5 cm	= 39.5 cm
0 – 2	= Bust/4 - 4 cm	= 19 cm
1 – 3	= Bust/16	= 5.75 cm
0 – 4	= Shoulder/2	= 19 cm
5	= Is square down from 4	
2 – 6	= Bust/4 + 2.5 cm	= 25.5 CM
6	= From 6 square down 7, 8	
0 – 9	= Bust/12	= 7.6 cm
4 – 10	= 2.5 cm (or) bust/36	= 2.5 cm
5 – 11	= 1/3 of 5 – 10	
11 – 11a	= 1 cm	
9 – 12	= 1.5 cm	
0 – 13	= Bust/8	= 11.5 cm
14	= Square out 12,13 Join 14	
7 – 15	= 1.5 cm	
15 – 16	= 1.5 cm	
3 – 17	= Bust/24	= 3.8
17 – 17a	= 1 cm	
12 – 18	= Bust level	= 25 cm
18 – 19	= 2 cm Square down to 20	
18 – 21	= 18 – 22 = 18 – 23 = 4 cm	

Dart Construction

20 – A	= 20 – B = 3 cm	Join 19-20A; 19-20B
21 – 21A	= draw slant line	
21 A – 21 B	= 21 A – 21 C = 0.75 cm	Join 21-21b; 21-21C
22 – 22 A	= draw slant line	
22 A – 22 B	= 22A – 22 C = 0.75 cm	Join 22-22b; 22-22C
23 -23 A	= square out horizontally	
23 A – 23 B	= 23 A – 23 C = 0.75 cm	Join 23-23b; 23-23C

Back part

6 – 24	= Bust/4 + 1.5 cm	= 24.5
24 – 25	= Bust/4 - 4 cm	= 19 cm
25 – 26	= Full length	= 38 cm

26 – 27	= Square down from B	
25 – 28	= Shoulder/2	= 19 cm
29	Square down from 28	
25 – 30	= Bust/12	= 7.5 cm
28 – 31	= 2.5 cm (or) bust/36	= 2.5 cm
30 – 32	= 1.5 cm	
25 – 33	= Bust/12	= 7.6 cm
33 – 34	= Square out and join 32	
27 – 35	= 1.5 cm	
25 – 36	= Bust level	= 25 cm
26 – 37	= Bust/12 + 1.5 cm	= 9.1 cm
join 38		
37 – 39	= 37 – 40	= 2 cm

Sleeve :

0 – 1	= Sleeve full length	= 25 cm
0 – 2	= Bust/4 – 4 cm	= 19 cm
3	= Is square down from 2	
2 – 4	= Bust/12 + 2.5 cm	= 10 cm
1 – 5	= Sleeve bottom/2	= 14 cm
0 – 6	= B/24	= 3.8 cm

Draw dotted line from 0 – 4

a is mid of 0 – 4

b is mid of 0 – a

c is mid of a – 4

b – d = c – e = 0.5 cm

a – f = 0.75 cm

Join 0, f, 4 and give back shape

Join 0, d, a, c, 4 and give front shape

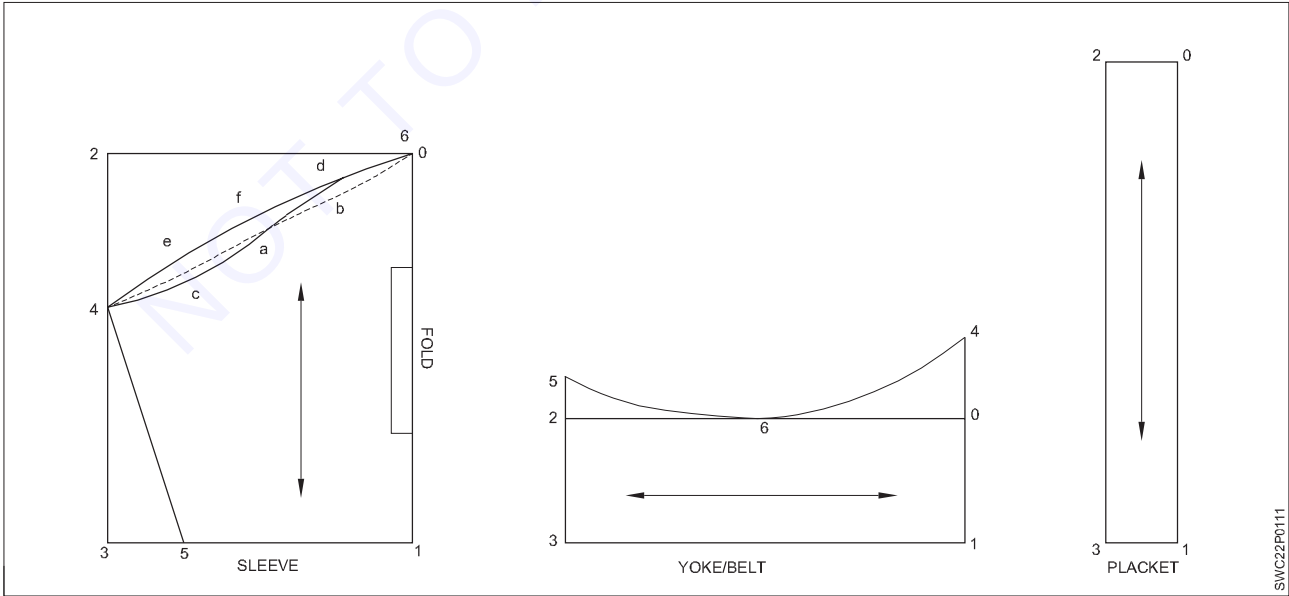
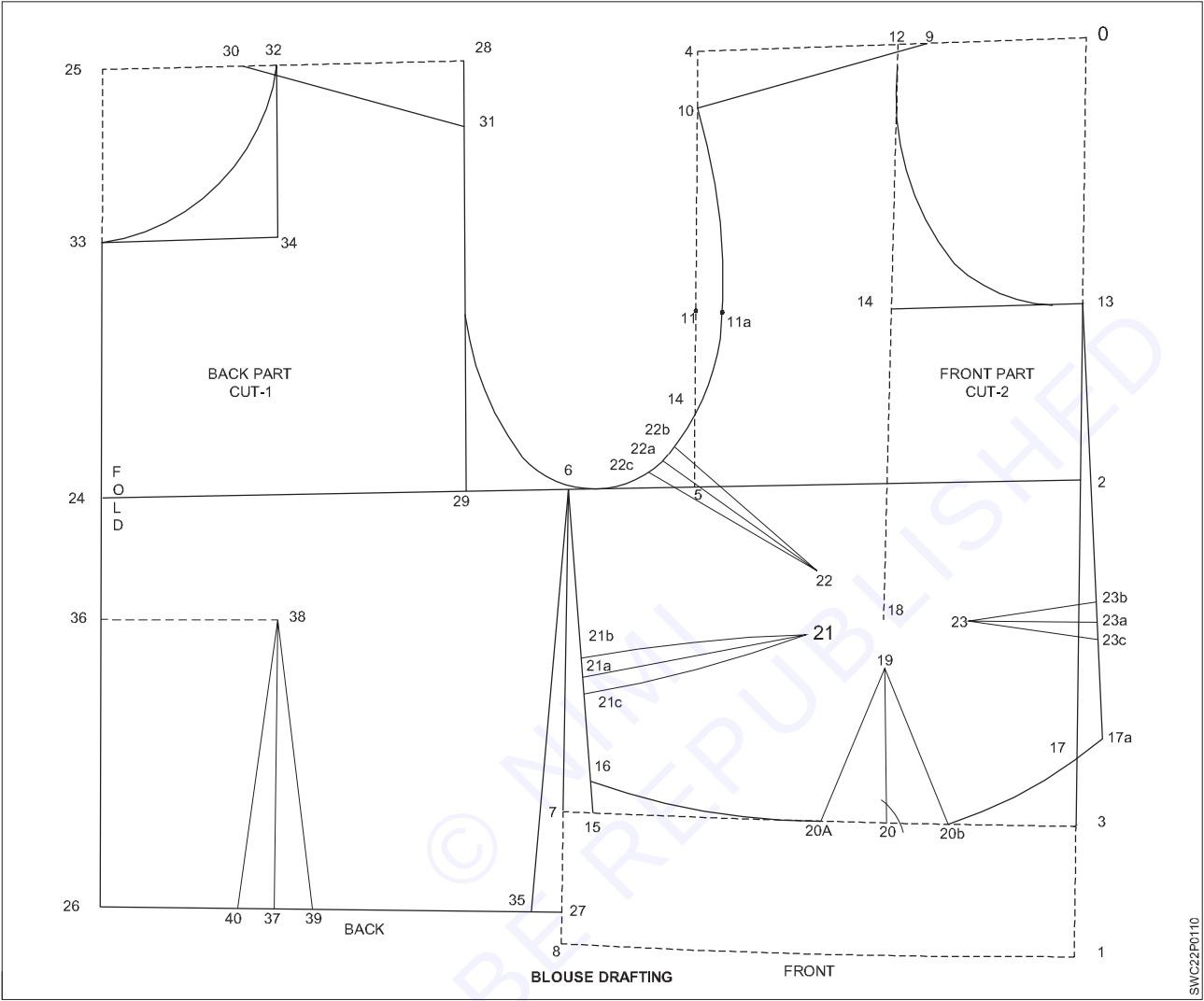
Yoke (Belt):

0 – 1	= Bust/16	= 5.75 cm
0 – 2	= Waist/4	= 18 cm
2	= Is square down from 3	
0 – 4	= Bust/24	= 3.5 cm
2 – 5	= 1.5 cm	= 1.5
6	= mid of 0-2 Shape 4,6,5	

Placket:

0-1	= FI – Neck Depth (1-13)	= 28 cm
0-2	= 2-3	= 4 cm

Blouse drafting



Cutting lines of blouse are

Front Part = 13-12-10-11a-22b-22a-22c-6-21b-21a-21c-16-20A-20-20B-17a-23c-23a-23b-13

Back Part = 33,32,31,6,35,39,37,40,26

Sleeve = 0,6,d,f,4 (back shape) 0,7,a,c,4 (Front shape)

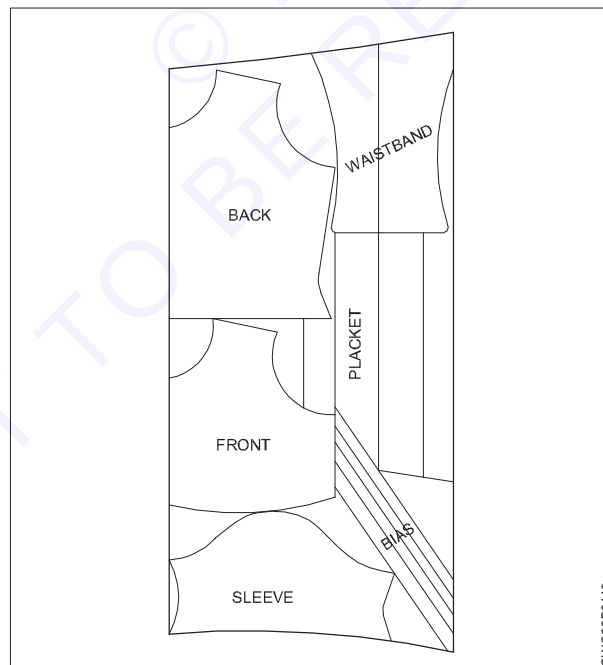
Placket 0 - 1 - 2 - 3 - 0

TASK 3: Prepare master pattern

- 1 Take the paper pattern and add seam allowance
- 2 Mark all the notches, seamline, cutting line etc.
- 3 Name all the cut components and mark the grainline, foldline etc.
- 4 Finally cut the master pattern.

TASK 4: Lay and cut the required components of blouse

- 1 Fold the blouse fabric widthwise and lay it on the cutting table, with its wrong side facing up.
- 2 Spread and arrange the master pattern of front, back, sleeves and placket parts economically on the fabric.
- 3 Mark the outline of all the arranged components using a tailor's chalk.
- 4 Mark all the dart positions carefully and transfer it to the lower layer of the fabric using a tracing wheel.
- 5 Remove the master pattern. Cut the fabric with the sharp scissors.
- 6 Cut notches at dart markings to set their positions.
- 7 Fold and tie all the cut fabric components together to prevent it from missing.



TASK 5: Stitch the blouse

- 1 Start by sewing the darts together both in the Front part and Back Part of the Blouse.
- 2 Attach the yoke/belt facings to the front of the blouse.
- 3 Complete the Center front placket by working on both the left and right sides.
- 4 Connect the front and back shoulders.
- 5 Attach the neckline facings and finish the neckline.
- 6 Fold and sew the bottom hem of the sleeve.
- 7 Attach the sleeves to the armhole of blouse.
- 8 Stitch the underarm of sleeve.
- 9 Sew the side seams together to close the blouse.
- 10 Stitch Hook and eye on the placket.
- 11 Trim the extra threads and press the blouse

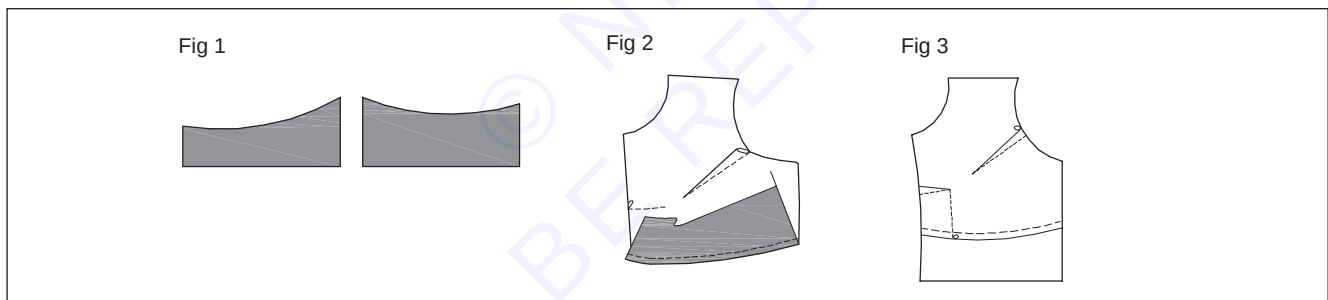
Blouse placket

Objectives : At the end of this exercise you shall be able to:

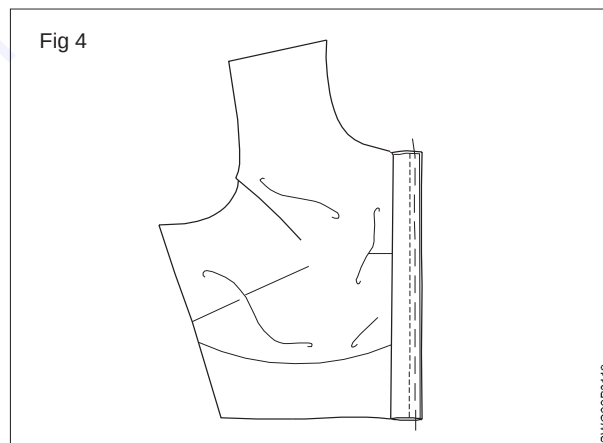
- prepare the placket for blouse.

Yoke joining

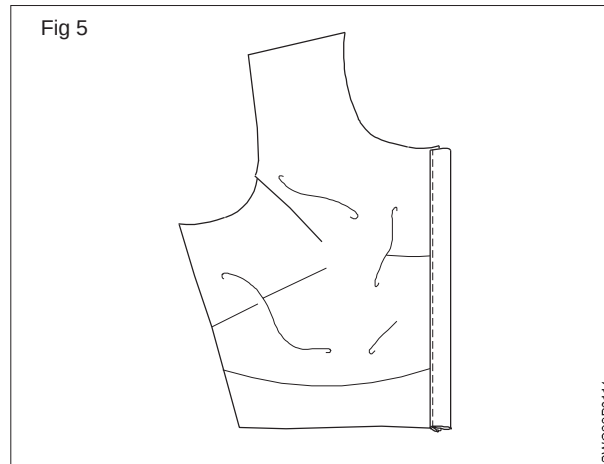
- 1 Take the front part of blouse and stitch all the darts as marked
- 2 Take the yoke and stitch with the front part of blouse Fig 1,2,3



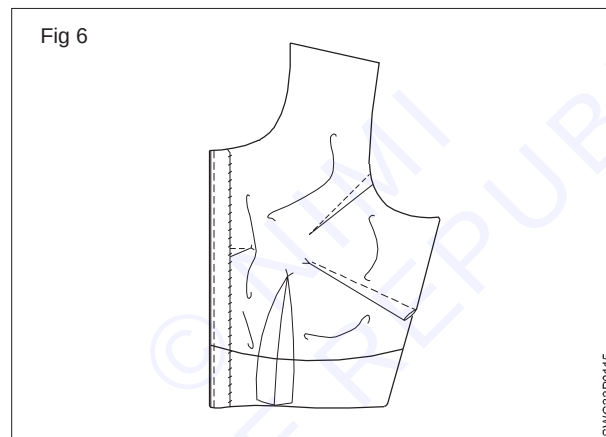
- 3 Take placket and front pieces. Take one piece of placket and fold it lengthwise wrong sides together. Place the raw edge of folded a strip along the center edge of right front piece on right side, pin and baste, stitch on seam line (Fig 4)



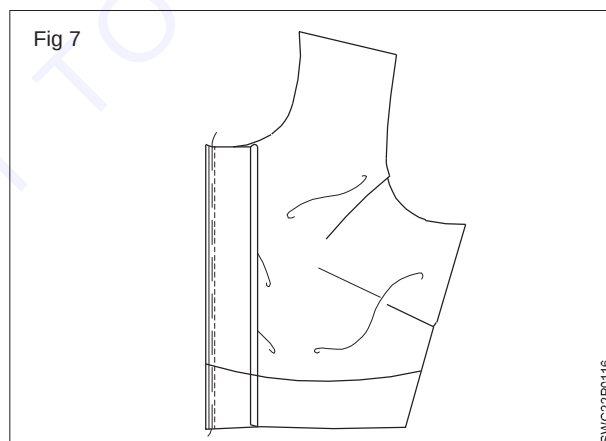
- 4 Turn the placket piece flat by 180° and make edge stitch on the placket piece along the previous seam. (Fig 5)



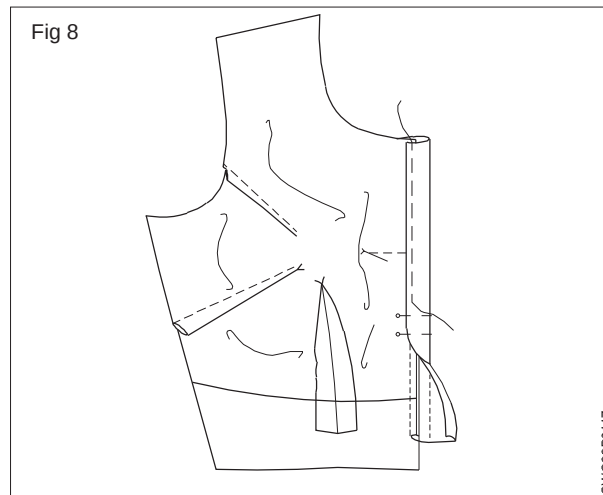
- 5 Turn the placket piece inside the front piece, press and baste. Finish the placket with hemming stitch. (Fig 6)



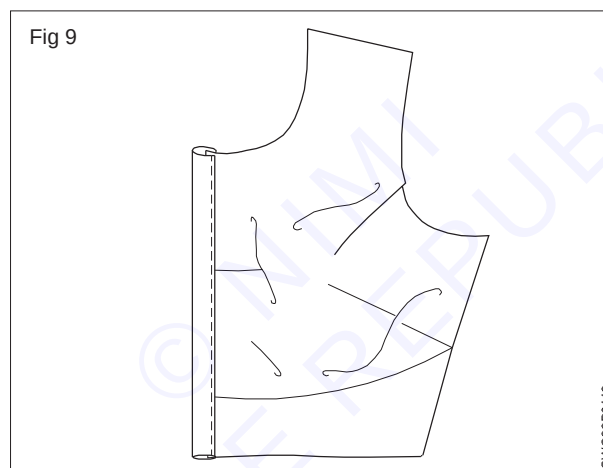
- 6 Place the other placket piece matching right sides of placket and left front along the center front line, pin and baste, stitch on the marked seam line, Turn the other raw edge of placket piece by 0.75 cm on its wrong side and press. (Fig 7)



- 7 Turn again the placket piece over the previous seam on wrong side covering it by 2 mm, pin and baste. (Fig 8)



- 8 Stitch from right side in the crevice of previous seam. (Fig 9) Remove basting and press.



- 9 Blouse design for practice (Fig 10)

Fig 10



Princess Cut Blouse with Boat Neck

Measurement in cm

Full length – 36cm
 Bust level – 25cm
 Shoulder – 38cm
 Bust - 92cm
 Waist – 72cm
 Sleeve length – 25cm
 Sleeve bottom - 28cm

Princess Cut Blouse Front Part

0-1 = FL+2.5 = 36+2.5 = 38.5cm
 0-2 = B/4-4 = 92/4-4 = 19cm
 1-3 = 2.5cm = 2.5cm
 Square out from 1,3,2
 0-4 = Sh/2 = 38/2 = 19cm
 Square down from 4 and mark 5
 2-6 = B/4 + 2.5cm = 25.5cm
 Square down from band mark 7 and 8
 0-9 = B/8 = 11.5cm
 4-10 = B/36 = 2.5 cm
 5-11 = 1/3 of 5-10 Square out from 11
 11-12 = 1cm = 1cm
 5-13 = B/36
 Give armhole shape
 0-14 = B/12 + 1.25cm = 8.9cm
 Square down from 14 and mark 15
 0.16 = B/12 = 7.6cm
 Square out from 16 and mark 17
 Divide angle 9, 17, 16
 17-18 = 5cm = 5cm
 Give shape 9,18,16
 17- 19 = 1.5cm Join 6 – 19 =1.5cm
 14 – 20 = BL = 25cm
 15 -21 = 15 = 22 = {(1 – 9 Measure)-(W/4)} / 2 = 20-18/2 = 6/2 = 3cm
 Square up from 21 and 22
 Mark 23 and 24
 Shape Slightly 20 – 23 and 20 - 24
 13 – 25 = 13 – 26 = 0.75cm =0.75cm
 Join 25 – 20 and 26 – 20

Back Part

6 – 27 = B/4 + 1.25 =24.25cm
 Square up and down from 27 and mark 28 and 29

27 – 28 = B/4 – 4 (92/4 – 4) = 19cm

28 – 29 = FL = 36cm

Square out from 29

28 – 30 = Sh/2 = 11.5cm

Square down from 30 and mark 31

31 – 32 = ½ of 6 – 31

28 – 33 = B/12 + 1.25 cm = 8.9cm

30 – 34 = B/36 (Join 33 – 34) = 2.5cm

Divide angle 34 – 31 – 6

34 – 34a = ½ of 31 – 34 + 1cm

28 – 35 = Same as 0 - 9

28 – 36 = Same as 0 – 16

Square out from 36 mark 37

37 – 38 = 5cm = 5cm

Give back neck shape 36, 38, 35

7 – 39 = 1.5cm = 1.5cm

28 40 = BL = 25cm

29 – 41 = B/112+1.25cm = 8.9cm

Square up mark 42

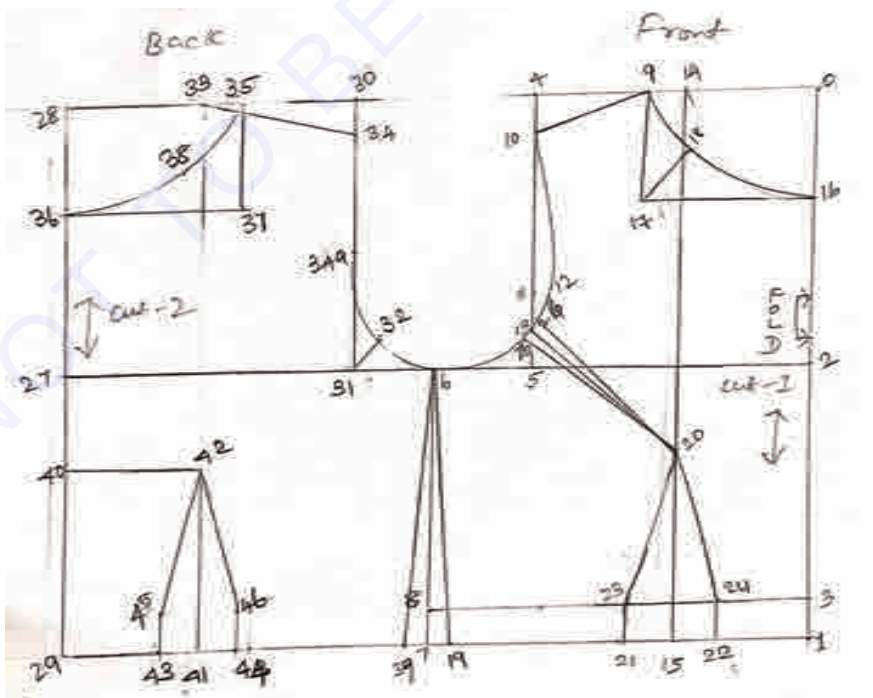
41 – 43 = 41- 44 = {(29 - 39) – W/4} / 2 =

43 – 45 = 44-46 = 2.5cm

Join 43 – 45-42

Join 44 – 46 – 42

Princess Cut Blouse with Boat Neck



EXERCISE 38 & 39 : Gents full sleeve shirt

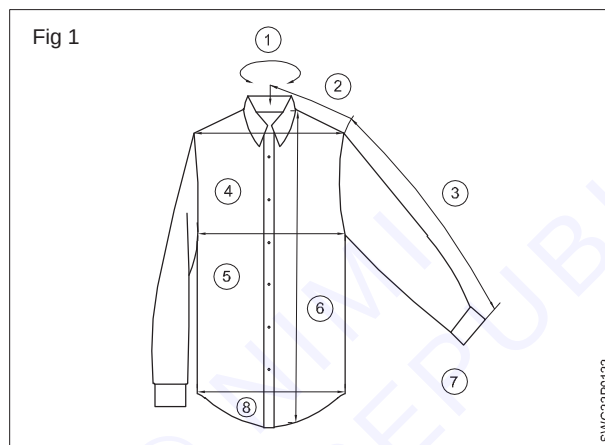
Objectives

At the end of this exercise you shall be able to:

- take measurements for Gents Shirt
- draft and cut the paper pattern for Gents Shirt
- prepare master pattern
- lay and cut the required components
- sew the Gents Shirt

Procedure

TASK 1: Take measurements for Gents Shirt (Fig 1)



TASK 2: Draft paper pattern according to given measurement

Measurement in cm

Full length	= 80 cm
Chest	= 90 cm
Yoke	= 41 cm
Neck	= 38 cm
Natural waist	= 42 cm
Sleeve length	= 58 cm

Components:

Front Part	- 2 Piece
Back Part	- 1 Piece
Sleeve Part	- 2 Piece
Yoke Part	- 2 Piece
Collar Fall	- 2 Piece
Collar Stand	- 2 Piece
Sleeve Placket	- 2 Piece
Cuff	- 4 Piece
Pocket	- 1 Piece

Suitable Fabric:

Cotton, Polyester, Silk, Shirt Cloth, Any other suitable material

Required material= 2.5 meters, canvas, buttons, thread

Construction (front)

- 0 – 1 = Full length of shirt +2.5 cm for hem = $80 + 2.5 = 82.5$ cm
 0 – N = 2 cm for over lapping of button & button hole = 2 cm
 = Join N – M
 N – A = M – B = 6cm for front placket = 6 cm
 0 – 2 = $1/4$ of chest – 1.5 cm = $22.5 - 1.5 = 21$ cm
 0 – 3 = Natural waist = 42 cm
 0 – 4 = $1/2$ of yoke +1 cm for seam = $20.5 \text{ cm} + 1 \text{ cm} = 21.5$ cm
 5 = Is square from 2 & 4
 0 – 6 = $1/6$ of Neck = 6.5 cm
 0 – 7 = $1/6$ of Neck + 1 cm = 7.5 cm
 4 – 8 = $1/24$ of chest (Shoulder slope) = 3.7 cm

Draw the neck shape from 7 – 6 and join 6 – 8

- 5 – 9 = 2.5 cm = 2.5 cm
 2 – 10 = $1/4$ of Chest + 6 cm = $22.5 + 6 = 28.5$ cm
 3 – 11 = 2 - 10 measure - 1.5 cm = 27 cm
 1 – 12 = 2 - 10 measure = 28.5 cm

Draw the front armhole shape 10 – 9 – 8 join from 10 – 11 – 12

- 12 – 13 = $1/8$ of chest = 11.25 cm
 12 – 14 = 6 cm

Draw the shape 13 – 14 as the diagram

Chest pocket mark:

- 2 – 15 = 4 cm
 15 – 16 = Pocket width ($1/8$ of chest + 1.5 cm) = $11.25 + 1.5 = 12.75$ cm

Draw the square down from 16

- 16 – 17 = Pocket length = (pocket width) $12.75 + 1.5 \text{ cm} = 14.25$ cm

18 = Is square from 15 – 17

Back

- 0 – 19 = 4 cm for back pleat
 1 – 20 = 4 cm Join 19 – 20
 19 – 21 = 4 – 22 = 1.5 cm
 22 – 23 = 1.5 cm
 X = Is midway of 21 – 22
 X – Y = 4 cm for pleat make the pleat and draw the shape Y – 23
 24 = Is mid of 5 – 23 draw the back arm/hole shape (10 – 24 - 23)

Sleeve

- 0 – 1 = Sleeve length – cuff width (5 cm) + 2 cm for seam = 55 cm
 0 – 2 = $\frac{1}{12}$ of chest + 2.5 cm = 7.5+2.5 cm = 10 cm
 2 – 3 = $\frac{1}{4}$ of chest = 22.5 cm
 1 – 4 = $\frac{1}{6}$ of chest + 1 cm = 16 cm
 4 – 5 = 1 cm join 0 – 3 – 4 & produce = 1 cm
 6 = Is mid of 1 – 5 = 8 cm
 6 – 7 = $\frac{1}{6}$ of chest for sleeve placket = 15 cm
 8 = Is mid of 0 – 3
 9 = Is mid of 0 – 8
 10 = Is mid of 3 – 8
 9 – 11 = 10 – 12 = 10 – 13 = 1.5 cm
 0 – 11 - 13 – 3 draw the back shape as per the diagram
 0 – 11 - 8 – 12 – 3 draw the front shape as per the diagram

Cuff

- 0 – 1 = $\frac{1}{8}$ of chest + 1.5 cm = 11.25 +1.5 cm = 12.75cm
 0 – 2 = Cuff width (5 cm) + 2 cm for seam = 7 cm
 3 = Is square from 1 & 2
 2 – 4 = 1 – 5 = 5 cm join 4 – 5

Yoke

- 0 – 1 = $\frac{1}{2}$ of yoke + 1 cm for seam = 20.5 + 1 = 21.5 cm
 0 – 2 = $\frac{1}{8}$ of chest + 1 cm = 11.25 + 1 = 12.25 cm
 3 = Is square out 1 and 2
 2 – 4 = 3-5 = 4 – 8 front measure ($\frac{1}{24}$ chest) = 3.75 cm
 Join 4 – 5 and produce
 2 – 6 = 0 – 6 front measure + 0.5 cm or $\frac{1}{6}$ neck+0.5 cm= 6.5+ 0.5 =7 cm
 6 – 7 = 6 – 8 front measure draw the shape 4 – 6 and join 6 – 7
 1 – 8 = 1 cm
 9 = Mid of 0 – 1
 7 – 8 = 9 – 8 draw the shape as the diagram

Collar falls

- 0 – 1 = $\frac{1}{2}$ of neck + 1 cm for seam = 19 + 1 = 20 cm
 0 – 2 = Collar fall width 5 cm + 1.5 cm for seam = 6.5 cm
 3 = Is square from 1 & 2
 3 – 4 = 1.5 cm
 1 – 5 = 1 cm join 5 – 4 and produce
 4 – 6 = 3 cm
 X = Is mid of 0 – 1

Y = Is mid of 2 – 3

X – 5 = Y – 6 draw the shape as the diagram

Collar stand

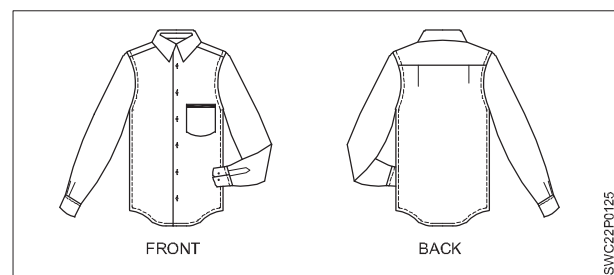
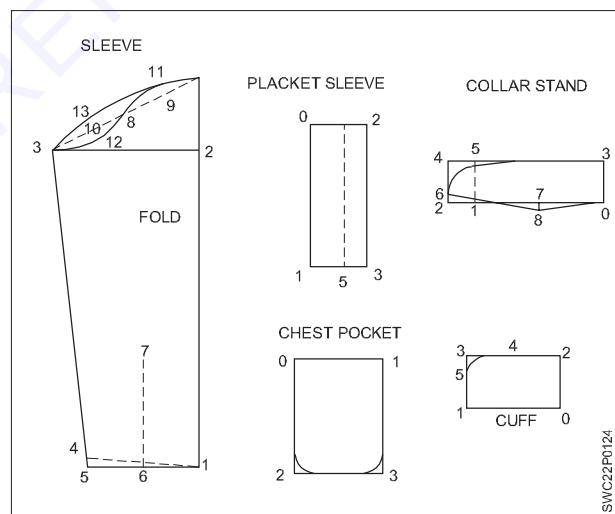
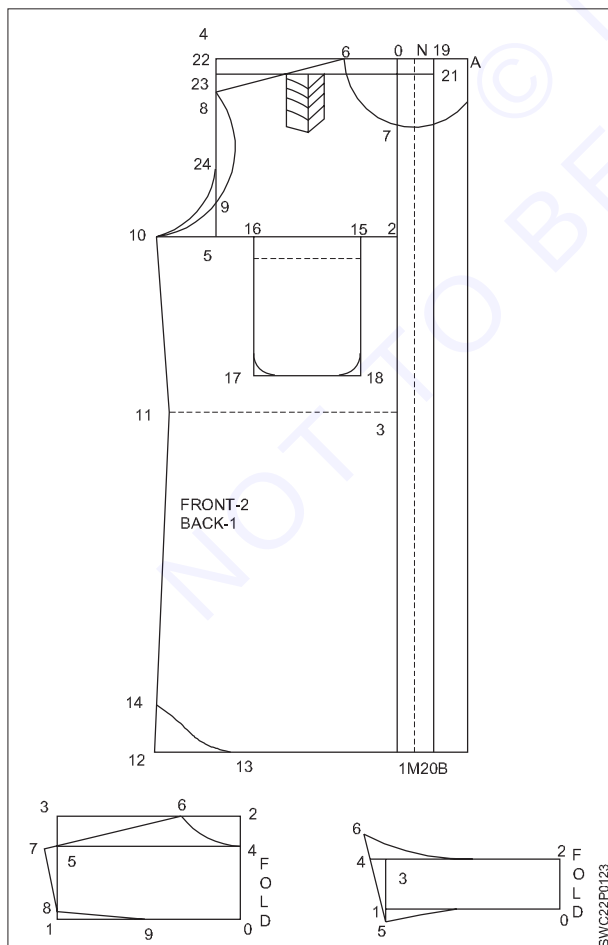
- 0 – 1 = $\frac{1}{2}$ of neck = 19 cm
 1 – 2 = 3.5 cm = 3.5 cm
 0 – 3 = Band width (4 cm) + 1.5 cm = 4 + 1.5 = 5.5 cm
 4 = Is square from 2 & 3
 4 – 5 = 1 – 2 measure join 1 – 5 = 3.5 cm
 2 – 6 = 1 cm
 1 – 7 = $\frac{1}{2}$ of 0 – 1 measure = 9.5 cm
 7 – 8 = 0.75 cm = 0.75 cm
 0 – 8 = 1 – 6 = draw the shape as per the diagram
 4 – 9 = 0.75 cm draw the shape 5 – 9
 9 – 10 = 0.75 cm join 10 – 6

Chest pocket

- 0 – 1 = Pocket width = $\frac{1}{8}$ Chest + 1.5 cm = 12.75 cm
 0 – 2 = Pocket Length = 0-1 measure + 3.5 cm = 16.25 cm
 3 = Is square from 1 and 2

Sleeve Placket

- 0 – 1 = Chest/6 + 5 cm = 15 + 5 = 20 cm
 0 – 2 = 8 cm
 3 = Is square from 1 & 2
 2 – 4 = 3 – 5 = 3 cm join 4 – 5



TASK 3 : Prepare Master pattern

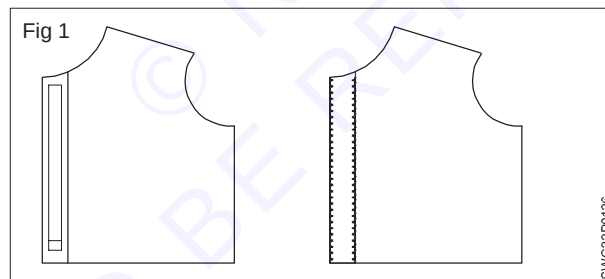
- 1 Cut the paper pattern and add seam allowance
- 2 Mark all the notches, seamline, cutting line etc.
- 3 Name all the cut components and mark the grainline, foldline etc.
- 4 Finally cut the master pattern.

TASK 4: Lay and cut a Gents Shirt

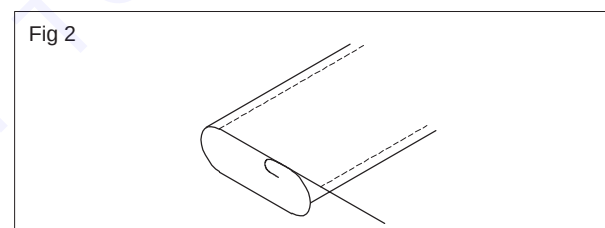
- 1 Lay the fabric on the cutting table with their wrong side facing upwards.
- 2 Arrange the master pattern of shirt in such a way that fabric utilisation is less.
- 3 Mark the outline of all the shirt components using a marking chalk.
- 4 Remove the master pattern.
- 5 Cut the fabric on the outline marked.
- 6 Tie all the components together.

TASK 5 : Stitch the front, left and right placket with pocket attaching

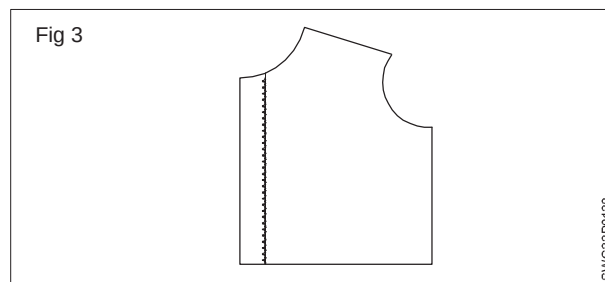
- 1 Prepare the machine for sewing the shirt
- 2 Thread the needle according to the matching colour of the base fabric
- 3 Select the suitable needle size according to the choice of the fabric
- 4 Take front left and right piece of the shirt
- 5 Place the lining on the left front placket fuse with help of iron box. (Fig 1)



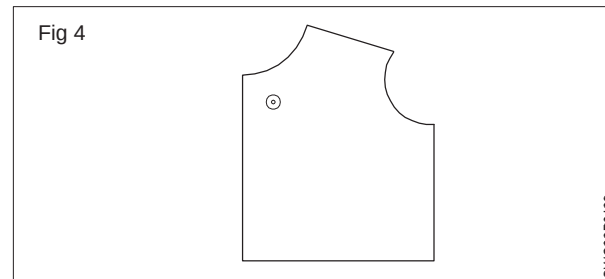
- 6 Stitch the left front placket with the help of SNLS use the folder. (Fig 2)



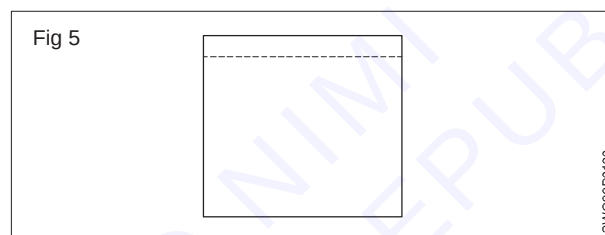
- 7 Stitch the right front placket by using the folder width is 1.25" and use the edge guide. (Fig 3)



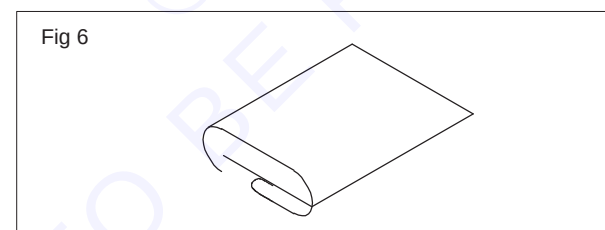
- 8 Mark the pocket location as per given measurements with help of punch machine. (Fig 4)



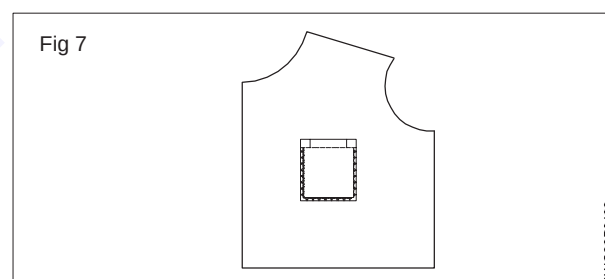
- 9 Fold $\frac{1}{2}$ " allowance and stitch the pocket mouth with SNLS. (Fig 5)



- 10 Iron the pocket with help of templates. (Fig 6)



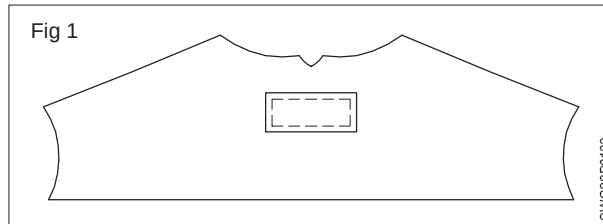
- 11 Stitch pocket with back tack ensure the stitch should falls on edges. Use edge guide with SNLS machine. (Fig 7)



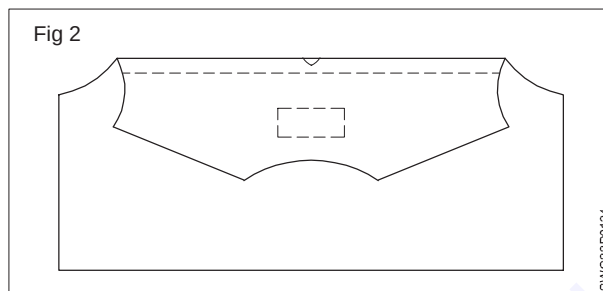
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TASK 6 : Attach the main label with back yoke and shoulder attaching

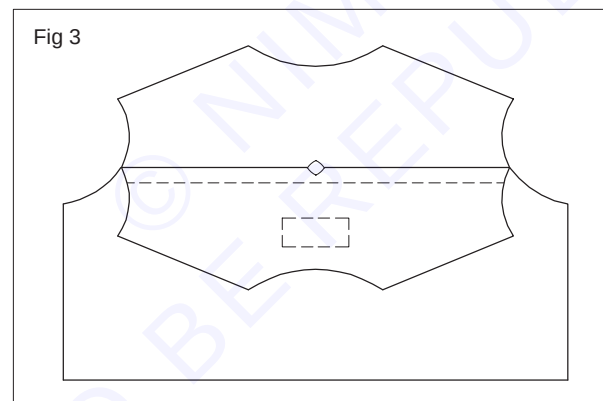
- 1 Stitch the main label of the centre of yoke by following the centre of the yoke notches with the edge guide. (Fig 1)



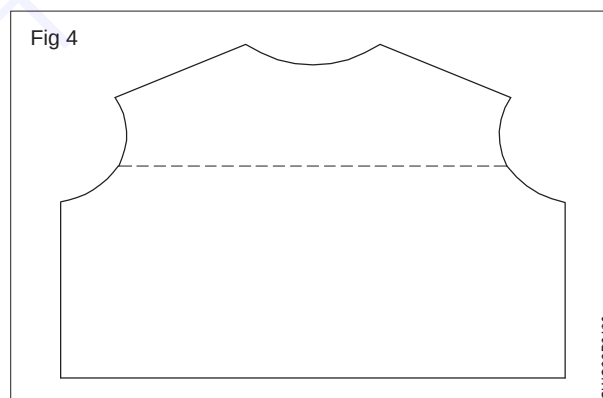
- 2 After stitch the main label stitch the down yoke with back body with $\frac{1}{2}$ " seam allowance. (Fig 2)



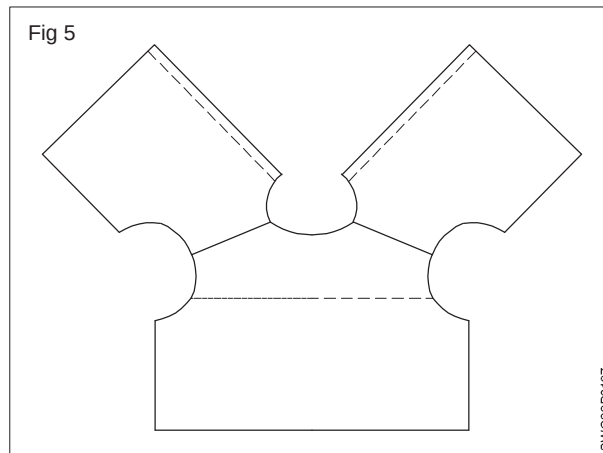
- 3 Place the top yoke & down yoke and the back body together. Attach all 3 layer by using SNLS with $\frac{1}{4}$ " guide. (Fig 3)



- 4 Iron the top yoke leave the down yoke toward to down side stitch edge of body & yoke with SNLS. (Fig 4)

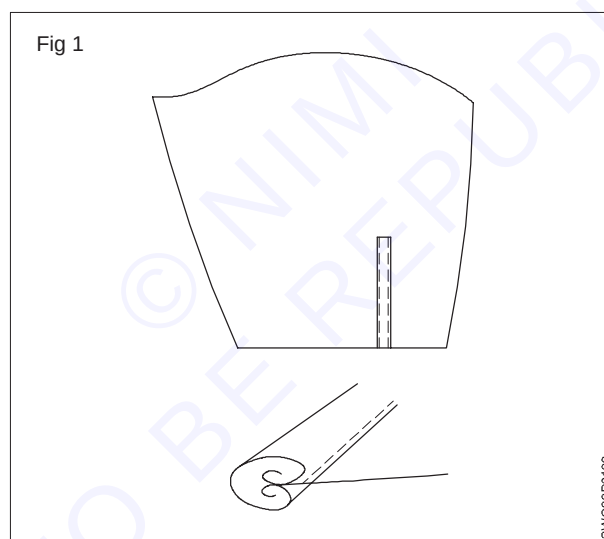


- 5 Attach the shoulder front & back components and turn the body face put the edge stitch with SNLS machine (Fig 5)

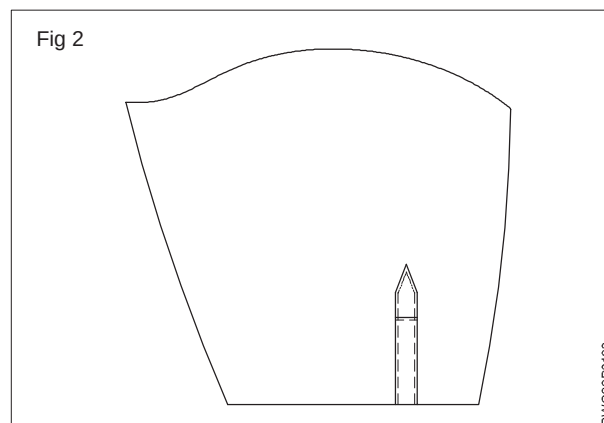


TASK 7 : Prepare and attaching the placket

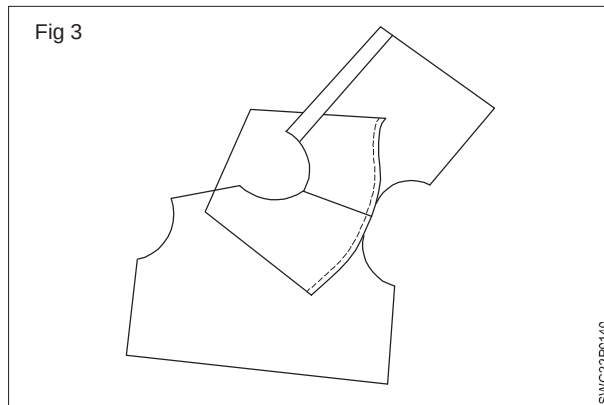
- 1 Attach the smaller placket on the reverse side of the sleeve and turn toward to face side fold thin and finish with edge stitch. (Fig 1)



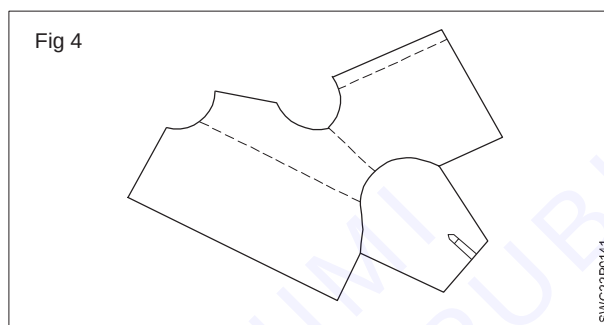
- 2 Attach the bigger sleeve placket on the bigger sleeve side with the pointed shape placket by using SNLS. (Fig 2)



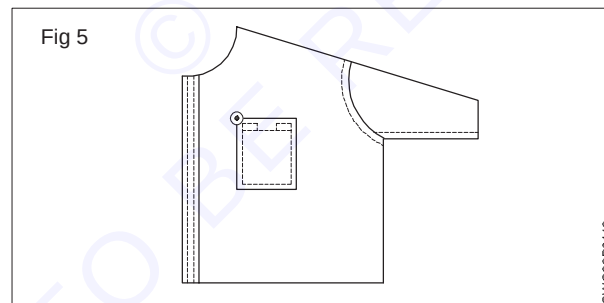
- 3 Attach the arm hole with body during the attaching centre of body and centre sleeve should match, use distance guide with SNLS. (Fig 3)



- 4 Turn the sleeve towards face side and put top stitches edge stitch using SNLS machine. (Fig 4)

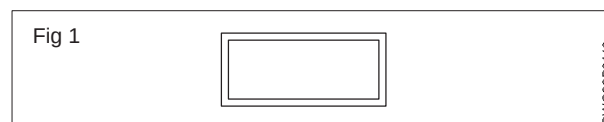


- 5 Attach the side seam body starts from bottom of sleeve to bottom of body edge using overlock machine. (Fig 5)

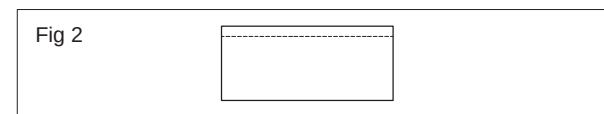


TASK 8 : Prepare and stitching the cuff

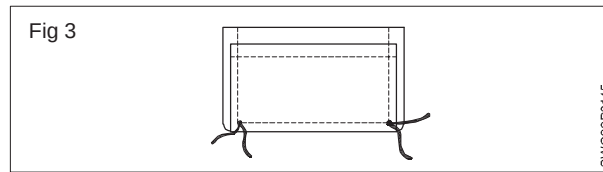
- 1 Fuse the cuff with $\frac{1}{4}$ " allowance all round place the cuff fuse on the reverse side of the cuff press with iron box. (Fig 1)



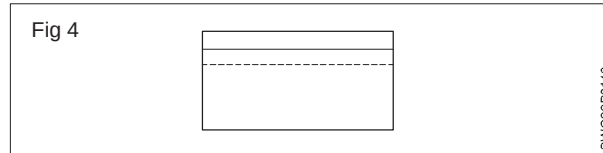
- 2 Fold the cuff with $\frac{1}{4}$ " allowance and stitch with SNLS stitch should falls of face side of the cuff. (Fig 2)



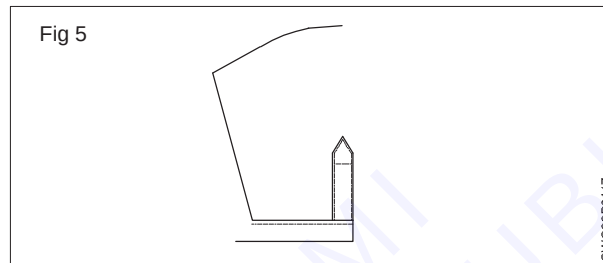
- 3 Place the top & bottom cuff one top another attach the 2 cuff components using SNLS machine and during the stitch of corner put the thread to get a sharp point cuff. (Fig 3)



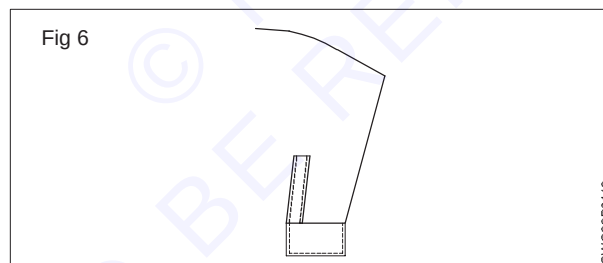
- 4 Turn the cuff components and press with iron box before attaching to the sleeve. (Fig 4)



- 5 Joint the cuff with sleeve by using distance stitch with help of $\frac{1}{4}$ " seam allowance (attach the cuff reverse side of the body). (Fig 5)

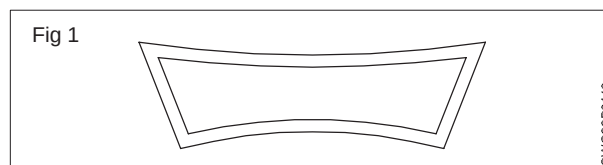


- 6 Turn the cuff to face side close the cuff components with edge stitch and finish with cuff top stitch (only start & end with one back tack introduced). (Fig 6)

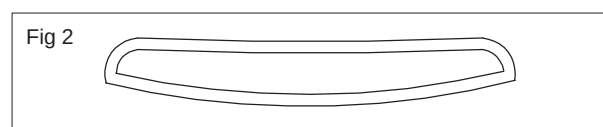


TASK 9 : Collar marking

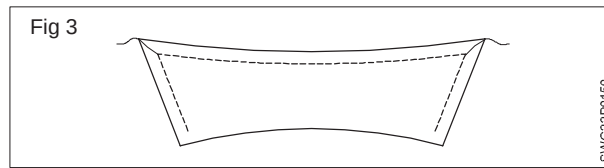
- 1 Place the fusing collar fall the reverse side of the collar ensure allowing $\frac{1}{4}$ " allowance and press the collar falls. (Fig 1)



- 2 Press the collar band by following above procedure. (Fig 2)

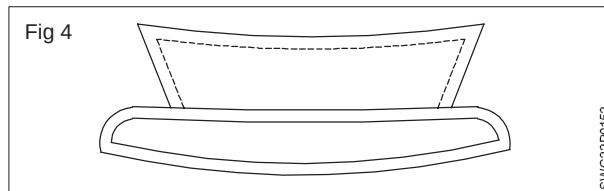


- 3 Join the top & bottom falls place together stitch with distance stitch while stitch to get the sharp point at corners keep thread at the corners. (Fig 3)



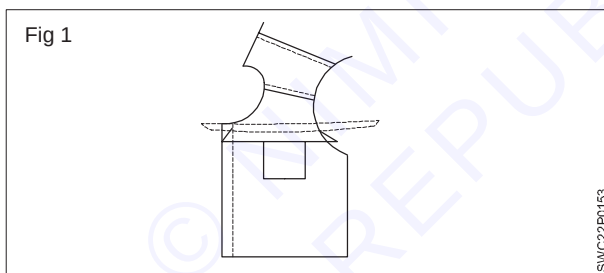
- 4 Collar band hemming with $\frac{1}{4}$ " allowance. (Fig 4)

Match the centre of c/Band c/Fall and join all the components together with help of SNLS.

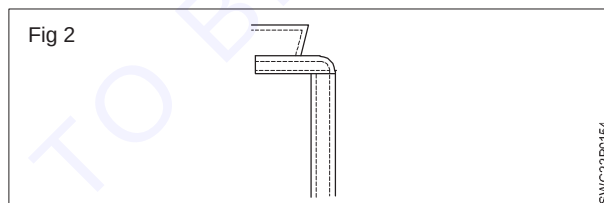


TASK 10 : Attach the collar mark and stitch the button hole and bottom hem

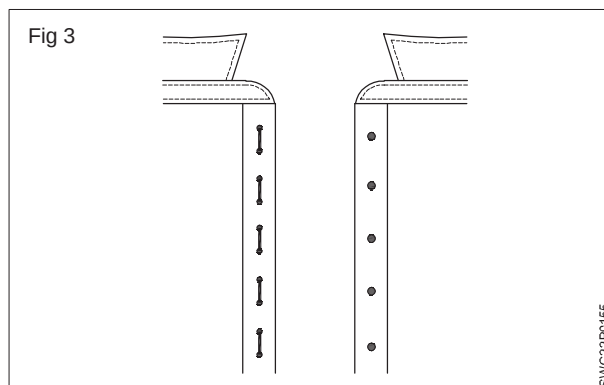
- 1 Stitch the collars with body with $\frac{1}{4}$ " seam during the attaching match the centre of collar & centre of the body. (Fig 1)



- 2 Finish the collar with edge stitch while closing the collar edge should be given continuous and starting and ending with one back tack. (Fig 2)

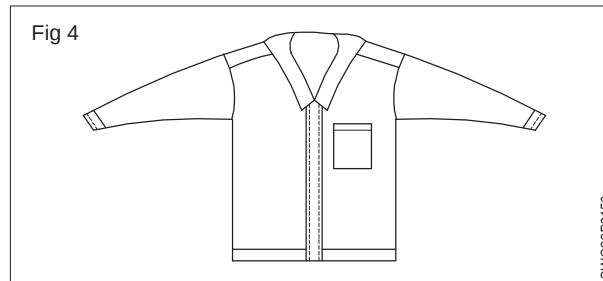


- 3 Mark the button hole location with given pattern and sew the button hole with button hole machine. (Fig 3)



- 4 Mark the button location again by following the button hole. Sew the button by using button stitching machine.
- 5 Fold 1-1/2" at the bottom & stitch the bottom hemming with the SNLS machine. (Fig 4)

Repeat the same Sequence for formal, classic & decorative front yoke shirt.



Pathani shirt

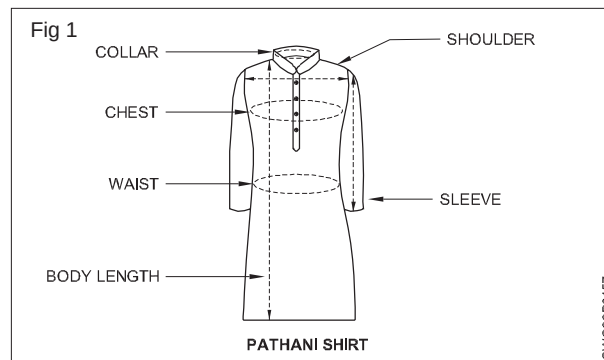
Objectives : At the end of this exercise, you shall be able to:

- draft and cut a Pathani Shirt
- sew a Pathani Shirt

Fig 1



TASK 1: Take measurement (Fig 1)



Measurement in cm

Full length	= 85 cm	Sleeve	- 2 Piece
Chest	= 90 cm	Yoke	- 2 Piece
Yoke	= 41 cm	Collar	- 2 piece
Neck	= 38 cm	Band	- 2 piece
Natural waist length	= 42 cm	Cuff	- 4 Piece
Sleeve length	= 58cm	Sleeve placket	- 2 piece
Components		Pocket	- 2 piece
Front Part	- 1 Piece	Pocket pouch	-2 piece
Back Part	- 1 Piece		

Suitable Fabric

Cotton, Terry Cotton, Silk, Blended Cotton, Suiting Cloth, Shirt Cloth

TASK 2 : Draft paper pattern of pathani shirt

Construction of front part

A – B = Full length of shirt + 2.5 cm for hem and seam		= 87.5 cm
A – 0 = B – 1 = 4 cm	Join 0 – 1	= 4 cm
0 - 2 = 1/4 Chest – 1.5 cm	= 22.5 – 1.5 cm	= 21 cm
0 – 3 = Natural waist length		= 42 cm
0 – 4 = 1/2 yoke + 1 cm	= 20.5 + 1 cm	= 21.5 cm
5 = Is square from 2 & 4		
0 – 6 = 1/6 neck		= 6.3 cm
0 – 7 = NK/6 + 1 cm = 6.3+1	= 7.3 cm	
4 – 9 = 1/24 Chest		= 3.75 cm
Join 8 – 7 and 6 – 9 and draw the neck shape from 7 – 6		
5 – 10 = 2.5 cm		
2 – 11 = 1/4 of Chest + 6 cm	= 22.5 + 6	= 28.5 cm
3 – 12 = (2 – 11 Measure) - 1.5 cm	= 28.5 – 1.5	= 27 cm
1 – 13 = 1/4 Chest + 6		= 28.5 cm

Draw the front armhole shape 11 – 10 – 9 and join 11 – 12 – 13 = 28.5 cm
 13 – 14 = 13 – 15 = 1/8 of Chest = 11.25 cm

Draw the shape 14 – 15

14 – 16 = 1/8 Chest for side open = 11.25 cm

Neck open

8 – N = 1 cm

N – M = 1/4 Chest + 5 cm = 22.5 + 5 cm = 27.5 cm

Chest pocket mark

2 – P = 4 cm

P – Q = Pocket Width (1/8 of chest + 1.5 = 12.75 cm)

Draw the square draw from Q

Q – R = Pocket Length (pocket width + 1.5 cm)

S = Is square from P & R

Back part

A – 17 = 4 – 18 = 1.5 cm Join 17 – 18

X is mid of 17 - 18

18 – 19 = 1 cm

Draw the shape X – 19

Pleat

X – Y = 4 cm for pleat make the pleats

20 = Is mid of 5 – 19

Draw the back armhole shape 11 – 20

Sleeve

0 – 1 = Sleeve length – Cuff width (5cm) + 2 cm for seam = 58 – 5 + 2 = 55 cm

0 – 2 = 1/12 Chest + 2.5 cm

2 – 3 = 1/4 Chest = 22.5 cm

1 – 4 = 1/6 Chest + 1cm Join 0 – 3 – 4 and produce = 16 cm

4 – 5 = 1 cm Join 4

6 = Is mid of 1 – 5

Draw the square up from 6

6 – 7 = 1/6 Chest for sleeve open = 15 cm

8 = Is midway of 0 – 3

9 = Is midway of 0 – 8

10 = Is midway of 3 – 8

9 – 11 = 10 – 12 = 1.5 cm

0 – 11 – 13, 3 = Back shape = 0 – 11 – 8 – 12 – 3 draw the front shape as the diagram

Cuff

- $0 - 1 = 1/8 \text{ Chest} + 1 \text{ cm} = 11.25 + 1 = 12.25 \text{ cm}$
 $0 - 2 = \text{Cuff width (5 cm)} + 2 \text{ cm for seam} = 7 \text{ cm}$
 $3 = \text{Is square from 1 \& 2}$

Sleeve placket

- $0 - 1 = \text{Ch}/6 + 4 \text{ cm} = 15 + 4 = 19 \text{ cm}$
 $0 - 2 = 11 \text{ cm}$
 $3 = \text{Is square from 1 \& 2}$
 $2 - 4 = 3 - 5 = 4 \text{ cm} \quad \text{Join } 4 - 5 = 4 \text{ cm}$

Placket (front)

- $0 - 1 = N - M \text{ Measure} + 2.5 \text{ cm} = 27.5 + 2.5 \text{ cm} = 30 \text{ cm}$
 $0 - 2 = 9 \text{ cm}$
 $3 = \text{Is square from 1 \& 2}$
 $2 - 4 = 3 - 5 = 4 \text{ cm} \quad \text{Join } 4 - 5$

Yoke

- $0 - 1 = 1/2 \text{ of yoke} + 1 \text{ cm for seam} = 20.5 + 1 = 21.5 \text{ cm}$
 $0 - 2 = 1/8 \text{ Chest} + 1 \text{ cm} = 11.25 + 1 = 12.25 \text{ cm}$
 $2 - 4 = 3 - 5 = 4 - 9 \text{ front measure} = 4 \text{ cm}$
 $2 - 6 = 0 - 6 \text{ Front measure} + 0.5 \text{ cm and draw the shape } 4 - 6 = 6.8 \text{ cm}$
 $6 - 7 = 6 - 9 \text{ Front shoulder measure} = 16 \text{ cm}$
 $1 - 8 = 1 \text{ cm}$
 $X = \text{Is mid of } 0 - 1$
 $X - 8 = 7 - 8 = \text{Draw the shape as per the diagram}$

Chest pocket

- $0 - 1 = \text{Pocket length} = (\text{pocket width}) + 3.5 \text{ cm for hem} = 14.25 + 3.5 = 17.75 \text{ cm}$
 $0 - 2 = \text{Pocket width} = (1/8 \text{ Chest} + 1.5 \text{ cm}) + 1.5 \text{ cm} = 14.25 \text{ cm}$
 $3 = \text{Is square from 1 \& 2}$

Side pocket

- $0 - 1 = 3.5 \text{ cm}$
 $1 - 2 = 2 - 3 = 3 - 4 = 1/6 \text{ Chest} = 15 \text{ cm}$
 $\text{Draw the shape out line from 2, 3, \& 4}$
 $2 - 5 = 1/12 \text{ Chest} = 7.5 \text{ cm}$
 $6 = \text{Is square from 4 \& 5}$
 $0 - 5 = \text{Draw the shape as per diagram}$

Side pocket mark

- $12 - a = 4 \text{ cm}$
 $a - b = 1/6 \text{ Chest}, \text{ Draw the square down} = 15 \text{ cm}$
 $\text{From 16 and square out}$

- $b - c = 1/6 \text{ chest} = 15 \text{ cm}$
 $b - d = 1/2 \text{ of } 16 - 12$
 $e = \text{Square down}$
 $a - f = 2.5 \text{ cm}$

Draw the shape as per diagram

Collar fall

- $0 - 1 = 1/2 \text{ of neck} + 1 \text{ cm for seam} = 20 \text{ cm}$
 $0 - 2 = \text{Collar fall width (5 cm)} + 1.5 \text{ cm for seam} = 6.5 \text{ cm}$
 $3 = 5 \text{ Square from 1 \& 2}$
 $1 - 4 = 0.75 \text{ cm}$
 $X = \text{Is mid of } 0 - 1$

Draw the shape x - 4

- $3 - 5 = 1.5 \text{ cm join 4 \& 5 and produce}$
 $5 - 6 = 3 \text{ cm}$
 $Y = \text{Is mid of } 2 - 3$

Y - 6 = Draw the shape Y-6

Collar stand

- $0 - 1 = 1/2 \text{ Of neck} = 19 \text{ cm}$
 $1 - 2 = 3.5 \text{ cm}$
 $0 - 3 = \text{Collar stand width (4)} + 1.5 \text{ cm for seam} = 5.5 \text{ cm}$
 $4 = \text{Is square for 2 \& 3}$
 $4 - 5 = 1 - 2 \text{ measure same}$
 $1 - 6 = 1/3 \text{ of } 0 - 1 \text{ measure}$
 $6 - 7 = 0.75 \text{ cm}$
 $2 - 8 = 1 \text{ cm}$
 $0 - 7 = 1 - 8 \text{ Draw the shape as per the diagram}$
 $4 - 9 = 0.75 \text{ cm}$

Draw the shape 9 - 5

- $9 - 10 = 0.75 \text{ cm join } 8 - 10$

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TASK 3: Prepare master pattern and Cut the Pathani Shirt

- Draft a paper pattern of Pathani shirt with the given measurements.
- Give seam allowance as required, then cut the master pattern.

— — — — —

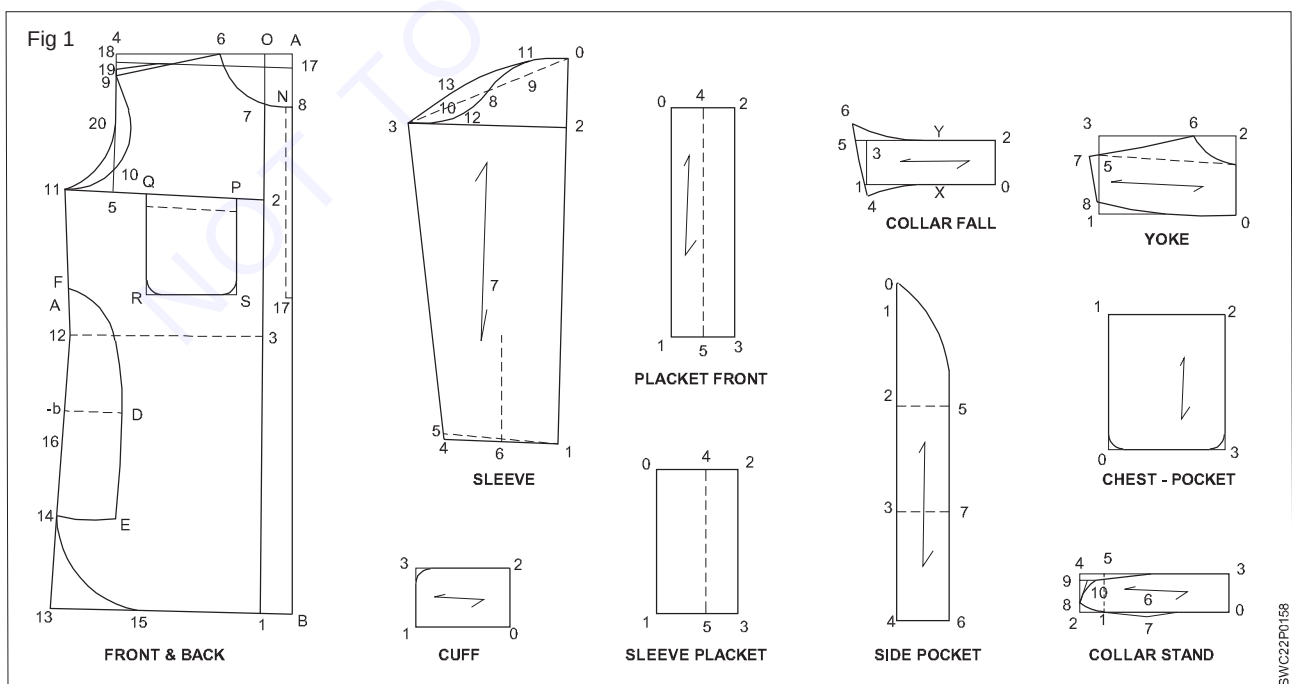
TASK 4: Sew the pathani kurta

- Take the front part and stitch Two-piece placket in the centre front.
- Join the front and back parts together at their shoulders with a seam and topstitch it.
- Prepare chest pocket (Patch pocket) and attach it on both the left side and right side of front part on the marked line.
- Fix fusing to the fabric of collar. Prepare both the band and collar. Stitch the collar fall with the band pieces and prepare Shirt collar.
- Attach the prepared collar to the neckline.
- Attach sleeve on armhole with shirt - sleeve method.
- Stitch under arm seam and side seam matching the balance marks, leaving the pocket - mouth and slit on the marks.
- Stitch and finish Kurta pocket at both sides.
- Finish slit and bottom by hand hemming.
- Divide the placket length into four equal parts from collar and mark button hole positions on the centre of placket
- Mark, cut and work out button holes.
- Tack buttons of appropriate size on the button stand placket.
- Finish and press

TASK 5: Finishing of pathani shirt

After stitching a Pathani shirt, the finishing process adds the final touches to enhance its appearance and functionality.

- Trimming is the operation of removing the extra threads to achieve a neat look to the garment
- Checking and removing of stains in the garment using wetting agents.
- Checking of stitching faults if any and to rectify it.
- Checking for final measurement as per spec-sheet.
- The last process is pressing. The pathani shirt has to be pressed for removing wrinkles and to enhance its appearance. (Fig 1)



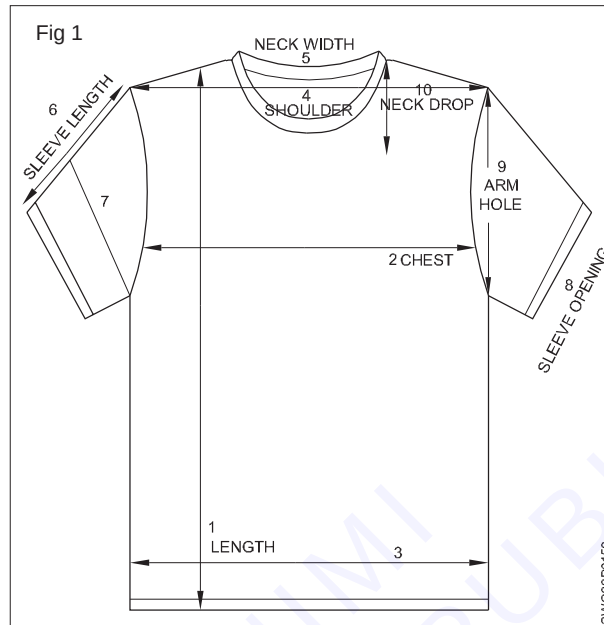
T - Shirt

Objectives : At the end of this exercise, you shall be able to

- draft and cut a T-Shirt
- sew a T-Shirt

TASK 1: Take Measurement

Measuring of t-shirt (Fig 1)



Measurement in cm

Full Length	= 78 / 58 cm
Natural Waist	= 42 cm
Neck	= 37 cm
Shoulder	= 41 cm
Chest	= 90 cm
Sleeve Length	= 25 cm
Collar Width	= 4 cm

Components

Front Part	= 1 Piece
Back Part	= 1 Piece
Sleeve Part	= 2 Piece
Placket	= 2 Piece
Collar	= 2 Piece
Pocket	= 1 Piece

Suitable fabric

Cotton, Polyester, Jersey, Knit, Linen

TASK 2: Draft T-Shirt with given measurement

Construction of Front and Back

0 - 1 = Full length + 1 cm

0 - 2 = CH / 4 = 22.5 cm

0 - 3 = CH/12 = 7.5 cm

0 - 5 = 3 - 4 = 7.5 cm

Square down 3 to mark 4 ,Join 4-5 ,Shape Neck 5-3

0 - 6 = SH/2 + 1 = 21.5 cm

Square down 6 to 7

6 - 8 = 2.5 cm = 2.5 cm

Join 3-8

7 - 9 = 3 cm = 3 cm

2 - 10 = CH/4 + 4 cm = 26.5 cm

Shape scye 8-9-10

Square down from 10 to 11

11 - 12 = 2.5 cm = 2.5 cm

Join 10 - 12

5 - 13 = 0.75 cm = 0.75 cm

Square down 13 to 14 for Placket marking

13 - 14 = CH/4 + 2.5 cm = 25 cm

7 - A = 3 cm

AB is marked on to 10-2 line

A - B = CH/8 + 1.5 = 12.75 cm

Square down A-B to marked C-D

A - C = B-D = CH/8 + 3 cm back = 14.25 cm

0 - 15 = 0.75 cm (up) = 0.75 cm

3 - 16 = 3 cm

Shape 15-16 ,join 16 - 6

17 is midpoint of 6 - 7 Shape armhole 6-17-10

12 - 18 = 10 cm or to taste for slit marking cut 13 - 14 in layer of the pattern and fabric

Collar

0 - 1 = N/2 = 18.5 cm

Square up from 0 and 1

0 - 2 = 1 - 3 = CH/12 + 2cm = 9.5 cm

Join 2 - 3

0 - 4 = 1 - 5 = 2 cm = 2 cm

Join 4 - 5

3 - 6 = 3 cm = 3 cm

Join 5 - 6

0 - 7 = CH/12 + 1 cm = 8.5 cm

Divide angle 5 - 1 - 7

1 - 8 = 2 cm = 2 cm

Shape 0 - 7 - 8 - 5

Sleeve

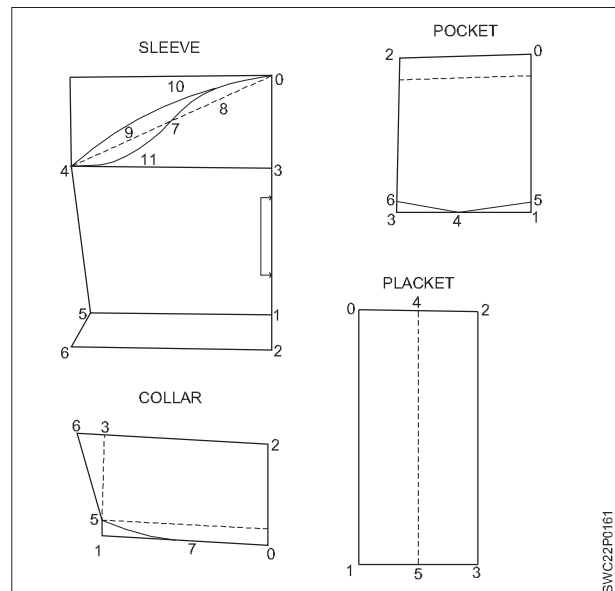
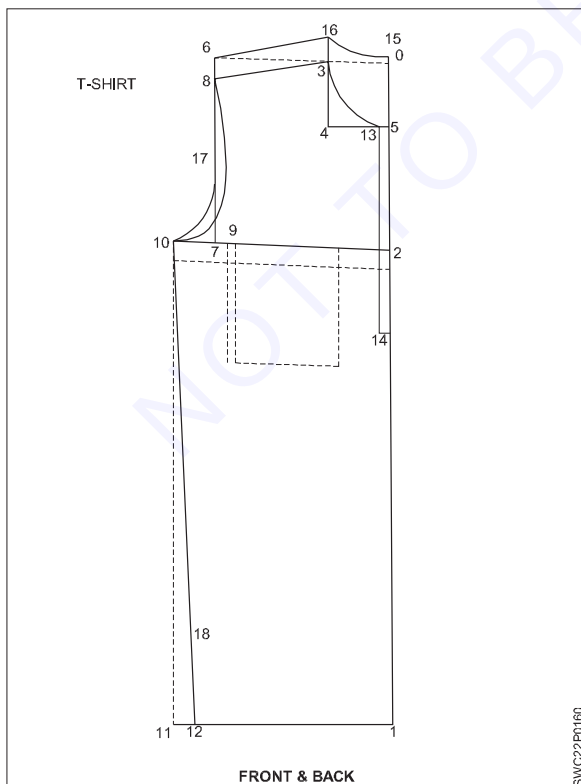
- 0 - 1 = Sleeve length + 1 cm = 26 cm
 1 - 2 = 4 cm for bottom fold = 4 cm
 0 - 3 = $\frac{1}{12}$ of chest + 2.5 = 10 cm
 3 - 4 = $\frac{1}{4}$ chest = 22.5 cm
 1 - 5 = 3 - 4 measure - 1.5 = 21 cm
 2 - 6 = 1 - 5 measure + 1 cm = 22 cm
 7 is mid of 0 - 4 = 12 cm
 8 is mid of 7 - 0 = 6 cm
 9 is mid of 4 - 7 = 6 cm
 8 - 10 and 9 - 11 = 1.5 cm = 1.5 cm
 0 - 10 - 4 = Draw the back sleeve shape
 0 - 10 - 7 - 11 - 4 = Draw the front sleeve shape as per the diagram

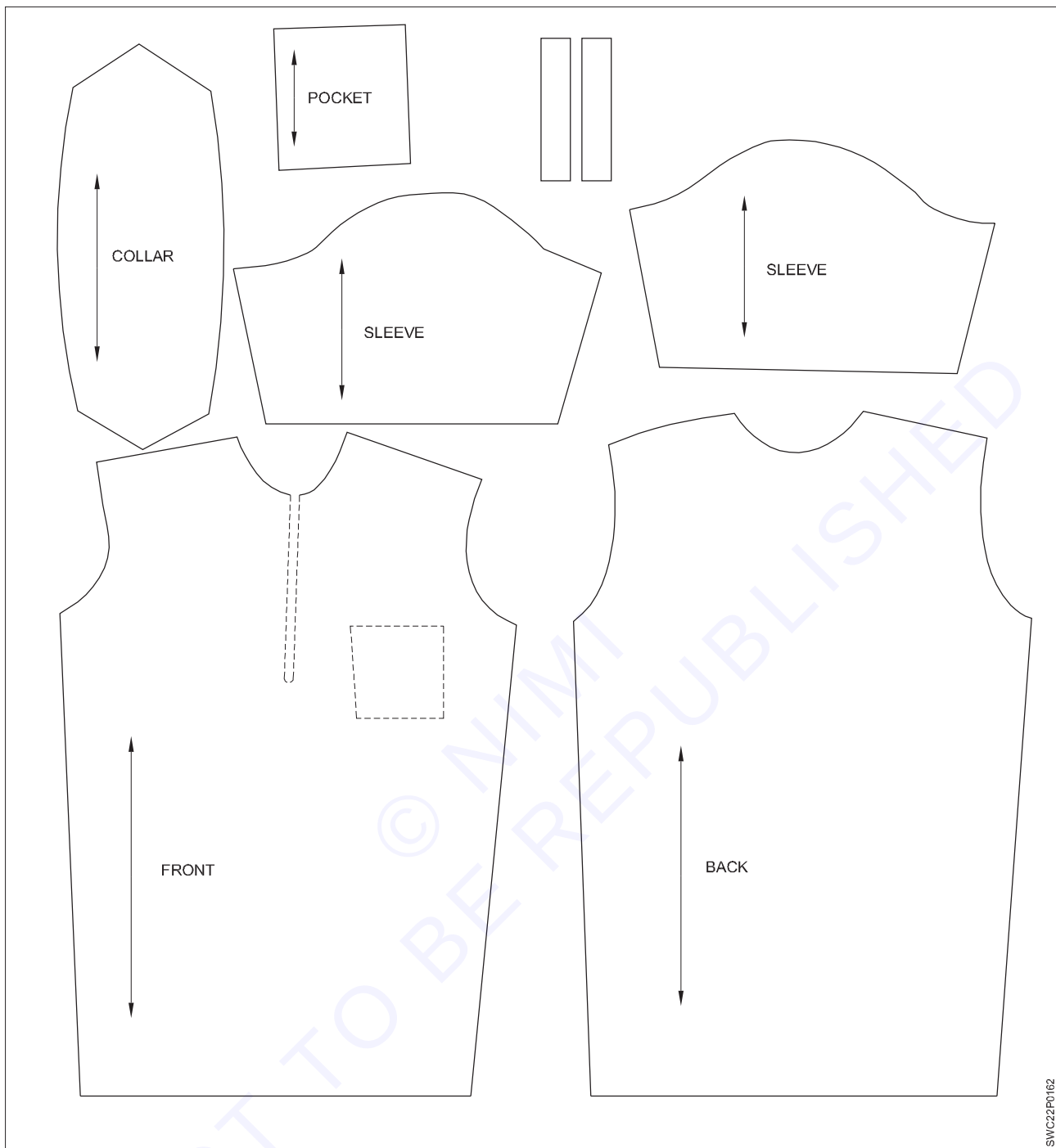
Chest pocket

- 0 - 1 = Pocket length = $\frac{CH}{8} + 3$ cm = 14.25 cm
 0 - 2 = Pocket width = $\frac{CH}{8}$ of chest + 1.5 cm = 12.75 cm
 3 is square form 1 and 2
 4 is mid by of 1 and 3 = 6.37 cm
 1 - 5 and 3 - 6 = 1 cm = 1 cm
 4 - 5 and 4 - 6, join its

Placket

- 0 - 1 = (13 - 14) measure + 2.5 cm = 25 cm
 0 - 2 = 10 cm = 10 cm
 3 is square from 1 and 2
 2 - 4 = 3 - 5 = $\frac{1}{2}$ of 0 - 2
 Join 4-5





TASK 3: Prepare Master Pattern & Cut the T-Shirt

- 1 Choose an appropriate material. Most t-shirts are made with knit fabric, but you may wish to choose a knit fabric with a fairly low amount of stretch to make the sewing process easier.
- 2 Wash the fabric. Wash and dry the material as you usually would before you do anything else with it.
 - By washing the fabric first, you can pre-shrink it and set to dry. As a result, the pattern pieces you cut out and sew together should be more accurately sized.
- 3 Take the Paper Pattern for the T-Shirt.
- 4 Add seam allowances to each piece. Use a flexible ruler and pencil to carefully draw another outline around the current perimeter of each piece. This secondary outline will be the seam allowance.
 - You can choose a seam allowance amount you feel comfortable with, but as a general rule, using a 1/2 inch (1.25 cm) seam allowance should give you plenty of room to work with. (Fig 1)

Fig 1



- 5 Mark the pieces. Label each piece by part (back body, front body, and sleeve). Mark the fold line of each piece, as well.
- 6 Cut the pattern pieces out. Fold the material in half and place your pattern pieces on top. Pin the pattern down, trace around it, and cut around each piece.
 - a Fold the material in half with the right-sides facing in, and keep the fabric as flat as possible when you lay it out.
 - b Match the fold of the fabric to each "fold" mark on your pattern pieces.
 - c When pinning the pattern pieces in place, pin straight through both layers of material. Trace around the entire outline with fabric pencil, then cut along the outline without unpinning the pattern.
 - d After cutting out the material, you can unpin and remove the paper pattern pieces. (Fig 2)

Fig 2



TASK 4: Sewing the T-Shirt

Take two placket facing pieces, Fold each piece and iron it for crease and overlock one side of the facing (Fig 1)

Fig 1



Take the T-Shirt front part to stitch front placket , on right side of the fabric, place the facing piece 1cm away from the Centre Front and Stich it. (Fig 2)

Fig 2



Stitch upto the marked line for placket (Fig 3)

Fig 3



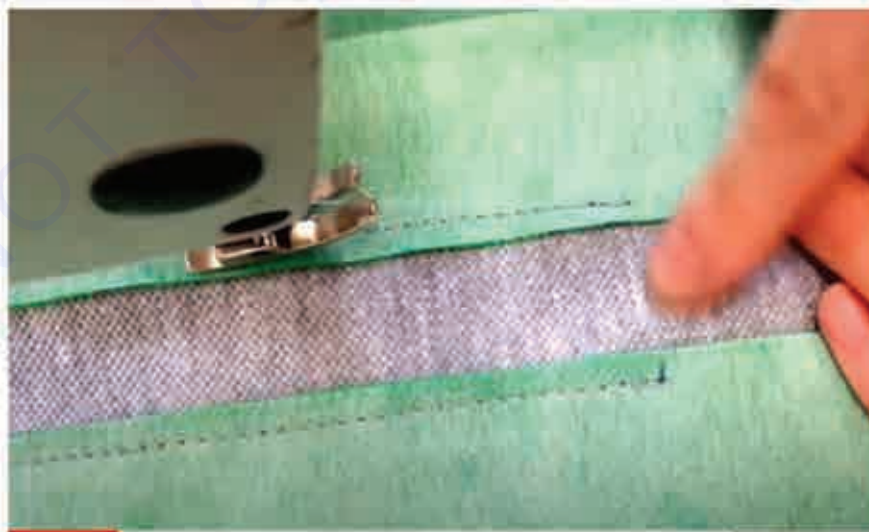
Stitch the second facing to the other side. (Fig 4)

Fig 4



Stitch upto the marked line of Placket Opening (Fig 5)

Fig 5



Cut the centre front of fabric near to the stitched facing piece, upto the mark on both side as shown in the Fig 6

Fig 6



Fold the cut fabric to the wrong side (Fig 7)

Fig 7



Fold both the facing piece and turn it to the wrong side (Fig 8)

Fig 8



The placket facing is overlapping one over the other as shown in the (Fig 9)

Fig 9



Top stitch on the right side of the fabric (Fig 10)

Fig 10



Cut the excess fabric on the wrong side (Fig 11)

Fig 11



Pin the body pieces together. Place the front and back body pieces together, right-sides facing inward. Pin around the shoulders only.

Fig 12



Sew the shoulders. Stitch straight across one shoulder seam. Cut the thread, then stitch straight across the other shoulder seam.

Fig 13



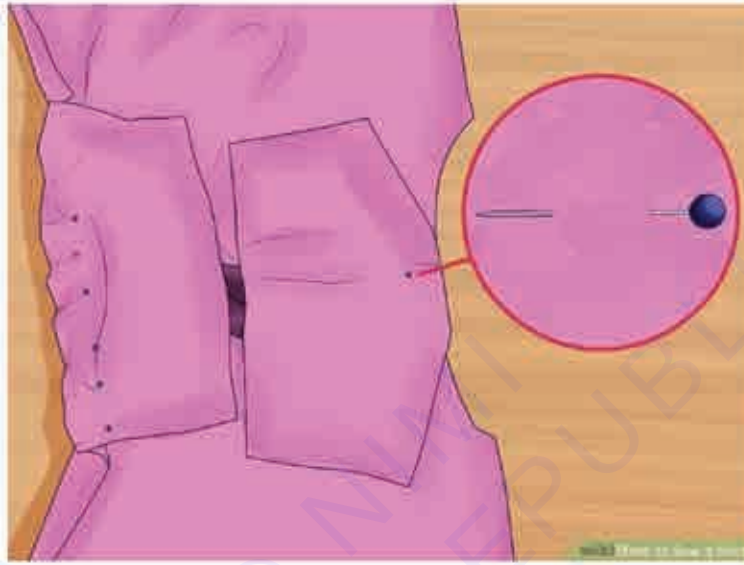
- Put straight stitch and Follow the seam allowance you marked out on your pattern pieces.

For attaching collar, make a Notch on the centre of the collar/Rib and Stitch it along the neckline (Fig 13).

Pin the sleeves to the armholes. Keep the T-shirt open and flat at the shoulder, but flip it over so that the right-side faces up. Position the sleeves right-side down and pin in place.

- Position the rounded portion of the sleeve against the rounded portion of the armhole. Pin the middle of both curves together.
- Gradually position and pin the rest of the sleeve curve to the rest of the armhole, working on one side at a time.
- Repeat this process for both sleeves. (Fig 14)

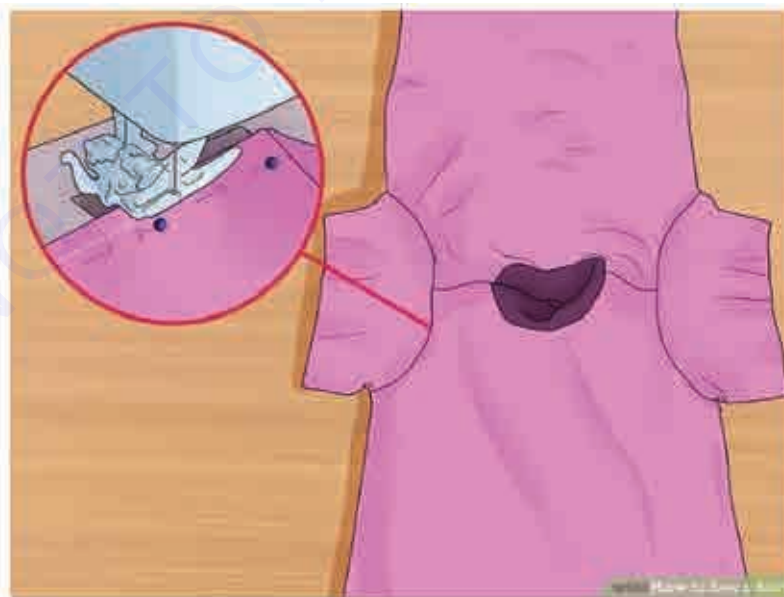
Fig 14



Sew the sleeves. With the right-sides facing down, sew a straight stitch along both sleeves, connecting them to the armholes in the process.

- The seam allowance should match the seam allowance you marked on your original pattern. (Fig 15)

Fig 15



Stitch down both sides. Fold the T-shirt with its right-sides facing. Sew a straight stitch down the entire right side of the shirt, working from the tip of the underarm seam straight down to the bottom opening. Repeat on the left side of the shirt when finished.

- Pin down the sleeves and sides before stitching them together; otherwise, the material may shift as you work.
- Follow the seam allowance you marked on your original pattern. (Fig 16)

Fig 16



Fold and sew a bottom hem and Sleeve hem. With the right-sides still facing, fold the bottom edge up according to your original seam allowance. Pin or press the fold in place, then stitch around the opening.

- Make sure that you only stitch the hem in place. Do not sew the front and back sides of the shirt together.
- Most knits are fray-resistant, so you may not need to sew a bottom hem. Doing so can create a neater appearance, though. (Fig 17 & 18)

Fig 17



Fig 18



Iron the seams. Turn the shirt right-side out again. Use an iron to flatten all the seam.

- This includes the seams along the collar, shoulders, sleeves, and sides. You may also wish to press the hems, if you did not do so before sewing them in place.

Safari shirt

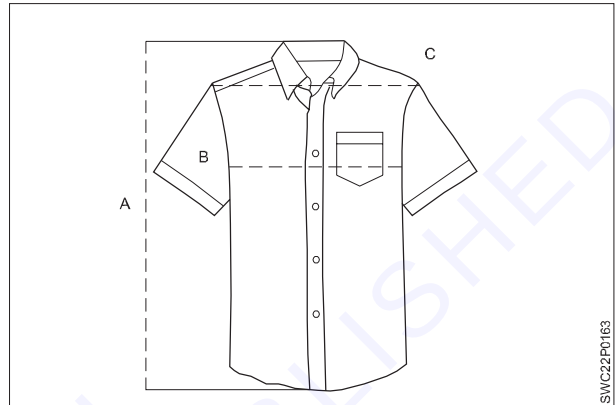
Objectives: At the end of this exercise you shall be able to

- draft and do pattern making for Safari shirt
- stitch safari shirt
- finish the safari shirt.

Procedure

TASK 1: Take Measurement (Fig 1)

Fig 1



Measurement in CM

Chest	- 91 CM
Waist	- 81 CM
Shoulder	- 40 CM
Neck	- 35 CM
Sleeve length	- 27 CM
Full length	- 76 CM
Natural waist	- 45 CM

Components

Front	- 2 piece
Back	- 1 piece
Sleeve	- 2 piece
Collar	- 2 piece
Pocket	- 2 piece
Yoke	- 2 piece

TASK 2: Draft Safari Shirt

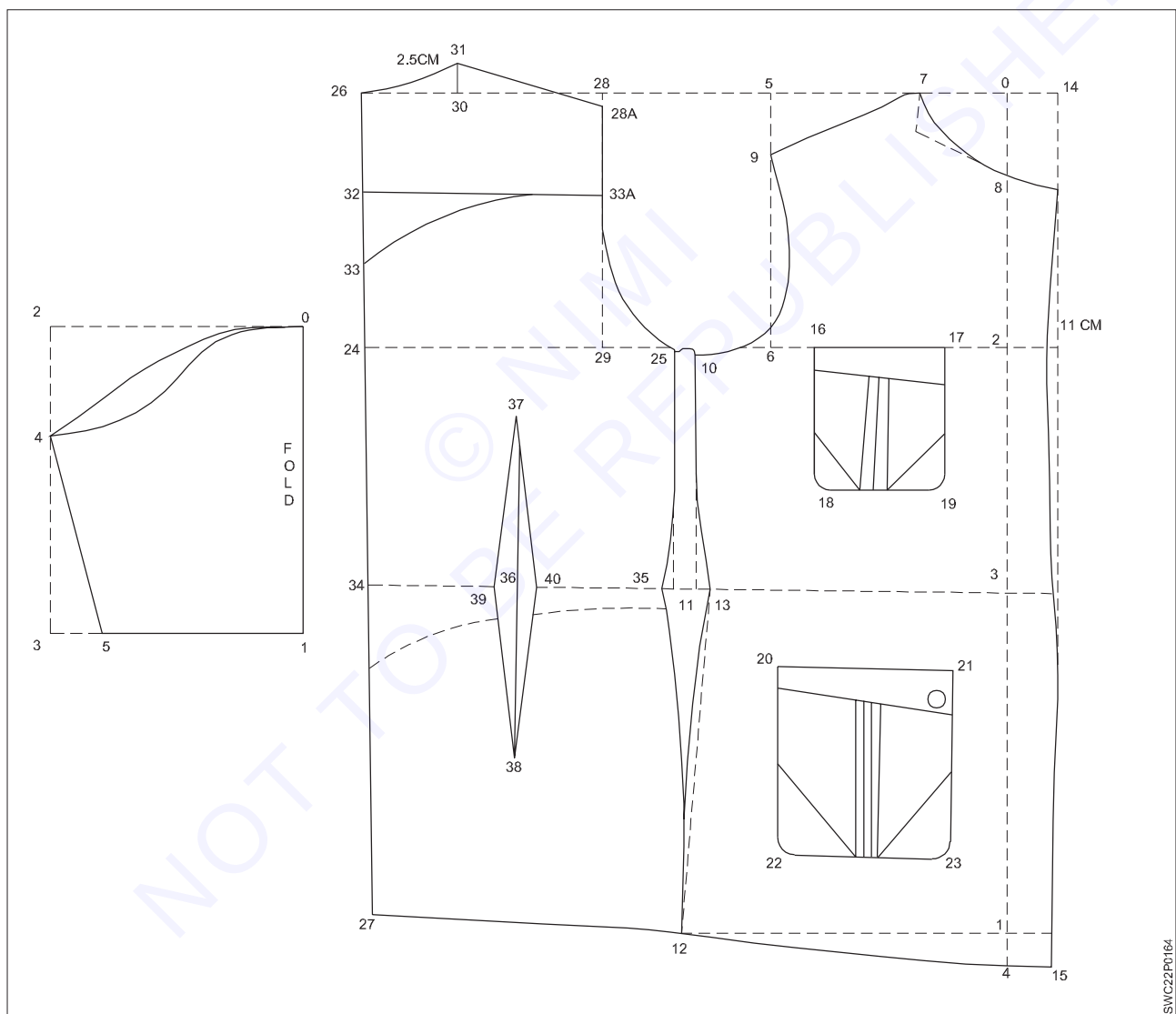
Construction of Front

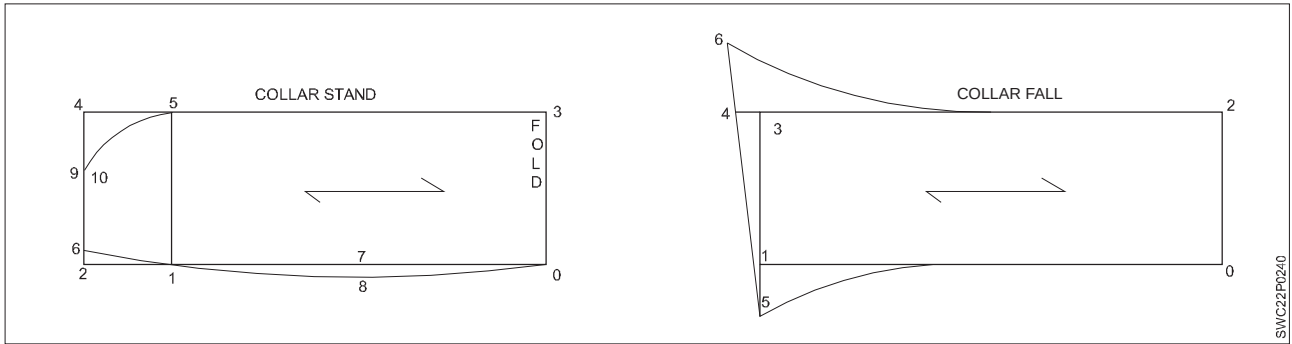
0 -1`	Full length	= 76cm
0 -2	Ch/ 4	= 22.75 cm
0 – 3	Natural waist	= 45 cm
1 – 4	2 cm for bottom shape (Give 5 cm for bottom folding)	= 2cm
0 – 5	Sh /2 + 1 cm	= 21 cm
5 – 6	Square down ↓	
0 – 7	Ch/12	= 7.5 cm
0 – 8	Ch/12	= 7.5 cm
5 – 9	Ch/16 Shoulder slope	= 5.6 cm
6 – 10	Ch /12, Square down from 10, 11, 12	= 7.5 cm
11 -13	1cm	= 1 cm
4 – 12	Ch/4 + 6.5	= 29.25 cm

	Draw the shape 10, 13, 12	
0 – 14	4 cm = 4 cm	
4 – 15	4 cm for placket	= 4 cm
Pocket 1		
6-16	2.5 cm = 2.5 cm	
16 -17	Ch / 8 = 11.3 cm	
16 – 18	Ch/ 8 + 1.5 cm	= 12.8 cm
	Give shape for pocket bottom	
Pocket 2		
20 – 21	Ch / 6 = 15.1 cm	
20 – 22	Ch / 6 + 1.5	= 16.6 cm
	This pocket is placed below the Natural Waist Ch/12	= 7.5 cm
Back		
24 – 25	Ch/4 + 5 cm	= 27.75 cm
24 – 26, 27	Square up and down ↑↓	
26 – 28	Sh / 2 + 1 cm	= 21 cm
28 – 29	Square down ↓	
26 – 30	Ch / 12	= 7.5 cm
30 – 31	2.5	
28 - 28a	1 cm	
26 – 32	Ch/12	= 7.5 cm
32 – 33	5 cm	= 5 cm
33 - 33a	Give Shape	
26 – 34	Natural waist	= 45 cm
11 – 35	1 cm waist shape	= 1 cm
36	Mid of 34 – 35	
36 – 37	Ch / 6 (dart)	= 15.1 cm
36 – 38	Ch / 6 (dart)	= 15.1 cm
36 – 39	1.5 cm (dart intake)	
36 – 40	1.5 cm (dart intake)	
27 – 41	Ch/6 for Slit	= 15.1
Sleeve		
0 – 1	Sleeve length + (Give 4 cm for bottom folding)	= 31 cm
0 – 2	Ch/4	= 22.75 cm
2 – 3	Square down ↓	
2 - 4	Ch/12 + 2.5	= 10 cm
3 – 5	4 cm	= 4 cm
Collar falls		
0 – 1	= 1/2 of neck + 1 cm for seam	= 17.5 + 1 = 18.5
cm		
0 – 2	= Collar fall width 5 cm + 1.5 cm for seam	= 6.5 cm
3	= Is square from 1 & 2	
3 – 4	= 1.5 cm	
1 – 5	= 1 cm join 5 – 4 and produce	
4 – 6	= 3 cm	
X	= Is mid of 0 – 1	
Y	= Is mid of 2 – 3	
X – 5	= Y – 6 draw the shape as the diagram	

Collar stand

0 – 1	= 1/2 of neck	= 17.5 cm
1 – 2	= 3.5 cm	= 3.5 cm
0 – 3	= Band width (4 cm) + 1.5 cm = 4+1.5	= 5.5 cm
4	= Is square from 2 & 3	
4 – 5	= 1 – 2 measure join 1 – 5	= 3.5 cm
2 – 6	= 1cm	
1 – 7	= 1/2 of 0 – 1 measure	= 8 cm
7 – 8	= 0.75 cm	= 0.75 cm
0 – 8	= 1 – 6 = draw the shape as per the diagram	
4 – 9	= 0.75 cm draw the shape 5 – 9	
9 – 10	= 0.75 cm join 10 – 6	





TASK 3: Prepare master pattern and cut the safari shirt

- Take the paper pattern
- Give the seam allowance as required and cut the master pattern.

TASK 4: Stitching operation of the Safari Shirt

Take the Front part and

Iron the fusing 2.25" width" to the front placket. (Fig 1)

Fig 1



For both right side and left side placket. (Fig 2)

Fig 2



Stitch both the plackets (Fig 3)

Fig 3



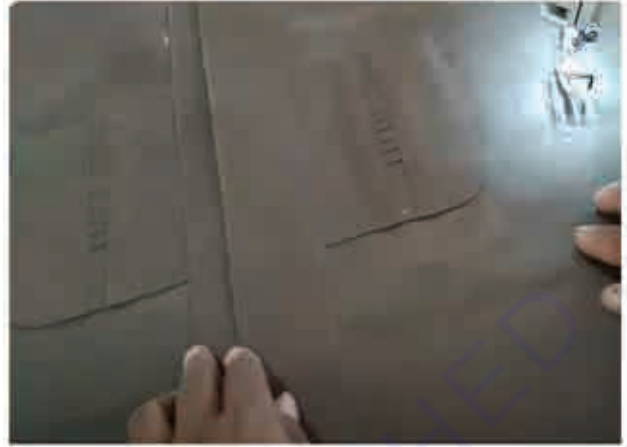
Prepare the pocket as per the design using pin tucks and tucks, and attach the prepared patch pocket to the safari front marked place. Check for the proper pocket placement. (Fig 4)

Fig 4



Fixing of Pocket at proper marked placement. Stich one pocket to left part of the Safari and one to right part of the safari shirt. (Fig 5)

Fig 5



Take the back part, On the folded side stitch for pleat. Turn the fabric and start stitching from the marked point of vent till the neckline. (Fig 6 & 7)

Fig 6

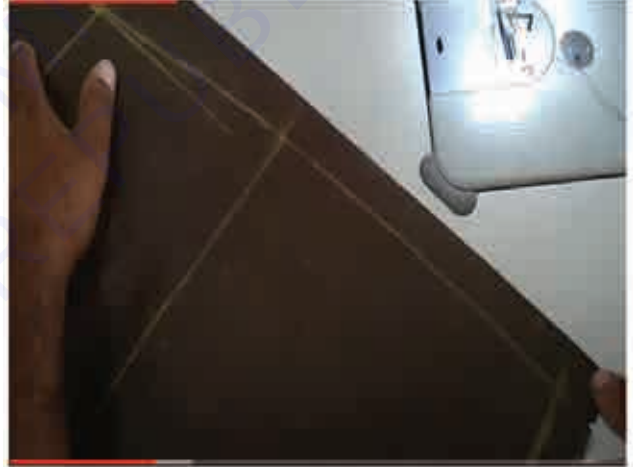


Fig 7



Turn to the right side and make a crease on the seam with your nail.

On the vent line marking, make a notch. (Fig 8)

Fig 8



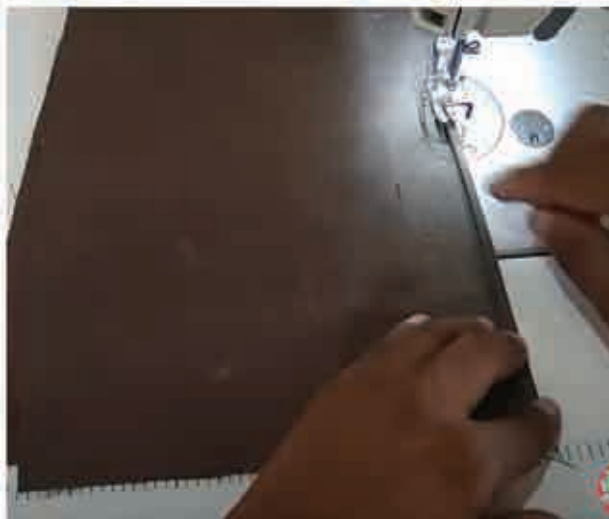
Then cut the folded fabric upto the vent mark. So that we can stitch the vent.(Fig 9)

Fig 9



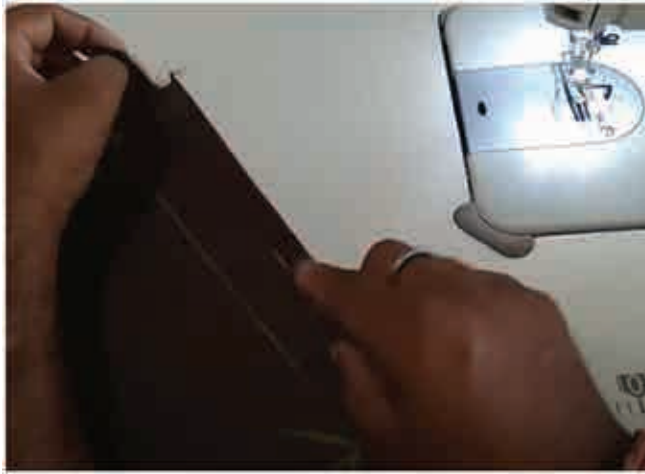
Fold one side of the vent rawedge piece and make a stitch till the end. (Fig 10)

Fig 10



Turn the other side, fold and stitch the rawedges of vent (Fig 11)

Fig 11.



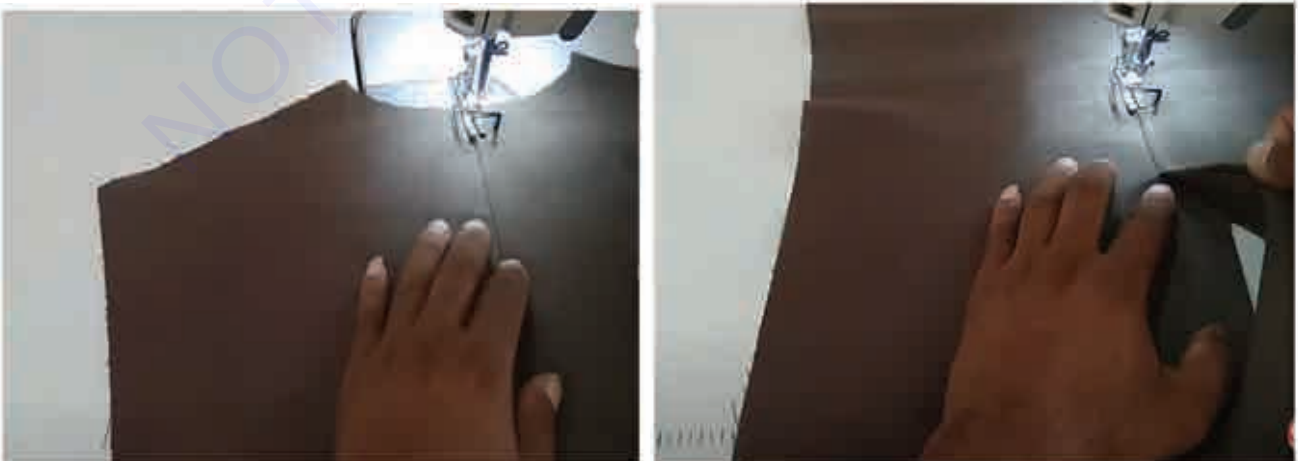
Now turn the garment to the right side (Fig 12)

Fig 12



On the right side of the back part , put topstitch from neckline up to the vent mark. (Fig 13)

Fig 13



After stitching up to vent mark, stitch horizontally to lock the vent opening.
Now move away one layer of the bottom fabric. (Fig 14)

Fig 14



Then put a top stitch at the edge of the upper layer of fabric vent (Fig 15)

Fig 15



Take the Yoke part and fold and press the seam allowance, then place on the Back part and stitch it (Fig 16)

Fig 16



Make Top stitch on the Yoke

Turn and trim the extra fabric (Fig 17)

Fig 17



Now the Yoke has been stitched. (Fig 18)

Fig 18



Take the back part and stitch the dart as marked in both the sides. (Fig 19)

Fig 19



Overlock the Side seam of the Safari for both front part , back part and shoulder (Fig 20)

Fig 20



Take the back part and keep right side facing up, then over that keep the front part right side facing down and stitch the shoulder of front and back together. Like wise repeat for the other shoulder also. After stitching the shoulder seam, press open the seam as shown in the picture and put a stitch at the edge of the seam (Fig 21)

Fig 21



Repeat it in both the shoulder seam (Fig 22)

Fig 22



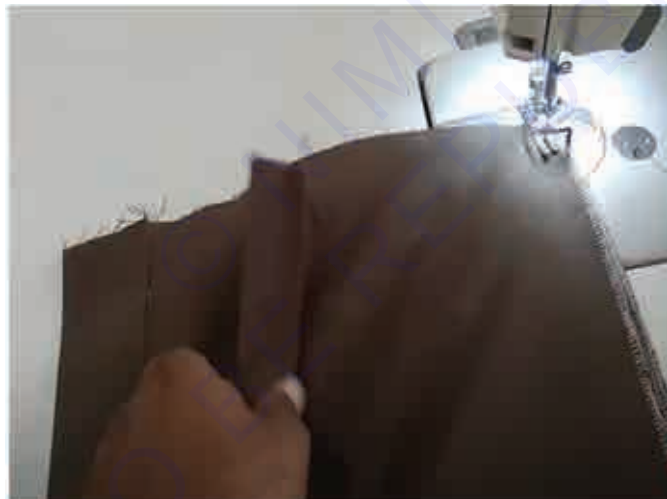
Align both front & back part at the sides to stitch the side seam. Then sew the left side seam from bottom up to armhole.

Fig 23



Repeat it same to sew the right side seam. (Fig 24)

Fig 24



Press open the seam with Iron. To reduce the bulkiness. (Fig 25)

Fig 25



Take the sleeve part and bottom hem it. Repeat it for both the sleeve. (Fig 26)

Fig 26



Mark the sleeve bottom opening and stitch the under arm (Fig 27)

Fig 27



Stitch underarm for both the sleeves. And overlock the seam allowance. (Fig 28)

Fig 28



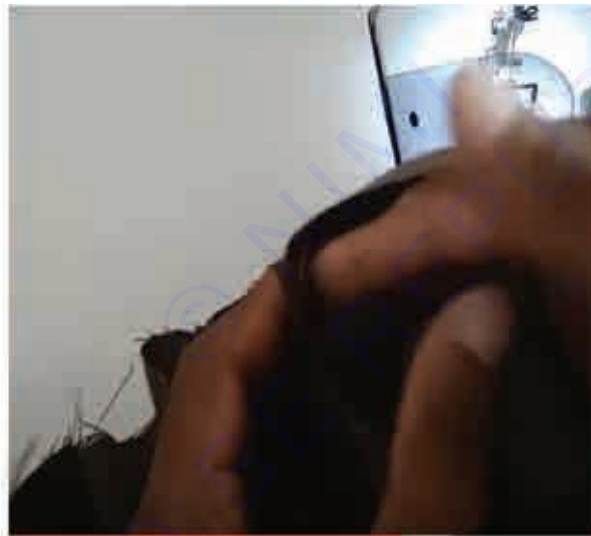
Check whether the sleeve round measure matches the armhole round. (Fig 29)

Fig 29



Match the seamline of the sleeve and crease line of the safari (Fig 30)

Fig 30



Attach the sleeve to the armhole of the bodice. Likewise repeat it for another sleeve also. (Fig 31)

Fig 31



Check whether the neck round matches with the collar. (Fig 32)

Fig 32



Attach the collar to the neckline. (Fig 33)

Fig 33



Fold the bottom Hem as per the measure. (Fig 34)

Fig 34



TASK 5: Finishing of safari shirt

After stitching a safari shirt, the finishing process adds the final touches to enhance its appearance and functionality.

- Trimming is the operation of removing the extra threads to achieve a neat look to the garment
- Checking and removing of stains in the garment using wetting agents.
- Checking of stitching faults if any and to rectify it.
- Checking for final measurement
- The last process is pressing. The safari shirt has to be pressed for removing wrinkles and to enhance its appearance.

Bush Shirt

Objectives: At the end of this exercise you shall be able to:

- draft and do pattern making for bush shirt.

Procedure



Measurements in cm

Back length	= 74 cm	Waist	= 81.25 cm
Natural Waist Length	= 42 cm	Seat	= 96.5 cm
Shoulder Width	= 46 cm	Neck girth	= 40 cm
Across Back	= 19 cm	Sleeve Length	= 23 cm
Chest	= 92 cm	Sleeve Open	= 38 cm

Drafting Details of Bush Shirt (Back Part):

1 – 2 = Back Length + 1.5 cm	= 75.5 cm
2 – 3 = Bottom fold	= 4 cm
1 - 4 = Scyedepth, Chest/4	= 23 cm
1 – 5 = Natural Waist Length + 1.5 cm	= 43.5 cm
5 – 6 = 18 cm Seat line	= 18 cm
7 is mid of 1 to 4 measure.	
8 is mid of 7 to 1 measure.	
1 – 9 = Neck/5 + 0.75 cm	= 8.75 cm
9 – 10 = 2.5 cm above	= 2.5 cm
7 – 11 = Across Back + 1.5 cm	= 20.5 cm
11 – 12 = Square up	
12 – 13 = 4 cm Shoulder's Slope	= 4 cm

13 – 14 = 1.5 cm is square out	= 1.5 cm
3 – 15 = 1.5 cm	= 1.5 cm
5 – 16 = 2 cm	= 2 cm
17 – 18 = 4.5 cm	= 4.5 cm
18 – 19 = 1.5 cm	= 1.5 cm
17 – 20 = 2.5 cm	= 2.5 cm
20 – 21 – 22 = Draw a line	
22 – 23 = 4.5 cm	= 4.5 cm

Drafting Details of Front Part:

1 – 2 = Length + 1.5 cm	= 75.5 cm
2 – 3 = 2.5 cm	= 2.5 cm
1 – 4 = Scye depth, Chest/4	= 23 cm
1 – 5 = Natural Waist Length + 1.5 cm	= 43.5 cm
5 – 6 = 18 cm Seat line	= 18 cm
4 – 7 = chest/3 + 4 cm	= 34.6 cm
4 – 8 = Chest/4 – 2 cm	= 21 cm
9 is mid of 4 to 8 measure.	
9 – 10 = Square up for neck width.	
10 – 11 = Neck/6 + 0.75 cm	= 7.35 cm
12 – 1 = Neck/5 + 0.75 cm	= 8.75 cm
8 – 13 = Chest/6 + 4 cm	= 19.3 cm
10 – 14 = Same as back 10 to 14 measure	
7 – 15 = 4.5 cm	= 4.5 cm
15 – 16 = 1.5 cm	= 1.5 cm
8 – 17 = 2 cm	= 2 cm
15 – 7 – 18 – 19 = Square down	
18 – 20 = 2 cm	= 2 cm
19 – 21 = 5 cm	= 5 cm
5 – 22 = 9 cm dart distance,	= 9 cm
22-22a = 22 – 22b = 9 cm, dart length = 18cm, dart width 2 cm	
23 is the middle of 7 to 8 measure	
23 – 24 = Dart length 33 cm	= 33 cm
25 is dart width is = 2 cm	= 2 cm
12 – 26 = 2 cm	= 2 cm
26 – 27 = 4 cm for button stand line	= 4 cm
2 – 28 = 2.5 cm	= 2.5 cm
28 – 29 = 4 cm	= 4 cm
29 – 30 = 2.5 cm	= 2.5 cm

Pocket:

Chest pocket size is (4" x 4 ½") = 10 cm X 11.5 cm

Bottom pocket size is (6 ½" x 7") = 16.5 cm X 18 cm

to be drawn as per the draft.

Sleeve Part:

1 – 2 = Sleeve length + 1.5 cm = 24.5 cm

2 – 3 = Sleeve bottom folding = 4 cm = 4 cm

1 – 4 = 1/8th chest - 1.5cm = 10cm

4 – 5 = 1/4th chest + 2cm = 25 cm

2 – 6 = ½ sleeve open + 1.5cm = 20.5 cm

7 – 6 – 5 = under arm portion.

7 – 8 = 1.75cm = 1.75 cm

9 is the mid of 1 to 5 measure.

9 – 10 = 2.5cm = 2.5 cm

5, 10, 1 = Sleeve back portion shape is to be drawn.

11 is the mid of 5 to 9 measure.

11 – 12 = 2 cm = 2 cm

5, 12, 9, 1 is the front sleeve shape is to be drawn as per draft.

Collar

0 - 1 = Chest/12 = 7.6 cm

0 - 2 = Neck/2 + km = 21 cm

2 - 3 = Square down

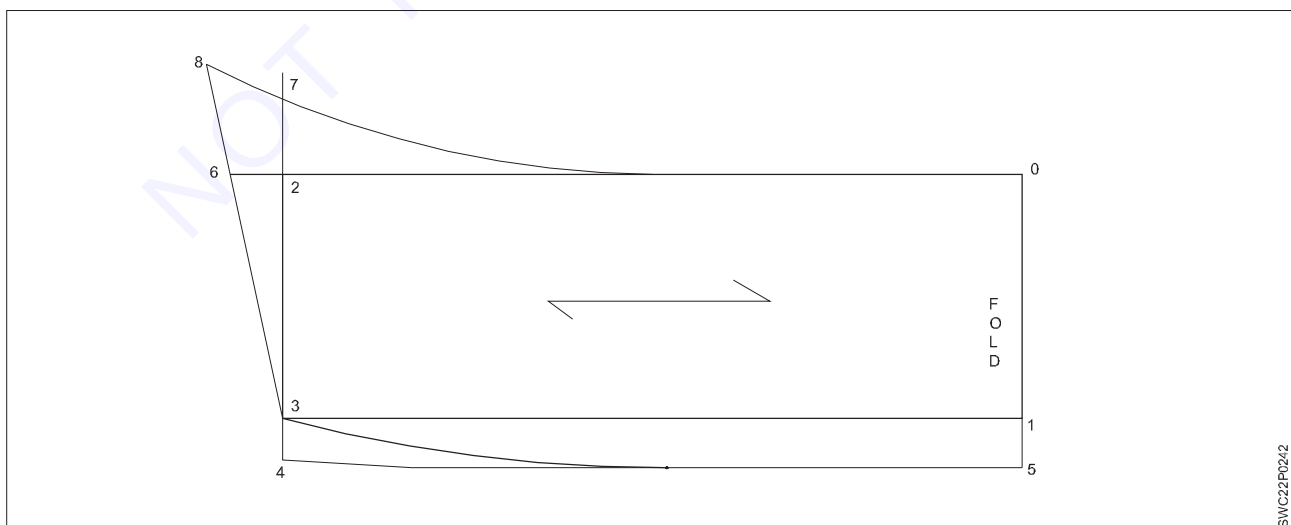
3 - 4 = 1 - 5 = 2cm

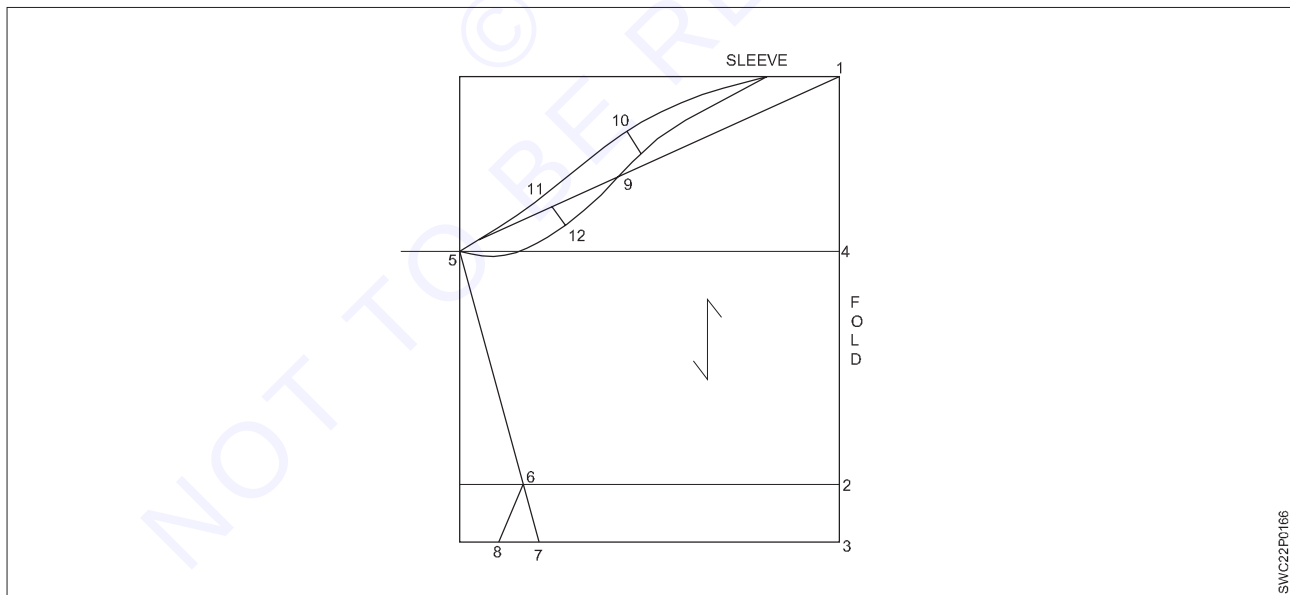
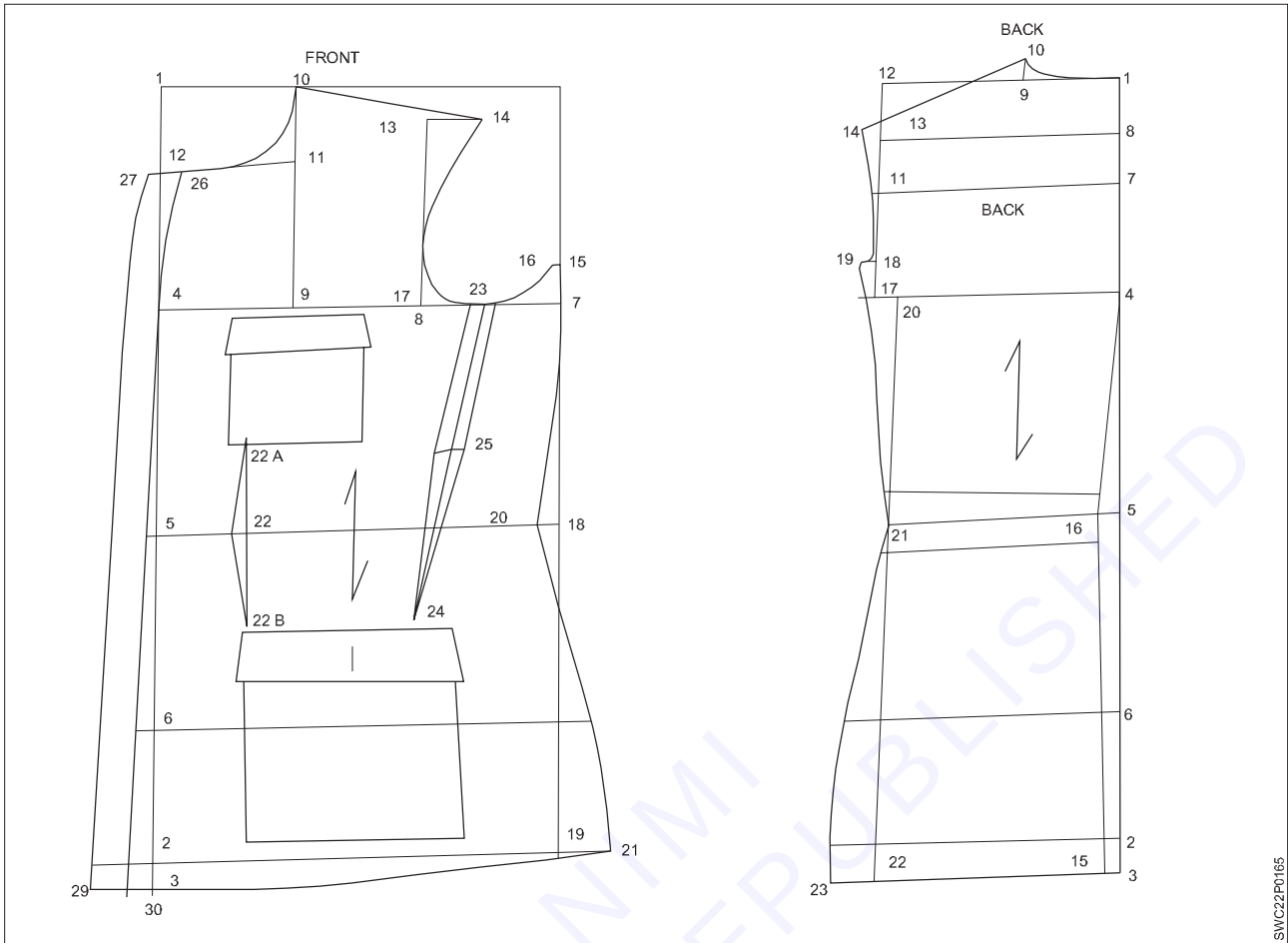
2 - 6 = 1.5 cm

2 - 7 = 2.5 cm

8 = Square out 6 & 7

Join and give shape 0,7,8,6,3,5





EXERCISE 40 : Designer suits (Kameez)

Objectives

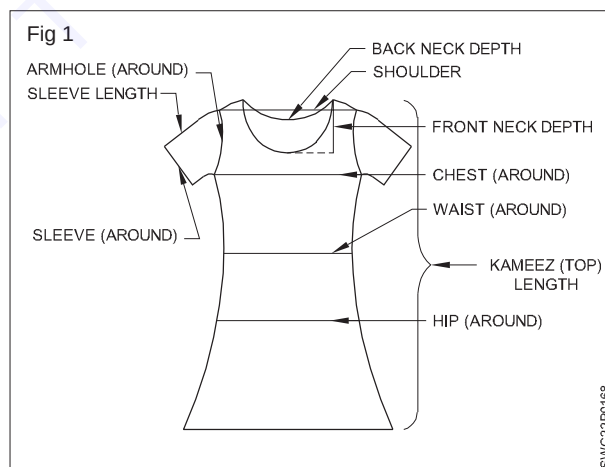
At the end of this exercise, you shall be able to:

- draft a ladies kameez
- lay and cut ladies kameez
- stitch the ladies kameez.

Procedure



TASK 1: Take measurement (Fig 1)



TASK 2: Draft a paper pattern of ladies kameez

Measurement in cm			Components
Full Length	-	102 cm	Front - 1
Breast	-	90 cm	Back - 1
Across Back	-	35 cm	Sleeve - 2
Waist	-	68 cm	
Sleeve Length	-	38 cm	
Sleeve bottom	-	26cm	

Suitable fabric

Cotton, Poplin, Silk, Georgette, Chiffon, Crape

Required material = 2.6mts of 90 cm width fabric

Construction for Front :

0 - 1 = Full length of kameez + 3 cm for seam = 105 cm

0 - 2 = $\frac{1}{4}$ of breast - 2.5 cm = 20cm

draw the square out line

2 - 3 = $\frac{1}{6}$ of breast + 2.5 = 17.5 cm

Draw the square out line

0 - 4 = $\frac{1}{2}$ of across back + 1 cm for seam = 18.5 cm

5 = is square from 2&4

0 - 6 = $\frac{1}{12}$ of breast = 7.5 cm

0 - 7 = $\frac{1}{8}$ of breast = 11.5 cm

4 - 8 = 2cm

Draw the neck shape from 7 -6 and join 8 -6

5 - 9 = 2.5 cm

2 - 10 = 1/4 of breast + 4 cm draw the arm hole shape = 26.5 cm

Draw the front armhole shape 10 - 9 - 8

3 - 11 = 1/4 of waist + 5 cm = 22 cm

1 - 12 = 1/4 of breast + 15 cm = 37.5 cm

Side open:

12 - 13 = for side open (1/3 of breast)

Back:

0 - 14 = 1/12 of breast = 7.5 cm
15 = is midway of 5 - 8

Draw the back armhole shape 10 – 15,8 inlay for 2.5 cm

Neck open:

$$14 - 16 = 1/12 \text{ of breast for neck open} = 7.5 \text{ cm}$$

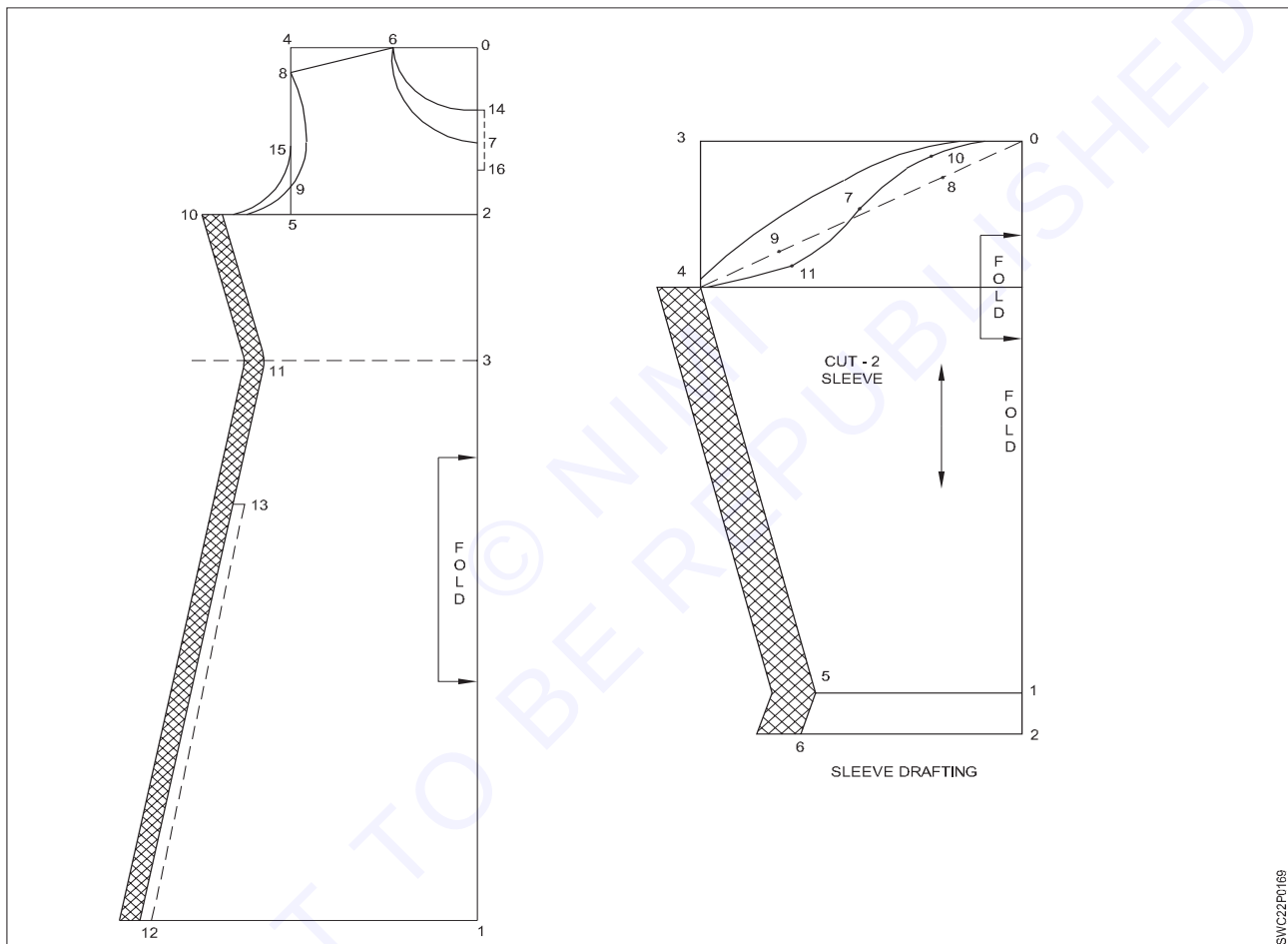
Inlay

Inlay = 2.5 cm for inlay

Sleeve :

0 – 1	= Sleeve length + 1 cm	= 38cm
1 – 2	= 3 cm for bottom fold	= 3 cm
0 – 3	= 1/12 of breast + 2.5 cm	= 10 cm

- 3 – 4 = 0 – 3 front measure ($\frac{1}{4}$ of Breast – 2.5cm)
 1 – 5 = $\frac{1}{2}$ of sleeve bottom
 2 – 6 = 1 – 5 measure + 1 cm join 0 – 4 – 5 – 6
 7 = is midway of 0 – 4
 8 = is midway of 0 – 7
 9 = is midway of 4 – 7
 8 – 10 = 9 – 11 = 1.5 cm
 0 – 10 – 9 – 4 = 0 – 10 – 7 – 11 – 4 Draw the shape as per the diagram
 Inlay = 2.5 cm for inlay



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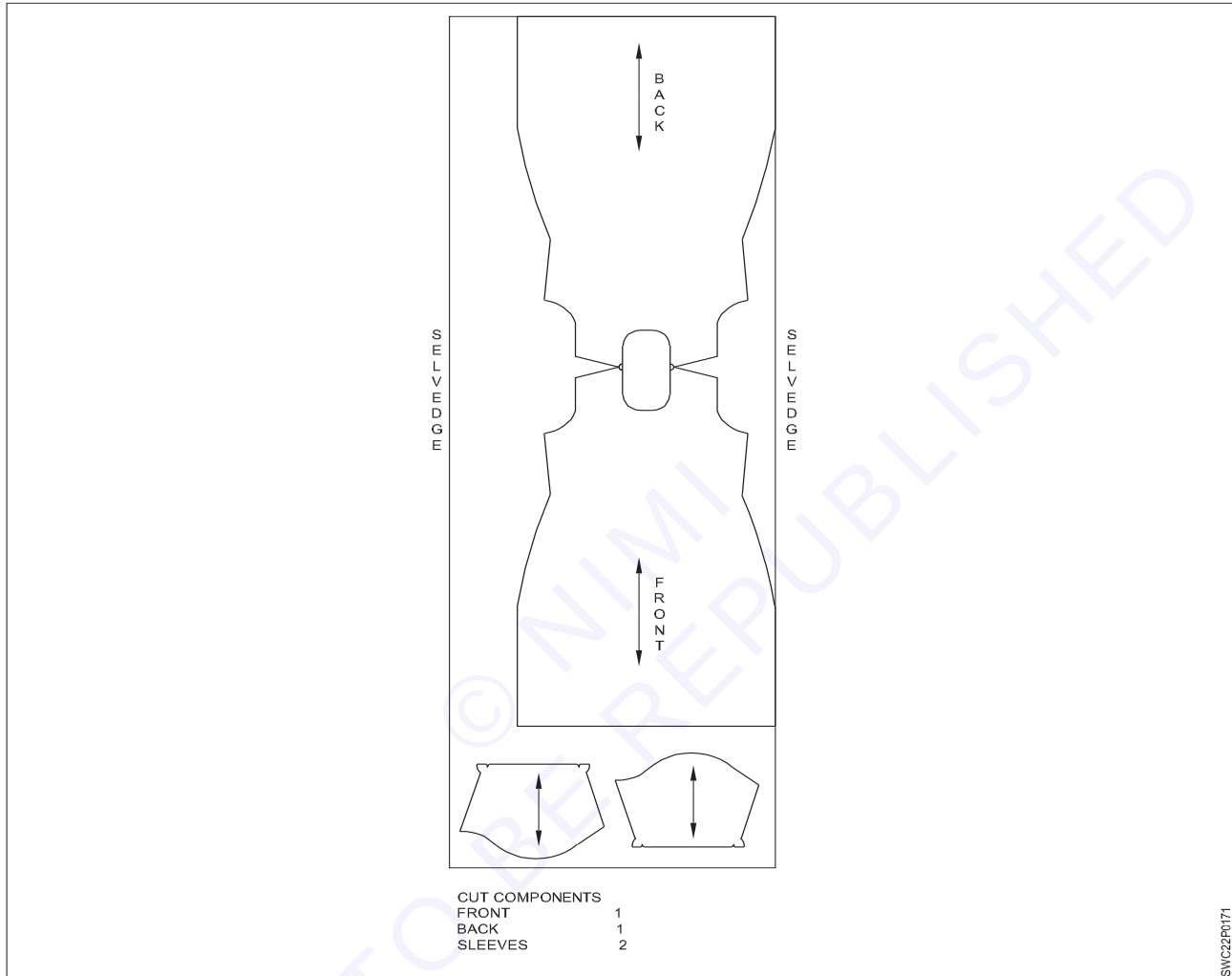
TASK 3 : Prepare Master pattern

- 1 Cut the paper pattern and add seam allowance and turning to it for master pattern.
- 2 Mark all the notches, seamline, cutting line etc.
- 3 Name all the cut components and mark the grainline, foldline etc.
- 4 Finally cut the master pattern.

TASK 4 : Lay and cut a ladies kameez

- 1 Lay the fabric on the cutting table with their wrong side facing upwards.
- 2 Arrange the master pattern of shorts in such a way that fabric utilization is less.
- 3 Mark the outline of all the kameez components using a marking chalk.

- 4 Mark the slit open position on the fabric.
- 5 Remove the master pattern.
- 6 Cut the fabric on the outline marked.
- 7 Cut notches and slit markings.
- 8 Tie all the layers of components together.



TASK 5 : **Stitch the ladies kameez**

- 1 Join the shoulder of both the front and back part of kameez.
- 2 Finish the neck with facing.
- 3 Stitch front and back side together leaving slit opening on both sides.
- 4 Fold and stitch the slit open from bottom to slit mark, let the needle be in the fabric and now lift the pressure foot and turn the fabric and fold the other side of slit open and stitch it.
- 5 Trim the edges of side seam with pinking scissor or give over lock stitch.
- 6 Finish the slit and fold the bottom by double row of stitches for neat finish.
- 7 Fold the sleeve bottom and stitch it.
- 8 Stitch the side seam of sleeve and trim the edges with pinking scissors or give over lock stitch.
- 9 Set the sleeves in armhole.
- 10 Trim excess threads.
- 11 Finish and press.

Practice different neck design (Fig 1)

Fig 1



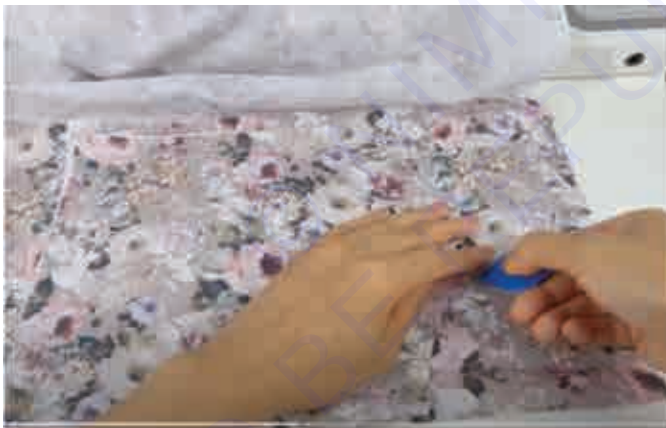
Skill - Attach Neckline Facing

Take fabric for facing same as the kameez material.

Keep the bodice part of kameez on the facing fabric and align the centre front fold.

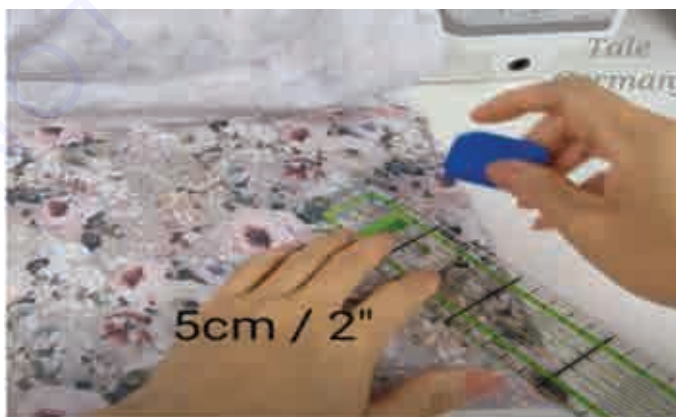
Mark the round neck shape with a marking chalk. (Fig 2)

Fig 2



Mark the width of the facing also. (Fig 3)

Fig 3



Cut the facing piece as required (Fig 4)

Fig 4



Cut and Iron the interfacing as per the shape of the facing fabric piece. (Fig 5)

Fig 5



Stitch the shoulder seam by joining both front and back part. (Fig 6)

Fig 6



Join both the front and back facing together. (Fig 7)

Fig 7



Press open the seam (Fig 8)

Fig 8



Attach the neck facing to the neck line (Fig 9)

Fig 9



Stitch the facing for both front neck and back neck (Fig 10)

Fig 10



Trim the excess seam allowance and give clipping (Fig 11)

Fig 11



Now turn to the right side and put topstitch. (Fig 12)

Fig 12



Overlock the bottom hem of the facing. Put stay stitch at the shoulder, for the facing to lay flat on the shoulder.

Belted Salwar

Objectives : At the end of this exercise, you shall be able to:

- draft and cut a salwar
- sew a salwar

Procedure



TASK 1: Take measurement

Measurements

Full Length	=	100 cm
Hip	=	100 cm
Bottom	=	38 cm

Components

Center Panel	-	2 Piece
Side panel	-	4 Piece
Belt	-	2 Piece

Suitable fabric

Cotton
Silk
poplin
Printed Poplin
Crape

Required Material

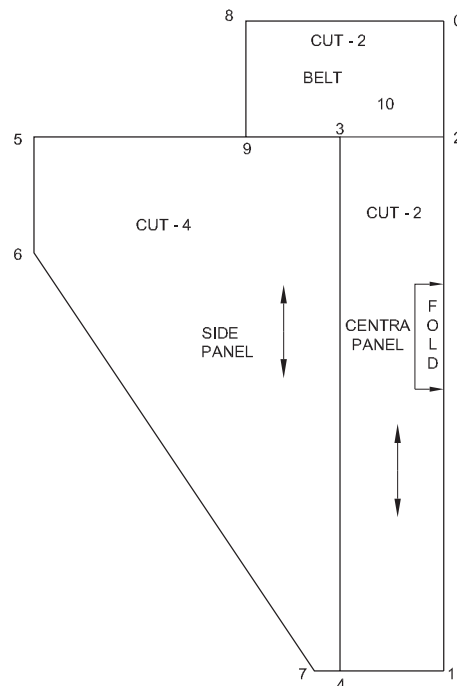
3 meters fabric of 90cm width.

TASK 2: Draft Salwar (Fig 1)

Construction

0 – 1	= Full Length	= 100 cm
0 – 2	= $H/4 - 5$ cm Square out from 1 and 2	= 20 cm
2 – 3	= $1-4 = H/6$	= 16.6 cm
3 – 5	= Width of cloth /2-2 cm square down from 5	
5 – 6	= $[H/3 + 5] - \text{belt } (0 - 2)$	= 18.5cm
1 – 7	= Bottom /2 join 6 – 7	= 19 cm
0 – 8	= $2-9 = (H + 8) /4\text{cm}$	= 27cm
2 – 10	= 1/2 of 2 – 9 marks for gathering in front	

Fig 1



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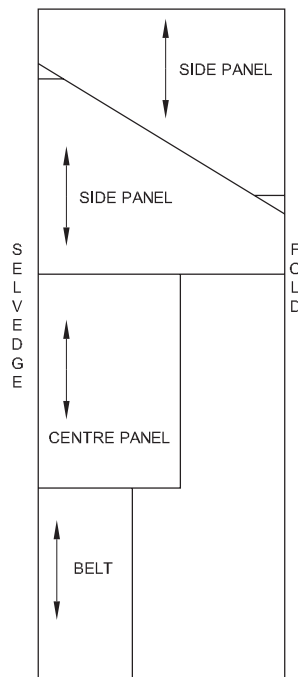
TASK 3 : Prepare Master pattern

- 1 Cut the paper pattern and add seam allowance and turning to it for master pattern.
- 2 Mark all the notches, seamline, cutting line etc.
- 3 Name all the cut components and mark the grainline, foldline etc.
- 4 Finally cut the master pattern.

TASK 4 : Lay and cut the salwar (Fig 1)

- 1 Lay the fabric on the cutting table on width wise folding with wrong side facing up.
- 2 Arrange the master pattern of salwar width waist band economically without wasting the fabric.
- 3 Mark the outline of salwar with waist band components with marking chalk.
- 4 Remove the master pattern.
- 5 Cut along the marking line with sharp shears.
- 6 Pin all the layers of components together for stitching

Fig 1



SWC22P0173

TASK 5 : Sew a salwar

- 1 Keep the sewing machine ready for sewing by winding the bobbin and threading the machine.
- 2 Join straight sides of side panels with centre panel for both leg parts.
- 3 Make bottom cuff with stiffening.
- 4 Match centre front and centre back of leg piece.
- 5 Join crotch by double seam.
- 6 Take the belt piece and sew the short ends to form a loop
- 7 Attaching the Belt to the Salwar by aligning the center of the belt with the center of the salwar's waist.
- 8 Pin the belt to the top edge of the salwar.
- 9 Sew the belt to the salwar, leaving a small opening for inserting elastic or a drawstring.
- 10 Adjust the width of leg piece with belt piece by gathering the fabric between the marks.
- 11 Stitch with double seam.
- 12 Repeat the process for other leg.
- 13 Stitch inside leg lengths.
- 14 Finish by making fold-down casing at top of belt.
- 15 Insert a drawstring through the waistband. Adjust the fit by gathering the fabric at the waist.
- 16 Trim the extra threads and Press the garment.

EXERCISE 41 : Belted shorts

Objectives

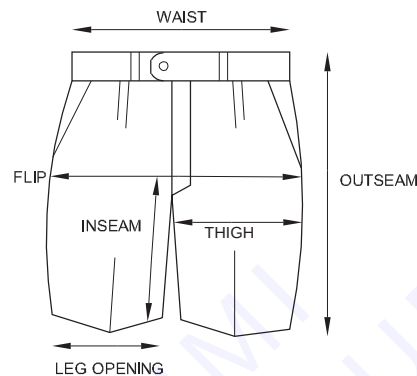
At the end of this exercise, you shall be able to:

- draft a Belted shorts
- lay and cut Belted shorts
- stitch the Belted shorts.

Procedure

TASK 1: Take Measurement (Fig 1)

Fig 1



Measurement in cm

Full length	34cm
Waist	64cm
Hip	72 cm
Bottom	46 cm

Components:

Back Part	- 2 Piece	Side Pocket Pouch	- 2 Piece
Front Part	- 2 Piece	Hip Pocket Jetting	- 1 Piece
Waist Band	- 4 Piece	Side Pocket Jetting	- 2 Piece
Fly	- 4 Piece	Flap	- 2 Piece
Hip Pocket Pouch	- 1 Piece	Belt Carrier	- 5 Piece

Suitable fabric

Denim , Rayon ,Cotton, Corduroy, Knit, Any other Suitable material

TASK 2 : Draft a paper pattern of Belted shorts**Front part**

- 0-1 = Full Length - Waist band(4 cm)
 0-2 = $H/3$ -Waist band
 2-3 = $H/3+1$ cm
 2-4 = 0-5=1-6 = $1/2$ of 2-3, Join 5-4-6
 6-7 = 6-8= Bottom/4 - 0.5 cm,
 Shape 3-8 (inner shape) and 2-7 (outer shape)
 3-9 = $H/12-1$ cm
 Square up from 9 to 10
 0-10 = 2 - 9
 9-11 = $H/24$
 9-12 = $H/6$
 Shape 10-12-11-3
 5-13 = 0-10-W/4
 Square down from 13
 5-14 = 13-15 = 5 cm
 Join 13-15,15-14
 0-16 = $H/24 + 1$ cm
 0-17 = $H/24 + H/6+1$ cm
 Join 16 and 17
 16-18 = $H/24$
 18-19 = $H/6$ (Pocket mouth)

Back

- 3-20 = $H/16$
 8-21 = 2.5 cm Shape 20 and 21
 3-22 = $1/2$ of 3 - 9 Extend 9-10
 10-23 = $H/24$ Join 0-23
 0-24 = $W/4 + 2.5$ cm Mark point 24 and join 24-22
 22-25 = $1/2$ of 20-22
 22-26 = $H/6$
 Shape 24-26-25-20 (back centre seam shape)
 0-27 = $H/12+1.5$ cm
 27-28 = $H/8$ Join 27-28
 27-29 = 27-30 = 1.25 cm
 Join 29-28 and 30-28 (dart)
 27-31 = $H/12$ Draw parallel line with 0-24
 31-32 = 31-33 = $H/16$ Join 32-33 (hip pocket)

Fly

Copy the lines 10-9, 3-9 and shape 10-12-11-3 as in front fly line

$$10-9 = 34 - 35$$

$$10 - 34 = 9-35 = H/24 \quad \text{Join } 34-35$$

$$35-36 = H/6$$

$$11-37 = 1\text{cm}$$

Draw parallel line with 9-11 from 37

$$37-38 = 1.75\text{ cm} \quad \text{Divide angle } 36-35-9$$

$$35-39 = H/24 \quad \text{Shape } 38-39-36-34$$

Waist band

$$0-1 = 4\text{ cm} \quad \text{Square out from } 1$$

$$0-2 = 2-3 = W/4$$

$$3-4 = H/8$$

Square down from 2,3 and 4 and mark 5,6 and 7

$$1-8 = 0.5\text{ cm}$$

Join 7-8 Square down from 1

$$1-9 = 4\text{ cm}$$

$$9-10 = 10-11 = W/4$$

$$11-12 = H/24$$

Square up and mark 13

$$1-14 = 0.5\text{ cm} \quad \text{Join } 7-14$$

Jetting for hip pocket

Square out horizontally and vertically from 0

$$0-1 = 5\text{ cm}$$

$$1-2 = 32-33+2\text{ cm} \quad \text{Square up to } 3$$

Jetting for side pocket

Square out horizontally and vertically from 0

$$0-1 = (0 - 17) + 2\text{ cm}$$

$$0-2 = (0-16) + 3\text{ cm}$$

$$1-3 = 3\text{ cm} \quad \text{Join } 1-3 \text{ and } 3-2$$

Flap

$$0-1 = 2.5\text{ cm}$$

Square out horizontally and vertically from 0

$$0-2 = H/8$$

$$0-3 \quad \text{Square down from } 2$$

$$2-3 = 0-1$$

$$0-4 = 1/2 \text{ of } 0-2 \quad \text{Square down}$$

$$4-5 = 4\text{ cm} \quad \text{Join } 1-5 \text{ and } 5-3$$

Belt carriers

0-1 = 5 cm

0-2 = 1 cm

Hip pocket pouch

0-1 = $H/3 + H/12$

1-2 = (32-33 measure of back) + 5 cm

Side pocket pouch

0-1 = $H/3 + 5$

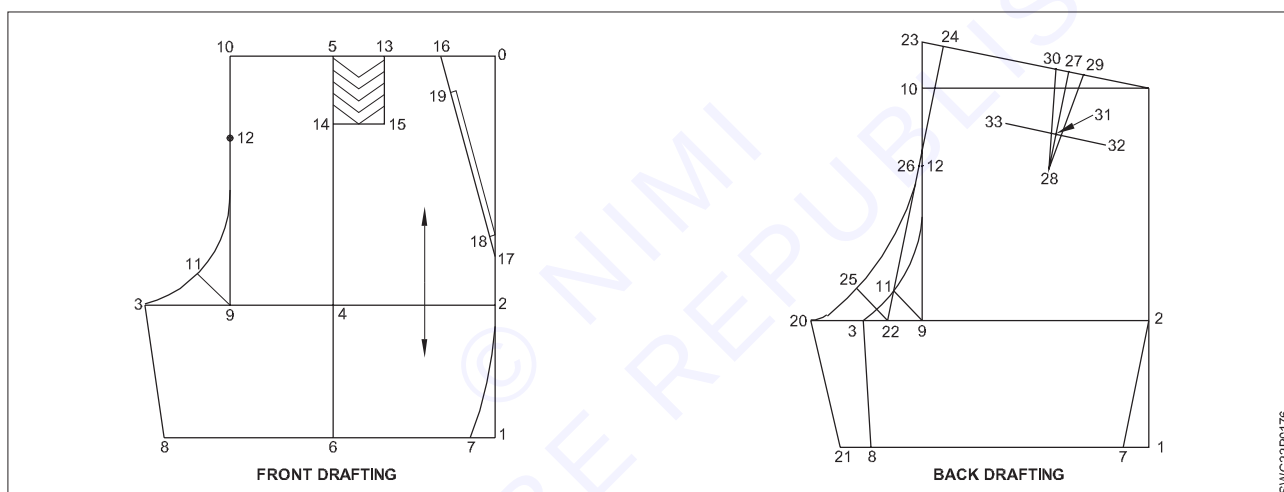
1-2 = $H/6 + 2.5$

3-4 = 2.5

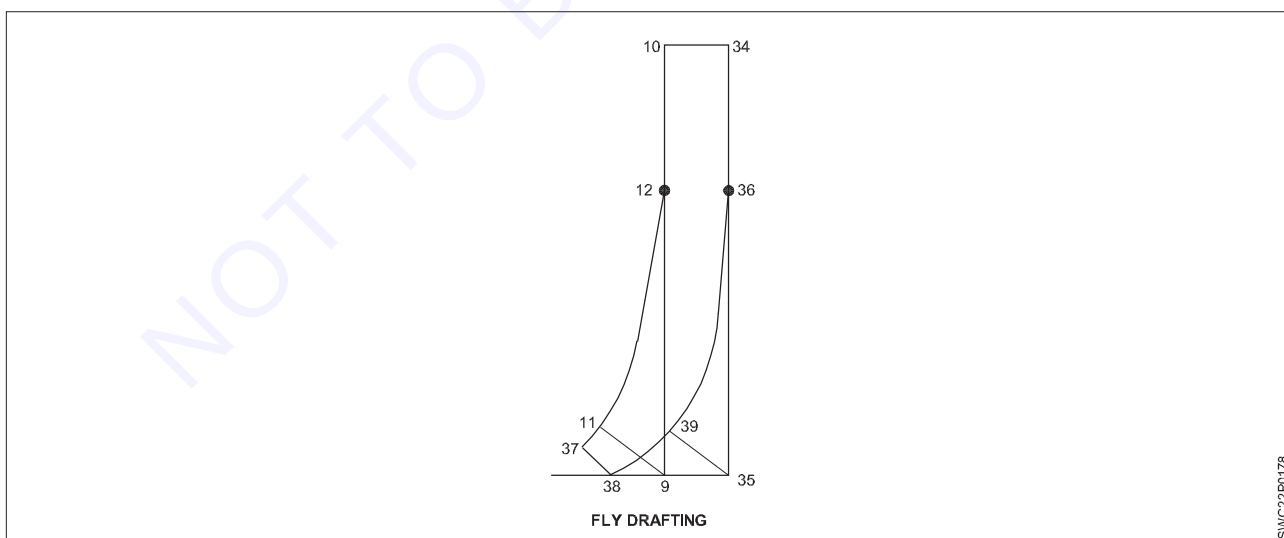
2-5 = $H/12$

5-6 = 1 cm

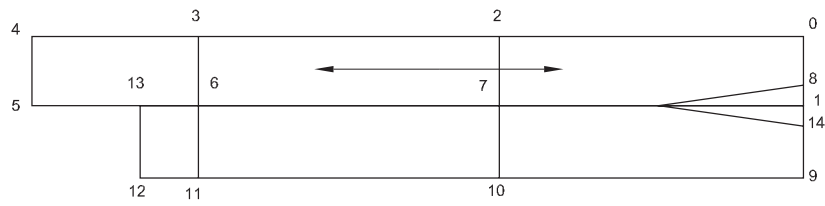
2-7 = $1/2$ of 2-1



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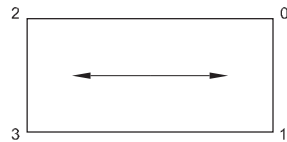


SWC22P0178



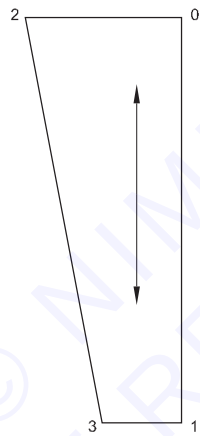
WAISTBAND DRAFTING

SWC22P179



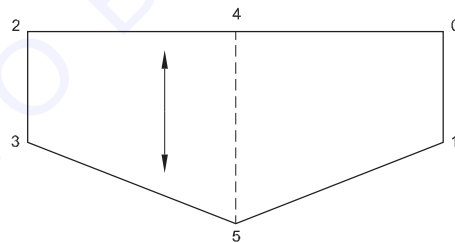
HIP POCKET JETTING

SWC22P0180



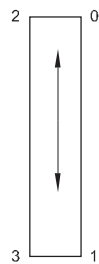
SIDE POCKET JETTING

SWC22P0181



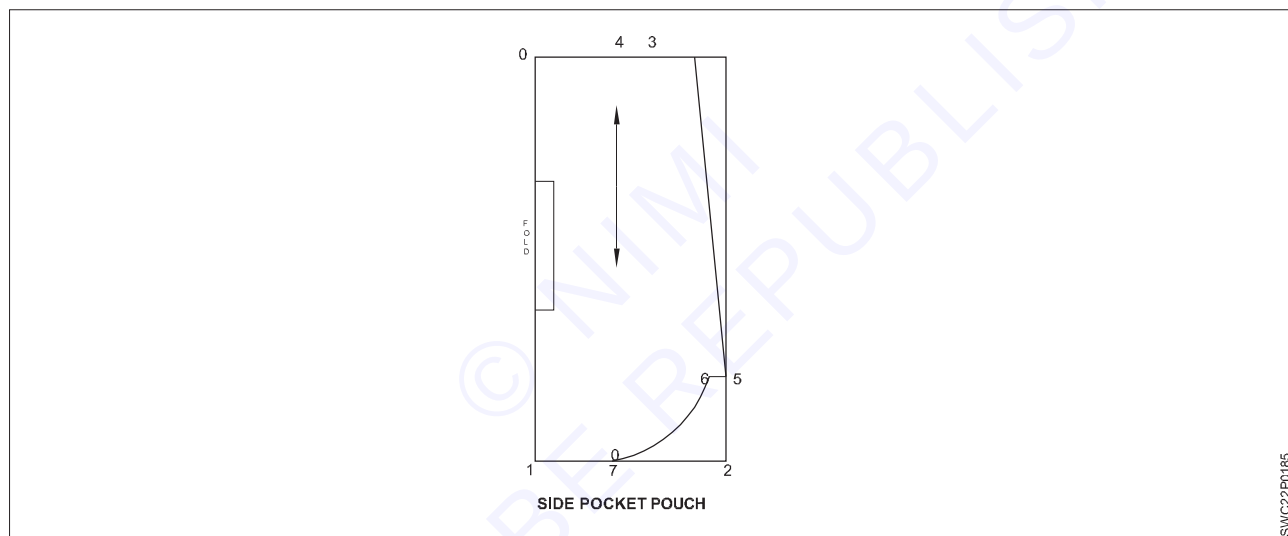
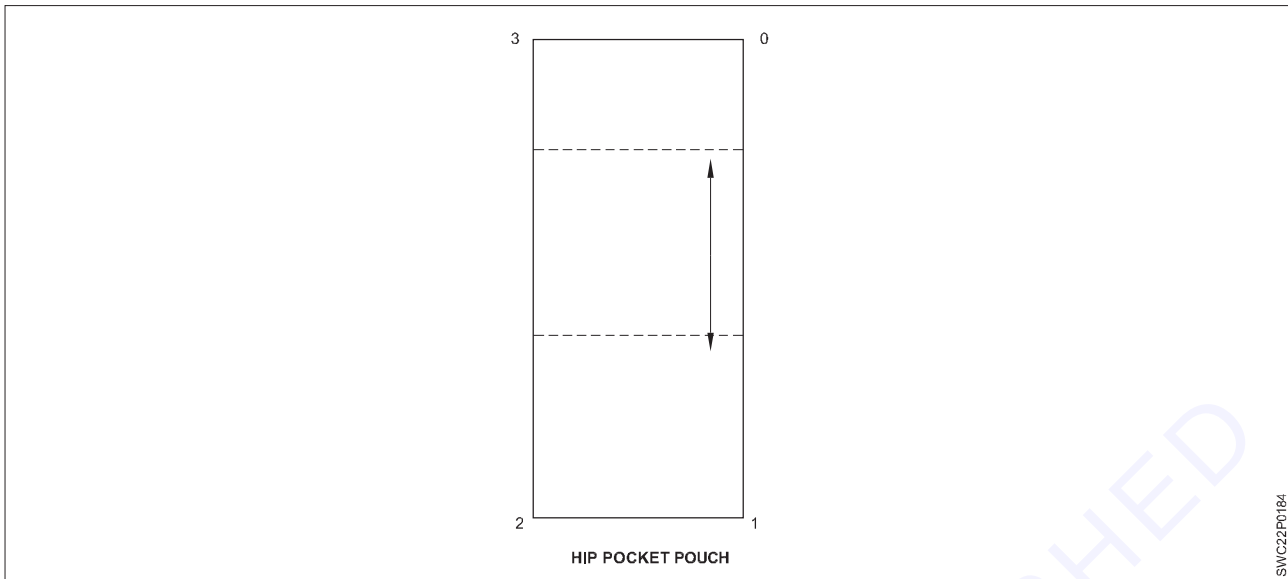
FLAP DRAFTING

SWC22P0182



BELT CARRIER

SWC22P0183

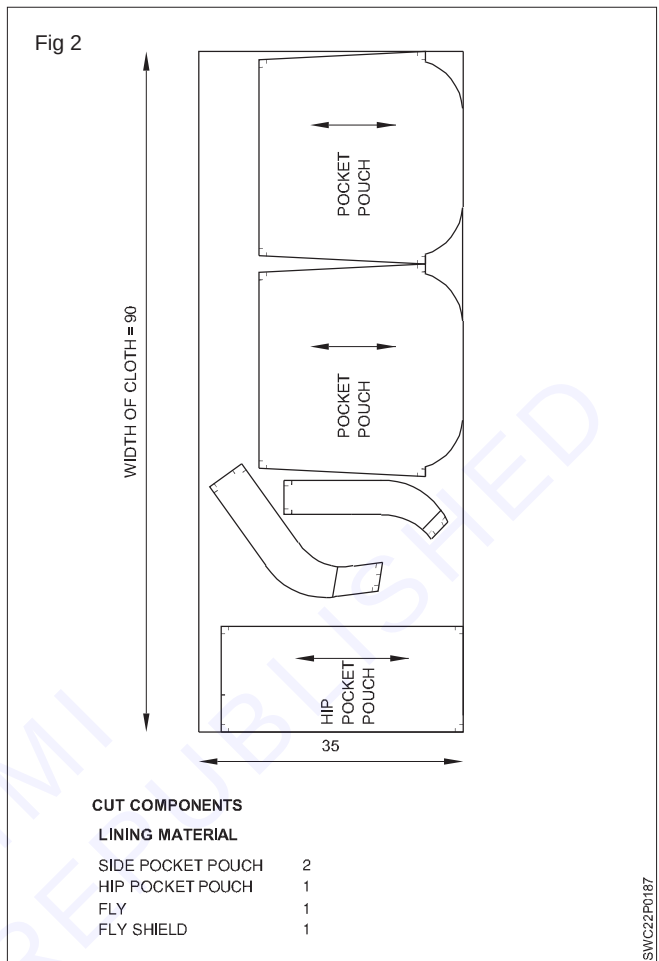
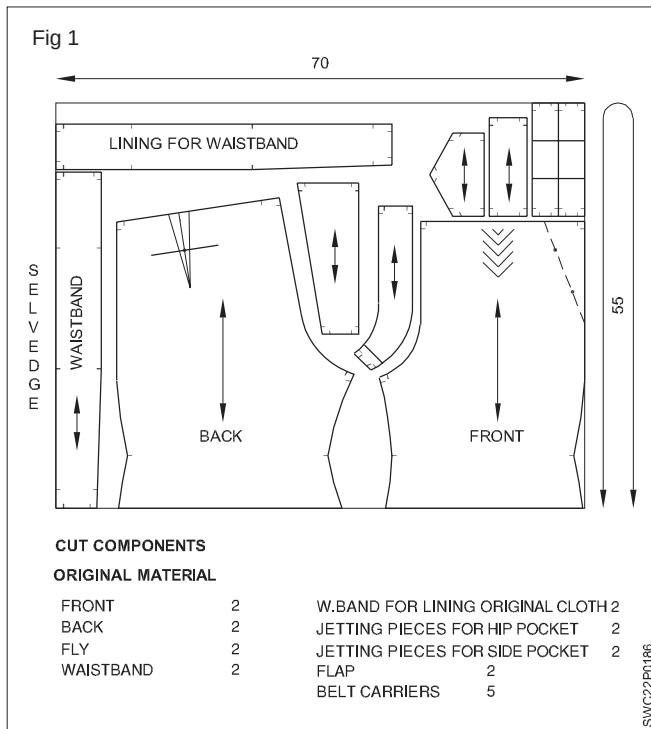


TASK 3 : Prepare Master pattern

- 1 Cut the paper pattern and add seam allowance and turning to it for master pattern.
- 2 Mark all the notches, seamline, cutting line etc.
- 3 Name all the cut components and mark the grainline, foldline etc.
- 4 Finally cut the master pattern.

TASK 4 : Lay and cut a belted shorts

- 1 Lay the fabric on the cutting table with their wrong side facing upwards.
- 2 Arrange the master pattern of shorts in such a way that fabric utilization is less.
- 3 Mark the outline of all the shorts components using a marking chalk.
- 4 Layout the pocket pouches and fly lining components on lining material and cut.
- 5 Cut two piece of waist band from buckram as interlining. Use waist band component of pattern. Don't add seam allowance except 2.5 cm at centre back as inlay. (Fig 1 & 2)



TASK 5: Stitch the Belted shorts

- 1 Prepare the slant pocket on the marks in front sides.
- 2 Prepare the zip fly.
- 3 Set the knife pleats in front on marks. The fold of pleat should be directed towards the pocket.
- 4 Stitch the darts on marks at the back side. Press and set towards seat seam line.
- 5 Prepare hip pocket with flap on right side.
- 6 Join sides of front and back.
- 7 Prepare the belt and attach on waist line.
- 8 Stitch the inside leg seam joining front and back together.
- 9 Stitch crotch from back to front upto zip fly forming cross seam at the joint of seam line.
- 10 Lock at the end of fly from right side, making a triangle of 0.5 cm with double row of stitching.
- 11 Clip crotch seam allowance on the shaped portion in diagonal direction up to 5mm. Press it open and set flat by stretching. Stitch self bound seam on seam allowance. Press and finish at the top with hemming.
- 12 Inside the short sew the edges of lower end of the shield lining to crotch seam allowances. Be careful, stitches should not be visible on front side.
- 13 Prepare 5 belt carrier. Fix one belt carrier on the waist band above each front pleat, one on back centre seam and one in center between centre seam and pleat.
- 14 Finish the bottom line with broad hem.

15 Fix and stitch one pant hook in the centre of the extended edge at waist band on the wrong side. Fix another hook on waistband above the zip fly on wrong side. Be careful that the edge of hook and stitches are not visible from front side.

16 Fix eye on the other side of the waist band.

17 Trim the threads, finish and press.

Skill Sequence No. 1

Zip fly

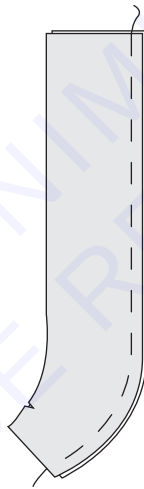
Objectives : At the end of this exercise, you shall be able to:

- prepare the zip fly in front of pleated pant.

Procedure

Take two fly pieces (left fly is facing, right fly is shield) and their linings. Clip the seam allowance on point 11 in front and fly (see instructions for drafting). Take left fly (=facing part) and lining. Stitch on outer round shape, right sides together. (Fig 1)

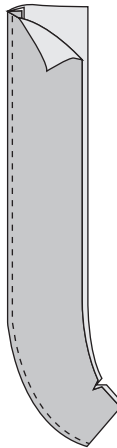
Fig 1



SWC22P0188

Turn right side out and stitch on the edge of previous seam. (Fig 2)

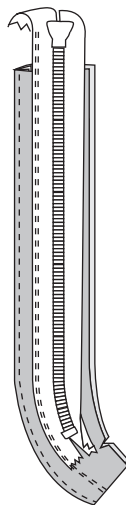
Fig 2



SWC22P0189

Place closed zip on the fly piece wrong side of zip up; leave 0.5 cm from the raw edge and 1 cm above the clip. Baste 6 mm away from the teeth of zip. Stitch with double seam. (Fig 3)

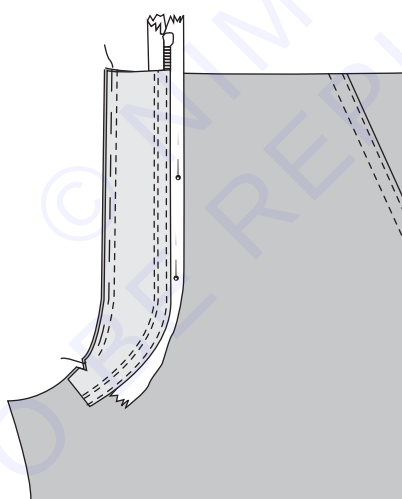
Fig 3



SWC22P0190

Baste raw edge of facing and lining with left front of shorts Match clip of facing and fly line. Be careful that the edge of zip is not caught by stitches. (Fold zipper back and if necessary pin it to hold it out of the way). Stitch along the basting line from dip to waist edge. (Fig 4)

Fig 4



SWC22P0191

Turn facing on seam line away from the front piece. From right side stitch through the facing and all seam allowances close to the edge of facing up to clip and lock the stitch. (Fig 5)

Fold the facing towards wrong side on the seam line. Baste close to the fold to hold facing in position. From the right side baste a guide line 3 cm away from the fold, maintaining the shape of fly. Stitch close to the basting line. (Fig 6)

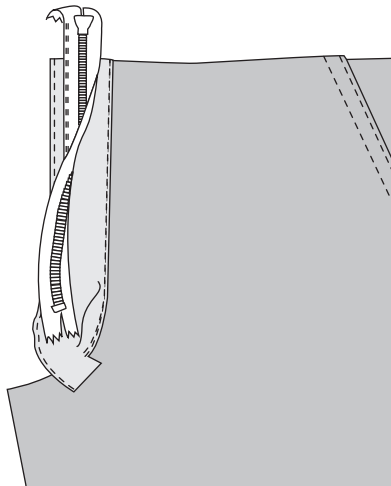
Stitch the right fly (shield): Take right sides of fly and lining together. Baste and stitch on outer shape. Cut notches on the round shape. (Fig 7)

Turn right side out. Press and set the outer edge and baste on it up to end. Turn also the edge of the balance part of lining. Cut notches on the inner curved shape of lining. (Fig 8)

Fold the edge of lining by 1.5 cm to wrong side. Align edge of lining and shield. Baste and press on the lining. (Fig 9)

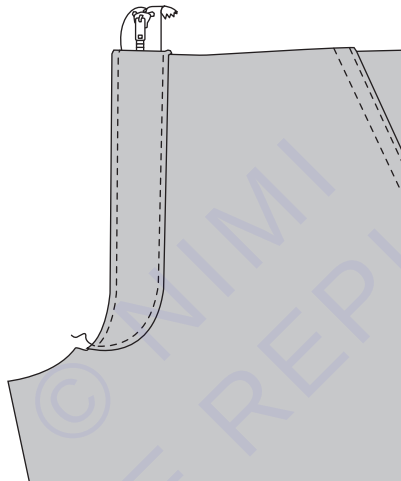
Open the zip. Baste the unattached zip part to the fly shield, wrong side of zip on right side of fly shield. Stitch along the basting but don't stitch the shield lining. Be careful: the position of the zip should be same as in left side facing. (Fig 10)

Fig 5



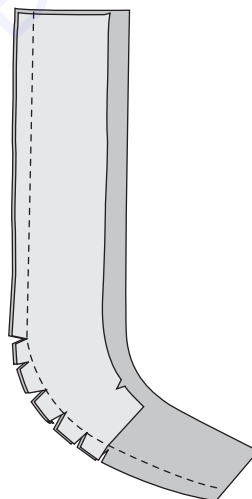
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Fig 6



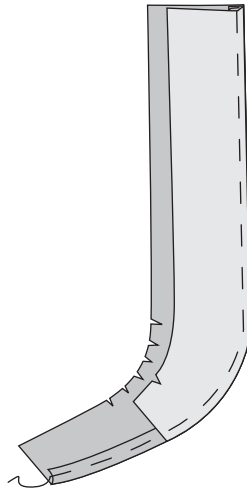
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Fig 7



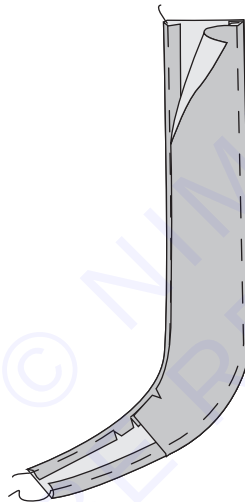
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Fig 8



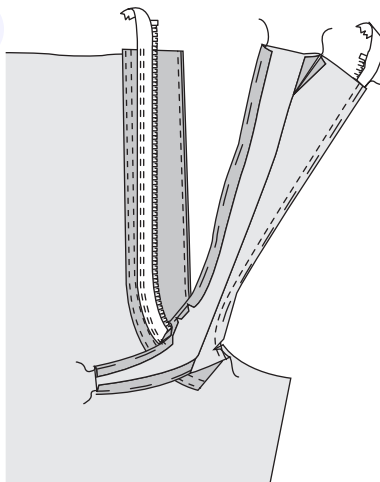
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Fig 9



SWC22P0196

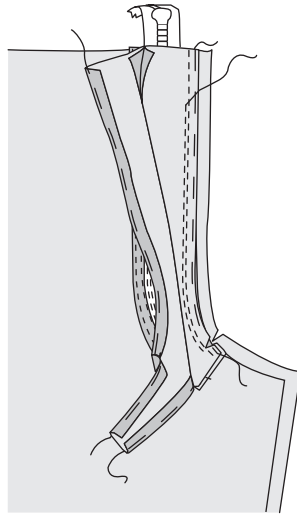
Fig 10



SWC22P0197

Close the zip. Place right front piece under left front piece with right sides together. Edge of fly line of right front has to extend the fly line of left front by 1 cm. Baste zip and shield on the right front short piece along the fly line. Stitch over the previous seam line up to the clip. Turn away lining piece. (Fig 11)

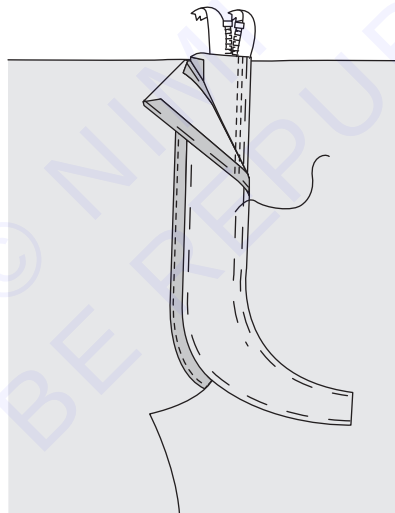
Fig 11



SWC22P0198

Place short flat on table with wrong side upwards. Turn the seam allowance to shield and right front piece towards right front portion. Cover the shield and seam allowance with lining. Baste it. Be careful that the lining is flat on shield, so that no folds and wrinkles come in it. (Fig 12)

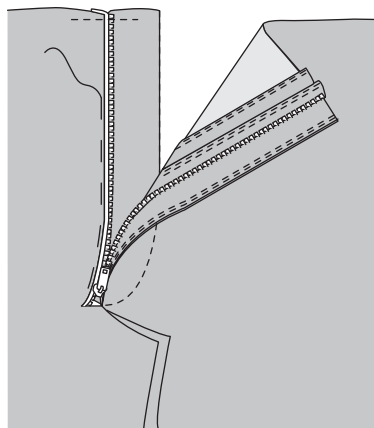
Fig 12



SWC22P0199

Turn the garment to the right side. Stitch close to the left fly seam through all layers. Tack zip flat on waistline on both sides 0.5 cm below the waist-line. Trim the edges at the top. (Fig 13)

Fig 13



SWC22P0200

Skill Sequence No. 2

Waist band

Objectives : At the end of this exercise, you shall be able to:

- make and fix two-piece waist band with interling in boy's short.

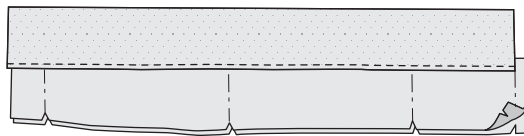
Procedure

Since waist band has a joint in centre back it consists of 2 outer pieces, 2 inner pieces (lining) and 2 interlining (buckram) pieces.

Place the left waist band piece, over its lining, right sides together. Keep the extended portion to your right hand side. Place the interlining on upper side over the seam allowance in opposite direction.

Baste over the interlining and stitch at a distance of 2 mm from edge. (Fig 1)

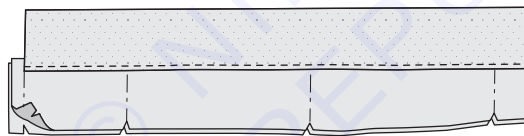
Fig 1



SWC22P0201

Place and stitch the right waist band piece same as the left but keep extended portion for shield on your left side. (Fig 2)

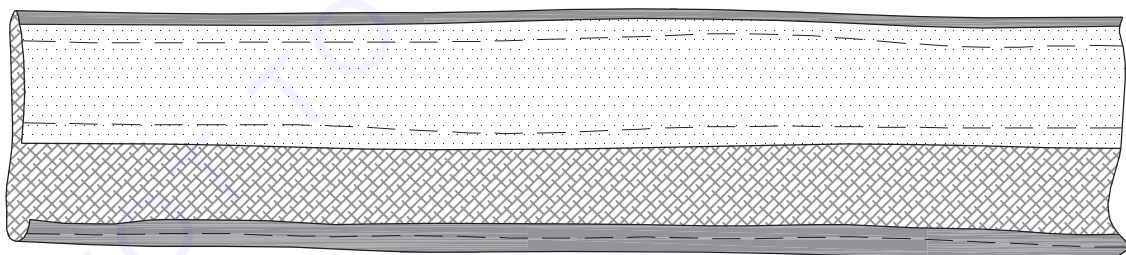
Fig 2



SWC22P0202

Turn both waist bands over the interlining, baste it on both sides of wait band pieces. Turn 1.5 cm the raw edge of lining towards wrong side and baste it. (Fig 3)

Fig 3



SWC22P0203

Pin the top edges of hip pocket down from the waist line. (Fig 4)

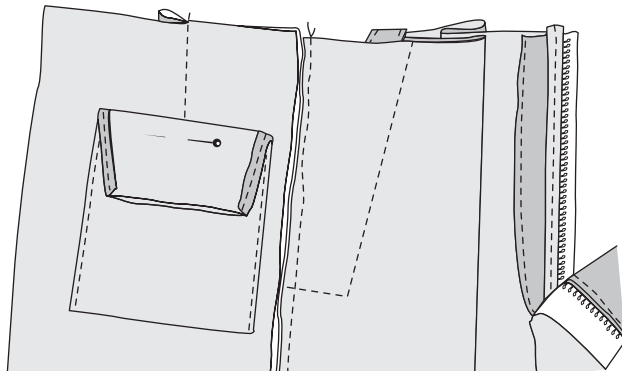
Set waist band on waistline matching balance marks: left waist band with left front and right waist band with right front. Pin and baste. (Fig 5)

Unfold the pocket and baste it to seam line. Trim the edges (fig 6)

Turn the seam allowance on the extended portion of waist band. Press and baste it. (Fig 7)

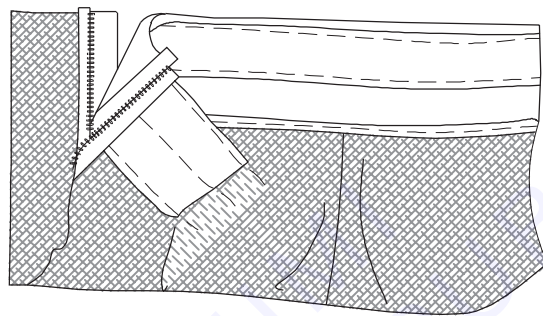
Turn the waist band upwards and press on waistline. Fold waist band on centre line matching balance marks. Press and baste. Stitch from right side of waist band in the crevice of previous seam line. (Fig 8)

Fig 4



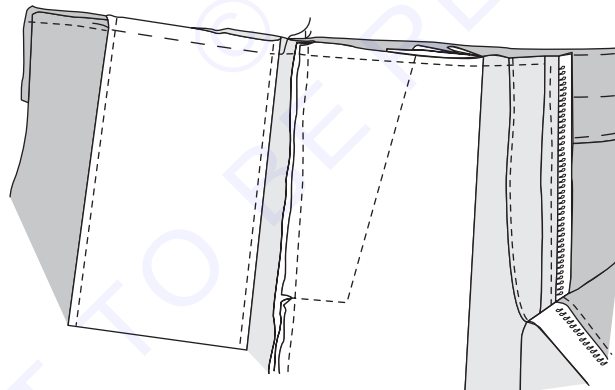
SWC22P0204

Fig 5



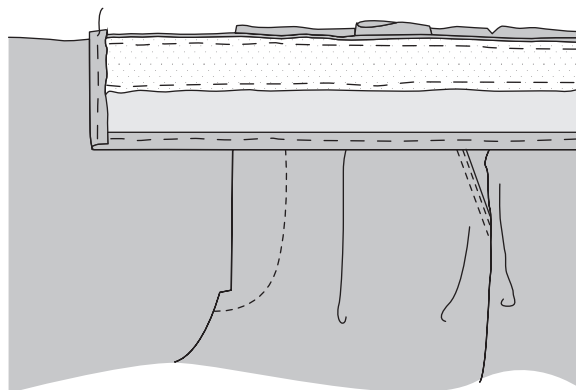
SWC22P0205

Fig 6



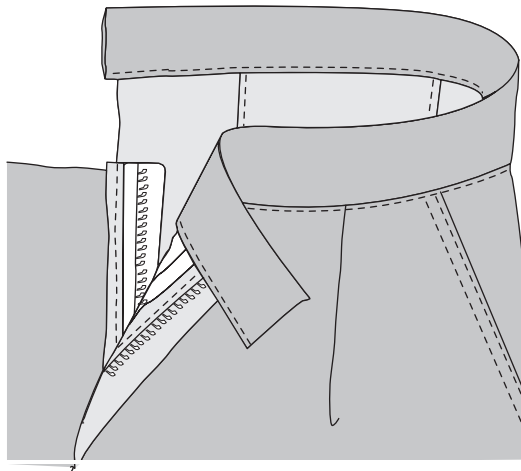
SWC22P0206

Fig 7



SWC22P0207

Fig 8



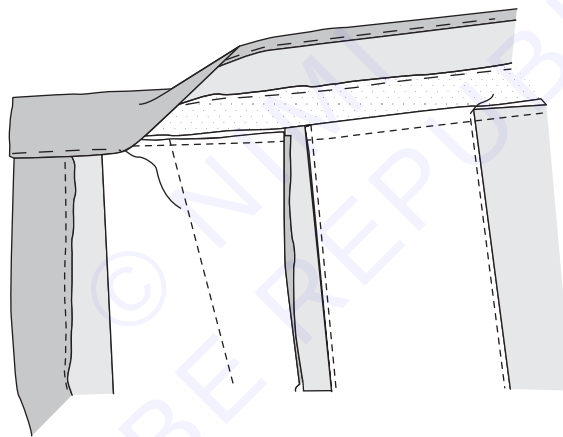
SWC22P0208

Turn to the right side. Stitch in the crevice of waist seam line.

Finish the end of extension with blind hemming.

Finish the right waist band in the same manner. (Fig 9)

Fig 9



SWC22P0209

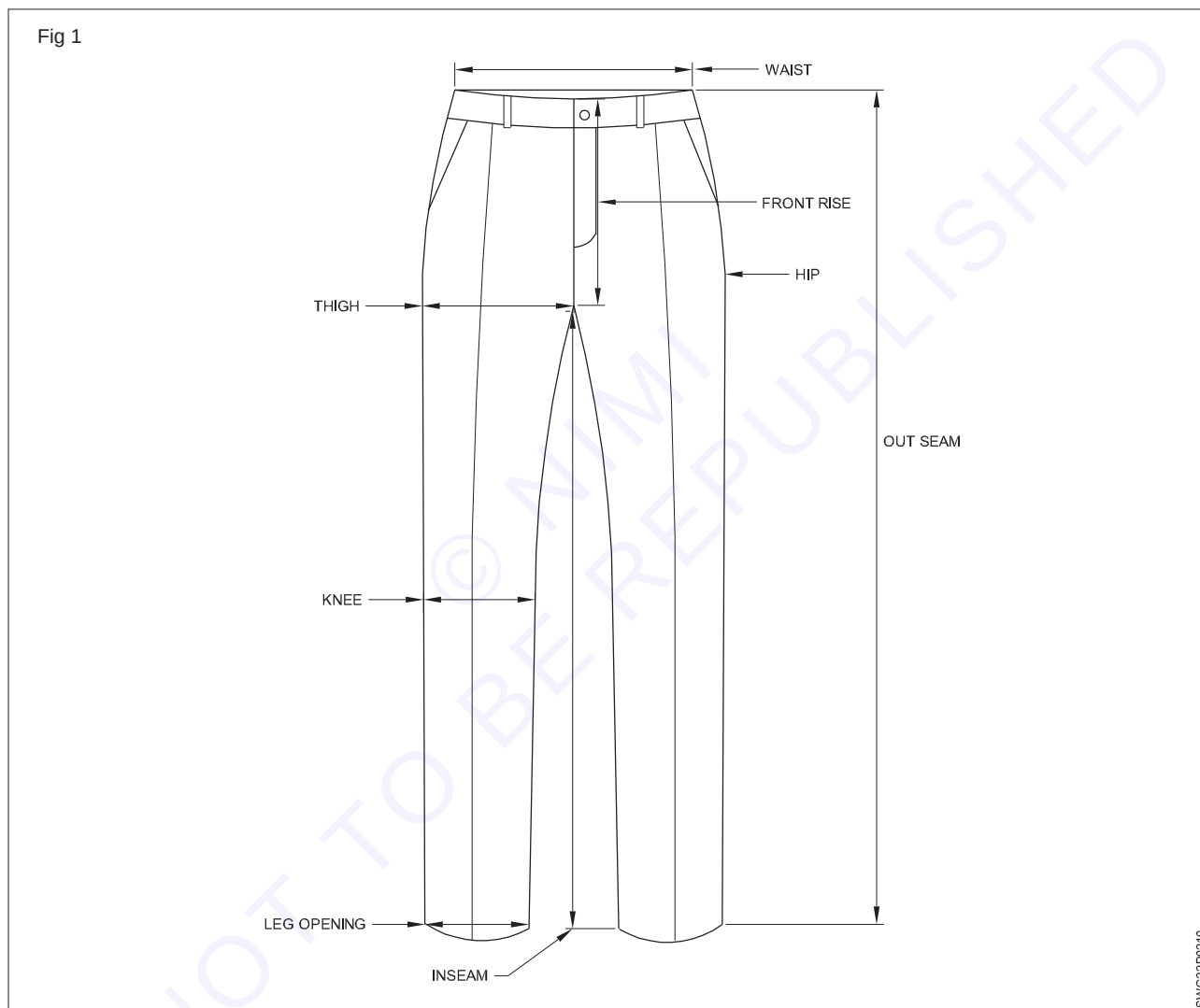
Two piece trouser / Pant

Objectives : At the end of this exercise, you shall be able to:

- take measurements for gents trouser
- draft a gents trouser
- lay and cut the gents trouser
- stitch the gents trouser.

Procedure

TASK 1: Take Measurement (Fig 1)



Measurement in cm

Full length	= 105 cm
Seat	= 95 cm
Waist	= 80 cm
Inside leg length	= 74 cm
Knee width	= 48 cm
Bottom	= 42 cm

Components

Front part	- 2 piece
Back part	- 2 piece
Waist Band	- 2 piece
Fly	- 4 piece
Cut pocket pouch	- 1 piece
Side pocket pouch	- 2 piece
Jetting for Placket	- 3 piece
Loop Carrier	- 6 piece

Suitable fabric: Cotton, Terry cotton, Linen, Denim, Cotton corduroy, Thick pant close

TASK 2 : Draft a paper pattern of gents trouser

Construction

Front

- 0 – 1 = Full length of trouser – Band width (4cm) + 1 cm for seam = 102 cm
 1 – 2 = 6 cm for Bottom fold = 6 cm
 1 – 3 = Inside leg length + 1 cm for seam = 75 cm
 3 - 4 = 1/12 of Seat = 7.9 cm
 1 – 5 = 1/2 of (1–3 measure)+ 5 cm
 Draw the square out line
 3 – 6 = 1/4 of Seat + 5 cm = 28.75 cm
 7 = Is square from 0 & 6 (or)
 1/4 Waist + 2 cm for seam + 7 cm for pleat = 29 cm
 6 – 8 = 3 – 4 measure = 7.9 cm

Hints

- 0 – 7 = 1/4 of Waist + 2 cm for seam + 7 cm for pleat = 20 +2+7 = 29 cm
 6 – 9 = 1/12 of Seat - 1.5 cm = 7.9 – 1.5 = 6.4 cm
 Is mid of 3 – 9
 X = Draw the square up& down from X
 0 – 10 = 5 – 11 = 2 – 13 = 3 - X measure
 11 – 14 = 11 – 15 = 1/4 of Knee width + 0.5 cm = 12.5 cm
 12 – 16 = 12 – 17 = 1/ 4 of Bottom + 0.5 cm = 11 cm
 13 – 18 = 13 – 19 = 12 – 16 measure + 0.5 cm = 11.5 cm
 9 – 8 = 9 – 14 = 3 – 15 = Draw the shape as per the diagram
 14 – 16 – 18 = 15 – 17 – 19 = Join it

Side pocket mark

- O – N = 4 cm
 N – M = 1/6 of Seat = 15.8 cm

Pleats

- 10 – 20 = 4 cm for first pleat = 4 cm
 21 = is mid of 0 – 20
 Pleat width from 21 = 3 cm

Back

- X – Y = 2.5 cm , Join Y - 9 and Produce
 9 – 22 = 6 – 9 = Front measure = 6 cm
 14 – 23 = 16 – 24 = 18 – 25 = 2 cm
 22 – 23 = Draw the shape as per the diagram

23 – 24 - 25	= Join it	
3 – 26	= $\frac{1}{4}$ of seat + 4 cm	= 23.75+4 = 27.75cm
Join 3 – 26 & Join 6 – 26 and produce		
27	= Is cutting point of waist line	
27 – 28	= 3 cm	= 3 cm
Join 0 – 28 & produce		
26 – 29	= $\frac{1}{12}$ of Seat	= 7.9 cm
Draw the shape 29 – 9 – 22		
28 – 30	= $\frac{1}{4}$ of Waist + 1 cm for seam + 4 cm for dart	= 25 cm
30 – 3 – 15	= Draw the shape as per the diagram	

Darts

30 – 31 & 31 – 32	= $\frac{1}{12}$ of Seat	= 7.9 cm
Draw the square down from 31 & 32		
Dart Width from 31 – 32		= 2 cm
Dart Length	= $\frac{1}{12}$ of seat	= 7.9 cm

Hip pocket mark

Join from darts and produce

A – B	= $\frac{1}{12}$ of Seat + 5 cm	= 7.9 + 5cm	= 12.9 cm

INLAY

28 – 33	= 4 cm for inlay	= 4 cm
33 – 22	= Draw the shape as per the diagram	

Side pocket

O – 1	= $\frac{1}{3}$ of Seat + 2.5 cm	= 31.6+2.5 cm	= 34.1 cm
0 – 2	= $\frac{1}{6}$ of Seat + 2.5 cm		= 17.5 cm
3	= Is square from 1 & 2		
3 – 4	= $\frac{1}{8}$ of Seat		= 11.8 cm
4 – 5	= 2 – 6		= 2.5 cm

join 4 – 6

7	= Is mid of 1 – 3	

Draw the shape 7 – 5

6 – 8 – 4 – 9 = 1 cm, Join 8 – 9

Fly

0 – 1	= 6 – 7 front measure – 1 cm	
0 – 2	= Fly width (3.5) + 2 cm for seam	= 5.5 cm
3	= Is square from 1 & 2	
1 – 4	= 3 – 5 = 2.5 cm, Join 4 – 5 produce	= 2.5 cm
5 – 6	= 1.5 cm, Join 3 – 6	= 1.5 cm
4 – 7	= 5 – 8 = $\frac{1}{12}$ of seat + 2 cm	= 9.5 cm

6 – 8 – 3 – 7 = Draw the shape as per the diagram

3 – 9 = 2 cm, Join 6 – 9 = 2 cm

Waist band

0 – 1 = 10 cm for over lapping

1 – 2 – 2 – 3 = $\frac{1}{4}$ of Waist = 20 cm

3 – 4 = 4 cm for Inlay

0 – 5 = $1 - 6 = 4 - 7 = 4 - 8$ = Band width (4cm) + 2 cm for seam = 6 cm

Join 5 – 7 & 6 – 8

6 – 9 = Fly width (3.5 cm) + 1 cm = 4.5 cm

10 = Is square from 1 & 9

4 – 11 = $4 - 12 = 0.5$ cm

2 – 11 = $2 - 12 =$ join its

Loop

0 – 1 = Band width (4) + 1.5 cm for seam +1.5 cm for Ease = 7 cm

0 – 2 = 3 cm

3 = Is square from 1 & 2

Hip pocket Jetting

0 – 1 = A – B Hip pocket measure + 5 cm = $12.9 + 5\text{cm}$ = 17.9 cm

0 – 2 = 6 cm = 6 cm

3 = is square from 1&2

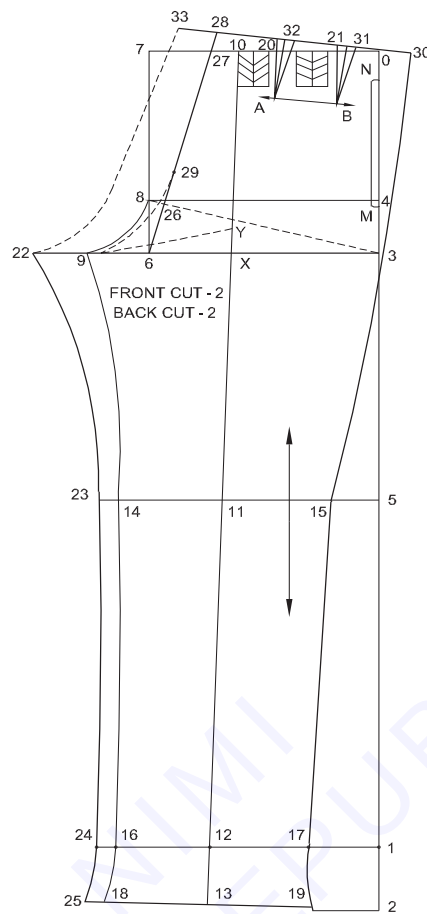
Hip pocket pouch

0 – 1 = $\frac{1}{4}$ of Seat = 23.75

0 – 2 = (0 – 1) placket length measure = 13 cm

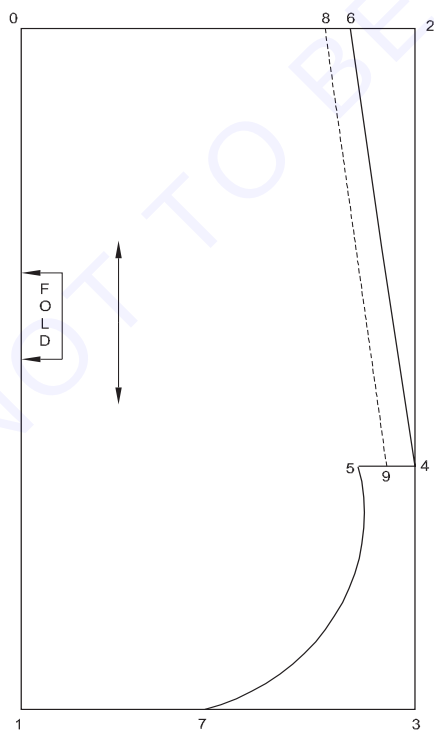
3 = Is square from 1& 2

0 – 4 = 2 – 5 = 5 cm, join 4 – 5

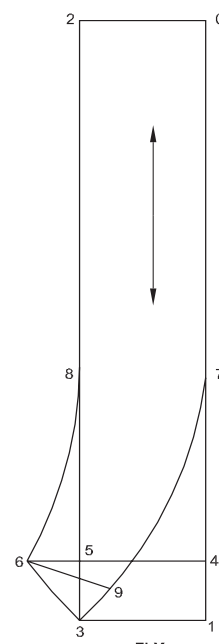


TWO PIECE TROUSER DRAFTING

SWC22P0211

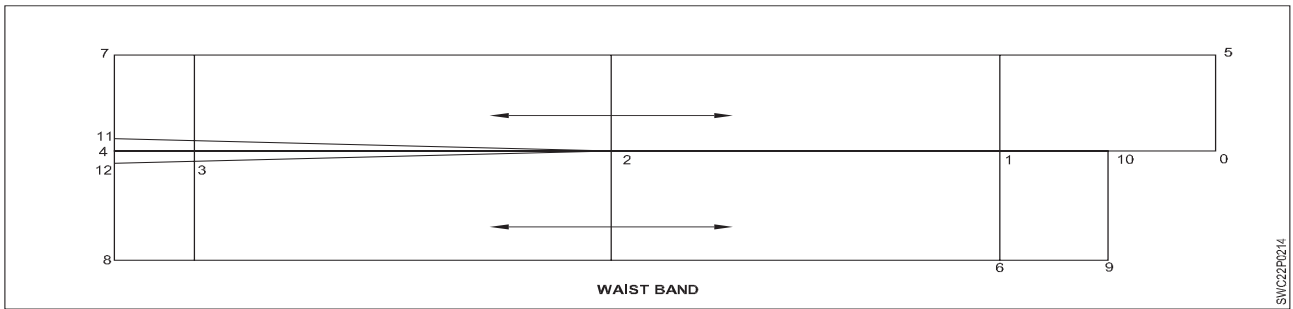


SIDE POCKET POUCH

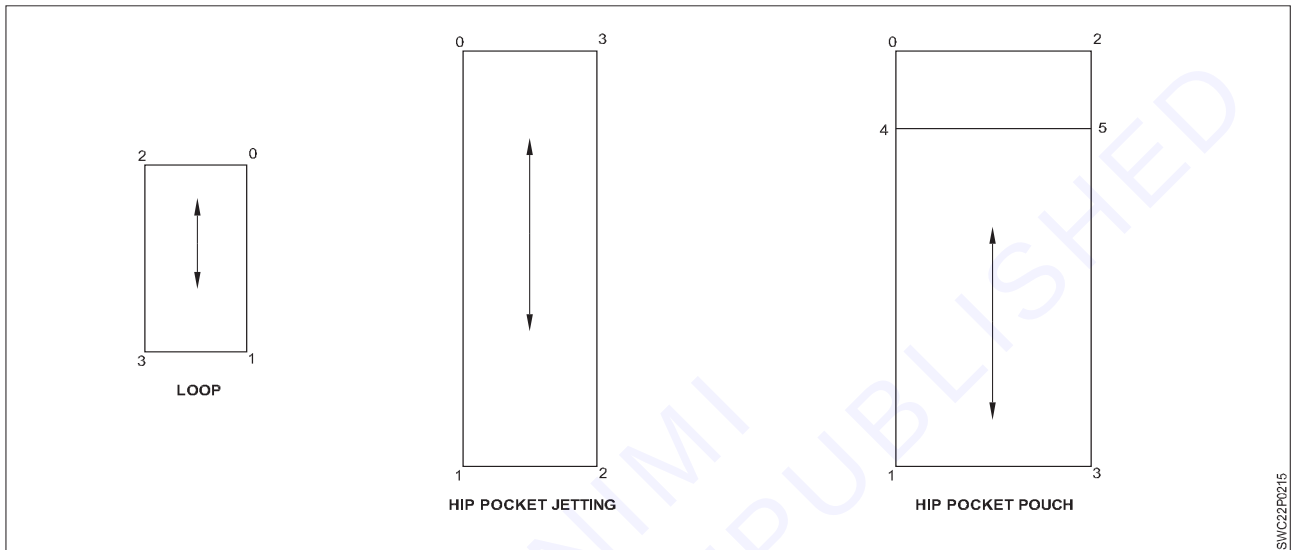


FLY

SWC22P0212



SWC22P0214



SWC22P0215

TASK 3: Prepare Master pattern

Add seam allowance to the cut paper pattern as required.

Pant stitching

TASK 4: Lay and cut the required fabric components of pant

- Lay out double width fabric open on the cutting table
- Mark the outline of the patterns using a marking chalk.
- Remove the patterns.
- Cut the marked components using a sharp pointed scissors.

Keep the master pattern above the fabric, mark and cut the front part of pant (Fig 1)

Fig 1



Take the front part and keep it over the remaining fabric to cut the other part of front. (Fig 2)

Fig 2



Keep the back part pattern and cut 2 parts for back (Fig 3)

Fig 3



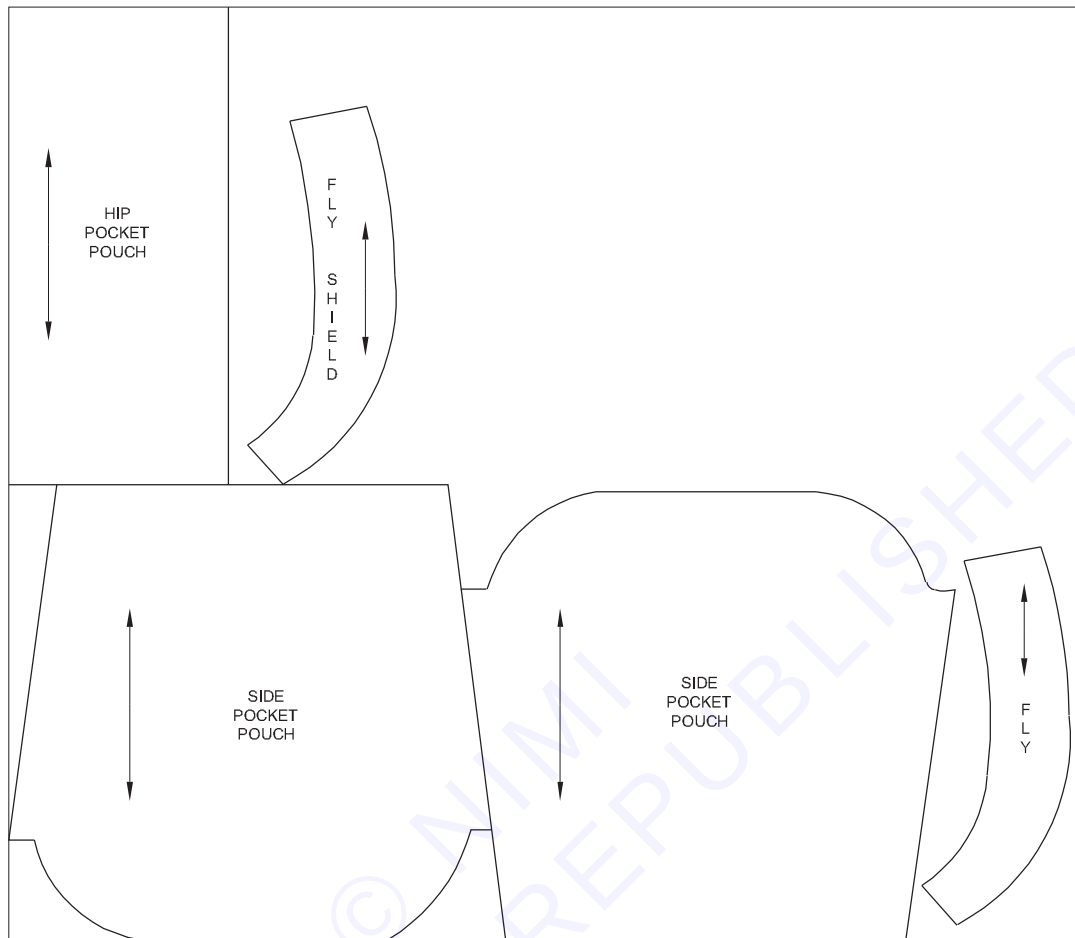
Similarly lay the lining material open on the cutting table.

Arrange and mark the outline of both the pockets pouches fly and fly shield.

Cut notches at pocket markings, in turns etc.

Fold and tie all the pleated trousers components together, to prevent from missing. (Fig 4 & 5)

Fig 4

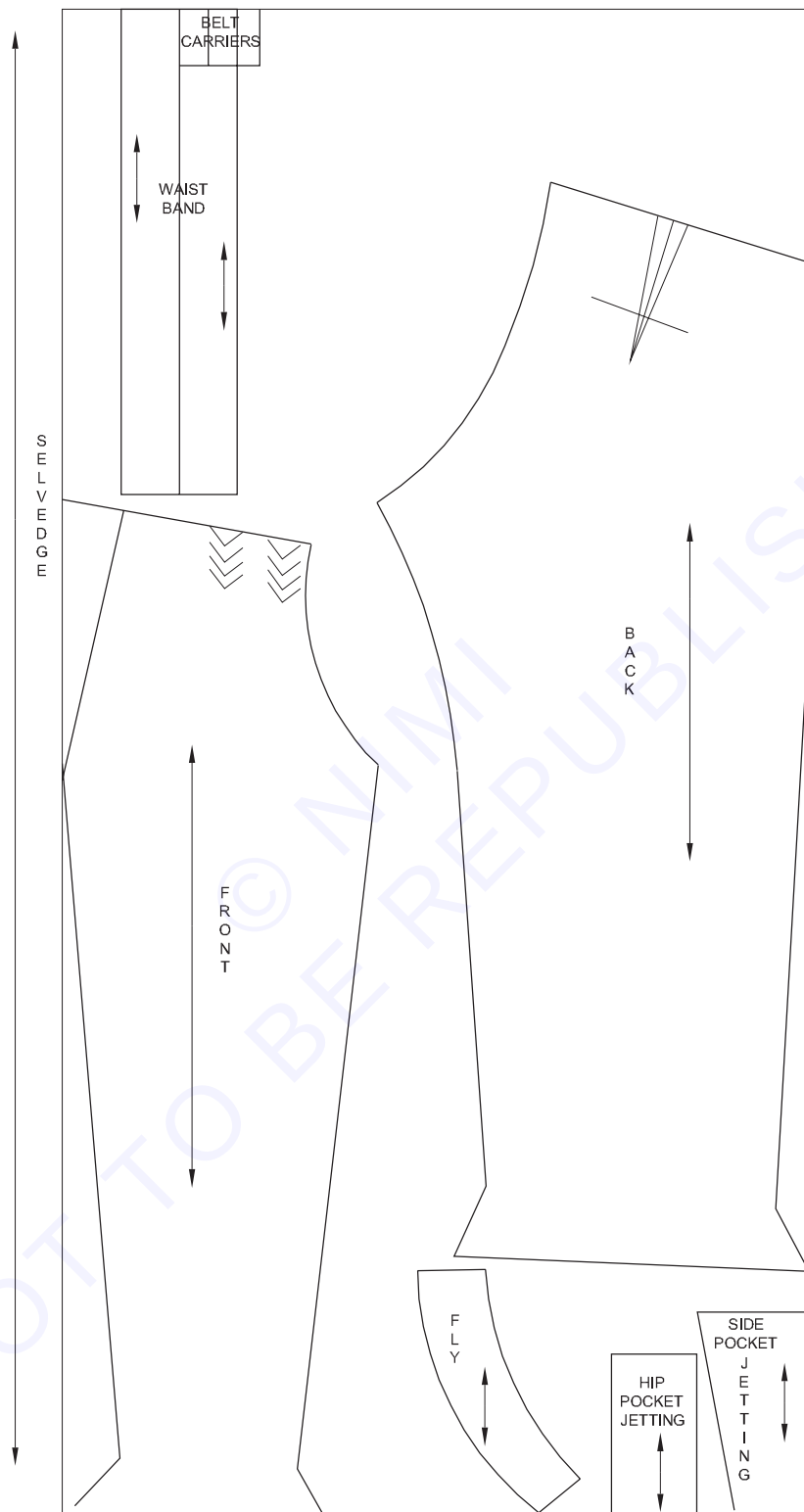


CUT COMPONENTS
LINING MATERIAL

SIDE POCKET POUCH	2
HIP POCKET POUCH	1
FLY	1
FLY SHIELD	1

SWC22P0219

Fig 5



CUT COMPONENTS

ORIGINAL MATERIAL
 FRONT 2
 BACK 2
 FLY 2
 WAIST BAND 4
 (2 FOR LINING)

HIP POCKET JETTING 2
 SIDE POCKET JETTING 2
 BELT CARRIERS 6

SWC22P218

TASK 5: Stitch the gent's trouser

- 1 Prepare the slant pockets on the marks in front sides
- 2 Set the knife pleats in front on marks and baste them fold of pleat should be directed towards the pocket.
- 3 Stitch the darts on marks at the back side. Press and set towards seat seam line.
- 4 Prepare hip pocket with flap on right side of the back.
- 5 Prepare the zip fly
- 6 Join sides of front and back, with
- 7 Prepare the belt and attach on waist line.
- 8 Stitch the inside leg seam joining front and back together.
- 9 Stitch crotch from back to front up to the zip fly forming cross seam at the joint of seam lines.
- 10 Lock at the end of fly from right side, making a triangle of 0.5 cm with double row cliff stitching.
- 11 Clip crotch seam allowance on the shaped portion in diagonal direction up to 5mm. Press it open and set flat by stretching. Stitch self bound seam on seam allowance. Press and finish at the top with hemming.
- 12 Inside sew the edges of lower end of the shield lining to crotch seam allowances. Be careful, Stitches should not be visible on front side.
- 13 Prepare five belt carriers (SS No.5). Fix one belt carrier on the waist band above each front pleat, one on back centre seam and one in centre between centre seam and pleat.
- 14 Finish the bottom line with broad hem.

Fix and stitch one pant hook in the centre of the extended edge at waist band on the wrong side. Fix another hook on waist band above the zip fly on wrong side. Be careful that the edge of hook and stitches are not visible from front side.
- 15 Fix eyes on the other side of waist band (matching with the position of the hooks)
- 16 Trim the threads, finish and press.

Skill Sequence No. 1

Slant pocket

Objectives : At the end of this exercise, you shall be able to:

- stitch slant pockets in front part.

Procedure

Take one jetting over lock one long short edge. (Fig 1)

Place the pocket pouch on the trouser with right side of the pocket pouch and wrong side of the original material together match side edges.

Baste both the pieces together from right side slightly away from the mark line. Cut a tape of thin cloth on straight grain 1 cm wide. (Woven tape/selvage of cloth can also be used.) Place the tape edge along the basting line on wrong side of the pocket pouch and stitch along the centre of the tape. Place jetting piece on the other side of the pouch piece with right sides together and raw edges matching at top and side. Baste and stitch along the over locked edges. (Fig 2)

Cut off the pocket pouch cloth along the outer edge of tape. (Fig 3)

Fold the triangular portion of original cloth on mark towards wrong side on pouch piece, iron gently. (Fig 4)

Fig 1

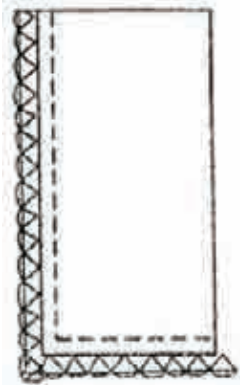


Fig 2

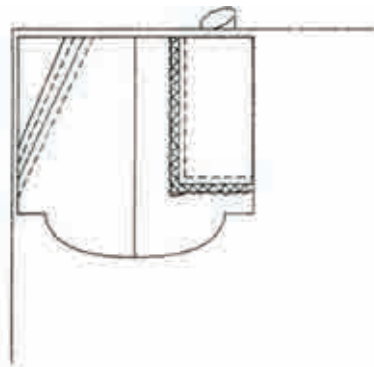


Fig 3

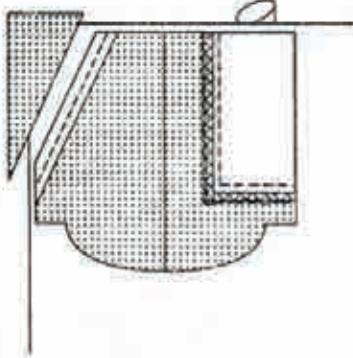
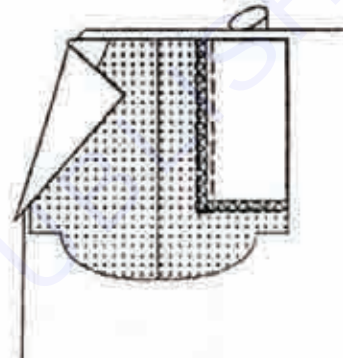


Fig 4



Turn pocket and original cloth together with right sides upwards. Make a top stitch from right side, 0.75cm always from the folded edge. (Fig 5)

Unfold original cloth and pocket pouch. Turn the raw edge of the original piece which forms a triangle inside by 0.5cm and stitch with the pocket pouch. (Fig 6)

Fig 5

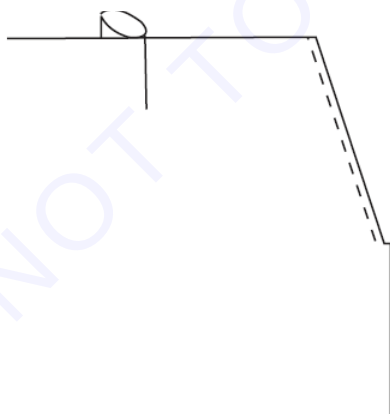
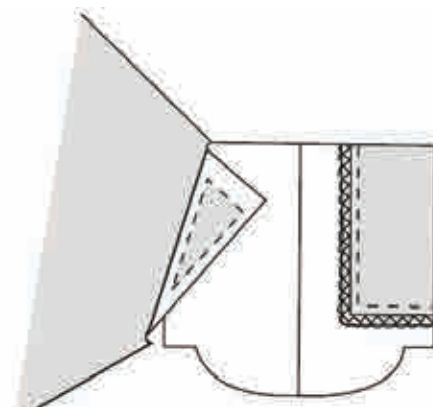


Fig 6



Fold the pouch piece length wise with right sides together and matching the round shape. Stitch the edge. (Fig 7)

Turn the pocket pouch right side out and set the seam in centre. Place the pocket mouth flat over the jetting piece matching side and top edges of pocket pouch and original piece.

Take care that the top slant line of the pocket edge is placed 5cm away from the top corner of jetting piece.

Baste side length of the original piece along with the jetting and pocket pouch below the pocket mouth and stitch on the top of the pocket slant line 2mm away from the folded edge upto 2cm below the top edge and make firm tacking. (Fig 8)

Take the other piece of the original cloth, place one over the other with right sides together, pocket pouch wards.

Stitch side seam leaving 1 cm seam allowance (Fig 9)

Fig 7

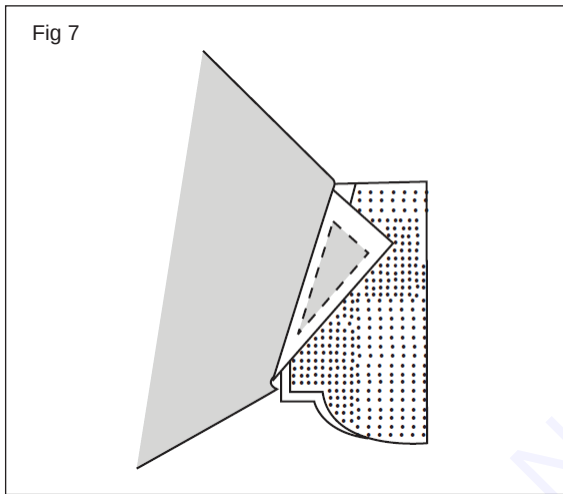


Fig 8

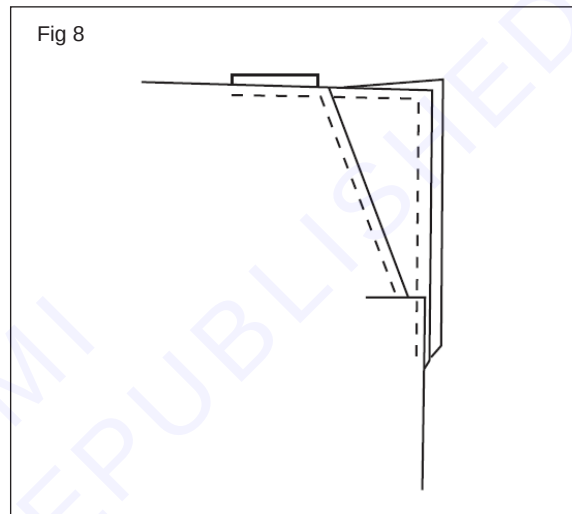
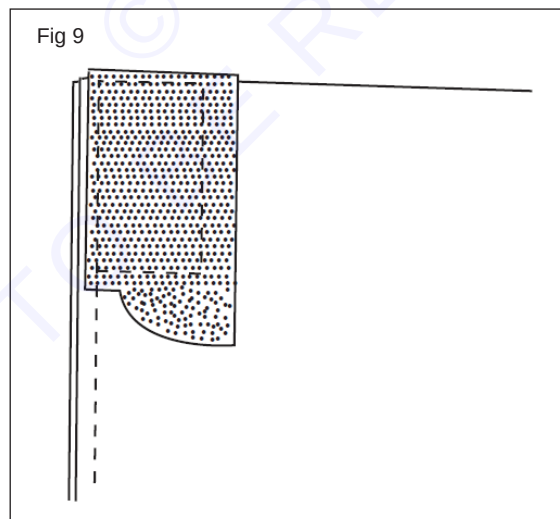


Fig 9



Skill Sequence No. 2

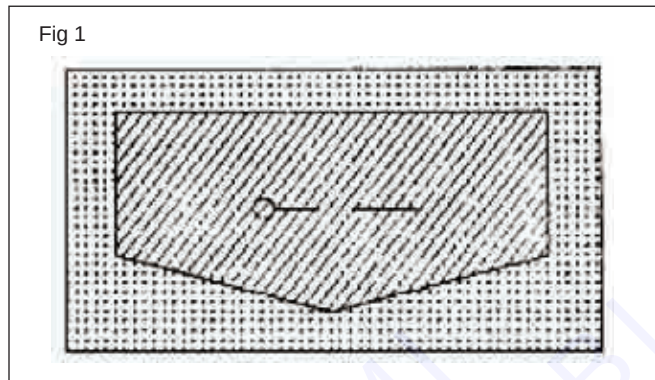
Hip pocket with welt and flap

Objectives : At the end of this exercise, you shall be able to:

- stitch hip pocket with welt and flap on back part.

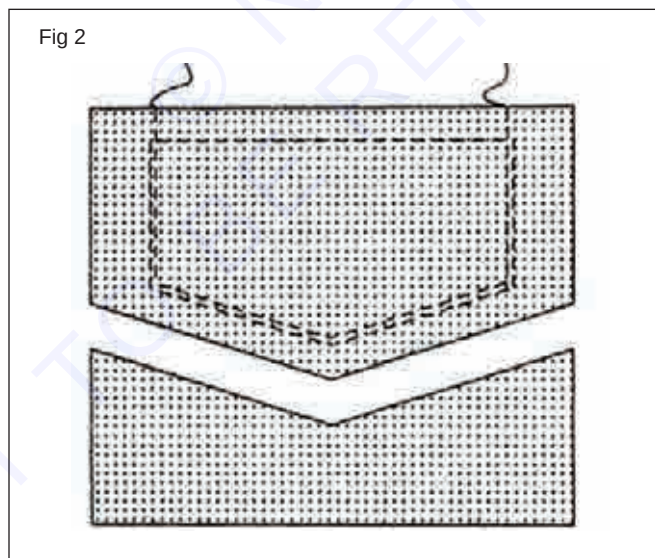
Procedure

Place original flap pieces over each other. Right sides together. Place interlining piece over each other. Right sides together. Place interlining piece over it. Lay the flap paper pattern on the interlining piece, 1cm below the top edge and pin. (Fig 1)



Mark along the edges of flap pattern. Baste on marks' leaving top edges. Remove pin and paper pattern. Stitch along basting, lock stitches at end.

Cut the extra material from all the 3 sides leaving 0.75cm as seam allowance. (Fig 2)



Cut the corners only from the interlining piece. (Fig 3)

Turn the flap unit out maintaining the corner shape and press. Make top seam 0.5 cm away from the stitched edges. (Fig 4)

Take pocket pouch piece With wrong sides together place the pouch piece exceeds 3.0cm above, the pocket mouth mark. Matching the center of both the pieces, baste along the mouth mark. (Fig 5)

With right sides together, place both the jetting pieces on the sample piece along with pocket mouth mark right sides together.

Fig 3

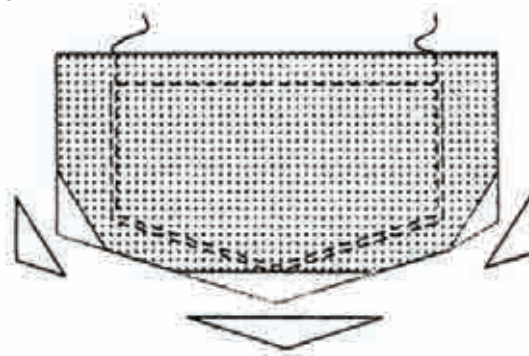
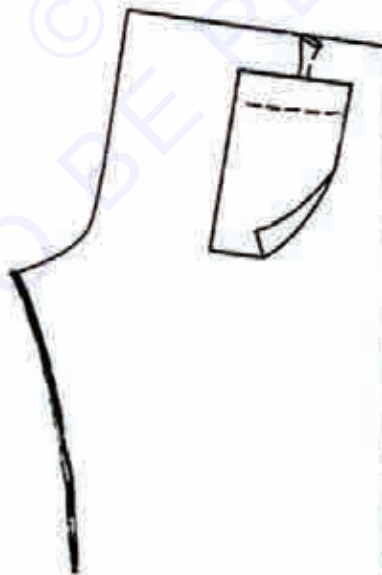


Fig 4



Fig 5



Baste and stitch 0.5cm away on both sides only on pocket mouth. Lock stitches properly. (Fig 6)

Remove basting and cut along the mouth mark through both the layers (main piece and pouch piece) very carefully. Stop 1cm before ends, lift corners of jetting pieces and cut diagonally into the four corners forming small triangles at each end. (Do not cut into stitches and jetting pieces.) (Fig 7)

Fig 6

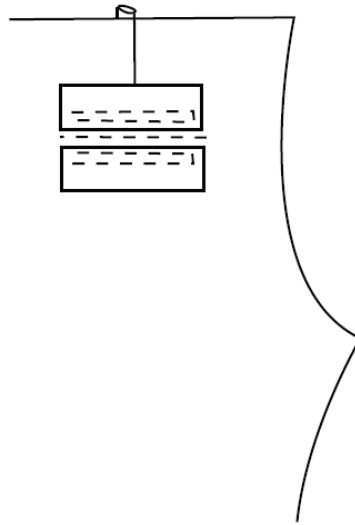
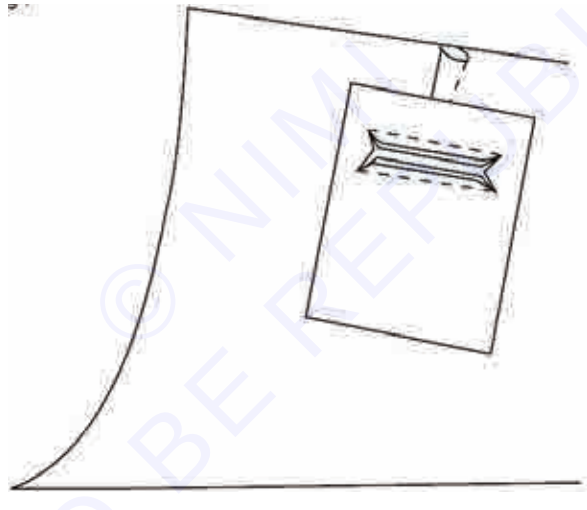
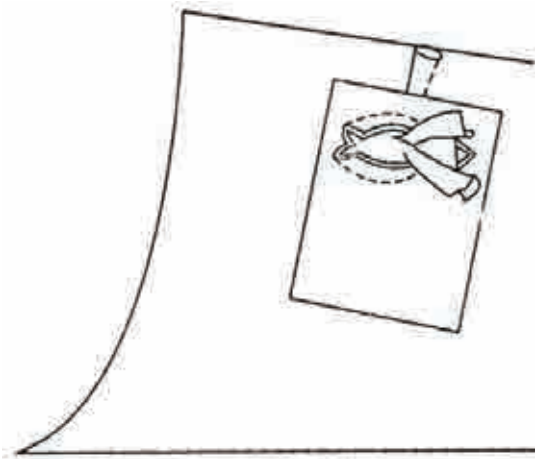


Fig 7



Gently push the jetting pieces through the cut to the wrong side. (Fig 8)

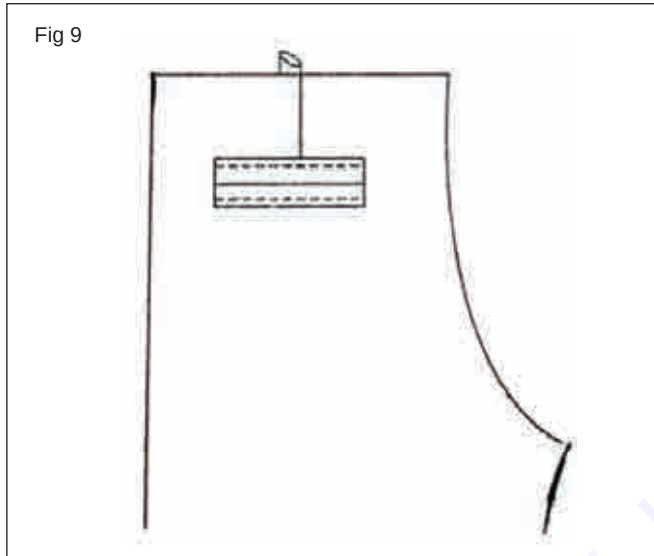
Fig 8



Wrong from right side of the original piece.

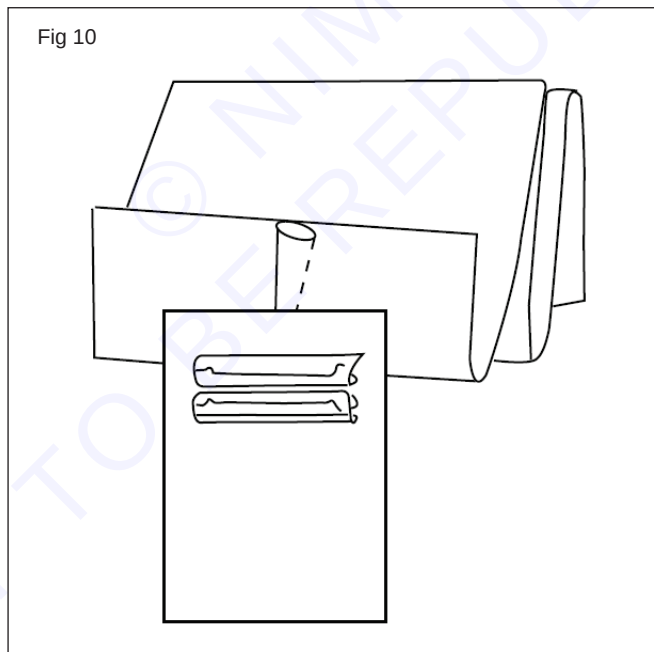
Fold and press jetting to form 0.5cm welts with their folds matching in the center of the opening. Baste along both the seam lines. Stitch along basting at lower crevice and lock the seam. (Fig 9)

Fig 9



Turn the whole unit to the wrong side. Fold the original piece back. Turn the lower edge of jetting piece by 0.5cm inside and top stitch with pouch piece. (Fig 10)

Fig 10



Take the prepared flap piece and insert into the pocket mouth and match seam line on top of the flap with the seam line of upper welt and baste. Stitch at the upper crevice and lock the seam. (Fig 11)

Place the sample on the machine right side up. Fold back the side edge of the original piece and pouch piece to expose tiny triangle at one end of the pocket mouth. Secure the end of triangle by double seam (care should be taken that stitch must be very close to the cut). (Fig 12)

Repeat the process for the other end.

Now work from wrong side:

Fig 11

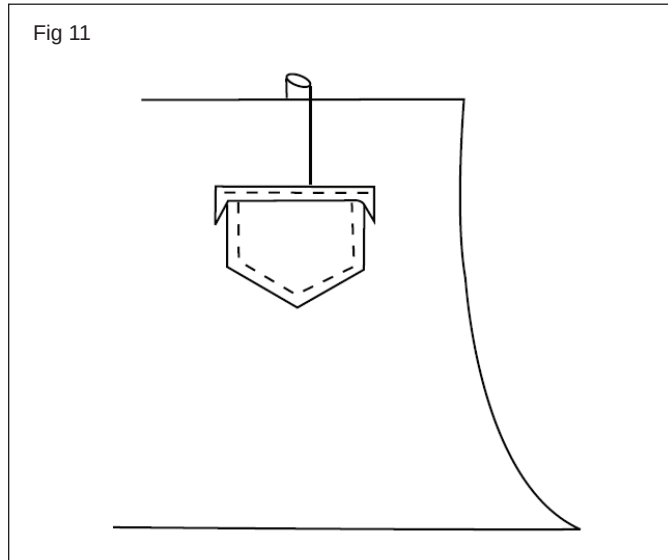
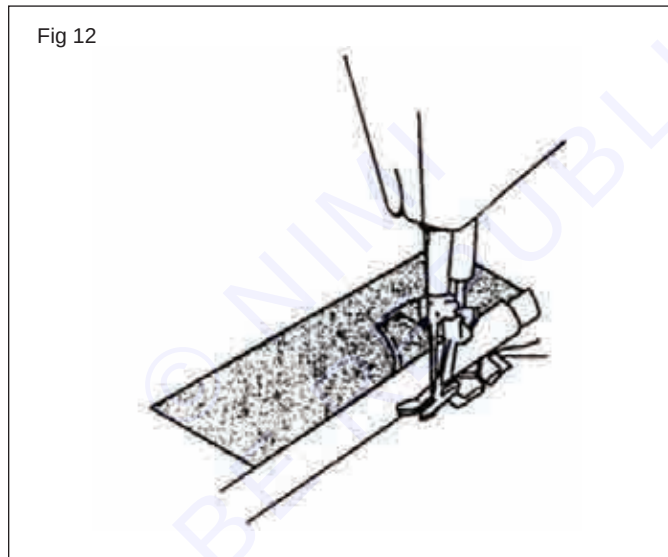


Fig 12

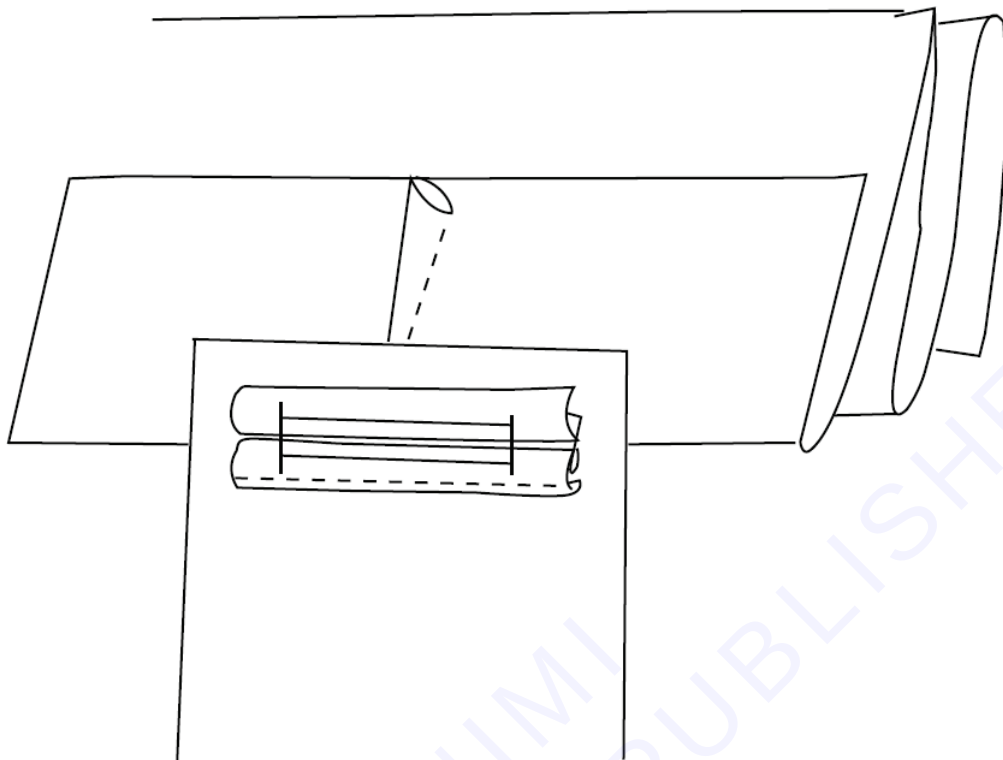


Turn off long edge of pouch piece inside by 1cm and fold the pouch on the marked line (horizontal) and baste the sides up to the waist line. Finish with double seam. (Fig 13)

Stitch one bar one fan button hole in the center of flap 0.75cm away from the lower edge.

Stitch the button matching to button hole.

Fig 13



Skill Sequence No. 3

Zip fly

Objectives : At the end of this exercise, you shall be able to:

- prepare the zip fly in front of pleated pant.

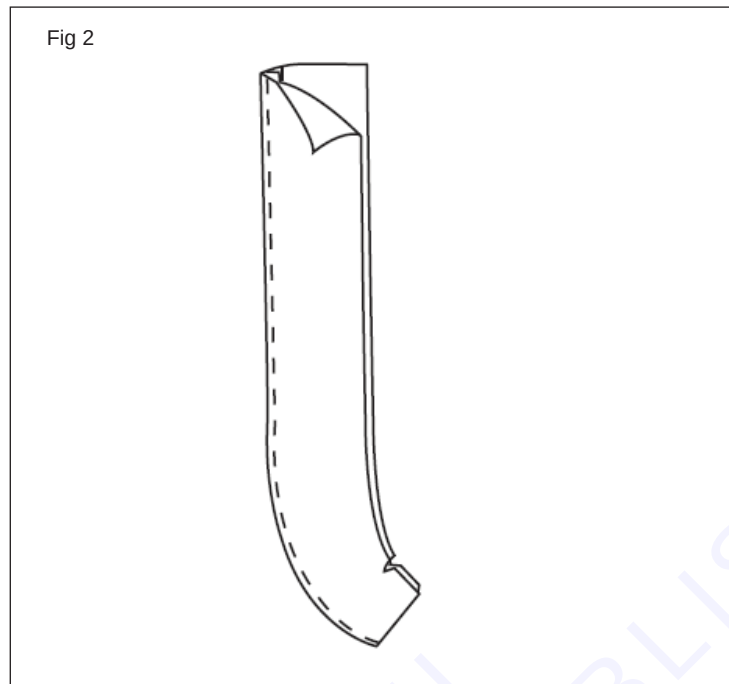
Procedure

Take two fly pieces (left fly is facing, right fly is shield) and their linings. Clip the seam allowance on point 11 in front and fly (see instructions for drafting). Take left fly (facing part) and lining. Stitch on outer round shape, right sides together. (Fig 1)

Fig 1



Turn right side out and stitch on the edge of previous seam. (Fig 2)



Place closed zip on the fly piece wrong side of zip up; leave 0.5 cm from the raw edge and 1 cm above the clip. Baste 6 mm away from the teeth of zip. Stitch with double seam. (Fig 3)



Baste raw edge of facing and lining with left front of part Match clip of facing and fly line. Be careful that the edge of zip is not caught by stitches. (Fold zipper back and if necessary pin it to hold it out of the way). Stitch along the basting line from dip to waist edge. (Fig 4)

Turn facing on seam line away from the front piece. From right side stitch through the facing and all seam allowances close to the edge of facing up to clip and lock the stitch. (Fig 5)

Fig 4

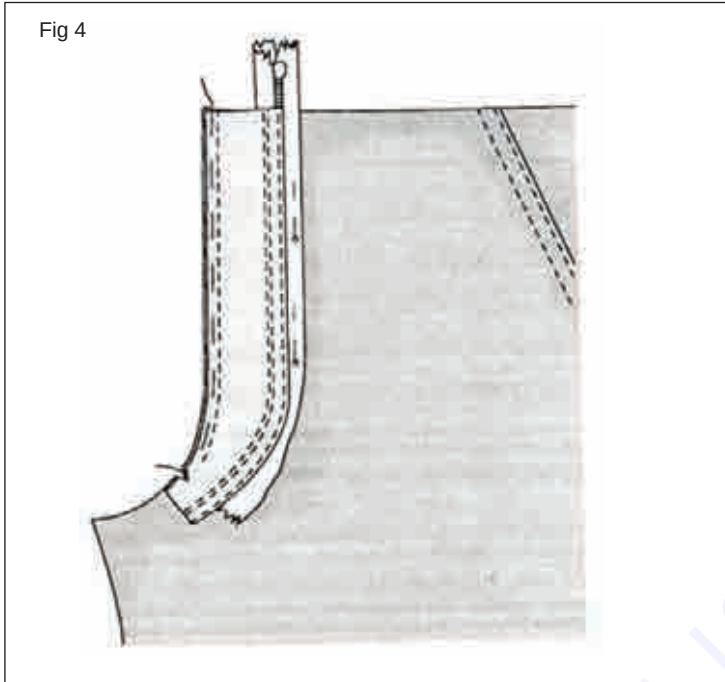
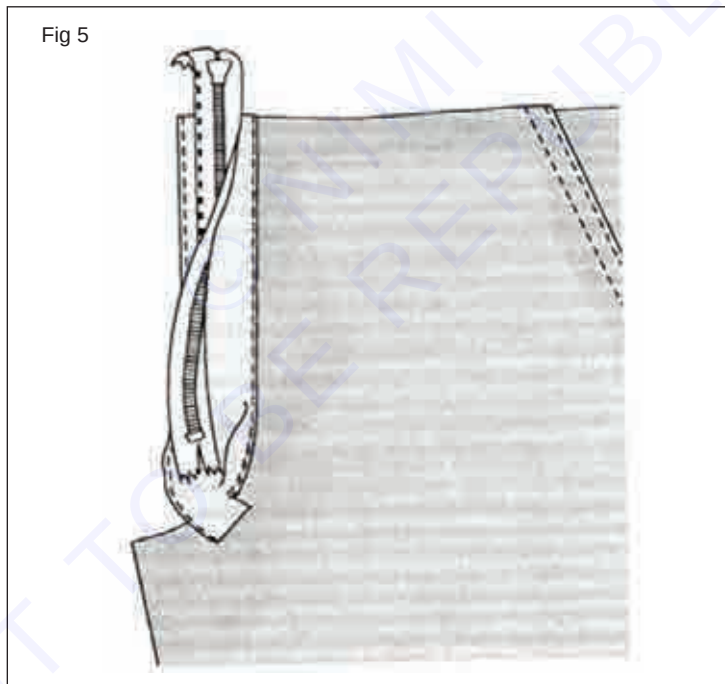


Fig 5



Fold the facing towards wrong side on the seam line. Baste close to the fold to hold facing in position. From the right side baste a guide line 3 cm away from the fold, maintaining the shape of fly. Stitch close to the basting line. (Fig 6)

Stitch the right fly (shield): Take right sides of fly and lining together. Baste and stitch on outer shape. Cut notches on the round shape. (Fig 7)

Turn right side out. Press and set the outer edge and baste on it up to end. Turn also the edge of the balance part of lining. Cut notches on the inner curved shape of lining. (Fig 8)

Fold the edge of lining by 1.5 cm to wrong side. Align edge of lining and shield. Baste and press on the lining. (Fig 9)

Fig 6

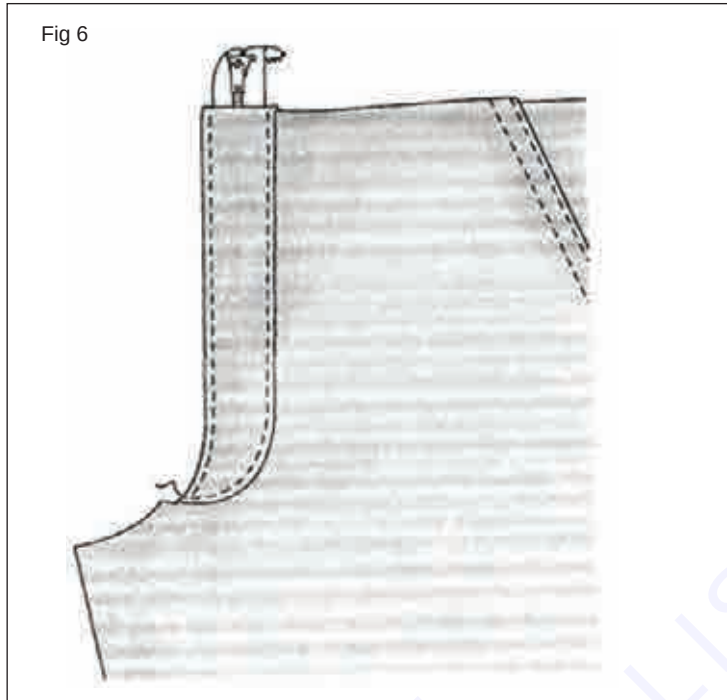


Fig 7

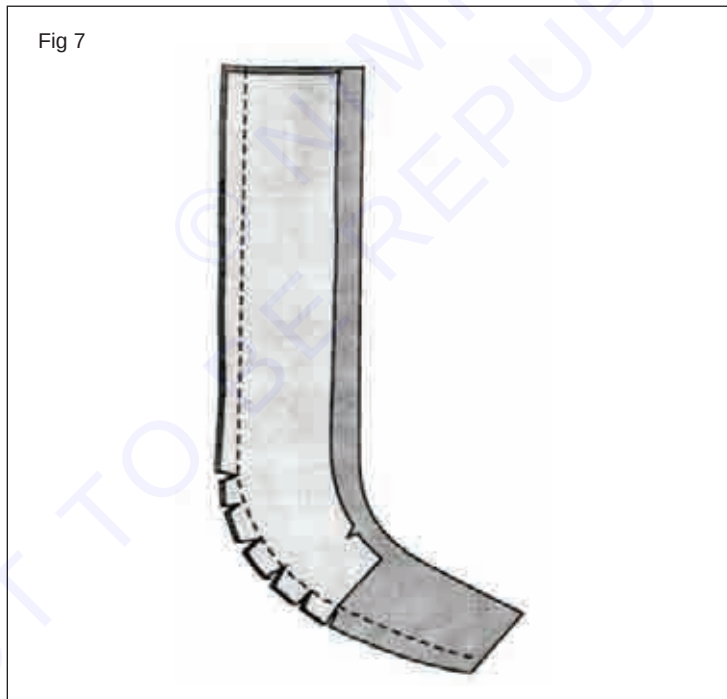


Fig 8

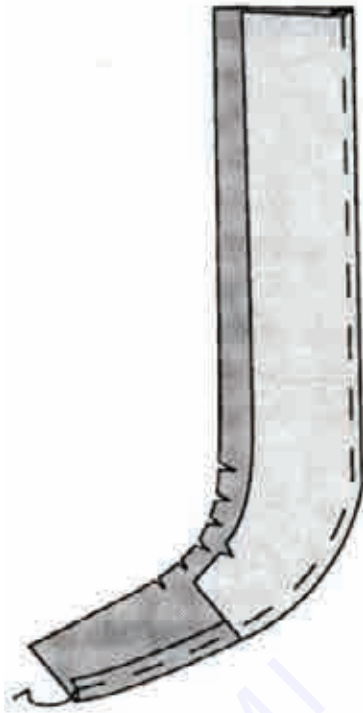
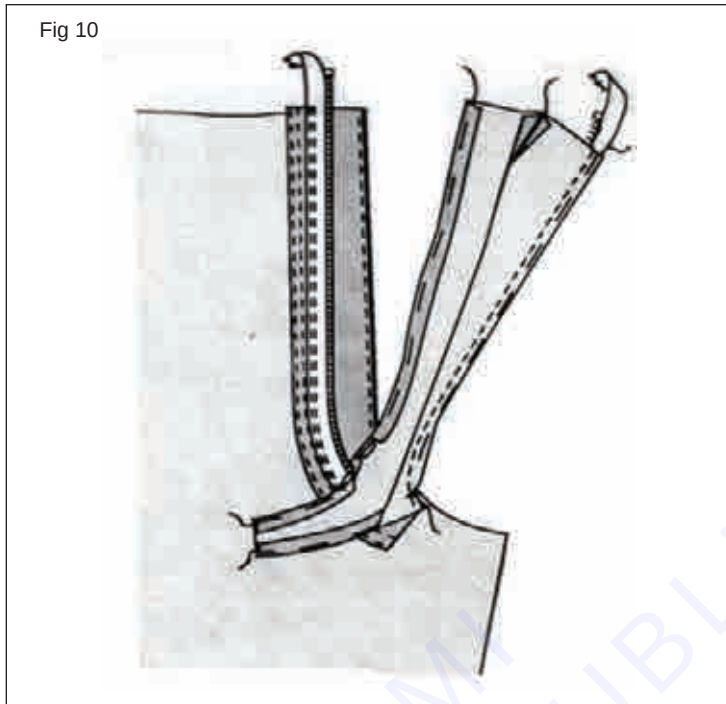


Fig 9



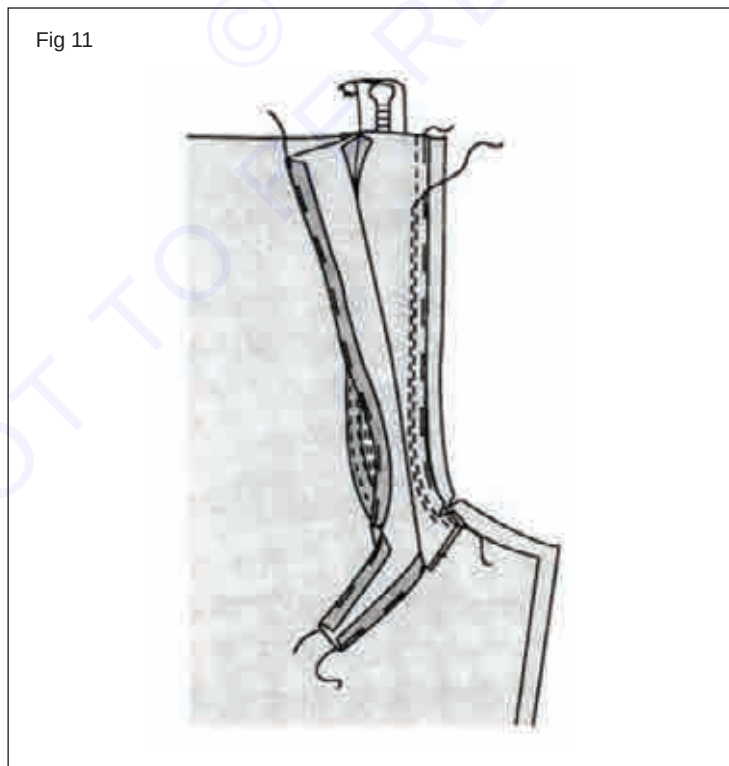
Open the zip. Baste the unattached zip part to the fly shield, wrong side of zip on right side of fly shield. Stitch along the basting but don't stitch the shield lining. Be careful: the position of the zip should be same as in left side facing. (Fig 10)

Fig 10



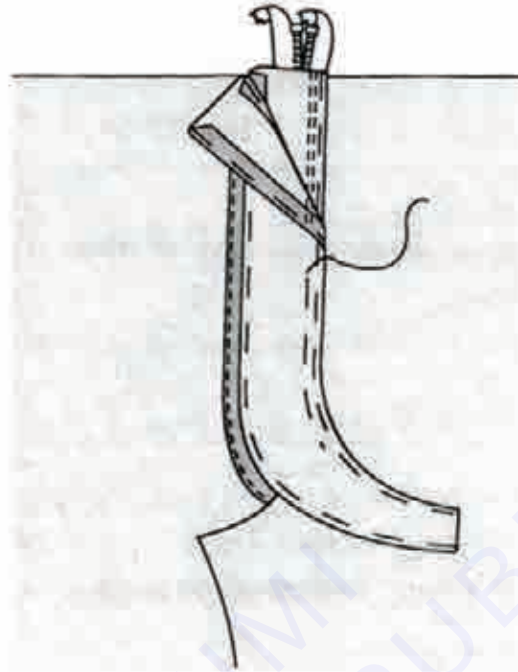
Close the zip. Place right front piece under left front piece with right sides together. Edge of fly line of right front has to extend the fly line of left front by 1 cm. Baste zip and shield on the right front short piece along the fly line. Stitch over the previous seam line up to the clip. Turn away lining piece. (Fig 11)

Fig 11



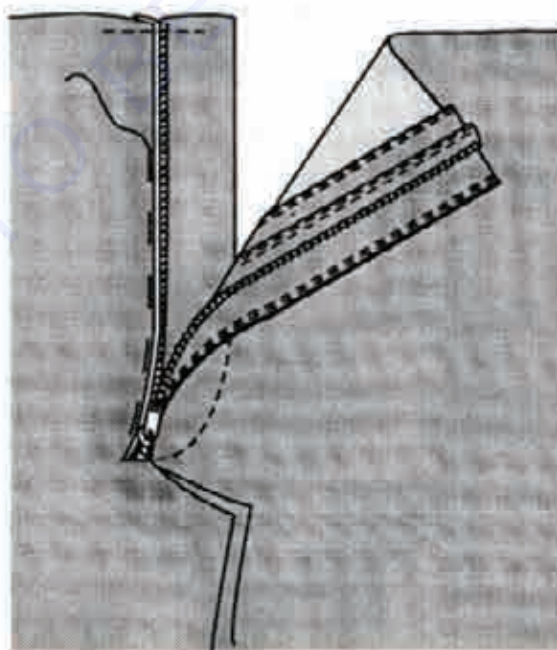
Place short flat on table with wrong side upwards. Turn the seam allowance to shield and right front piece towards right front portion. Cover the shield and seam allowance with lining. Baste it. Be careful that the lining is flat on shield, so that no folds and wrinkles come in it. (Fig 12)

Fig 12



Turn the garment to the right side. Stitch close to the left fly seam through all layers. Tack zip flat on waistline on both sides 0.5 cm below the waist-line. Trim the edges at the top. (Fig 13)

Fig 13



Skill Sequence No. 4

Belt fixing at waist band

Objectives : At the end of this exercise, you shall be able to:

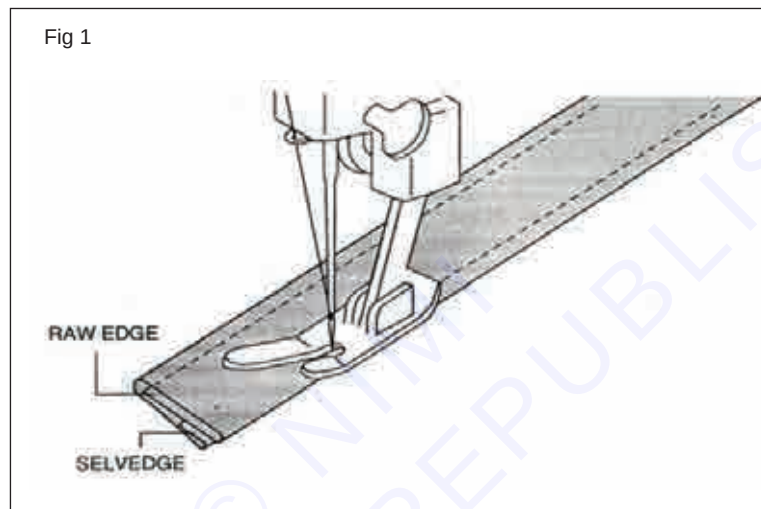
- prepare and fix belt carriers at waist band.

Procedure

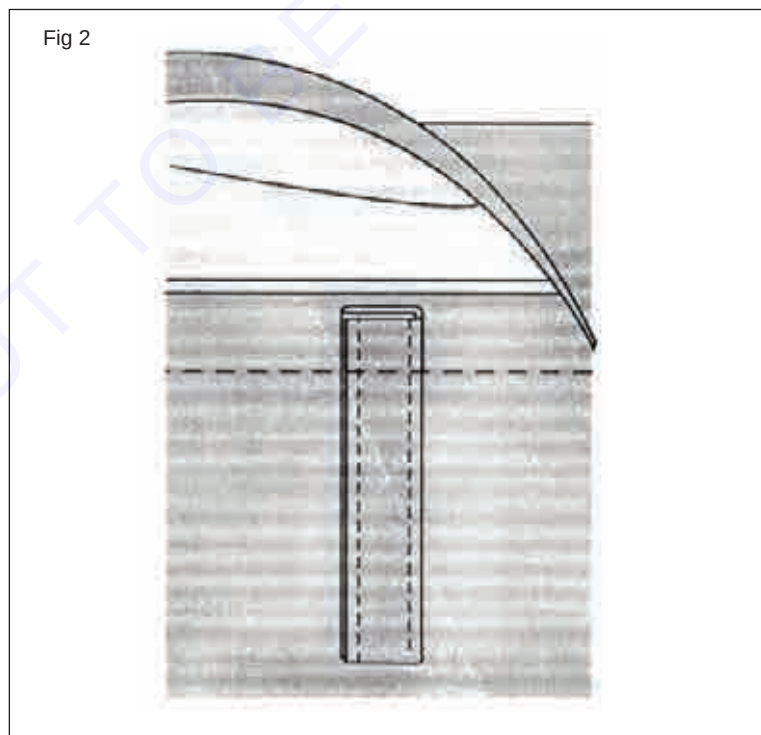
Take the strips for belt carriers. Turn the raw edge of strips 1.5 cm inwards and again turn its edge by 1.5 cm. (note: edge strip should not be visible from outside)

Baste and stitch along both the long edges keeping its edge on underside

Start stitching take care that its edge is caught by stitches (Fig 1)



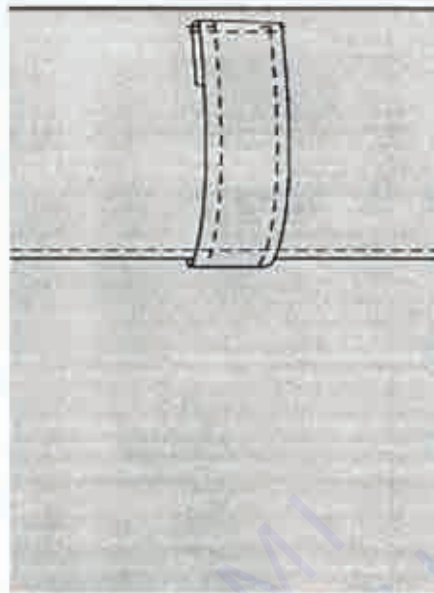
Short edge of carrier is in line with lower edge of waist band. (Fig 2)



Stitch the belt carrier with machine leaving 0.5 cm seam allowance inside. Extend stitch line for 1 stitch beside belt carrier.

Fold under the upper edge for 0.5 cm, baste edge 0.2 cm below the upper waistband edge. Top stitch twice. (Fig 3)

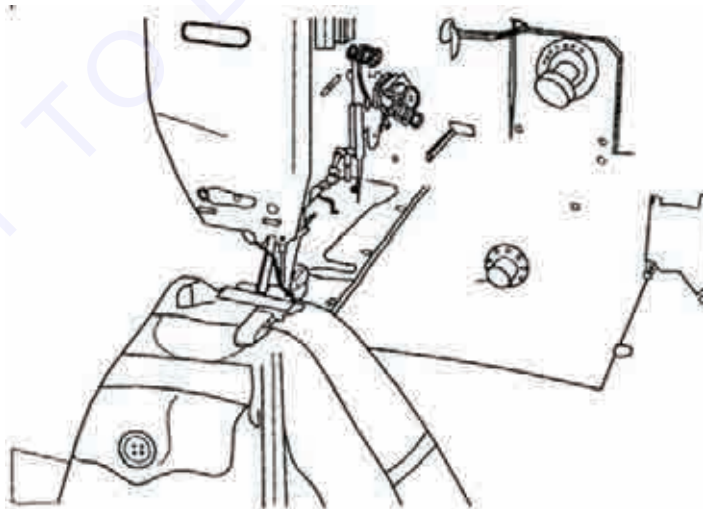
Fig 3



Lift presser foot and turn belt carrier up to the upper side of waist band and lower presser foot. Stitch back on same place but top stitch now over the belt carrier. With the help of bar tacking machine, belt carrier can be stitched easily since the material might be thick. Stitching in treadle machine is slightly difficult due to thick material. Bar tacking machine is mostly used in industries for mass production to give good finish. (Fig 4)

Both stitch lines should cover each other.

Fig 4



◆ Module 8 : Pattern Making of Jacket / Coat ◆

EXERCISE 42 : Corpulent Shirt

Objectives

At the end of this exercise you shall be able to

- draft a gents shirt for abnormal corpulent figure.

Procedure

Fig 1



TASK 1: Take measurement

Measurement in cm:

Full length - 76 cm

Chest - 105cm

Waist - 110 cm

Natural waist length - 43cm

Yoke - 48cm

Neck- 42cm

Sleeve length - 58cm

Waist measure less than Chest (10 cm) - Proportional figure

Waist and Chest measure same - Semi corpulant figure

Waist measure more than Chest - Corpulant figure

The exact amount of disproportion to be found

Example : Proportional waist = Chest - 10 = 95 cm

Disproportion = Actual waist - proportional waist

If waist is 110 cm = 110 - 95 = 15cm.

Disproportion is 15cm

Things to remember while making pattern for Corpulent figure:

- 1 For such person the shoulder to waist length is kept more in front and shorter in back.
2. Depth of scye in front is more than in the back.
- 3 While making a garment for the upper half of the body, more length of the front may be receded to be joined with the back portion, as the back portion shall be kept shorter.

TASK 2: Draft and cut a paper patter of corpulent shirt

Construction front:

Draw the base line.

(0-1) = Full length of shirt + 6 cm

(0-N)(1-M) = 2 cm for overlapping of button and button hole.

(N-A)(M-B)=6 cm for inside fold. (N-A) (M-B) = 6 cm

(N-M) (a-b)=Join it.

(0-2) = Natural waist length

(2-3) =1/4 th of disproportion.

Join (0-3) & produce.

(0-4) = Full length of shirt +1 cm

(4-5) = 3 cm

(5-6) = 2 cm

(0-7)=1/4 of chest -1.5 cm

Draw the square out line.

(0-8) = 1/2 of yoke +1 cm

9 is square from 7&8

(0-10) = 1/6 of neck

(0-11)= (0-10) measure + 1 cm

(8-12) = 1/24 th of chest

Draw the neck shape from (10-12)

Join shoulder slop (10-12)

(9-13)=2.5 cm

(7-14)= 1/4 th of chest + 6 cm

15 is square from (14)

Draw the front arm hole shape (14-13-12)

(15-16) = (4-5) measure

(4-15) (5-16) =Draw the shape as per the diagram.

Chest pocket mark:

(7-P)=4 cm

(P - Q)= pocket width [1/8 of Chest +1.5 cm]

Draw the square from 'Q'

(Q-R)= pocket length [pocket width +1.5 cm]

S is square from (P&R).

Back:

(0-17) (8-18) = 1.5 cm

Join (17-18)

X is midway of (17-18)

(18-19) =1 cm

Draw the shape (19-x)

20 is midway of (9-19)

Draw the back arm hole shape

(4-21) = (4-5) measure

Join (21-16)

Sleeve:

Draw the base line

(0-1) = Sleeve length – cuff width [5cm] + 2 cm

(0-2) = $\frac{1}{12}$ th chest + 2.5 cm

Draw the square outline

(2-3) = $\frac{1}{4}$ th of chest

(1-4) = $\frac{1}{6}$ th of chest + 1 cm

Join (3 - 4) & produce

(4-5) = 1 cm

Join (1-5)

6 is midway of (1-5)-1 cm

Draw the square outline from '6'

(6-7) = $\frac{1}{6}$ th of chest

8 is midway of (0-3)

9 is midway of (0-8)

10 is midway of (3-8).

(9-11) (10-12) = 1.5 cm

(0-11-3) (0-11-8-12-3) = draw the shape as per the diagram.

Cuff:

Draw the square from '0'

(0-1) = $\frac{1}{8}$ th of chest + 2.5 cm

(0-2) = cuff width [5 cm] + 2 cm

3 is square from (1&2)

3-4=3-5=2.5 cm; Give shape 4 to 5

Sleeve placket:

draw the base line

(0-1) = $\frac{1}{6}$ th of chest + 5 cm

(0-2)= 11 cm

3 is square from (1&2)

(2-4) (3-5) = 4 cm

Join (4-5)

Yoke:

Draw the square from '0'.

(0-1) = $\frac{1}{2}$ of yoke + 1 cm

(0-2) = $\frac{1}{8}$ th of chest

3 is square from (1&2)

(2-4) (3-5) = $\frac{1}{24}$ th of chest

Join (4-5) & produce

(2-6) = $\frac{1}{6}$ th of neck + 0.5 cm

(6-7) = (10-12) front measure

(1-8) = 1 cm

9 is midway of (0-1)

(9-8) (8-7) = draw the shape as per the diagram

Collar fall:

Draw the square from '0'

(0-1) = $\frac{1}{2}$ of neck + 1 cm

(0-2) = collar fall width [4.5 cm] + 1.5 cm

3 is square from (1 & 2)

(3-4) = 1.5 cm

(1-5) = 1 cm

Join (4-5) & produce

(4-6) = 3 cm

X is midway of (0-1)

Y is midway of (2-3)

(x-5) (y-6) = draw the shape as per the diagram

Collar stand:

Draw the square from '0'

(0-1) = $\frac{1}{2}$ of neck

(1-2) = 3.5 cm

(0-3) = collar stand width [3.5 cm] + 1.5 cm

4 is square from (2 & 3)

(4-5) = (1-2) measure & join (1-5)

(1-6) = $\frac{1}{3}$ rd of (0-1) measure

(6-7) (2-8) = 1 cm

(0-7-1-8) = draw the shape as per the diagram

(4-9) (9-10) = 1 cm & join (8-10)

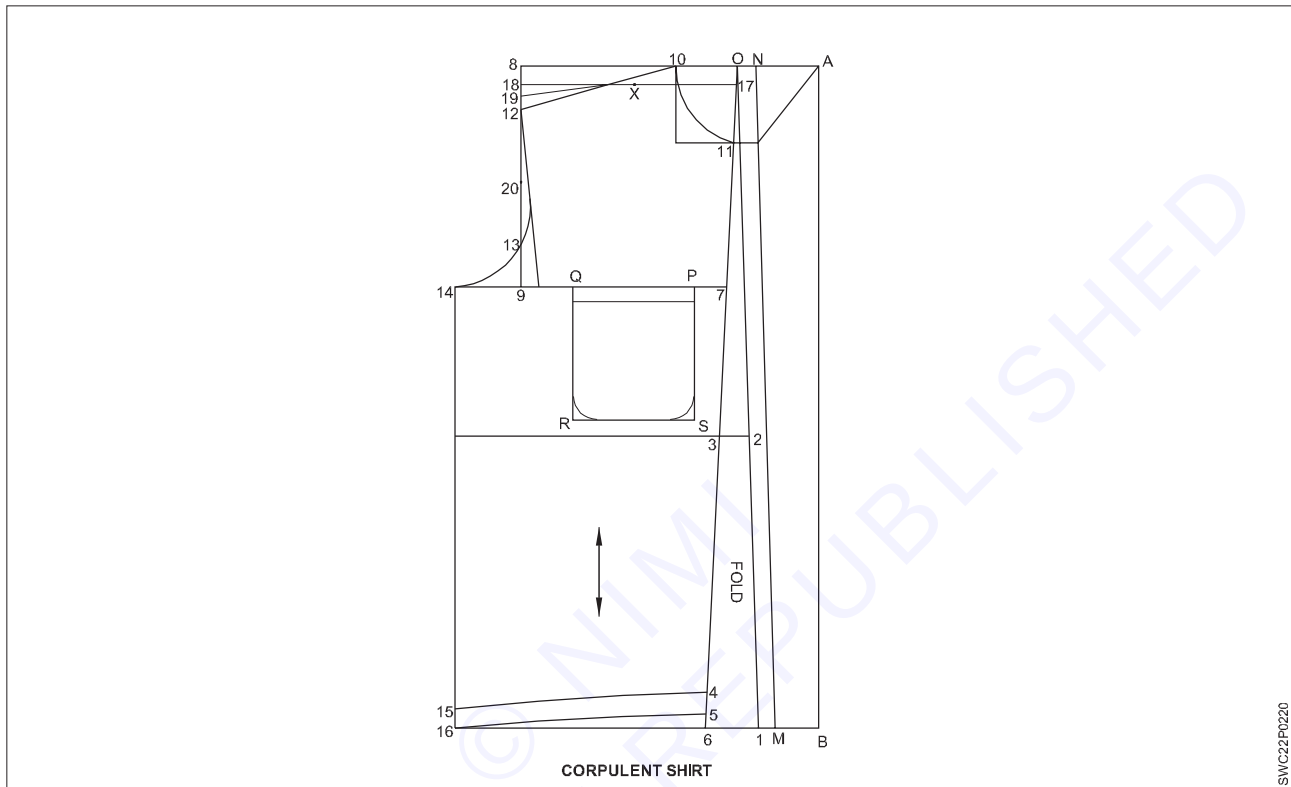
Chest pocket:

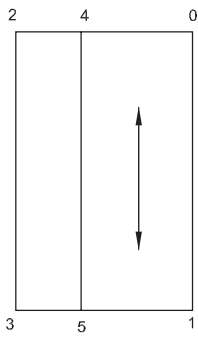
Draw the square out from 'O'

(O-1) = pocket length [pocket width + 1.5 cm] + 4.5 cm

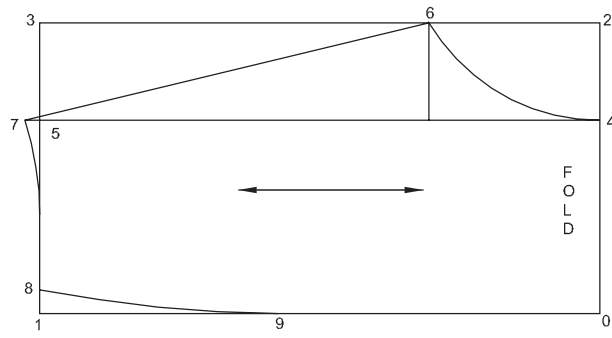
(O-2) = pocket width [$\frac{1}{8}$ th of chest + 1.5 cm] + 2 cm

3 is square from (1&2)

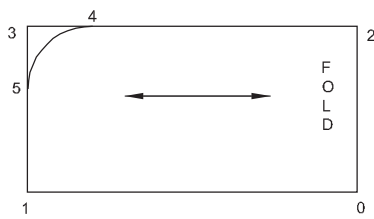




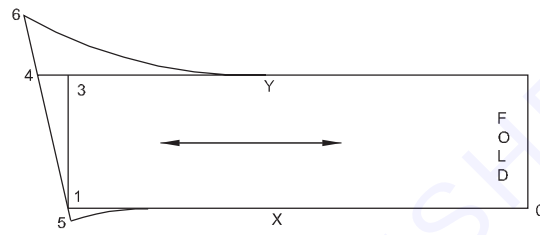
PLACKET (SLEEVE)



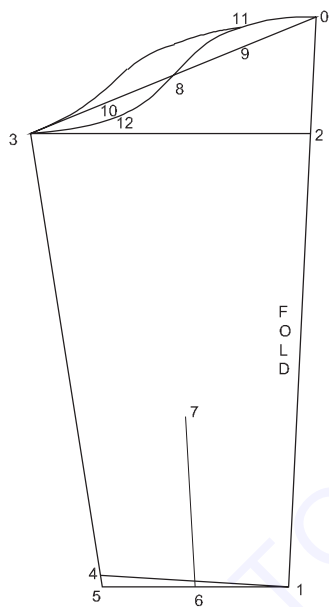
YOKE



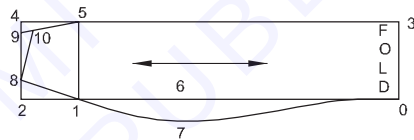
COFF



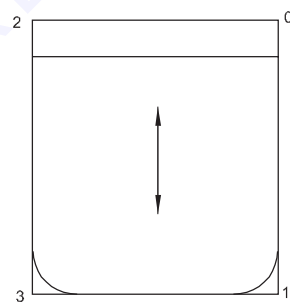
COLLAR(FALL)



SLEEVE



COLLAR(Stand)



CHEST POCKET

SWC22P021

Corpulent Trouser

Objectives : At the end of this exercise you shall be able to

- draft a gents trouser for abnormal corpulent figure.

Procedure



TASK 1: Take measurement

Measurement in cm:

Full length -105 cm

Seat – 95 cm

Waist – 98 cm

Inner leg length -74 cm

Knee width – 46 cm

Bottom – 42 cm

If seat measure less than Waist (15cm) = Proportional Waist

The exact amount of disproportion to be found

Example : Seat = 95 cm, Waist = 98cm

Proportional Waist = Seat - 15

$$= 95 - 15 = 80\text{cm}$$

Disproportion = Actual Waist - Proportional Waist

$$= 98 - 80$$

Disproportion = 18 cm

— — — — —

TASK 2: Draft and cut Paper pattern of Corpulent trouser

Construction front:

Draw the base line

(0-1) = full length of trouser –band width [4 cm] + 1 cm

(1-2) = 5 cm for bottom fold

(1-3) = inside leg length +1 cm

(3-4) = $\frac{1}{12}$ th of seat

(1-5) = $\frac{1}{2}$ of (1-3) measure +5 cm

Draw the square outline.

(3-6) = $\frac{1}{4}$ th of seat +1 cm

7 is square from 6

(6-8) = 1.5 cm

Join (7-8) and produce

9 is cutting point of waist line

(9-10) = $\frac{1}{6}$ th of disproportion

Join (0-10) and produce

(10-11) = $\frac{1}{2}$ of (9-10) measure

Join (8-11)

12 is cutting point of hip line

(8-13) = $\frac{1}{12}$ th of seat -1.5 cm

X is midway of (13-3)

Draw the square up and down from x.

(0-14) (5-15) (1-16) (2-17) = (3-x) measure

(15-18) (15-19) = $\frac{1}{4}$ th of knee width +0.5 cm

(16-20) (16-21) = $\frac{1}{4}$ th of bottom + 0.5 cm

(17-22) (17-23) = $\frac{1}{4}$ th of bottom + 0.5 cm

(18-20) (20-22) (19-21) (21-23) = join it

(11-13) (3-19) (13-18) = draw the shape as per the diagram

(11-24) = $\frac{1}{4}$ th of waist +2 cm for seam +4 cm for pleat

Pleat:

(14-25) = 4 cm for pleat

Make the pleat

Side pocket mark:

(24-m) = 4 cm

(m-n) = $\frac{1}{6}$ th of seat for side pocket open

Back:

(x-y) = 2.5 cm

Join (y-13) and produce

(13-26) = $\frac{1}{12}$ th of seat -1.5 cm

(18-27) = 3 cm

(20-28) (22-29) = 2 cm

Join (27-28-29) and draw the shape (26-27)

(18-30) = $\frac{1}{6}$ th of seat

(4-31) = $\frac{1}{4}$ th of seat + 2.5 cm

Join (6-31) and produce

32 is cutting point of waist line

(32-33) = 3cm

Join (33-24) and produce

(33-34) = $\frac{1}{4}$ th of waist + 2 cm for dart +1 cm for seam

Draw the shape (33-13)

Inlay:

(33-35) = 4 cm for inlay

Make the shape

Dart:

(34-36) = $\frac{1}{8}$ th of seat

Dart width from 36

Dart length = $\frac{1}{12}$ of seat

Make the dart

Cut pocket mark:

Draw the parallel line

(a-b) = pocket width [$\frac{1}{12}$ th of seat +5 cm]

Fly:

Draw the base line

(0-1) = (8-11) front measure – 2 cm

(0-2) = fly width (3.5 cm) + 2 cm

3 is square from 1

(1-4) (3-5) = 2.5 cm

(5-6) = 1.5 cm and join (5-6)

(2-7) (0-8) = (10-11) front measure

join (5-7) and (4-8)

(5-9) (4-10) = is midway of (5-7) (8-4) draw the shape (9-6) and (10-3)

Side pocket:

Draw the base line

(0-1) = $\frac{1}{3}$ rd of seat +2.5 cm

(0-2) = $\frac{1}{6}$ th of seat +2.5 cm

3 is square from 1 and 2

(3-4) = $\frac{1}{8}$ th of seat

Draw the square out line

(4-5) (2-6) = 2.5 cm

Join (4-6)

7 is midway of (1-3)

Draw the shape (7-5)

(6-8) (4-9) = 1 cm

Join (8-9)

Hip pocket :

Draw the base line

(0-1) = $\frac{1}{4}$ th of seat

(0-2) = (a-b) hip pocket mark +5 cm

3 is square from 1 and 2

(0-4) (2-5) = 5 cm

Join 4-5

Hip pocket jetting :

Draw the base line

(0-1) = (2-3) hip pocket mark

(0-2) = 6 cm

3 is square from 1 & 2

Loop :

Draw the base line

(0-1) = band width +5 cm

(0-2) = 4 cm

3 is square from 1 and 2

Waist band :

Draw the base line

(0-1) = 10 cm for over band

(1-2) (2-3) = $\frac{1}{4}$ th of waist

(3-4) = 4 cm for inlay

Draw the square up and down

(0-5) (1-6) (4-7) (4-8) = band width + 2 cm

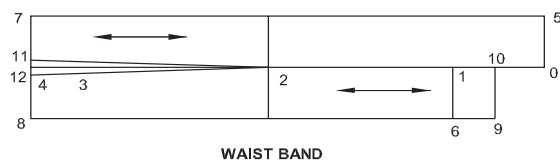
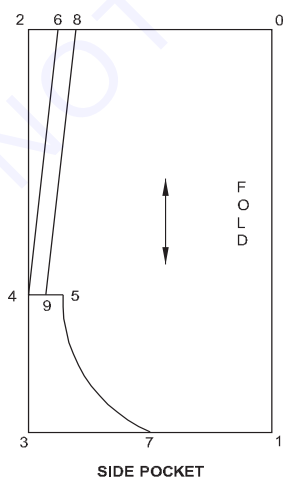
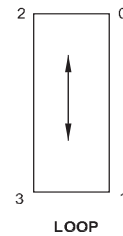
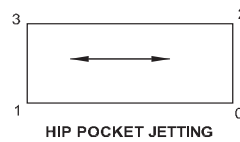
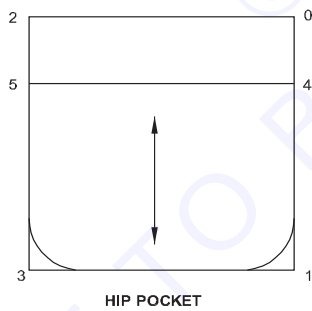
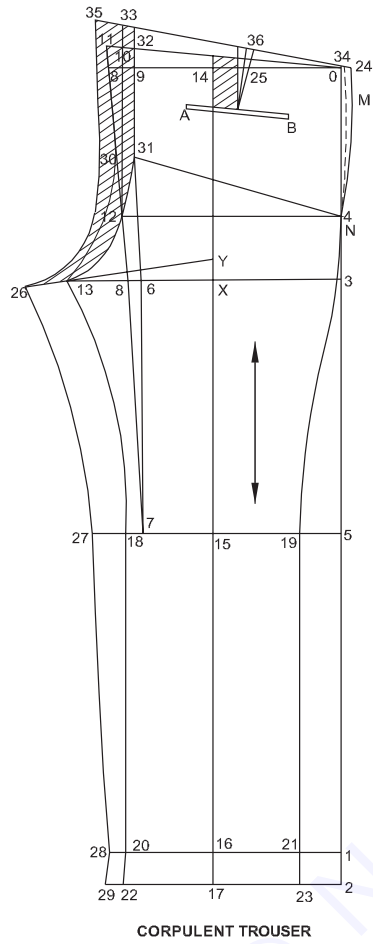
(5-7) (6-8) = join

(6-9) = Fly width [3.5cm] +1.5 cm

10 is square from 1 and 9

(4-11) (4-12) = 0.5 cm

(2-11) (2-12) = join



SWC22P0222

SWC22P0223

EXERCISE 43 : Nehru jacket

Objectives

At the end of this exercise you shall be able to

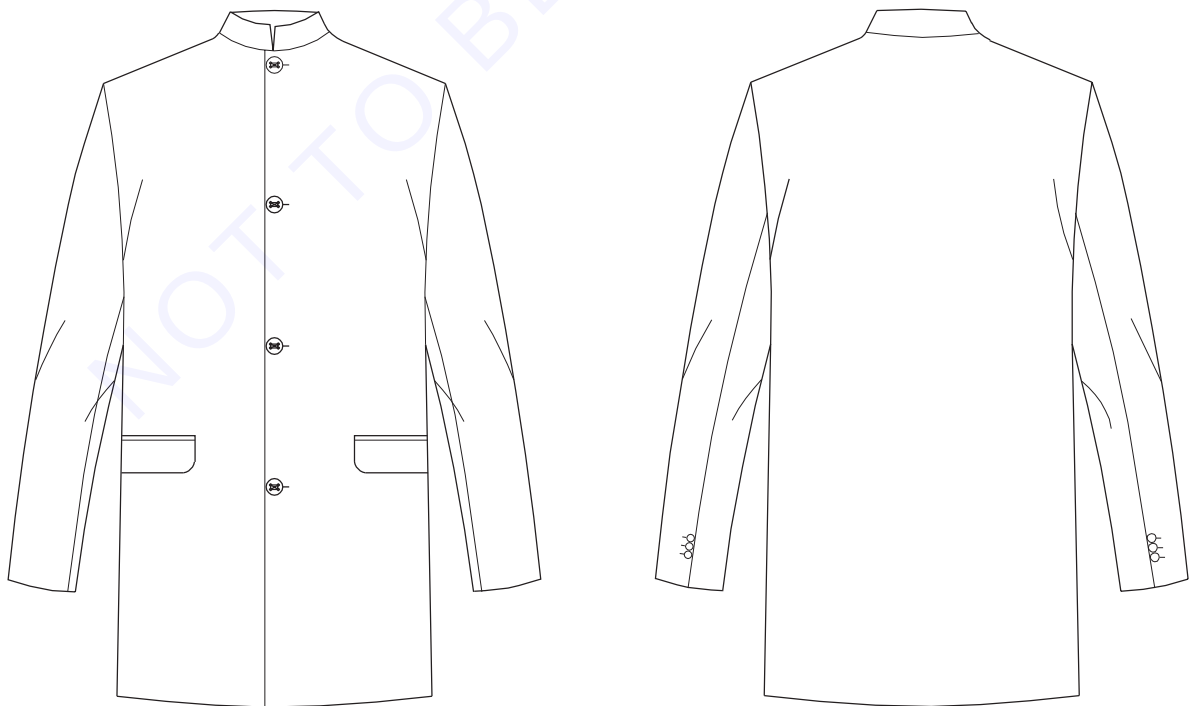
- draft and do pattern making for Nehru Jacket.

Procedure



TASK 1: Take measurement (Fig 1)

Fig 1



JAC12345

Measurements in cm

Chest	-	91 CM
Waist	-	82 CM
Neck	-	41 CM
Natural waist	-	42 CM
Full length	-	60 CM

Components

Front - 2
Back - 2
Collar - 2

Suitable fabric: Cotton, Linen, Silk, Thick suiting material

TASK 2: Draft and cut paper pattern of Nehru jacket**Construction****Front**

0-1	Full length	= 60cm
0-2	Ch/4	= 22.75 cm
0-3	Natural waist	= 42 cm
2-4	Ch/6+4	= 19.1
	Square up to 4-5	
4-6	Ch/12	= 7.5 cm
	Square down to 9	
3-7	W/4 + 4 cm	= 24.5 cm
9-8	1.5 cm	= 1.5 cm
0-10	2.5 cm Join 10 & 2 straight line	
10-11	Ch/12	= 7.5 cm
10-12	Ch/12 + 1 cm	= 8.5 cm
5-13	Ch/24	= 3.7 cm
11-14	Ch/6	= 15.1
0-15	5 cm	
1-16	5 cm Join line from 16, 17, 3a	
3-3a	2 cm	

Pocket placement

2-17	Ch/12	= 7.5 cm
17-18	2cm	
18-19	Ch/12 + 1.5 cm	= 9 cm
3-20	Ch/12	= 7.5 cm
20-21	1.5 cm	
21-22	Ch/6 – 1.5	= 13.6 cm
22-23	2.5 cm	
	Join 21, 22, 23, 24.	

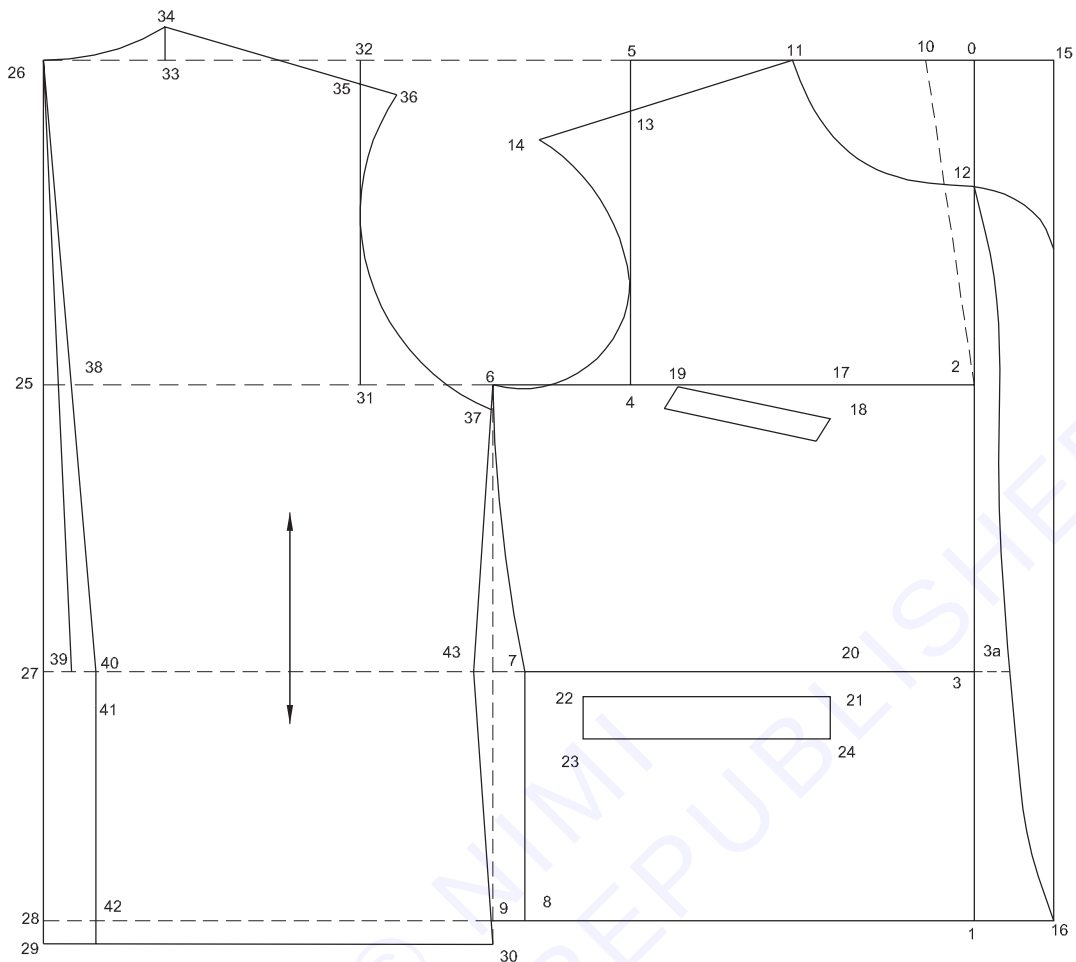
Back

6-25	2 – 6 measure
	Square up & down at 26, 27, 28

28-29 = 9-30 1.5 cm
 25-31 = 2-4 Ch/6+4 = 19.1
 Square up to 32
 26-33 Ch/12 = 7.5 cm
 33 -34 2.5 cm
 32-35 1.5 cm
 35-36 1.5 cm
 6-37 1.5 cm
 Join 36, & 37, give shape
 25-38 1.5 cm
 27-39 2.5 cm Join 38 & 39
 29-42 3 cm Join lines
 39-40 1 cm Join 40 & 41
 40-41 1.5 cm
 39-43 W/4 + 2.5 cm = 23 cm
 Join side shape 37, 43, 30

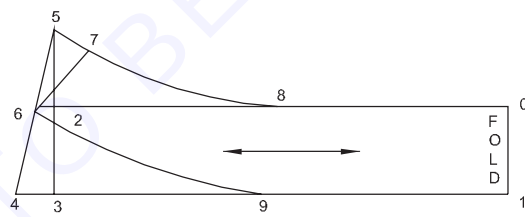
Collar

0-1 4 cm
 0-2 Neck/2 = 20.5 cm
 1-3 Neck/2
 3-4 1.5 cm
 2-5 3 cm
 2-6 0.75 cm
 5-7 1.5 cm Join 6 & 7
 8 Mid of 0-2
 9 Mid of 1-3
 Join 7 & 8 Give shape
 Join 6 & 9 Give shape



NEHRU JACKET DRAFTING

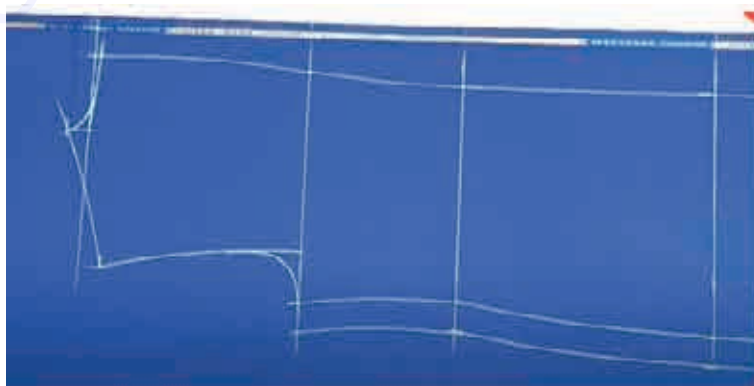
SWC22P0226



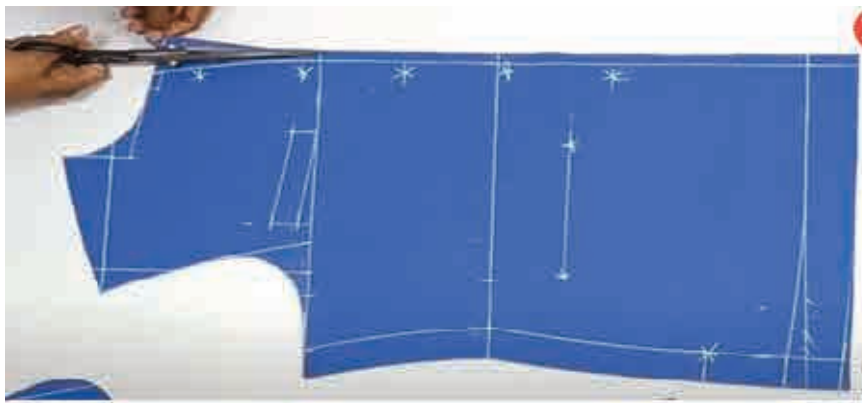
COLLAR DRAFTING

SWC22P0227

Back part



Front part



Facing



Waist Coat

Objectives : At the end of this exercise you shall be able to

- draft and do pattern making for Waist Coat.



TASK 1: Take measurement

**Measurement :**

Chest	=	36"	= 91 cm
Waist	=	32"	= 81 cm
Neck Opening	=	12"	= 30 cm
Full length	=	23"	= 58 cm
Natural Waist	=	16.5"	= 42 cm

Components:

Back Part	- 2 Piece
Front Part	- 2 Piece
Pocket Jetting	- 4 Piece

Suitable Materials

Cotton

Suiting Material

Denim, Etc...

TASK 2: Draft and cut paper pattern for Waist coat

Back

- 0 – 1 Full Length
- 0 – 2 Chest / 4
- 0 – 3 Natural Waist
- 0 – 4 Chest / 16
- 2 – 5 Chest / 6 + 4
- 5 – 6 Square Up
- 5 – 7 Chest / 12 - 1.5
- 7 – 8, 9, 10 Square down
- 9 – 10 2 cm

0 – 11 Chest / 12 + 1 (neck width)

11 – 12 2cm

Draw line 12 – 6

6 – 13 2cm

7 -14 1cm

Join 12 – 13 Straight line

13 – 14 Armhole curve shape

7,8,9,10 Square down & Produce

8 – 15 1.5cm (Shape in NW)

10 – 16 1cm

15 – 16 Square down, Join 14, 15, 16

14 – 17 Chest/4 + 2cm

1-1a - 3.5 cm

3-3a - 2 cm

3-3b - 3.5 cm

Front

7 – 18 = 2 – 5 + 5 – 7 length

Square up & down 19, 20, 18, 21, 22, 23

19 -24 Chest / 12

24 – 25 Square down

25 – 26 Chest / 12 + 1.5 cm

18 – 28 4 cm

26 – 27 4 cm

28 – 27 Chest / 4 - 4cm

24 – 29 2 cm

Join 29 – 6 (dotted lines)

27 – 30 2 cm

30 – 31 join dotted line up to shoulder line

31 – 32 1cm Give shoulder shape

Draw shoulder line and armhole shape

18 – 33 2 cm

21 – 34 2 cm

Join 29 – 33 slant line for neck

Join 33 – 34

22 – 23 Chest / 12 + 1.5 cm

23 – 35 2.5 cm

Join 34 & 35 curve shape

8 – 36 2.5 cm

9 – 37 1.5 cm

37- 37a 1.5 cm

Join 14 – 36, 37, 35

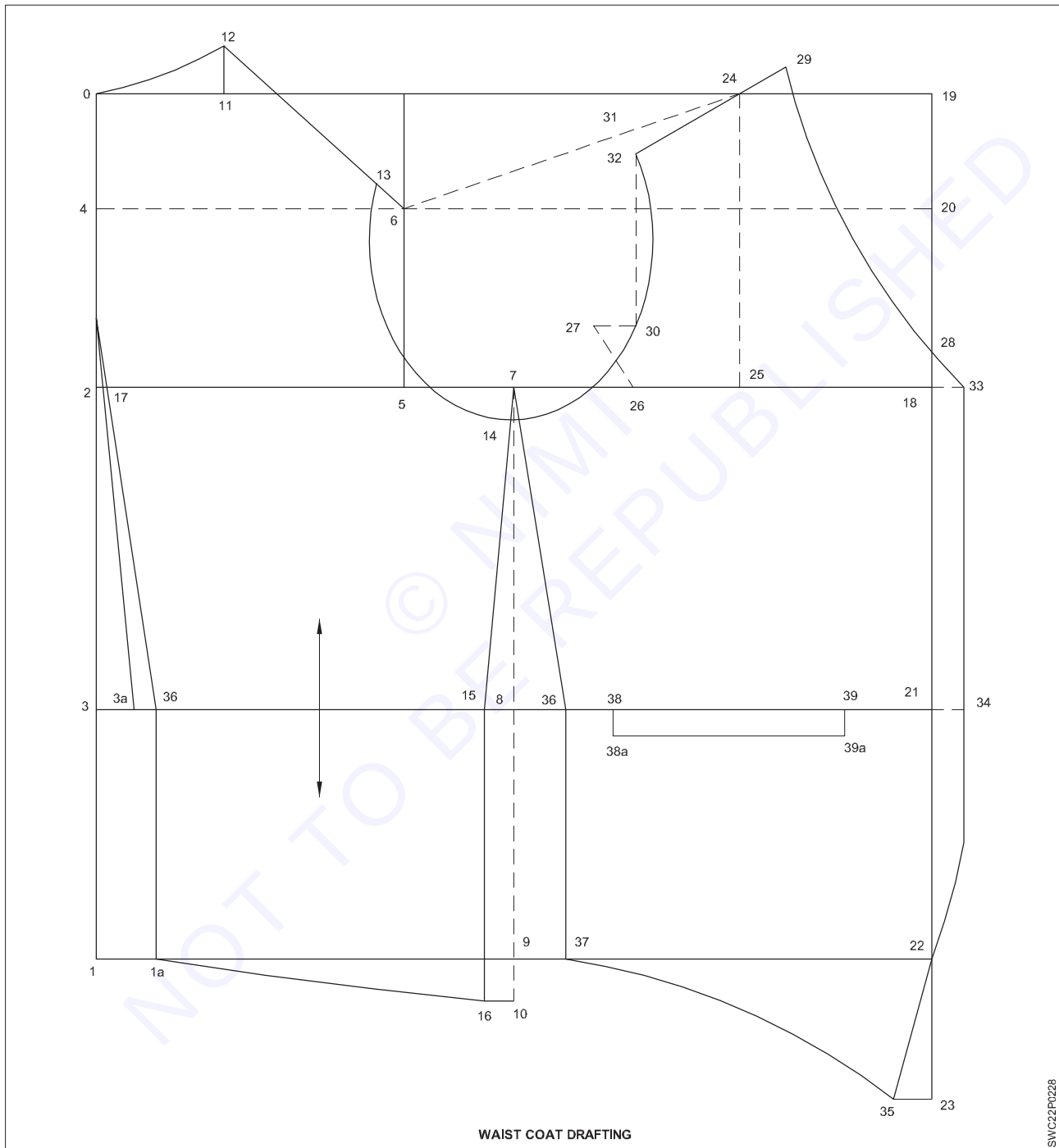
Pocket placement

36-38 = 2.5 cm

38-39 14 cm

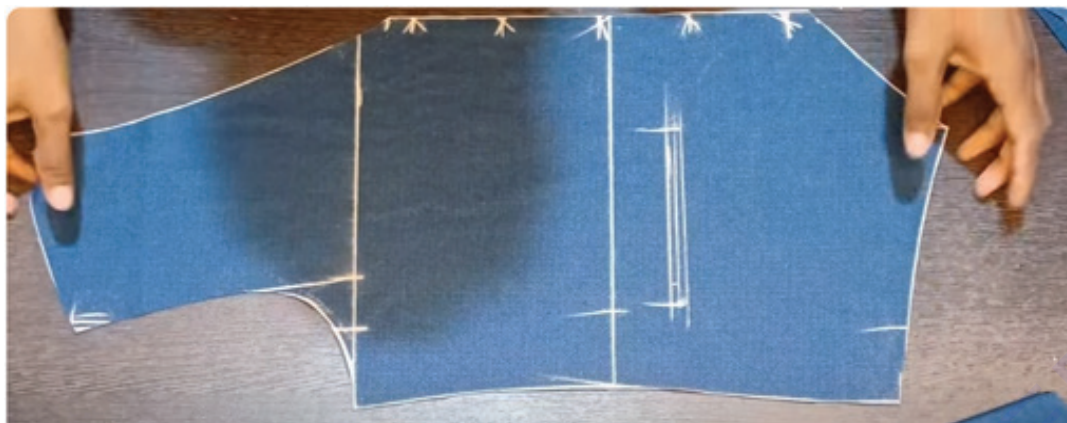
38-38a = 1.5 cm

39 - 39a = 1.5 cm



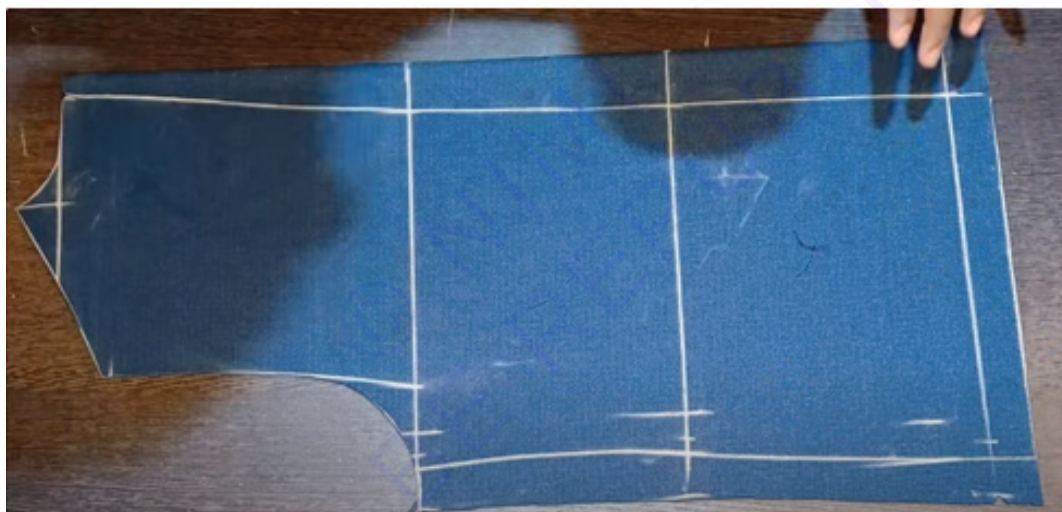
Front Part (Fig 1)

Fig 1



Back Part (Fig 2)

Fig 2



EXERCISE 44 : Pattern making of single breasted blazer

Single breast blazer

At the end of this exercise you shall be able to

- draft and do pattern making for Single Breasted Blazer.

Procedure

TASK 1: Take measurement

Measurements in cm

Full Length	-	76cm
Chest	-	92 cm
Waist	-	82 cm
Seat	-	96 cm
Half back	-	19 cm
Shoulder	-	21.5 cm
Natural waist	-	42 cm
Sleeve	-	61 cm

TASK 2: Drafting classic single breasted blazer

Draft the front and the back joined. This type of garment is of second degree, therefore it needs a greater ease allowance. The ease allowance can vary according to the fabric and the shape desired. Example $\frac{1}{2}$ bust circumference + 5 cm for ease allowance + 2.5cm discard fabric.

Example: $46 + 5\text{cm} + 2.5\text{ cm} = 53.5\text{ cm}$

Back

Begin with top left corner of the square. This is point A. Square down and across from point A.

A - A1 - $\frac{1}{2}$ bust circumference + 5 cm + 2.5 cm discard.

A - B - Move down $\frac{1}{24}$ size + 0.5 cm.

A - B1 - Move down 4.5 cm and square across.

A - C - $\frac{1}{8}$ height + $\frac{1}{24}$ size + 1.7 cm ease allowance. Square across.

A - D - Back waist length measurement. Square across.

D - E - Hip depth. Square across.

A - F - Blazer length. Square across.

A - G - $\frac{1}{6}$ size + 0.5 cm. With a curve join point B – G.

A - H - $\frac{1}{2}$ back width + 0.5 cm.

C - C2 - $\frac{1}{2}$ C – C1 + 1 cm.

F – F1 - Same amount as C – C1. Join point C2 to F2.

H - I - Perpendicular to C – C2.

H - L - Move down 4.5 cm.

B1 - L1 - $\frac{1}{2}$ back shoulder width + 1.5 cm (1 cm ease) + 0.5 cm ease allowance.

Join points G – L1 (shoulder length).

L1 - L2 - Move up 0.5 cm (for shoulder pad).

I - M - Square up 5 cm and square right 0.8 cm.

M - M1 - Move right 0.5 cm. With a curve draw the armhole joining the points L2-M, M1-C2. Move down 9 cm along the armhole and mark two notches.

B2 - $\frac{1}{2}$ of A-C.

D - D2 - Move right 2 cm.

F – F3 - Move right 2 cm and join points B2-D2-F3.

D2 - R - Move right 13.16 cm (not a fixed measurement). Square down from R for F4.

R - F4 - With a curve join points M-R.

F4 - Move 0.5 cm to each side.

R3 - R4 - From point R move 1-2 cm each side. With a curve join points M-R3-F4a and M1-R4 - F4b.

Front

D1 - A2 - Front waist length.

A2 - B - $\frac{1}{6}$ size + 1 cm.

A2 - H - $\frac{1}{2}$ back width, same measurement as back – 1 cm.

H - I - Perpendicular to C1-C2.

H - L - Square down 6.5 cm.

I - M - Square up 5 cm.

M - M1 - Square left 1-1.5 cm (not fixed measurement).

M1 - M2 - Square down from m1 (reference point for sleeve).

A2 - A3 - Move left 3 cm.

A3 - G - $\frac{1}{6}$ size + 0.5 cm.

L – L1 – $\frac{1}{2}$ of (I – C2)

L1 - L2 - Move up 0.5 cm (for shoulder pad)

G - L1 - Same measurement as G-L1 (of back).

M1 - M3 - Move left 0.5 – 1 cm.

A2 - N - Bust height.

N - N1 - $\frac{1}{2}$ bust distance + 1.2 cm.

N1 - R - Parallel to N – D1.

N1 - R1 - Move down 2 -3 cm.

I - R2 - F5 - Parallel with C2 – F2 (Square down from I).

R3 - R4 - From point R2 move each side 2 cm (not a fixed measurement). From point F5 move 0.5 cm each side. With a curve join points M1-R3-F5a and M3-R4-F5b.

D1 - D3 - Square right 2 – 2.5 cm (single breasted).

D3 - P - Square up 10 cm, breakpoint (not a fixed measurement).

G - G1 - Move right 1.5 cm and join to point P (roll line). Draw the collar as shown in Classic single breasted collar.

R - O - Square down 5-7 cm, pocket position.

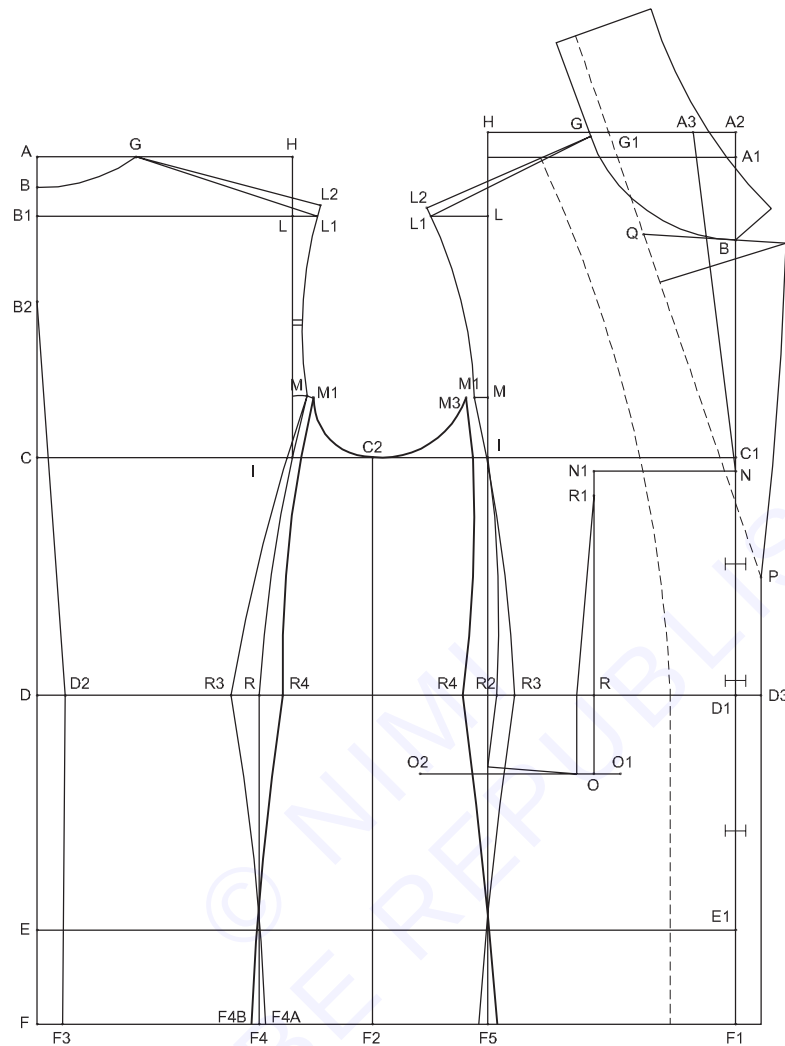
O - O1 - Square right 1.5 – 2 cm.

O1 - O2 - Square left 1.5 cm (pocket measurement).

R1 - O - Draw the dart, moving left 1.5 cm.

Classic single breasted blazer pattern (Fig 1)

Fig 1



SW/C22/P0229

Procedure in drafting classic single breasted collar

Use bodice with darts to draft this collar.

D - D3 – Square right 2cm (single breasted)

D3 - P – Square up 16cm, breakpoint (not fix measurement)

G - G4 – Move right 1.5cm and join point P (roll line)

G4 - R – Extend the line the same amount as back neckline measurement + 0.5cm.

R - R1 – Square left, 1.5cm and join to point G.

R1 - R2 – Move right 7.5cm in square with the straight line G-R1. Square down the same measurement as line R1-G

G4 - Q - Move down the roll line $\frac{1}{6} + 1$ cm.

Q - P1 – Move down 3cm (not a fixed measurement)

P1 - P2 – Square right 10cm from the roll line (not fixed measurement). Join P2to B. Use a curve to connect points P2 to P.

P2 - P3 – Move 4 cm through point B.

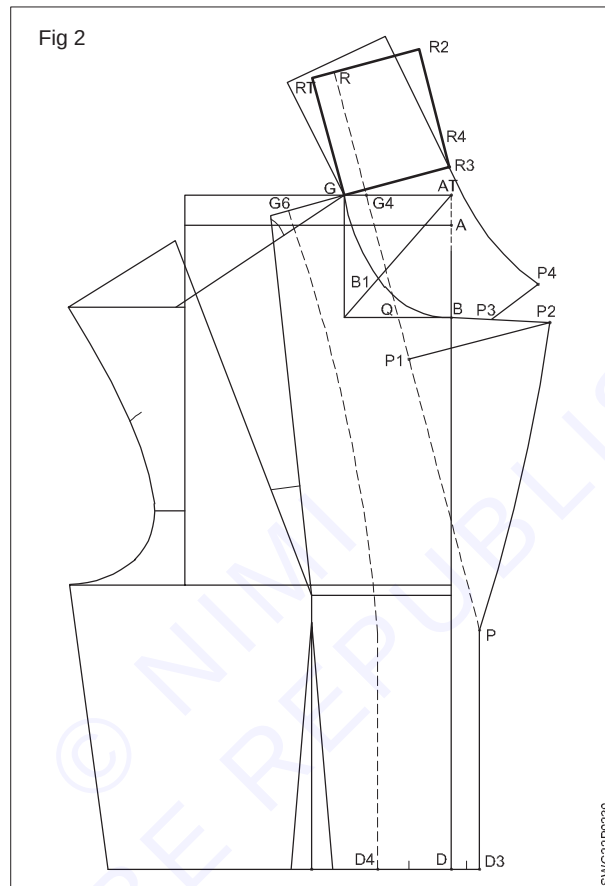
G - R3 – Parallel with R1-R2.

P3 - P4 - Move 4 cm and connect points R2-R3-P4.

R3 - R4 – Measure up 1.5 cm (not a fixed measurement), use this as a reference point for the rotation of the back collar. Copy the red square and rotate it left 1.5 cm (not a fixed measurement), using G as a pivot point.

G - G6 – Move left 4 cm along the shoulder length (for facing front)

D - D4 – Move left 5 cm and join to point G6.



Procedure in drafting the two-piece sleeve

Square down and across from A.

A - B - $\frac{1}{2}$ size.

A - D - $\frac{1}{10}$ size + 0.5

A - E - $\frac{1}{10}$ body height.

A - H - Elbow length.

A - G - Sleeve length.

B - G1 - Parallel to A-G.

Square across connecting points D-B1, E-E1, H-H1, G-G1.

C - $\frac{1}{2}$ of A-B.

C - E2-I - Square down from point C to line G-G1.

D - D1 - Move right 3 cm.

D - D2 - Move down 3 cm.

D2 - D3 - Move right 1 cm.

B1 - B2 - Move left 3.5 cm.

E1 - M - Move up 5 cm.

M - N - Move left 0.5 cm.

With a curve connect points C-D1-D3 (back sleeve cap). C-B2-N (front sleeve cap).

E1 - F - Square left 4 cm.

E1 - M1 - Move up 2.5 cm.

M1 - M2 - Move right 0.5 cm.

Connect points N-M2-F (armhole).

H - H2 - Move right 3.5 cm (not fixed measure)

I - P - Move left 3 cm, and connect points D3-H2-P.

G1 - L - Move right 4 cm and join to point F.

L - L1 - Move up 2 cm and join to point P.

H1 - O - Square right 2.5 cm.

Connect points F-O-L1.

D3 - C1 - Square right 6 cm.

E2 - C2 - Move up 2 cm.

E1 - C3 - Move left 4 cm.

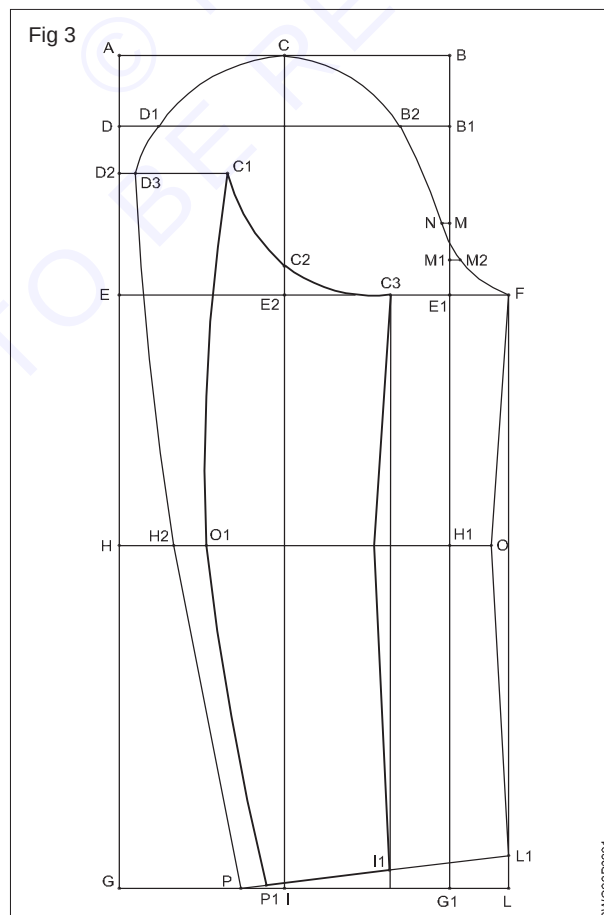
With a curve connect points C1-C2-C3.

H2 - O1 - Move right 2 cm.

P - P1 - Move right 1.5 cm, connects C1-O1-P1.

G1 - I1 - Move left 4cm and move up 1 cm.

C3 - I1 - Join points and move left 1 cm to elbow line. At the sleeve cap, from point C (back side) mark 2 notches with a distance 10.5 cm; from point C (front side) mark a notch 10.5 cm. Copy the red part and separate the two pieces of the pattern. (Fig 3)



Double breasted blazer

Objectives : At the end of this exercise you shall be able to

- draft and do pattern making for double breasted blazer.

To draft this blazer, use the classic single breasted blazer and trace the front and the back joined. Calculate $\frac{1}{2}$ bust circumference + ease allowance + some cm for the discard fabric. The ease allowance can vary according to fabric and the desired shape.

TASK 1: Take measurement

Measurements in cm

Full Length	-	76cm
Chest	-	92 cm
Waist	-	82 cm
Seat	-	96 cm
Half back	-	19 cm
Shoulder	-	21.5 cm
Natural waist	-	42 cm
Sleeve	-	61 cm

TASK 2: Drafting double breasted blazer

Back

D - F - Blazer length

D - D2 - Move right 2 cm (not a fixed measurement)

F - F2 - Same measurement as D-D2.

M - M1 - Move right 0.5 – 1 cm.

D2 - R - 15 cm (not a fixed measurement)

R3 - R4 - From point R move 1.2 cm each side.

R - F3 - Square down. With a curve join points M-R-F3, M-R3-F3, and M1-R4-F3.

L1 - L2 - Move up 0.5 – 1 cm for shoulder pad.

Front

D1 - A2 - Front waist length

A2 - A3 - Move left 3 cm.

A3 - G - $\frac{1}{6}$ size + 0.5 cm.

G - G2 - Move left 1 cm.

G2 - L1 - Same measurement as back length.

L1 - L2 - Move up 0.5 – 1 cm for shoulder pad.

G - G1 - Move right 2 cm.

D1 - D3 - Square right 6 – 8 cm (double breasted).

D3 - P - Square up 2-4 cm (position for the first button)

G1 - P - Roll line. Draw the collar as shown in tailored double breasted collar.

R2 - F4 - Square down from 1.

M1 - M3 - Move left 0.5 – 1 cm.

R3 - R4 - From point R2 move right 1 cm, move left 2 cm (not a fixed measurement).

F4 - F5 - Move left 1 cm. With a curve join points M1-R3-F5 and M3-R4-F4.

A2 - N - Bust height

N - N1 - $\frac{1}{2}$ bust distance + 1 – 2 cm.

N1 - R - Square down from N1.

Q - N1 - Draw the dart 1 – 1.5 cm.

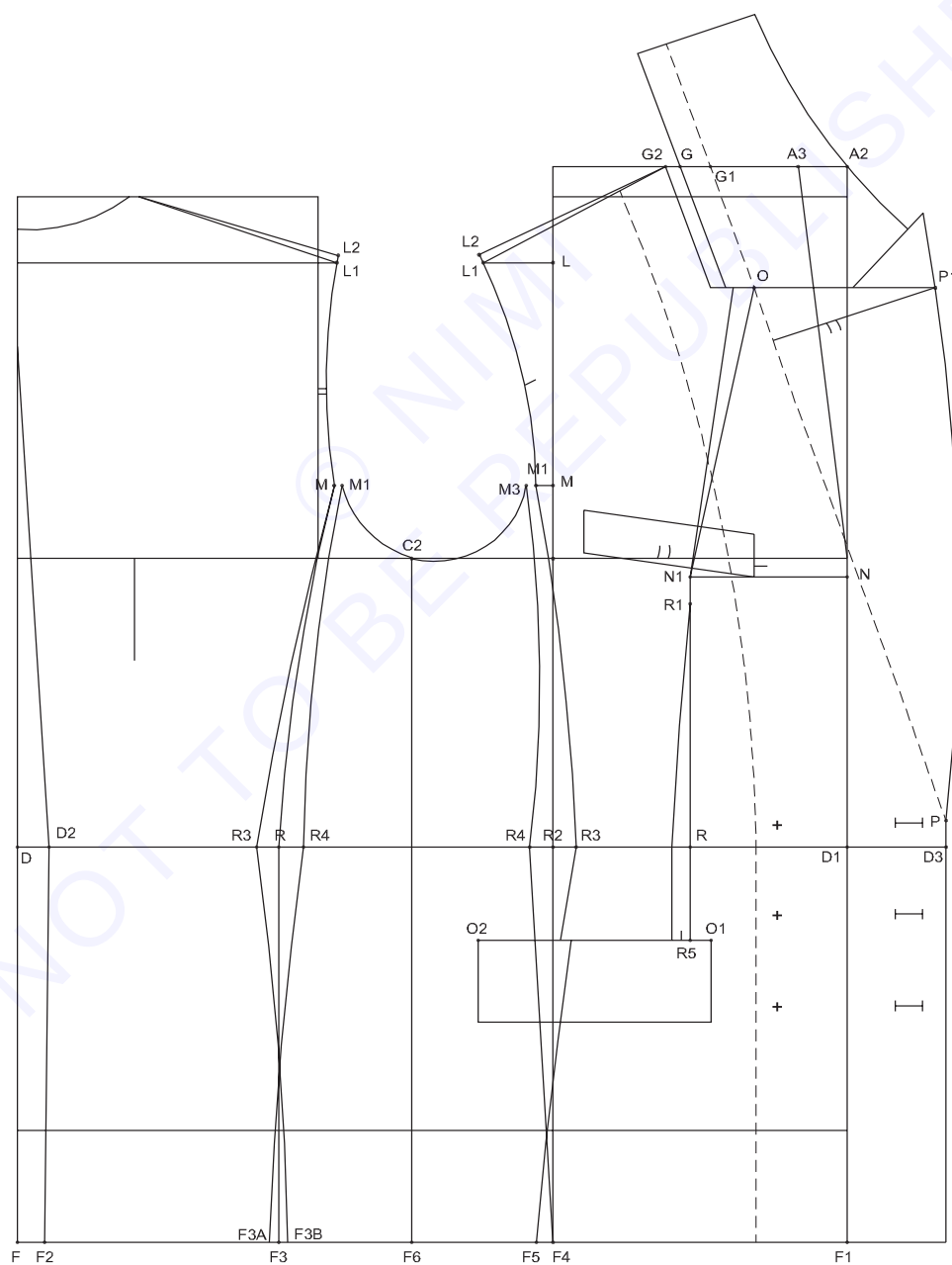
R - R5 - Square down 5 – 7 cm for pocket position.

R5 - O1 - Square right 1.5 – 2 cm.

O1 - O2 - Square left 15 cm, pocket measurement (5 – 7 cm). Breast welt pocket. From point I move right 2 cm and draw pocket, 11 cm long 2.5 cm and 2 cm wide.

Tailored double breasted blazer pattern (Fig 1)

Fig 1



SWC2P0232

Procedure in drafting tailored double breasted collar pattern

This collar is used especially for classic men suits, but it is also used for women. Use the dart less bodice to draft this collar.

A1 - N - Bust height.

A1 - A2 - Move left 3 cm and join to point N.

A2 - G5 - Move left 1/6 of size.

D - D3 - Square right 6 cm (double breasted).

D3 - P - Square up 3 cm. Break point (not a fixed measurement).

G5 - G4 - Move right 1.5 cm and join point P (roll line).

G4 - R - Extend the roll line the same amount as back neck measurement +0.5 cm.

R - R1 - Square left 1.5 cm and join to point G5.

R1 - R2 - Square right 7.5 cm and square down the same measurement as line R1-G5.

G4 - Q - Move down the roll line 1/6 of size + 1 cm.

Q - P1 - Move down 4 cm.

P1 - P2 - Square left 10 cm (not a fixed measurement).

P2 - P - With curve connect the points.

P4 - Mid point of line P1-P2.

P2 - P3 - Extend 5 cm and join to point P4.

P4 - Q1 - Move left 8 cm passing through point Q and join to point G5.

G5 - R3 - Parallel line to R1-R2.

P3 - Q2 - Move 1.5 cm, use the curve to join points R2-R3-Q2.

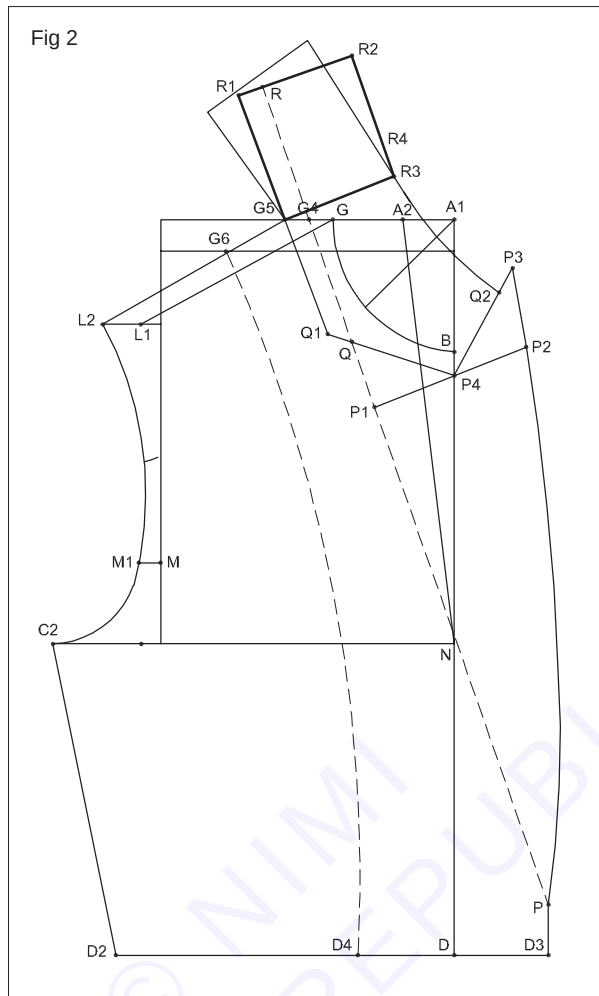
R3 -R4 - Move up 2 cm (not a fixed measurement). This is the reference point for the rotation of the back collar. Copy the red square and rotate.

G5 - L2 - Same measurement as the back shoulder length G-L1.

M - M1 - Square left 1 cm. Using the curve, draw a new arm hole touching points L2-M1-C2.

G5 - G6 - Move left 4 cm along shoulder length (for front facing).

D - D4 - Move left 6 cm and join to point G6. (Fig 2)



Procedure in drafting the two-piece sleeve

Square down and across from A.

A - B - $\frac{1}{2}$ size.

A - D - $\frac{1}{10}$ size + 0.5

A - E - $\frac{1}{10}$ body height.

A - H - Elbow length.

A - G - Sleeve length.

B - G1 - Parallel to A-G.

Square across connecting points D-B1, E-E1, H-H1, G-G1.

C - $\frac{1}{2}$ A-B.

C - E2-I - Square down from point C to line G-G1.

D - D1 - Move right 3 cm.

D - D2 - Move down 3 cm.

D2 - D3 - Move right 1 cm.

B1 - B2 - Move left 3.5 cm.

E1 - M - Move up 5 cm.

M - N - Move left 0.5 cm.

With a curve connect points C-D1-D3 (back sleeve cap). C-B2-N (front sleeve cap).

E1 - F - Square left 4 cm.

E1 - M1 - Move up 2.5 cm.

M1 - M2 - Move right 0.5 cm.

Connect points N-M2-F (arm hole).

H - H2 - Move right 3.5 cm (not fixed measure)

I - P - Move left 3 cm, and connect points D3-H2-P.

G1 - L - Move right 4 cm and join to point F.

L - L1 - Move up 2 cm and join to point P.

H1 - O - Square right 2.5 cm.

Connect points F-O-L1.

D3 - C1 - Square right 6 cm.

E2 - C2 - Move up 2 cm.

E1 - C3 - Move left 4 cm.

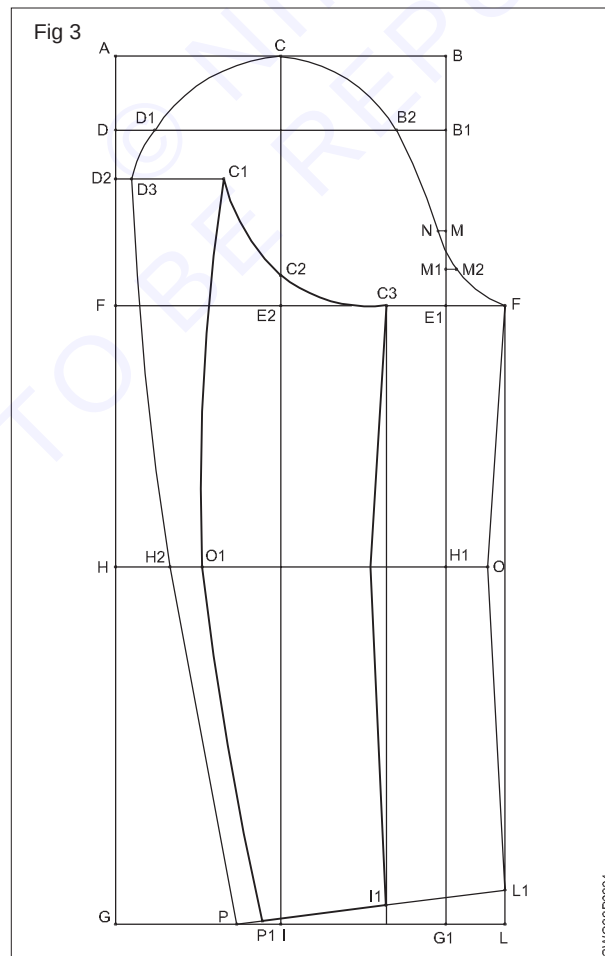
With a curve connect points C1-C2-C3.

H2 - O1 - Move right 2 cm.

P - P1 - Move right 1.5 cm, connects C1-D1-P1.

G1 - I1 - Move left 4cm and move up 1 cm.

C3 - I1 - Join points and move left 1 cm to elbow line. At the sleeve cap, from point C (back side) mark 2 notches with a distance 10.5 cm; from point C (front side) mark a notch 10.5 cm. Copy the red part and separate the two pieces of the pattern. (Fig 3)



Sherwani / Achakan

Objectives : At the end of this exercise you shall be able to

- draft and do pattern making for Sherwani shirt.



TASK 1: Take measurement

Measurements in cm

Full length	=	101 cm
Natural Waist length	=	42 CM
Chest	=	92 CM
Waist	=	81 CM
Seat	=	96 CM
Neck	=	41 CM

TASK 2: Draft a paper pattern of Sherwani

Construction for back part:

1 - 2 = Full length + 1.5 cm	= 102.5 cm
2 - 3 = Hem 4 cm	= 4 cm
1 - 4 = scye depth is $\frac{1}{4}$ th of the chest	= 23 cm
5 is mid of 1 to 4 measure	
6 is mid of 1 to 5 measure	
1 - 7 = Natural waist length + 1.5cm	= 43.5 cm
7 - 8 = 18 cm down as per draft	= 18 cm

1 -9 =Neck /6 + 1.5 cm	= 8.33 cm
9 -10 =2.5 cm up ward	= 2.5 cm
1-10 = Give neck shape	
6 - 11 =Ch/5 + 1.5 cm	= 19.9 cm
11 -12 = Square down	
11-13 =4 cm Square up	= 4 cm
4 - 15 -= 2 cm as per draft	=2 cm
13 -14 =1.5cm	= 1.5cm
15-15A =Ch/4	= 23 cm
2- 16 =3.25 cm	= 3.25 cm
17 -18 = 2.5 cm draw a standing line	= 2.5 cm
17- 19 = Ch//6 + 4cm	= 19.33 cm
7 - 17 = 4 cm per draft	= 4 cm
16 -20 = Ch/4+10 cm	= 33 cm
3 – 21 = Ch/4+ 10cm	= 33 cm
Join 5,15,17,18,16,22...	

Front part

1 – 2 = Full length + 1.5 cm	= 102.5 cm
2 – 3 = bottom fold = 4 cm	= 4 cm
1 – 4 = Ch/4	= 23 cm
1 – 5 = Natural waist length + 1.5 cm	= 43.5cm
5 – 6 = 11.5 cm	= 11.5 cm
1 - 7 = 11.5 cm	= 11.5 cm
7 – 8 = 0.75 cm	= 0.75 cm
8 – 9 = 1.5 cm	= 1.5 cm
8 - 9A = Neck /6+ 0.75 cm	= 7.55 cm
9A – 10 = 3.25 cm	= 3.25 cm
9 – 12 = Neck/6 + 0.75 cm	=7.55 cm
11 - 13 = 3.25 cm	= 3.25cm
13 - 14 = Draw a line	
16 - 17 = 2.5 cm	=2.5cm
17 - 18 = 3.25 cm	=3.25 cm
17 - 19 = 3.25 cm Square down	=3.25 cm
20 - 21 = Ch /4+ 4 cm	=27 cm
21 – 22 = Ch /12	=7.66 cm
22 - 22A = Ch/12	=7.66cm
22A - 23 = Square Up	
23 - 24 = 2.5 cm	=2.5 cm
24 - 25 = Neck /6 + 0.75 cm	=7.55 cm
25 - 26 = 2.5 cm	=2.5 cm

22- 27 = 2.5 cm	=2.5 cm
22 – 28 = Ch /5 + 0.75 cm	=19.15 cm
24 - 29 = Ch /6 + 0.75 cm	=16.05 cm
21 - 30 = Inlays 4 cm	= 4 cm
31 - 32 = 15 cm	= 15 cm
32 - 33 = 2.5 cm	= 2.5 cm

Join 31 to 33 by slant line

?17 – 34 = Ch / 4 + 15 cm	= 38 cm
34 – 35 = 4 cm bottom fold	=4cm

36 is the chest pocket 10 cm X 2.5 cm as per draft

Side pocket placement

31 – 37 = 2.5 cm	= 2.5 cm
37 – 38 = Pocket open 15 cm	= 15 cm
35 – 40 = Inlays 4cm	= 4 cm
21 – 30 = 4 cm	= 4 cm

Join 30 - 40

Dart placement:

31 – 41 = 7.5 cm	= 7.5 cm
41 – 42 = Dart length 20cm	= 20 cm
43 – 43a = 43 – 43b = 1 cm (dart width)	= 1 cm

Collar:

1 – 2 = Neck/2 = 20.5 cm	= 20.5 cm
1 - 3 = 4cm width	= 45 cm
3 - 4 = same as 1 to 2 = 20.5cm	= 20.5 cm
4 - 5 = 3.25 cm	= 3.25 cm
5 - 6 = 1.5 cm give shape as per draft	= 1.5 cm

Sleeve length :

Full length	= 61 cm
Chest = 92 cm	
1 - 2 = Sleeve Length +1.5 cm =62.5	= 62.5 cm
1 – 3= Bicep depth is Chest/8 -1.5 =10 cm	= 10 cm
4 is mid of 3 to 2 + 2.5 cm upward	
2 – 5 = 4 cm	= 4 cm
1 - 6 = Chest /4 - 1.5 cm	= 21.5 cm
6 – 7 = Square down	
8 is mid of 1 to 6	
8 - 9 = 4 cm upward	= 4 cm
10 is mid of 1 to 8	
6 - 9 - 10 -11 draw shape as per draft	

3 - 11 = 0.75 cm in noted

4 - 12 = 1.5 cm = 1.5 cm

5 - 13 = 1.5 cm = 1.5 cm

5 - 14 = Chest/6 = 15.3cm

15 - 16 = 0.75 cm as per draft = 0.75 cm

6 - 17 = 4 cm = 4 cm

17 - 18 = 0.75 cm = 2 cm

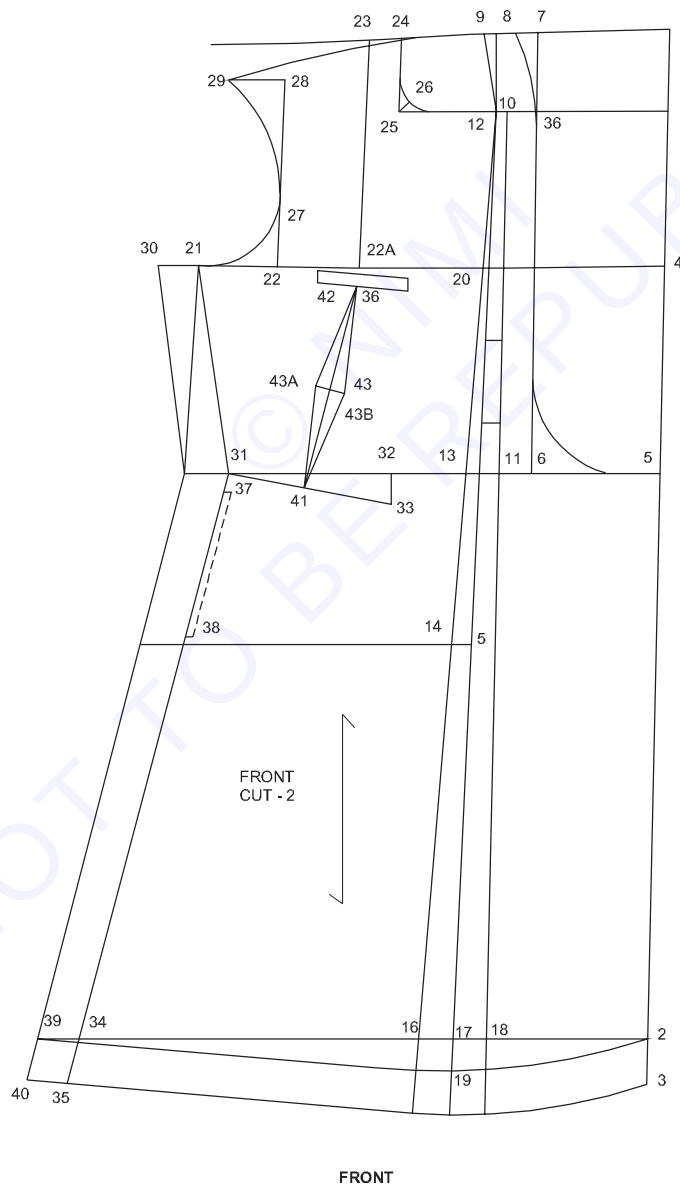
3 - 19 = 1.5 cm = 1.5 cm

4 - 20 = 2 cm = 2 cm

19 - 20 - 21 = draw line as per draft

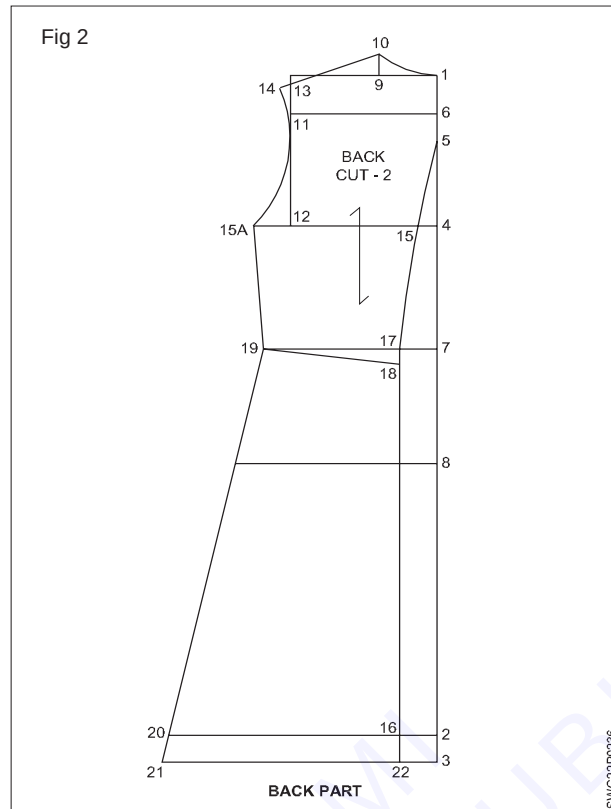
Front (Fig 1)

Fig 1

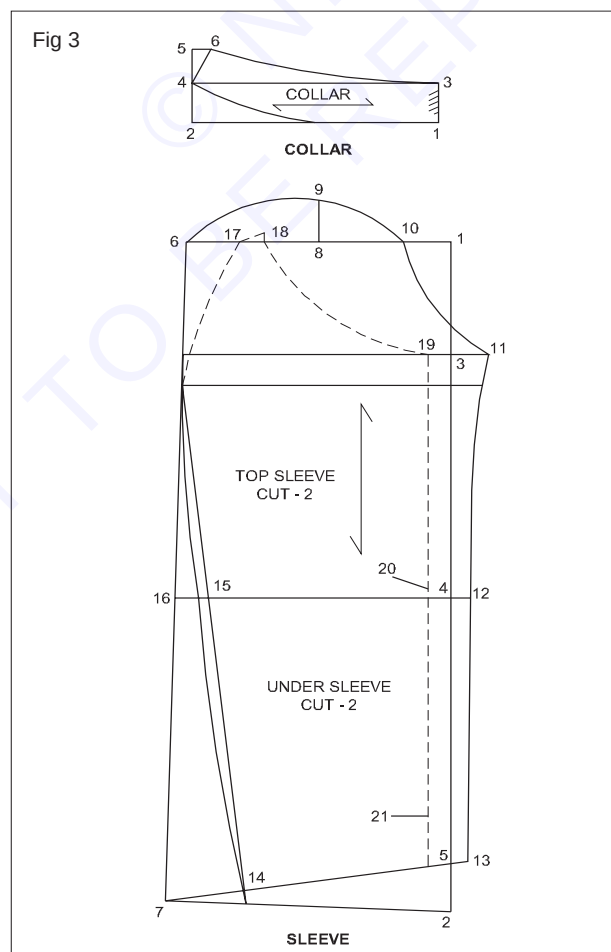


SWC22P0235

Back part (Fig 2)



Collar & Sleeve (Fig 3)



◆ Module 9 : Garment Checking ◆

EXERCISE 45: Check the garment in respect of measurement

Objectives

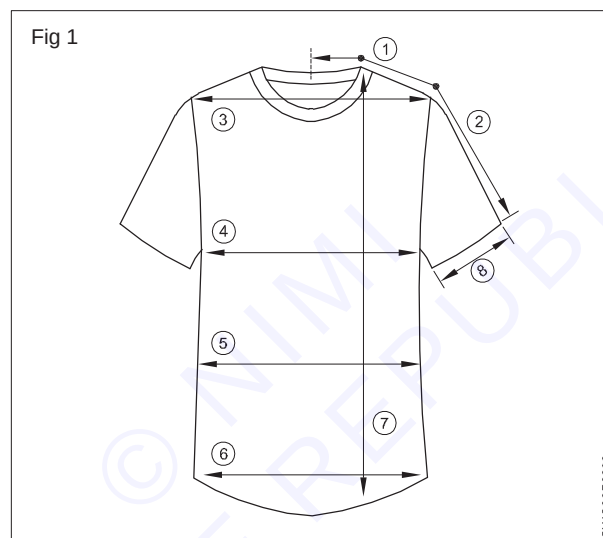
At the end of this exercise you shall be able to

- check the measurement of a garment.

Procedure

TASK 1: Steps to measure T-shirt

Place the garment on the table and check (Fig 1)

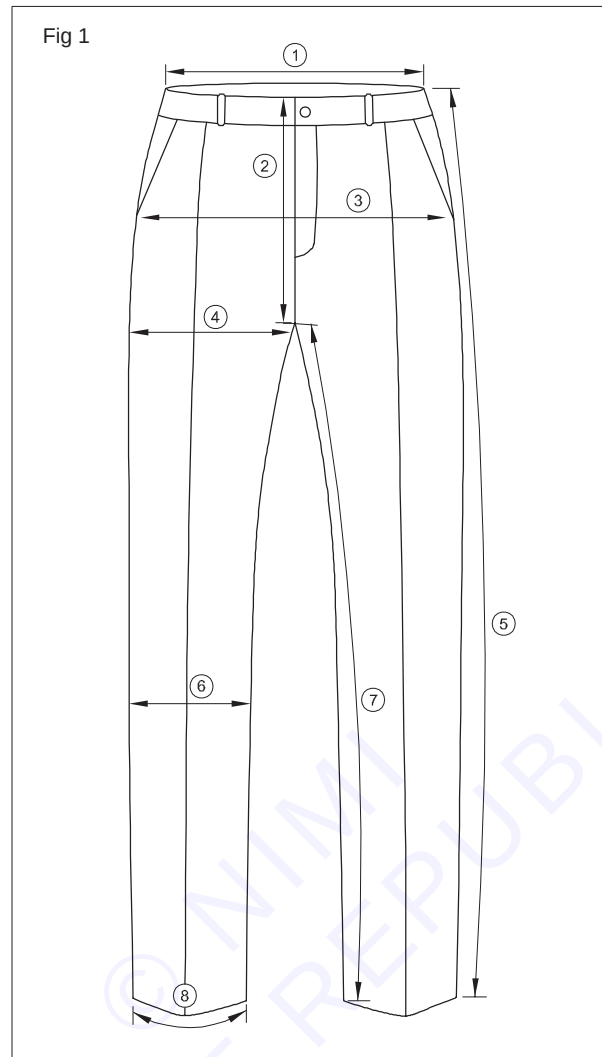


- 1 Neck to shoulder:** Measure from the middle of the neck to the tip of the shoulder.
- 2 Sleeve length:** Measure from the shoulder seam to the end of the sleeve opening.
- 3 Shoulder:** Measure from the point where the yoke meets the sleeve, to the same point on the other side. It's the length from one shoulder to another.
- 4 Chest:** Measure from the bottom of the armpit of the T-shirt, to the bottom of the other armpit.
- 5 Waist:** Measure the waistline from one side to another.
- 6 Hem:** Measure from one side to another.
- 7 Shirt length:** Measure from the highest point of the shoulder to the very bottom of the T-shirt.
- 8 Sleeve cuff:** Measure the length of the sleeve cuff.

TASK 2: Steps to Measure Jeans

Tips For taking measurements (Fig 1)

- 1 Ensure that all the measurements are made with the jeans placed on a smooth surface, like a table or floor, and all wrinkles smoothened out.
- 2 Do not hold the tape measure too tightly or loose while measuring. It should wrap around your body well.
- 3 Make sure that all the measurements are as accurate as possible.
- 4 It is important to match your measurements with their size chart.



- 1 **Waist** – Measure the waist of your jeans by buttoning up the pair, and laying it down front-side up on a flat surface, without any wrinkles or lines. Then, using a measuring tape, measure the waistband from end to end in a straight line.
- 2 **Front Rise** – Measuring the front rise is extremely crucial for a pair of well-fitting jeans. The best way to accurately measure the front rise is to lay the jeans on a flat surface, like a table or floor, smoothing out the wrinkles and measuring from the waist to the crotch seam.
- 3 **Hip** – Measuring the hip area is similar to measuring the waist. The hip area on the jeans is usually 1.5-2 inches below the zipper.
- 4 **Thigh** – Measure the thigh area by placing the tip of the tape measure at the crotch seam and measuring it till 1-2 inches below where the hip area ends.
- 5 **Length** – With the jeans on a flat surface and all wrinkles and lines removed, measure from the tip of the waistband to the end of the pant leg. However, the length will differ according to the type of jeans you'd like to purchase, and you may have to either add or remove a few inches according to the style.
- 6 **Knee** – Place the tip of the tape measure on one side of the knee area and measure till the other end.
- 7 **Inseam** – With the jeans properly buttoned up, spread the pair on a smooth and flat surface, and remove any wrinkles. Then measure the jeans inseam area from the inner thigh area of the crotch, where the front and back seams meet, to the bottom of the ankle.
- 8 **Cuff** – The leg area is the opening near the ankle, and you can measure it by placing the tip of the tape measure at one end of the opening and pulling it to the other. However, the leg area will also depend on the style of jeans you would like to purchase.

Checking Garment In Respect of Stitching

Objectives : At the end of this exercise you shall be able to

- analyse sewing defects.

Sewing defects:

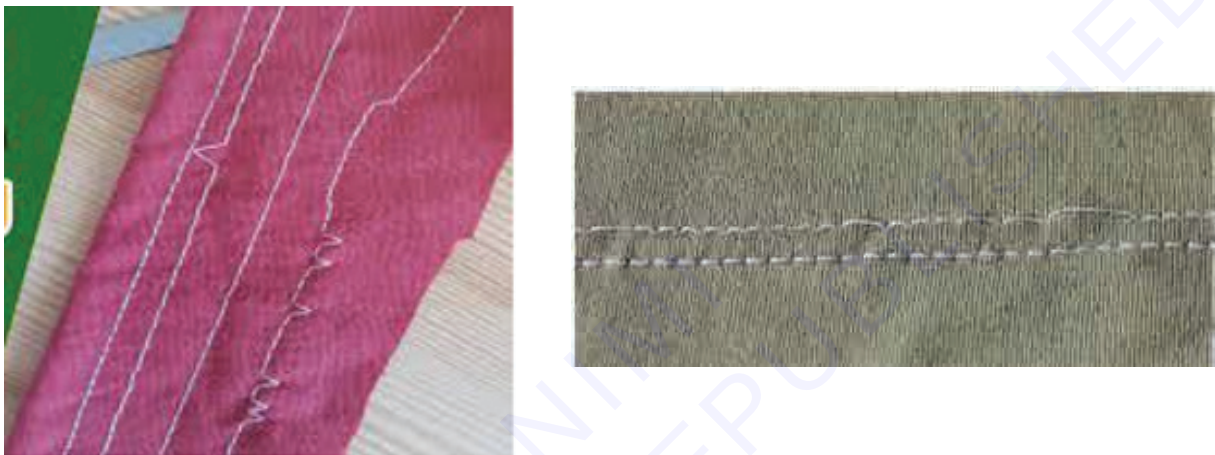
1 **Needle damage:** for example, thread drawn-off from the fabric or making of a large hole to the fabrics.

2 **Skipped stitch:**

Cause: Unsuitable thread, Defected Needle, Wrong needle size, poor feed of fabric. (Fig 1)

Remedies: Replace defected needle, use right needle, needle, thread size adjusted, use right feed mechanism.

Fig 1



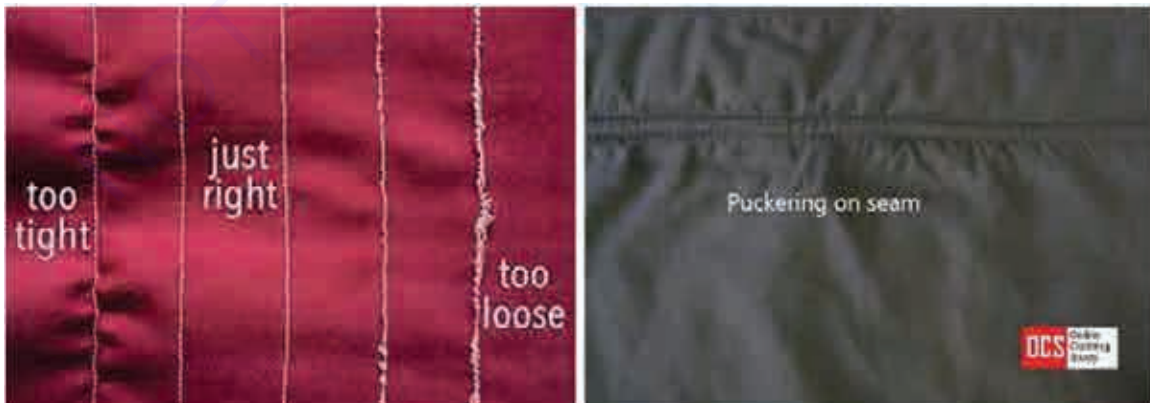
3 **Thread drawn-off.**

4 **Seam puckering:**

Cause: Tension pucker is caused while sewing with too much tension, thereby causing a stretch in the thread. After sewing, the thread relaxes.

Remedies: Reduce the tension applied to the thread while it is being wound onto the lock stitch bobbin. Set the needle thread tension to be as light as possible while achieving a balanced stitch at the same time. This will reduce the amount of puckering while the thread is stretched and improve the sewability (Fig 2)

Fig 2



5 Wrong stitch density

Causes: The incorrect unwinding of thread from package during sewing. Twisting of needle thread in the bottom of thread package.

Remedies: The position of the thread guide should be 2.5 times higher than the position of the thread package. A foam pad should be used at the bottom of the thread package. Correct threading of sewing thread during sewing.

6 Uneven stitch

Cause: Incorrect tension of sewing thread. Used incorrect thread path. Incorrect adjustment of needle thread path.

Remedies: The setting of accurate tension to the thread. Using of accurate thread path. Using of right thread path.

7 Staggered stitch

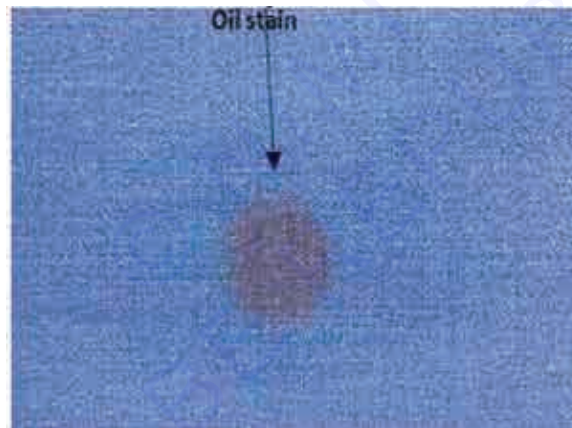
Cause: Due to needle deflection, Due to the wrong needlepoint, Incorrect adjustment of needle and thread size, Due to defected motion of feed dog.

Remedies: Needle size should be increased. The needle should be changed. Needle size and thread size should be changed. Feed dog motion should be adjusted.

8 Defected stitch

9 Oil spot or stain (Fig 3)

Fig 3



Seaming Defects:

- 1 Uneven width.
- 2 Uneven seam line.
- 3 Not secured by backstitch.
- 4 Twisting.
- 5 No matching of check or stripe.
- 6 No matching of the seam.
- 7 Unexpected materials are attached to the sewing.
- 8 Not sewn by matching face side or back side of fabrics.
- 9 Use of wrong stitch type.
- 10 Wrong shade matching of sewing thread.

Checking Garment in Respect of Stains

Objectives : At the end of this exercise you shall be able to

- analyse the type of stain
- known the process to remove the stain
- eliminate the stain.

The most common type of stains and the process to remove them are as follow-

- 1 Grease
- 2 Edible oils
- 3 Curry
- 4 Tea, Coffee
- 5 Rust
- 6 Betel Leaves
- 7 Ink
- 8 Blood
- 9 Lipstick
- 10 Chewing Gum
- 11 Chocolate
- 12 Mud
- 13 Red Wine

Before we begin

- Most important aspect of stain removal is pre-treating as early as possible. The earlier you can soak or pre-treat a stain, the better the chances of being able to remove a stain
- While pre-treating, always test the area of stain with a pre-treating solution to make sure the product doesn't damage the entire garment
- Try an enzyme detergent. These detergents are used to break down proteins and lift the stains up

1 Grease

- Rinse the stain immediately with cold water, then rub the stain with the dishwashing liquid to help loosen the grease
- Rinse it and repeat as necessary
- Then gently rub an enzymatic laundry detergent into the stain, covering the entire area
- Let it stay for 5 to 10 minutes or a little longer
- Without squeezing out the detergent, wash it as usual using the hottest temperature that the fabric can handle (Fig 1)

Fig 1



2 Edible oils

- Blot liquid oil stains with a paper towel. This will make it easier to treat the stained area of the fabric. It will also prevent any oil from spreading into other parts of the fabric
- Rinse the stain immediately with cold water, then rub the stain with the dishwashing liquid to help loosen the oils
- Rinse it and repeat as necessary
- Then gently rub an enzymatic laundry detergent into the stain, covering the entire area
- Let it stay for 5 to 10 minutes or a little longer
- Without squeezing out the detergent, wash it as usual using the hottest temperature that the fabric can handle (Fig 2)

Fig 2



3 Curry Stains:

- Apply baking soda(cooking soda) on the stain and leave it for 30minutes
- To hot water add vinegar and dish washer- thoroughly mix the solution
- Scrub the solution with tooth brush on the stain
- Repeat the process till the stain vanishes
- Without squeezing out the detergent, wash it as usual using the hottest temperature that the fabric can handle (Fig 3)

Fig 3



4 Tea, Coffee:

- Soak the garment in cold water
- Use enzymatic laundry detergent to treat the stain and use a tooth brush to rub on the stain
- Let it stand for 5-10 minutes

- Repeat the process till the stain vanishes
- Without squeezing out the detergent, wash it as usual using the hottest temperature that the fabric can handle (Fig 4)

Fig 4



5 Rust:

- Mix lemon juice with salt and make it a mixture
- Apply the mixture to the stain and place in the sun
- Moisten regularly with lemon juice until the stain disappears
- Brush off residual mixture
- Sodium Hydro Citrate chemical is also used for the removal of rust stains (Fig 5)

Fig 5



6 Betel Leaves:

- Mix lemon juice and vinegar and make it a mixture
- Apply the mixture to the stain and place in the sun
- Moisten regularly with lemon juice until the stain disappears (Fig 6)

Fig 6



7 Ink:

- Use Acetone, this will spread the ink stain
- Apply Hydrogen Peroxide(H_2O_2) and brush it
- Without squeezing out the chemical, wash it using the hottest temperature that the fabric can handle
- If the garment is colored, use oxy-bleach along with hot water and wash until the stain is removed (Fig 7)

Fig 7

**8 Blood:**

- The first step is to soak the garment in cold water.
- Heat of any kind will set the stain, so colder water is always better
- Don't use too much water or the stain will spread
- Apply Hydrogen Peroxide (H_2O_2) and you will see that the red blood stain disappears
- In case of old or stubborn stains keep doing the process and the stain will be removed
- Rinse the area with cold water to remove any peroxide that is left behind (Fig 8)

Fig 8



9 Lipstick:

- Spray any hairspray onto the stain
- Allow it to set up in for 15 minutes
- Take a clean cloth and dip in warm water
- Brush the hairspray off the stain with the cloth
- Wash it using the hottest temperature that the fabric can handle (Fig 9)

Fig 9



10 Chewing Gum:

- Place the stained part of the garment in a freezer(or place some ice cubes on the stained part) for a few minutes
- Take the garment out of the freezer and remove the gum with a butter knife
- Treat the stain with a mixture of dish washing liquid and white vinegar
- Allow the mixture to settle in for 15 minutes
- Brush the chemical off the garment
- Wash it using the hottest temperature that the fabric can handle (Fig 10)

Fig 10



11 Chocolate:

- With time chocolate stains are difficult to remove
- Put the garment in a clean plastic bag and refrigerate it for 20 minutes. Once the chocolate hardens, brush off the excess chocolate with butter knife
- White vinegar with water(ratio 2:1), pour this solution on the stain and leave it for few minutes
- Brush the chemical off the garment
- Wash it using the hottest temperature that the fabric can handle (Fig 11)

Fig 11

**12 Mud:**

- Mud stains when treated wet will penetrate into the fabric. So, the trick is to let the mud stain dry completely
- Once the stain is dried, brush it off. Brush it off gently so that the fabric doesn't get damaged
- Mix dish washing liquid in warm water(2:1 ratio) and gently brush it with a toothbrush. Here you will notice the stains disappearing
- Wash it using the hottest temperature that the fabric can handle (Fig 12)

Fig 12

**13 Red Wine:**

- Treat the stain immediately. The older the stain becomes it is very difficult to treat
- Blot the stain with a clean cloth(don't rub as it will spread)
- Apply Hydrogen Peroxide with Dish Washing Liquid(in the ratio of 3:1) and let the mixture set in for some time
- Brush the chemical off the garment
- Wash it using the hottest temperature that the fabric can handle (Fig 13)

Fig 13



Checking Garment in Respect of Defects

Objectives : At the end of this exercise you shall be able to

- check the garment for defects.

1 Misalignment of parts

The parts of the garment are not correctly positioned as required, resulting wrong design.

Causes :

- Wrong positioning the parts while stitching.
- Cutting not as per the design.
- Selection of wrong measurements.
- Damaged pattern.

2 Non alignment of button and button holes

The buttons are not exactly fitting in the button holes resulting change in the shape or forming wrinkles.

Causes:

- Carelessness of the operator.
- Wrong making for placing the buttons/holes.
- Wrong cutting for making the button holes.
- Make Up defects

3 Label defects

Use of defective or damaged label, wrong labels, mispositioning of the labels, absence of labels, during stitching operation.

Causes:

- Carelessness of the operative.
- Wrong marking for positioning the labels.
- Poor maintenance of the labels during storage.
- Mixup at storage.

4 Wrong tag/sticker

Use of wrong tag or sticker on the product or package during finishing a& packing activity.

Causes:

- Mixup of tage/stitches during storage.
- Carelessness of the operative.
- Lack of formal instruction.

5 Defective accessories

Use of defective or damaged accessories such as button etc. during the stitching operation.

Causes:

- Carelessness of the operative.
- Poor quality of accessories.

6 Defective embellishment

The embellishment in the product is mispositioned or use of damaged items, misalignment, improper size etc. which is not as per the requirement.

Causes:

- Carelessness of the operative.
- Lack of training in positioning the embellishment.
- Improper handling during the process.

7 Embroidery defects

Defective embroidering which is not as per the required design or absence of embroidering.

Causes:

- Carelessness of the unskilled worker.
- Improper working of embroidery machine.
- Unsuitable thread used in the process.

8 Defective Packing

Use of damaged packing material, inferior quality packing material, different packing material, wrong packing method etc.

Causes:

- Carelessness of the operative.
- Lack of formal instruction.
- Improper machine handling.