

Drafting a Sloper for a Male Figure

What and How to Measure

Model should stand in stocking feet with feet about 4" apart. They should retain their natural posture throughout the measuring process while looking straight ahead. Looking around could distort the measurements. If the arms need to be moved out of the way, have the model hold their arms out with the elbows at shoulder level.

Start the measuring process by having the model tie a ¼" width elastic around the natural waistline. The natural waistline in menswear is where the model prefers a pant waistband to sit. Check the position of the elastic frequently while measuring and readjust if it is rolling up. The elastic is used as a guide. Dress forms have twill tape pinned around the natural waistline, so an elastic is not needed.

1. Neck: Locate the center of the dip between the collarbones at the base of the front neck. Using ¼ adhesive dots work well for marking measuring points. This will be referred to as the *neck point* in the following instructions. Measure around the base of the neck to the neck point. The tape measure should form a slight teardrop shape at the center front. Make sure the tape measure is snug and at the base of the neck stem. It can be helpful to have the model wear a thin necklace to show where the measurement should be taken at the back and sides of the neck.

***Calculation Tip:** The neckline will be divided by 6 for drafting. Round to the following measurements to make calculating easier: 13 ½", 14 ¼", 15", 15 ¾", 16 ½", 17 ¼", 18", 18 ¾", 19 ¼", 20", etc.*

2. Shoulder: Measure the shoulder from the base of the neck stem to the outside of the collarbone. The end of the collarbone should be in line with the armhole crease.

3. Front Length: Measure from the neck point to the base of the waist elastic.

4. Back Length: Have the model bend their head forward with their chin toward chest. Locate the center of the vertebrae protruding at the base of the back neck stem. It helps to add an adhesive dot here. The model should then lift their head and look forward. Measure from the center of the vertebrae to the *base* of the waist elastic at the center back waistline. This measurement is often longer than the front length measurement by 1" to 2". If it isn't, measure again to be sure the measurement was taken correctly.

5. Cross Front: Measure from the model's underarm crease to underarm crease. This should be a flat measurement. Do not wrap the tape under the armpit.

6. Cross Back: Measure across the upper back from the model's underarm crease to underarm crease. The cross back is often wider than the cross front measurement by about 1" to 2". If that is not the case with the model, just double check the measurements.

7. Chest: Have the model lift their arms to shoulder level to position the measuring tape. The tape measure should be level with the center of the chest. The model should then lower their arms and the measurement can be taken.

8. Waist: Measure the waist around the elastic.

9. Low Hip: Measure the low hip 9" down from the waist elastic. Again, using adhesive dots at the side is helpful. Mark the depth at the sides and measure around the body keeping the tape measure level. Be sure to note both depth and circumference measurement.

10. Side: Place a ruler level under the armpit. Have the model hold the ruler in place with their arm down, while relaxing their shoulder. Measure from the top of the ruler through to the base of the waist elastic.

11. Armhole: Measure around the armhole on the side the model favors. The model should raise their arm to get the tape measure positioned, but the arm should be lowered to their side when taking the measurement. The tape measure should be perpendicular to the floor as if the armpit is in a sling. Take a snug measurement.

Figure 3.10

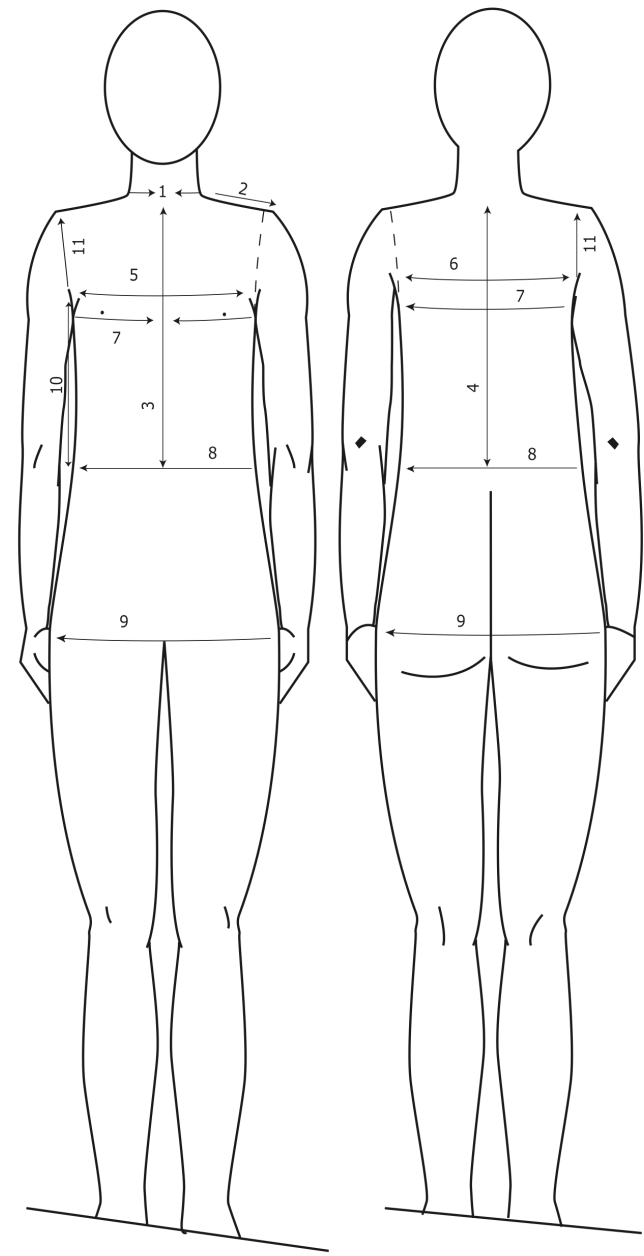


FIGURE 3.10

RECORD OF MEASUREMENTS

NAME: _____

DATE: _____

Neck (1): _____

Shoulder (2): _____

Front Length (3): _____

Back Length (4): _____

Cross Front (5): _____

Cross Back (6): _____

Chest (7): _____

Waist (8): _____

Low Hip (9): _____ @ a depth of 10

Side (10): _____

Armhole (11): _____

Practice using these sample measurements (Fits most size 36 menswear dress forms.)

Neck: 15 $\frac{3}{4}$ "

Shoulder: 5 $\frac{1}{2}$ "

Front Length: 14"

Back Length: 17"

Cross Front: 14"

Cross Back: 15 $\frac{1}{2}$ "

Chest: 38"

Waist: 32"

Low Hip: 39" @ at depth of 10"

Side: 8 $\frac{1}{2}$ "

Armhole: 17 $\frac{1}{2}$ "

Calculating the Measurements

Since the fit in menswear is less complicated, go straight to drafting the sloper rather than starting with a moulage. Note the ease added in the calculation sheet, but otherwise the math formulas are similar to those in womenswear.

Sloper Calculation Worksheet

Neck: _____ $\div 6 =$ _____
 Front: _____ $+ \frac{1}{2}" =$ _____
 Back: _____ $+ \frac{3}{4}" =$ _____
 Shoulder: _____ (as measured)
 Front Length: _____ (as measured)
 Back Length: _____ $- \frac{1}{2}" =$ _____
 Cross Front: _____ $\div 2 =$ _____ $+ \frac{1}{2}"$ ease = _____
 Cross Back: _____ $\div 2 =$ _____ $+ \frac{1}{2}"$ ease = _____
 Chest: _____ $+ 3"$ ease $\div 4 =$ _____
 Front: _____ $+ \frac{1}{4}" =$ _____
 Back: _____ $- \frac{1}{4}" =$ _____
 Waist: _____ $+ 3"$ ease $\div 4 =$ _____
 Front: _____ $+ \frac{1}{4}" =$ _____
 Back: _____ $- \frac{1}{4}" =$ _____
 Low Hip: _____ $+ 3"$ ease $\div 4 =$ _____ (@ a depth of _____)
 Front: _____ $+ \frac{1}{4}" =$ _____
 Back: _____ $- \frac{1}{4}" =$ _____
 Side: _____ $- 1" =$ _____
 Armhole: _____ $+ 2"$ ease $\div 2 =$ _____
 Front: _____ $- \frac{1}{4}" =$ _____
 Back: _____ $+ \frac{1}{4}" =$ _____

Sample Calculation Worksheet

Neck: $15 \frac{3}{4}" \div 6 = 3 \frac{1}{8}"$
 Front: $3 \frac{1}{8}" + \frac{1}{2}" = 3 \frac{5}{8}"$
 Back: $3 \frac{1}{8}" + \frac{3}{4}" = 3 \frac{7}{8}"$
 Shoulder: $5 \frac{1}{2}"$ $5 \frac{1}{2}"$
 Front Length: $14"$
 Back Length: $17" - \frac{1}{2}" = 16 \frac{1}{2}"$
 Cross Front: $14" \div 2 = 7" + \frac{1}{2}" = 7 \frac{1}{2}"$
 Cross Back: $15 \frac{1}{2}" \div 2 = 7 \frac{3}{4}" + \frac{1}{2}" = 8 \frac{1}{4}"$
 Chest: $38" + 3"$ ease $= 41" \div 4 = 10 \frac{1}{4}"$
 Front: $10 \frac{1}{4}" + \frac{1}{4}" = 10 \frac{1}{2}"$
 Back: $10 \frac{1}{4}" - \frac{1}{4}" = 10"$
 Waist: $32" + 3"$ ease $= 35" \div 4 = 8 \frac{3}{4}"$
 Front: $8 \frac{3}{4}" + \frac{1}{4}" = 9"$
 Back: $8 \frac{3}{4}" - \frac{1}{4}" = 8 \frac{1}{2}"$
 Low Hip: $37" + 3"$ ease $= 40" \div 4 = 10"$ (@ a depth of 10")
 Front: $10" + \frac{1}{4}" = 10 \frac{1}{4}"$
 Back: $10" - \frac{1}{4}" = 9 \frac{3}{4}"$
 Side: $8 \frac{1}{2}" - 1" = 7 \frac{1}{2}"$ $7 \frac{1}{2}"$
 Armhole: $17 \frac{1}{2}" + 2"$ ease $= 19 \frac{1}{2}" \div 2 = 9 \frac{3}{4}"$
 Front: $9 \frac{3}{4}" - \frac{1}{4}" = 9 \frac{1}{2}"$
 Back: $9 \frac{3}{4}" + \frac{1}{4}" = 10"$

Setting up the Sloper Guidelines

The following guidelines need to be set up to draft a sloper. It is helpful to use the straight edge of the pattern paper as the center front and center back guidelines. Go over the guidelines in pencil.

Front Guidelines

- 1. Waist Guideline:** Perpendicular to the center front (see diagram for placement of the center front) and about 12" up from the bottom of the paper, draw a waist guideline the width of **the front low hip calculation**.
- 2. Low Hip Guideline:** Perpendicular to the center front, draw the low hip guideline 10" down from the waist guideline. The guideline should measure as the **front low hip calculation**.
- 3. Front Length:** Mark the front length measurement up from the waist guideline. At that height and perpendicular to the center front, draw a guideline of **5"**.
- 4. Chest:** The chest guideline should be drawn perpendicular to the center front at a height from the waist guideline of side length – 1". For example, if the side length is measured at 8 ½", the chest guideline will be drawn 7 ½" up from the waist guideline. The width of the guideline should be as the **front chest calculation**.
- 5. Cross-Front:** The cross-front guideline should be drawn perpendicular to the center front at 3½ down from the front length guideline. The guideline should measure approximately **10"**.

Back Guidelines

- 6. Waist Guideline:** Perpendicular to the center back and about 12" up from the bottom of the paper, draw a waist guideline the width of the **back low hip calculation**.
- 7. Low Hip Guideline:** Perpendicular to the center back, draw the low hip guideline 10" down from the waist guideline. The guideline should measure as the **back low hip calculation**.
- 8. Back Length:** Mark the back length measurement up from the waist guideline. At that height and perpendicular to the center back, draw a guideline of **12"**.
- 9. Chest:** The chest guideline should be drawn perpendicular to the center front at a height from the waist guideline of side length – 1". The width of the guideline should be as the **back chest calculation**.

10. Cross-Back: Divide the back length measurement into quarters. The cross-back guideline should be drawn perpendicular to the center back guideline at one-quarter of the back length measurement. For example, if the back length measurement is 16” with one quarter of 16” being 4”, draw the guideline at 4” down from the center back neck. The guideline should measure approximately **12”**.

Figure 3.11

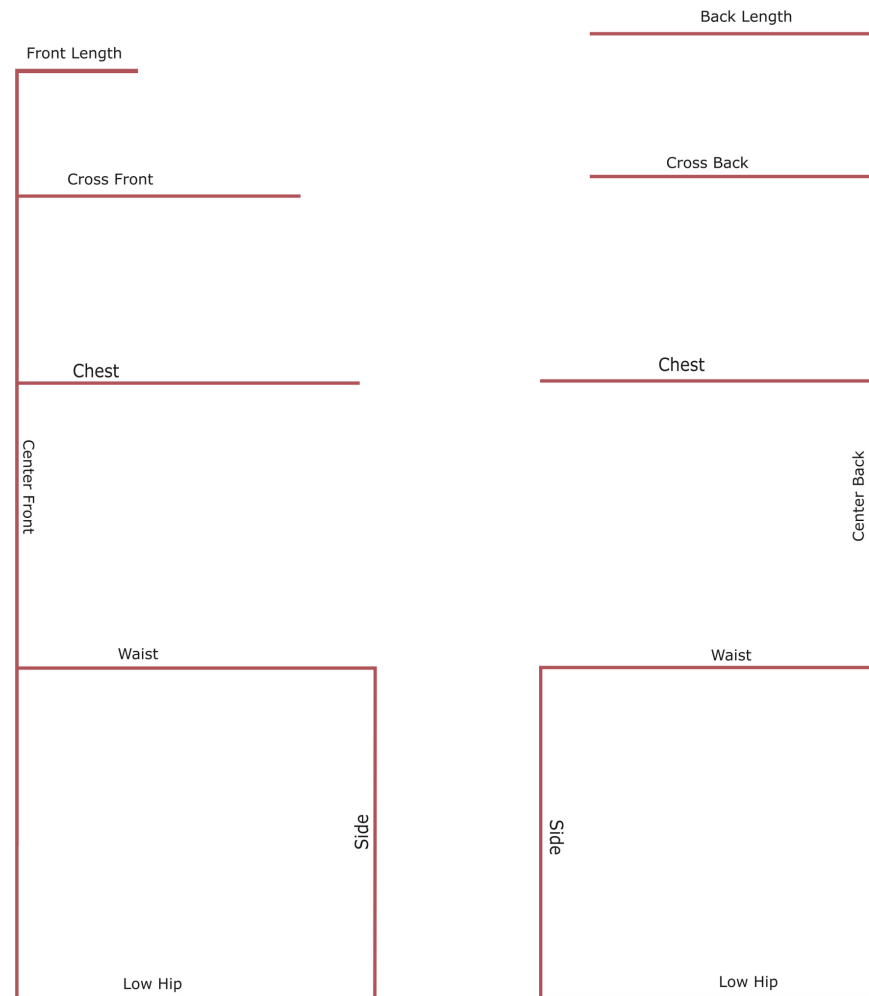


FIGURE 3.11

Drafting the Front

When drafting a sloper, accuracy is important. Since all the measurements tie into one another, even slight errors could alter the pattern. Work carefully. Remember to differentiate between measurement and calculation when reading the instructions. Draft on top of the front guidelines.

1. **AB** = front neck calculation on the front length guideline.
2. **BC** = **AB** + $\frac{1}{4}$ "
3. **D** = half **BC**
4. **DE** = 7" guideline squared off **BC**
5. **CF** = shoulder measurement as it falls on the **DE** line
6. **GH** = cross-front calculation on the guideline
7. **IJ** = front chest calculation on the guideline
8. **KL** = front waist calculation
9. **MN** = front low hip calculation on the guideline
10. **OP** = square a dotted guideline off **IJ** 2" up from **J**. Mark **O**. Mark **P** 2" below **J**".
11. **LQ** = side measurement as it falls on the **OP** guideline
12. **LR** = 3" up from **L** on the **LQ** line
13. **RS** = in $\frac{1}{8}$ to shape side
14. Connect **Q-S-L** for the new side shape.
15. Connect **L-N**.
16. **QT** = Square a line back toward the center front and mark as the new chest guideline. Double check that **QT** is squared off the center front guideline.
17. Square a line down from the cross-front guideline (**GH**) until it falls on the **QT** line and mark **U**
18. **UV** = 1" guideline at a 45° angle
19. Connect **Q-V-H-F** for the armhole.
20. Check the measurement of **Q-V-H-F** and drop or raise **F** as necessary to get the correct armhole measurement. You can raise the armhole above **F** a maximum of $\frac{1}{2}$ " and you can lower a maximum of $1 \frac{1}{4}$ " to get your front armhole calculation. Mark **F'** if you adjusted the end of shoulder.
21. Connect **C-F'** for the new shoulder slope.

22. $BW = 1 \frac{1}{4}$ " guideline at a 45° angle to help shape the neckline

23. Connect **A-W-C** for a neckline shape.

24. $KX = \frac{1}{2}$ " waist shaping. Be sure to square the dart legs through the waist shaping.

25. Connect **X-L** in a shallow curve. Waist shaping is not often drafted into men's clothing, but it should be noted as an option for when a tight fit or a tailored fit is desired.

26. Recheck all measurements and calculations and adjust if necessary.

Figure 3.12

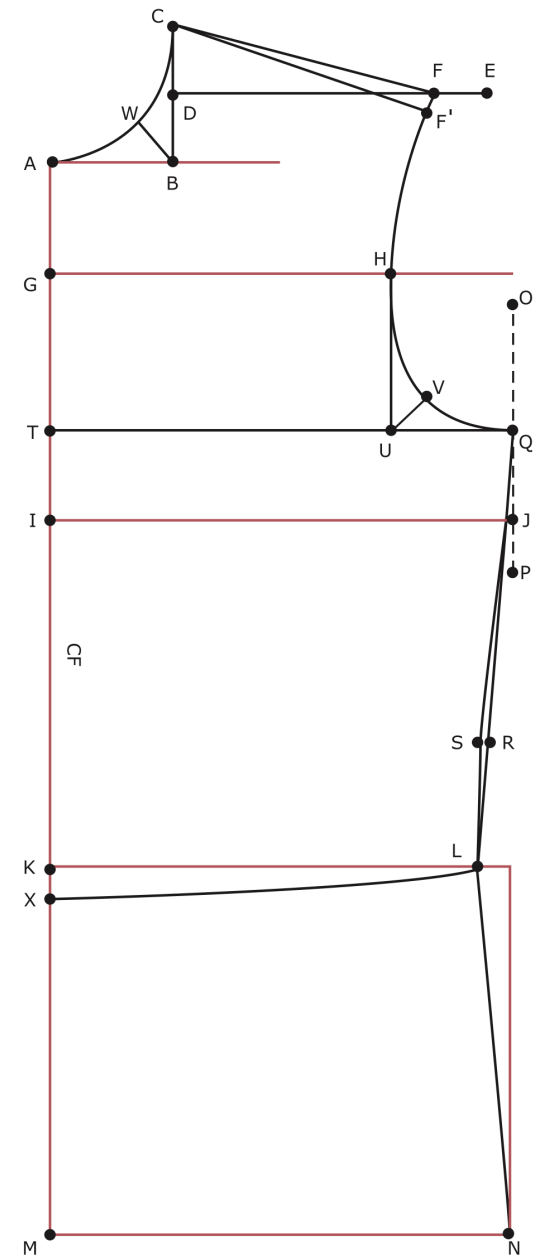
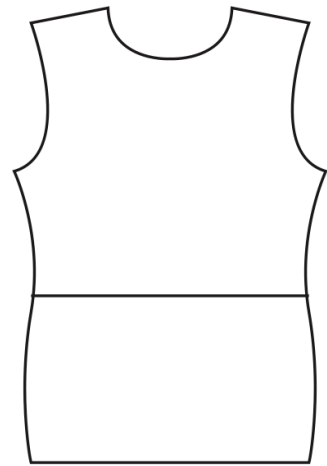


FIGURE 3.12

Drafting the Back

1. **AB** = back neck calculation on the back length guideline

2. **BC** = one-third **AB** + $\frac{1}{8}$ "

3. **CD** = shoulder width + $\frac{1}{2}$ " dart width (if your model is broad in the shoulders, the shoulder dart width can be increased to $\frac{3}{4}$ "). **D** should fall on the back length guideline.

4. **CE** = half the shoulder width

5. **EF** = $\frac{1}{2}$ " dart width (or $\frac{3}{4}$ " if that works better for your model)

6. **FD** = half the shoulder width

If you applied the shoulder instructions correctly, the dart width should be centered on the shoulder. **CE** should equal **FD**.

7. **G** = low hip guideline at center back

8. **H** = waist guideline at center back

9. **I** = cross-back guideline at center back

10. **HJ** = $\frac{3}{8}$ " back contouring

11. **HK** = 7" down from **H** along center back

12. Connect **I-J** for the new center back shape with back contouring. Back contouring helps a garment fit better along the spine (center of the back).

13. **IL** = cross-back calculation on the guideline

14. **M** = chest guideline at new center back on the **IJ** line

15. **MN** = back chest calculation

16. **JO** = distance from center back to the first leg of the dart. Most back waist darts are centered in the back waist calculation. For example, if your back waist calculation is 8", **JO** equals 4".

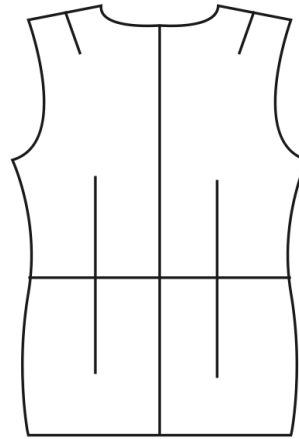
17. **OP** = 1" width for a back waist dart

18. **PQ** = remainder of the back waist calculation. If you are centering your back waist dart, **J-O** should equal **P-Q**.

19. **GR** = back low hip calculation

20. Connect **Q-R** for the side shape.

21. Square a dotted guideline off **MN**, 2" up from **N** for **S**, and 2" down from **N** for **T**.
22. **QU** = side measurement as it falls on the **ST** guideline
23. **QV** = 3" up along the **QS** line
24. **VW** = 1/8" in to shape side
25. Connect **Q-W-U** for the new side shape.
26. **UX** = square a line toward the center back from **U** and mark as the new chest guideline.
27. **LY** = square a line down from the cross-back guideline (**IL**) until it meets the new chest guideline (**UX**) and mark **Y** as shown
28. **YZ** = 1" guideline at a 45° angle
29. Connect **U-Z-L-D** for the armhole.
30. Check the measurement of **U-Z-L-D** and drop or raise **D** as necessary to get the correct armhole measurement. You can raise the armhole above **D** a maximum of 1/2" and you can lower a maximum of 1 1/4" to get your front armhole calculation.
31. **D'** = adjusted end of shoulder
32. **CD'** = draw in the new shoulder slope and recenter the dart if necessary. If you did adjust the dart points **E** and **F** on a new shoulder line, remark the adjusted dart points **E'** and **F'**.
33. Connect **E'-O**.
34. **E'a** = 3 3/4" dart length on the **E'O** line
35. Connect **F'-a** for the second dart leg.
36. Adjust at **F'** so **F'a** equals 3 3/4". Redraw **F'** to **D'**. Fold the shoulder dart and trace off the dart bulk to true the dart bulk and the shoulder.
37. **Bb** = 1/2" guideline on a 45° angle for shaping the back neck
38. Connect **C-b-A** for the back neckline shape.
39. **Oc** = 6" up along the **E'O** line
40. Connect **P-c** for the second leg of the waist dart.
41. **d** = 6" directly under the center of the waist dart



42. $Je = \frac{1}{2}"$ for waist shaping

43. Connect **e-Q** in a shallow curve for waist shaping. Square the dart legs through the waist shaping.

44. Connect **O-d-P** for the waist dart.

45. Connect **e-K** for the lower part of the back contouring.

46. Recheck all the measurements and calculations and adjust if necessary.

Figure 3.13

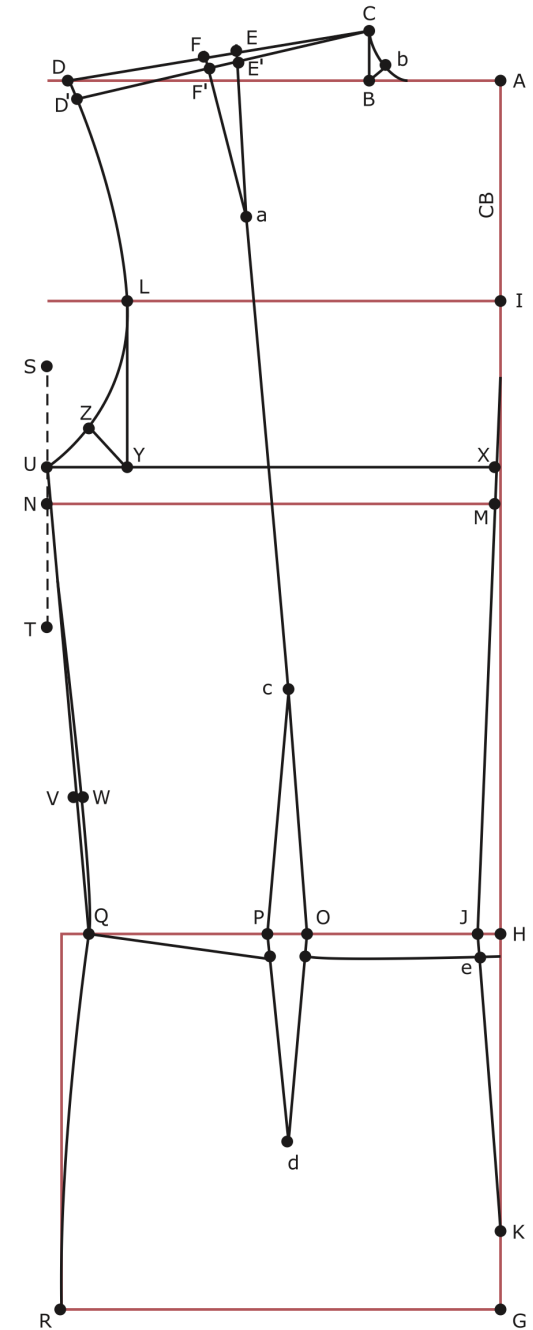


FIGURE 3.13

Front and Back Patterns

1. True the back pattern to the front at the high neck point connection and the end of shoulder connection. The sides should be the same length, but they will not be the same shape if a back waist dart was used.
Trace the **front** sloper including the waist shaping: **A-W-C-F'-H-V-Q-S-L-N-M-X-K-I-T-G-A**. Cut at the waist by separating the pattern at **KL** for the top piece and **XL** for the bottom piece.
2. Draw a length grainline perpendicular to the center front guideline on both pieces.
3. Add $\frac{3}{4}$ " seam allowance around the pieces.
4. Cut 1 on fold at center front – self for both the upper and lower piece.
5. Trace the **back** sloper: **A-b-C-E'-F'-D'-L-Z-U-W-Q-R-G-K-e-J-M-I-A**, including the waist dart, shoulder dart and waist shaping.
Cut away the waist shaping by separating the pattern at **J-Q** for the top piece and **e-Q** for the bottom piece.
6. Draw a length grainline perpendicular to the low hip guideline on the bottom piece. Draw length grainline perpendicular to the waist guideline on the upper piece. Cut 2 of each piece.
7. Add $\frac{3}{4}$ " seam allowance around the pieces.
8. Cut 2" of each piece - self.

Truing Tip: It is important to have squared edges on a sloper. Squaring edges helps the connection points between front and back patterns align more smoothly. At the center front neck and center back neck, square for $\frac{1}{2}$ "; square off the shoulder at the front and back high neck/shoulder points for $\frac{1}{4}$ "; square off the end of shoulder down the armhole to the cross front/back guideline; the base of the armholes should be flat for $\frac{1}{2}$ " on the front and back; the front and back low hip base at side should square for $\frac{1}{2}$ " up and across".

Fitting Tip: Staystitch around the neckline and armhole on the seamlines. Then, trim or clip the seam allowance at the neck and armholes before fitting. If the seam allowance at the neck and armholes is not trimmed or clipped, the sloper will ride up above the chest affecting the fit. Staystitch the center back seam to show where to pin it closed (do not trim the seam allowance down the center back).

Transferring the Sloper to Tag

Once the sloper fit is finalized, trace it onto tag. The sloper is not a garment. It is a template. Think of a sloper as having 70% of the drafting done. The remaining 30% is about adjusting fit, silhouette, and details to reflect the designer's sketch.

Figure 3.14

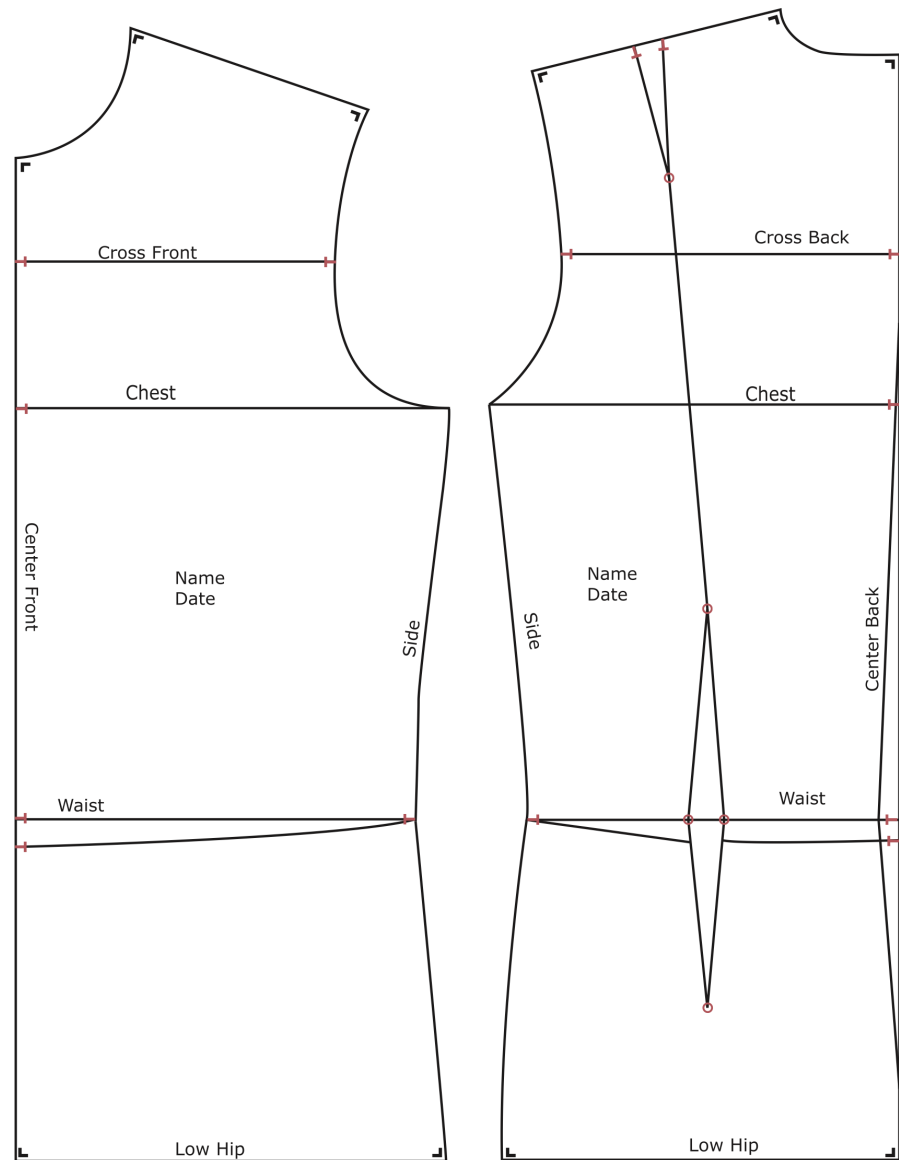


FIGURE 3.14

Drafting a Knit Bodice Sloper for a Male Figure

1. Use the same measurements.
2. Subtract 2" from the chest, waist, and low hip circumferences.
3. Subtract 1" from the neck circumference, front length, cross front, cross back, side and armhole measurements.
4. Subtract 2" from the back length measurement.
5. Subtract $\frac{3}{4}$ " from the shoulder.
6. Recalculate using the reduced measurements.
7. Draft the front and back patterns, skipping any references to darts, waist shaping and back contouring.
8. Trace.
9. Cut both the front and back on a center fold. Sew and test the fit in a stable knit such as a double knit.
10. Once the fit is finalized, put it on tag to create a knit bodice sloper.

Test Your Knowledge

1. Why draft a moulage for the female form instead of going straight to sloper as is done in menswear?
2. What is the purpose of shoulder, armhole, and side darts in a moulage?
3. How is the cup size calculated? What can throw off the formula?
4. Why is it important to square the edges of a sloper?
5. Why is working from a well-fitting sloper important?