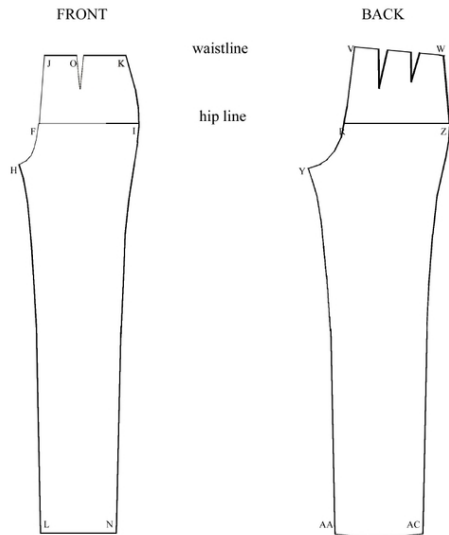


Constructing the Basic Trouser Block

By: gedwoods

<http://www.burdastyle.com/techniques/constructing-the-basic-trouser-block>



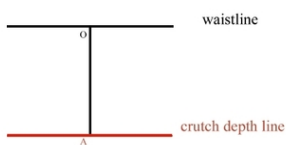
Trousers (or pants or slacks) require their own block, distinct from the basic blouse block (<http://www.burdastyle.com/techniques/constructing-the-basic-bodice-block>) and the dress block (<http://www.burdastyle.com/techniques/drafting-a-princess-line-dress-pattern-from-the-basic-bodice-block>), presented earlier. Here I present detailed, step-by-step instructions for preparing a custom-fitted trouser block for women. A man's trouser block is slightly different, although not dramatically so – it is possible to work with a women's trouser block and adjust it somewhat to get a fit to a man's body. As in my earlier techniques, you will need a ruler about a meter long, a smaller ruler, a sharp pencil, and a French curve (or dinner plate!). A calculator is useful, in addition. You will also need a set of body measurements (waist, hips, waist-to-hip distance, waist-to-ground distance, body rise (distance from the waist to the chair when you are sitting down), and waist-to-knees distance. With the first four measurements, the others can be estimated. This block construction method has been adapted from the following excellent reference : Winifred Aldrich, *Metric Pattern Cutting for Women's Wear*, 5th ed., Blackwell Publishing: Oxford, 2008, 215 pp.

Step 1 — Preparation



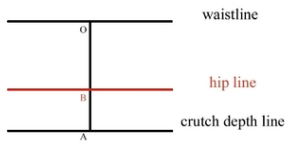
Begin with an origin point (O), located at the top left of your sheet of , some distance in from the left edge. Draw a horizontal line through this point and stretching out both sides of the origin point, somewhat more than about half the hip width - this is the waist line. In these instructions, I present both the front and back panels on the same sheet of paper - in practice, it will probably be easier to do these on separate sheets of paper, as finding paper wide enough to accommodate both is difficult, and working with such wide paper is also awkward. You will need quite long sheets of paper to accommodate the full length of the leg - I often scotch tape two sheets of newsprint together to ensure I get the length I need.

Step 2 — Crutch Depth Line



From the origin point, measure downwards the crutch depth (also called the body rise), place a point here (A) and connect with the origin point (a vertical line). Draw in a second horizontal line at this location - this is the crutch depth line. If you don't know the crutch depth, you can estimate it from the waist measurement as follows : (Metric) Crutch Depth (cm) = $0,175 \cdot \text{Waist}(\text{cm}) + 15,4$ cm ; (Imperial) Crutch Depth (in.) = $0.175 \cdot \text{Waist}(\text{in.}) + 6$ in.

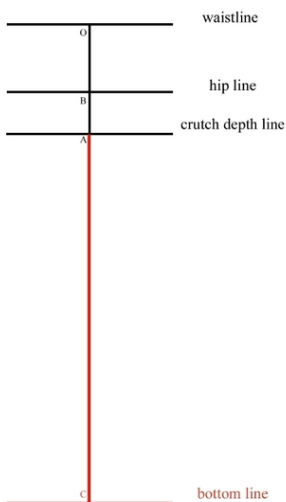
Step 3 — Hip Line



Measure the waist-to-hip distance downward from the origin point O (point B) and draw in a third horizontal line of the same width as the other two - this is the hip line.

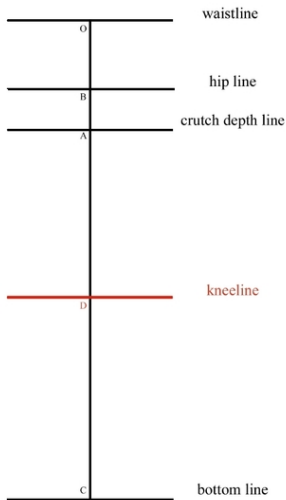
 There is an important issue here. The waist-to-hip measurement is a difficult one to make precisely, whereas the crutch depth (body rise) is much more precise, even when estimated using the formula given in the previous step. Sometimes when one comes to construct the curve from the crutch depth line to the hip line, the distance may seem very small. If this is the case, DO NOT TAMPER with the crutch depth line. Instead, slide the hip line upwards a small distance. The location of the hip line being fairly uncertain, this will give an appropriate curve. If you lower the crutch depth line, you will create a VERY deep crotch. Unless you want this, stay clear of such a change.

Step 4 — Bottom Line



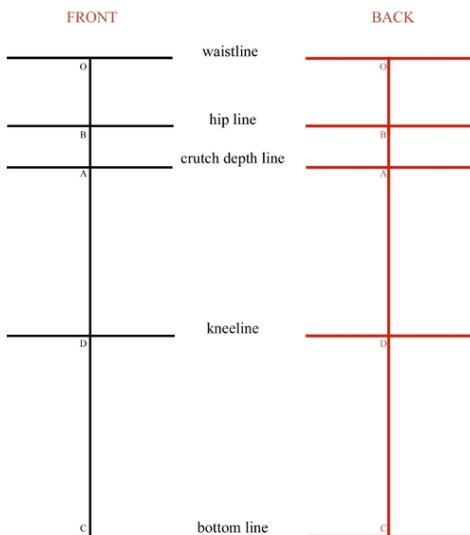
Now measure the waist-to-ground distance, downwards from the origin point and make another horizontal line at point C. This is the bottom line of the pants. Even if you are planning to make shorter the legs shorter than their full length, you will need to place this line as a guide. Although the waist-to-ground measurement can be estimated from the waist measurement, given the height variation in people this seems a very bad idea. Better to have the measurement here.

Step 5 — Knee Line



Now measure from the point A (the crutch depth point) down half the distance to point C (the bottom line), subtract 5 cm (2 in.) and draw in a final horizontal line the same width as the others, at point D - this is the knee line.

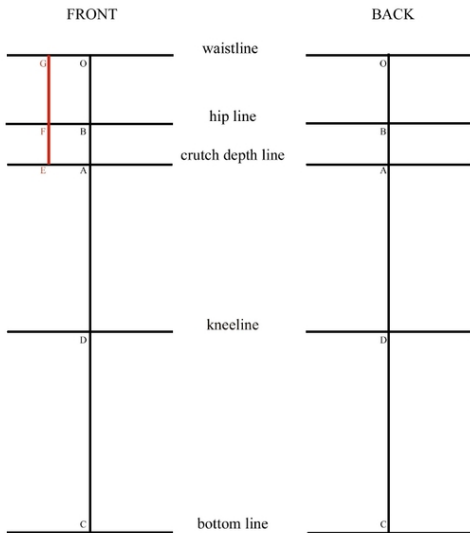
Step 6 — Basic Framework



We now have the basic framework for the pant leg, whether front or back. We need to copy this

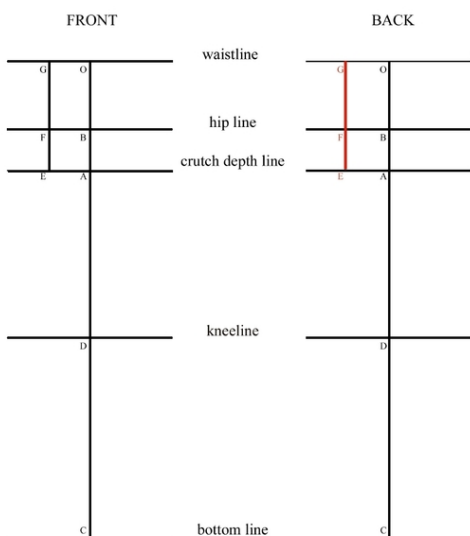
framework over to our second sheet to prepare the back panel. The diagram shows the two frameworks side by side, the one on the left for the front panel, the one on the right for the back panel.

Step 7 — Front Crutch Construction Line



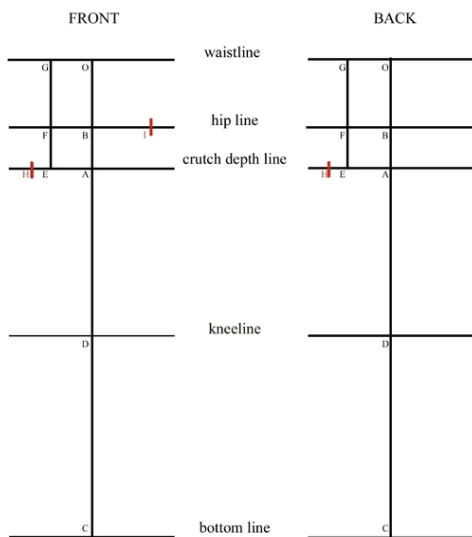
On the Front Leg Panel, from point A (the crutch depth line), measure one twelfth ($1/12$) the hip measurement and add 1,5 cm ($9/16$ in.) towards the left (point E). Draw a vertical line from here upwards to the waist line (point G), passing through the hip line at point F.

Step 8 — Back Crutch Construction Lines



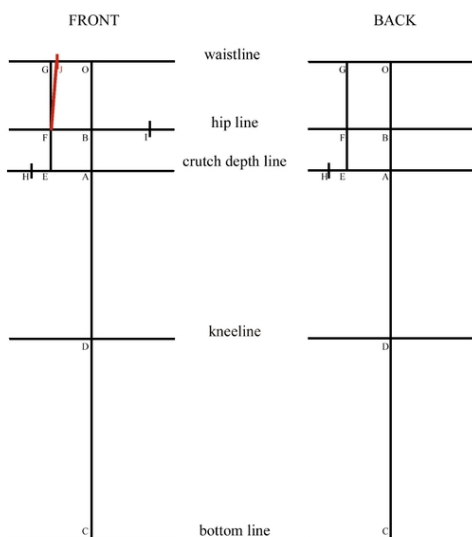
Copy the same structure (or repeat the process) for the Back Leg Panel.

Step 9 — Front Crutch Point



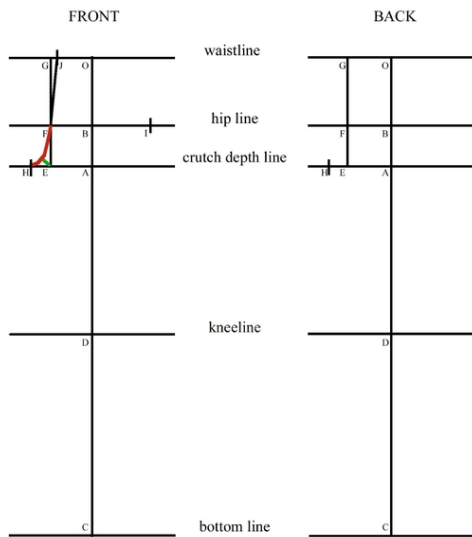
On both leg panels, measure an additional one sixteenth ($1/16$ th) of the hip measurement plus 0,5 cm ($3/16$ in.) further to the left of point E and place a marker point (point H). This is the last point common to both the front and back leg panels. All further manipulations will be different for the front and back leg panels (although a few measures will need to be transferred from the Front to the Back Leg Panel). Now we shall focus on the Front Leg Panel. Draw a point (point I) at a distance of one quarter ($1/4$ th) of the hip measurement plus 0,5 cm ($3/16$ in.) to the right of the point F on the hip line.

Step 10 — Front Fastener Seam



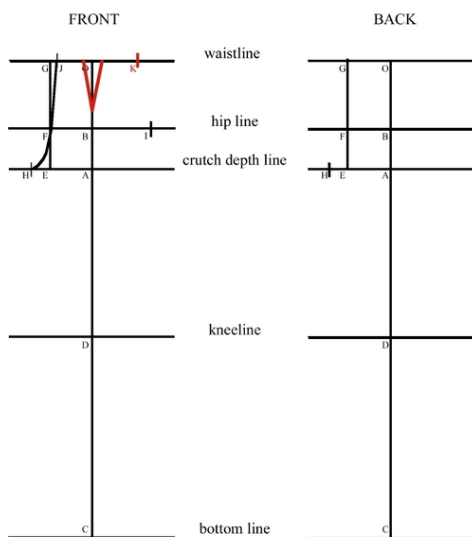
Still working on the Front Leg Panel, mark the point 1 cm ($3/8$ in.) to the right of point G along the waist line (point J), and connect points F and J with a straight line. This is the seam that will usually be used for a fastener (zipper, buttons, etc.)

Step 11 — Front Crutch Seam



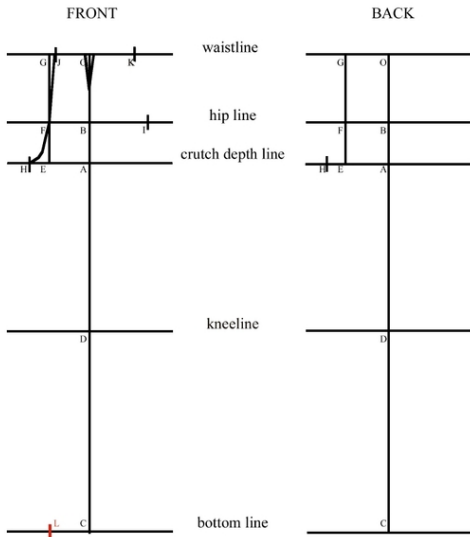
Continuing on the Front Leg Panel, draw in a small diagonal, inward pointing line from both point E (green line in diagram). For waist sizes of 66 cm (26") or less, the length of this diagonal will be 2,75 cm (or 1-1/8"). For waist sizes between 66 cm (26") and 78 cm (30"), the length of the segment will be 3,00 cm (1"-1/4). From waist sizes of 78 cm (30") to 91 cm (36"), the length of the segment should be 3,25 cm (1-3/8"). Above waist sizes of 91 cm (38"), the segment should be 3.5 cm (1-1/2"). Connect points H and F with a curved line (near horizontal at H, near vertical at F) that passes through the end of the diagonal segment constructed above. If the distance between the crutch depth line and the hip line is small, you may have trouble drawing a reasonable curve. This is where you may want to slide the hip line up a centimeter (half an inch) or two, to get a little room to manoeuvre.

Step 12 — Front Waist



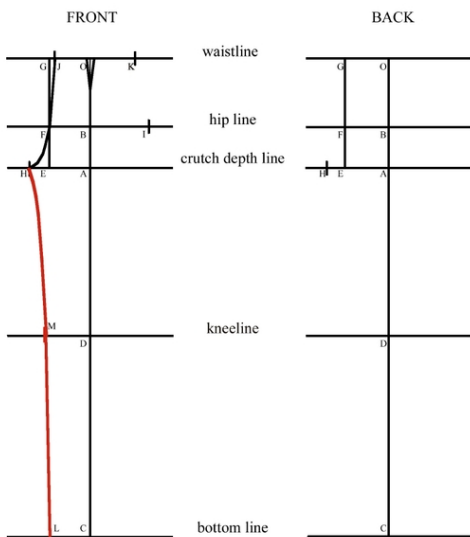
Continuing on the Front Leg Panel, mark the point (point K) located a quarter of the waist measurement plus 2,25 cm (7/8 in.) to the right of point J. Still working on the Front Leg Panel, construct a dart 10 cm (4 in.) long, pointing downwards from the origin point O, with a width of 2 cm (3/4 in.) at the waist end.

Step 13 — Front Trouser Bottom, Left Half



Mark the point (L) located half the bottom width minus 0,5 cm (3/8 in.) to the left of the point C. You can estimate the trouser bottom width by using the following formula: (Metric) Trouser bottom width (cm) = $0,125 \times \text{waist (cm)} + 13 \text{ cm}$; (Imperial) Trouser bottom width (in.) = $0,125 \times \text{waist (in.)} + 5 \text{ in.}$ Make a note of this distance, as you will need to transfer it to the Back Leg Panel .

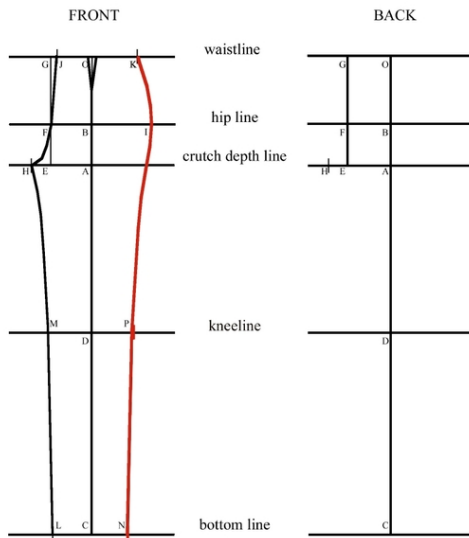
Step 14 — Front Trouser Leg, Left Half



Mark the point M to the left of point D on the knee line, the distance from point C to point L

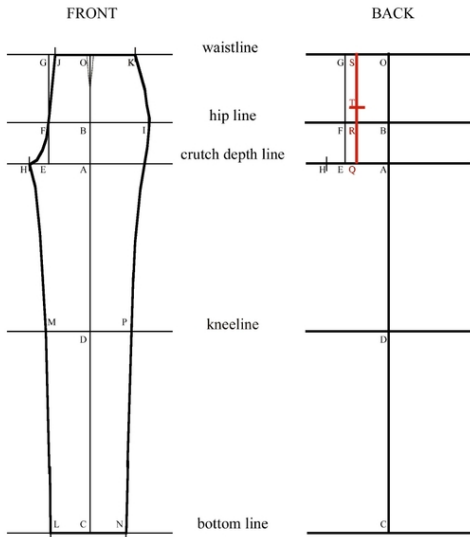
(determined in previous step), plus 1,3 cm (1/2 in.). For waist sizes between 78 cm (30 in.) and 91 cm (36 in.), add 1,5 cm (5/8 in.) rather than 1,3 cm (1/2 in.). For waist sizes from 91 cm (36 in.) to 103 cm (40 in.), add 1,7 cm (3/4 in.) instead of 1,3 cm (1/2 in.). For larger waist sizes, add 2 cm (7/8 in.) instead of 1,3 cm (1/2 in.). Keep a note of the distance between points M and D, as you will need this for the back leg block. Draw a straight line between points L and M. Note that you should still be working on the Front Leg Panel. On the Front Leg Panel, draw a curved line between points M and H. The largest deviation from the line between M and H should not exceed 0,5 cm (3/16 in.).

Step 15 — Front Leg, Right Half



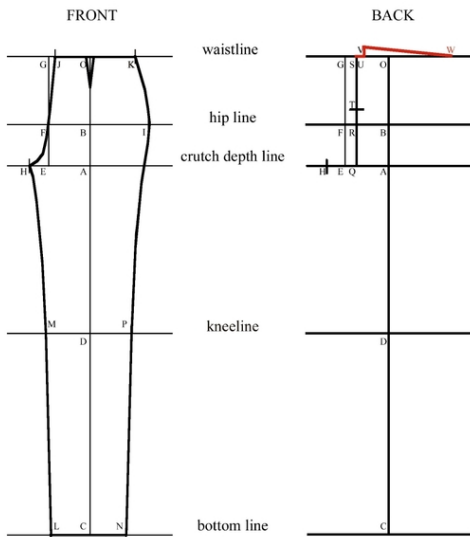
For the Front Leg Panel, mark point N on the bottom line at the same distance to the right of point C as was L to its left, and point P on the knee line, at the same distance to the right of point D as M was to its left. Draw a straight line connecting points N and P. Draw a curved line from point P through its maximum deviation at point I and then curving in to point K at the waist line. The curve from point P to point I should deviate outwards by a maximum of 0,5 cm (3/16 in.). This completes the construction of the Front Leg Panel. Put this drawing to one side - now we are going to finish the work on the Back Leg Panel.

Step 16 — Back Crutch Construction Lines 2



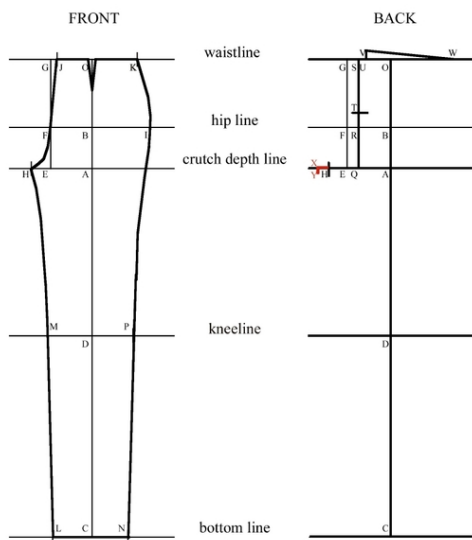
On the Back Leg Panel drawing, mark the point Q located one quarter of the distance from point E to point A along the crutch depth line. Draw a vertical line from this point (point Q) through the hip line (point R) to the waist line (point S). On the Back Leg Panel, mark the point (point T) midway between the crutch depth line (point Q) and the waist line (point S).

Step 17 — Back Waist



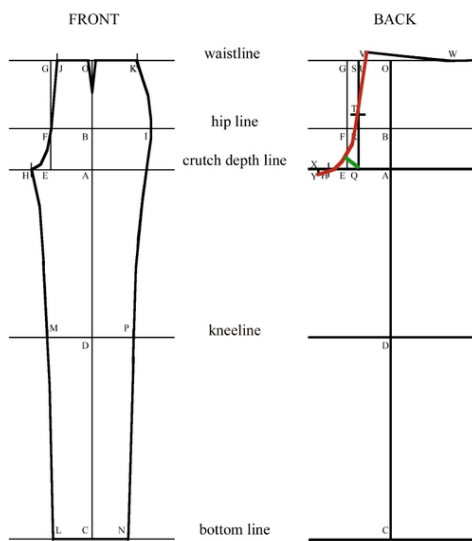
On the Back Leg Panel drawing, mark the point U, located 2 cm. (3/4 in.) to the right of point S. Then mark the point V, located 2 cm. (3/4 in.) above the point U. For the Back Leg Panel, locate the point W along the waist line at a straight line distance from point V of one quarter of the waist measurement plus 4,25 cm (1-5/8 in.), and draw a line between points V and W. This line will slant downwards to the right.

Step 18 — Back Crutch Point



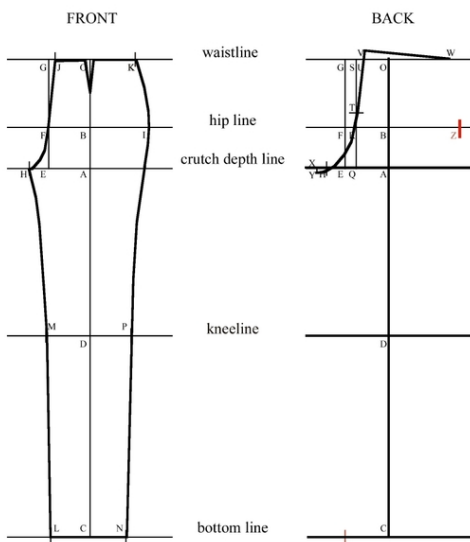
Mark point X, one half of the distance between point H and point E but to the left of point H. Mark the point Y just below the point X by a distance of 0,5 cm (3/16 in.).

Step 19 — Back Crutch Seam



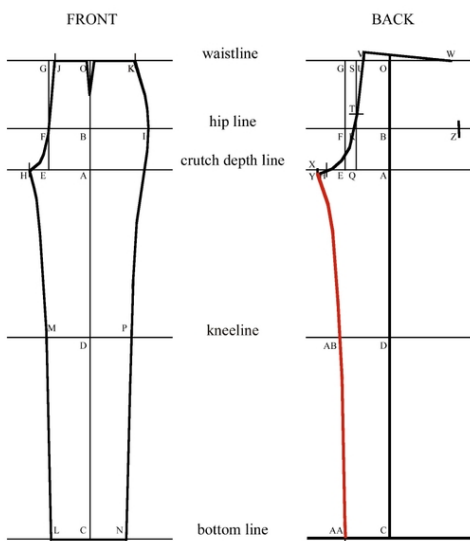
Construct a diagonal segment (shown in green in the diagram) from point Q, of length 4 cm (1.6 in.) for waist sizes below 66 cm (26 in.). For waist sizes between 66 cm (26 in.) and 78 cm (30 in.), set the length of the diagonal to 4,25 cm (1.7 in.). For waist sizes between 78 cm (30 in.) and 91 cm (36 in.), set the length to 4,5 cm (1.8 in.). For waist sizes above 91 cm (36 in.), set the length to 4,75 cm (1.9 in.). Then draw in a straight line from point T to point V, and a curved line from point Y to point T, passing through the end of the diagonal constructed as described above.

Step 20 — Back Hip Width



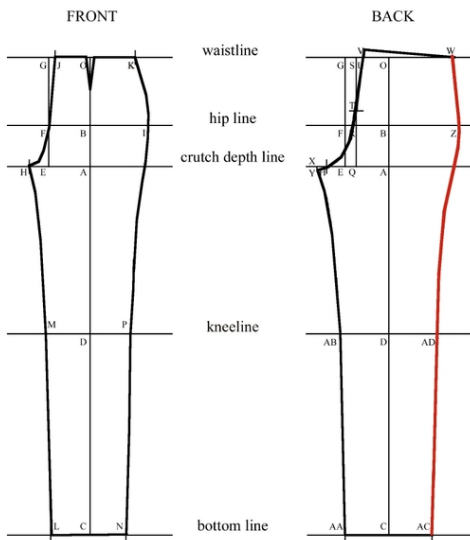
For the Back Leg Panel block, mark the point Z to the right of point R a distance of one quarter the hip measurement plus 1,5 cm (0.6 in.), along the hip line.

Step 21 — Back Leg, Left Half



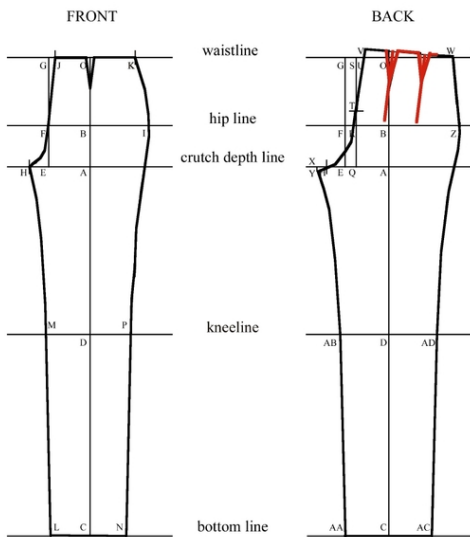
On the Back Leg Panel block, draw in the point AA located the same distance as the point L is from point C on the Front Leg Panel block (this is the first of the distances you noted earlier), plus 1 cm (3/8 in.). Mark in the point AB located the same distance as the point M is from point D on the Front Leg Panel block (the second of the distances you noted earlier), plus 1 cm (3/8 in.). Draw a straight line connecting points AA and AB on the Back Leg Panel drawing. On the Back Leg Panel block, draw a curved line from point AB to point Y, deviating outwards by about 0,5 cm (3/16 in.).

Step 22 — Back Leg, Right Half



On the Back Leg Panel block, mark the point AC located the same distance as the point N is from point C on the Front Leg Panel block, plus 1 cm (0.4 in.). Mark in the point AD located the same distance as the point P is from point D on the Front Leg Panel block, plus 1 cm (3/8 in.). Draw a straight line connecting points AC and AD on the Back Leg Panel drawing. Then draw a curved line from point AD through its outer extremity at Z and inward to point W. The deviation outwards at Z should be about 0,5 cm (3/16 in.).

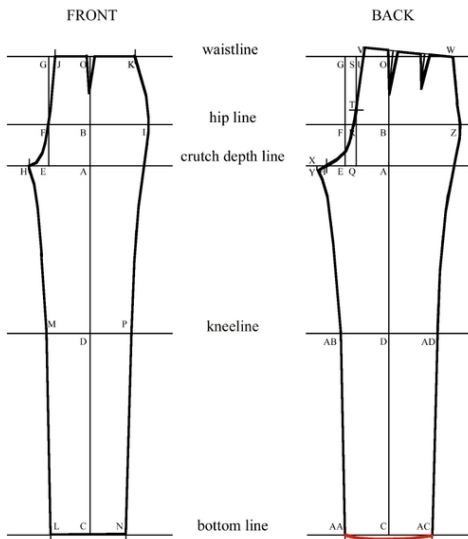
Step 23 — Back Waist Darts



On the Back Leg Panel block, mark the point one third of the distance from V to W, and draw in a downwards line from this point perpendicular to the line connecting points V and W. On the Back Leg Panel block, construct a dart 12 cm (4-5/8 in.) long and 2 cm (3/4 in.) wide at this location. Another third of the way down the line from point V to point W, construct a second perpendicular line. On the Back Leg Panel block, construct a second dart at this location, of length 10 cm (4 in.)

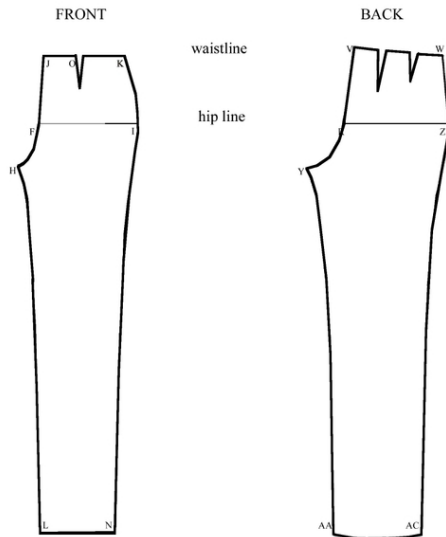
and width 2 cm (3/4 in).

Step 24 — Back Bottom Curve



Finally, on the Back Leg Panel only, connect points AA and AC with a curved line that deviates downwards 1 cm (3/8 in.) from point C.

Step 25 — Finishing Up



Draw over the outlines of both leg panels to finish up. I usually cut these out, as these are now in a format ready to be further manipulated to make variations on classic women's trousers. Basic manipulations might include adding a waist band, adding trouser cuffs, shortening the legs or changing their shape, adding pockets, and so on. Note that to make the pants up, you will need to add in seam allowances, and to cut two copies of each. The back and front panels are sewn together from H-L on the front, paired with Y to AA on the back, and from K to N on the front,

paired with W to AC on the back. The front panels are then sewn to each other from J to H, and the back panels to each other from V to Y. A zipper or other fastening will usually be applied to the F to J seam. Good luck and have fun!

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