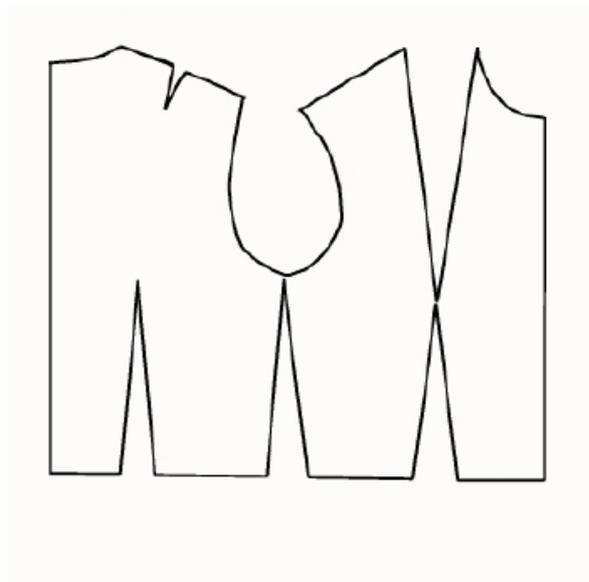


Constructing the Basic Bodice Block

By: gedwoods

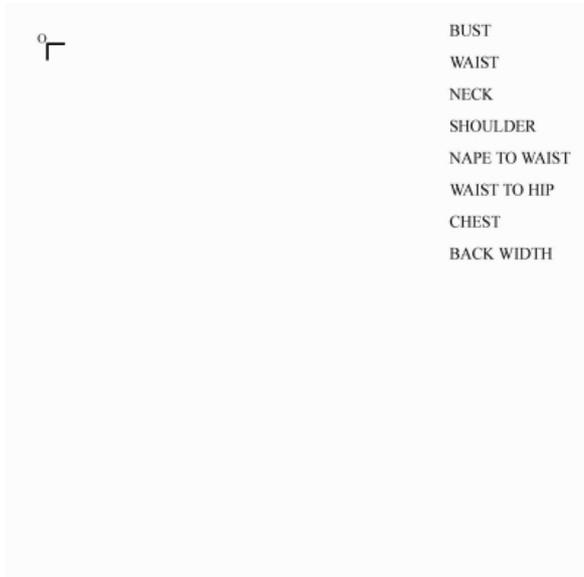
<http://www.burdastyle.com/techniques/constructing-the-basic-bodice-block>



An alternative method of creating garments to using patterns constructed in standard sizes, is to construct a pattern using custom measurements – this results in a garment with a near-perfect fit. The disadvantage is that all the pattern manipulation must be done by the home sewer. However, a great deal of creative variation is possible from such a custom-made pattern using even minor changes. Here I present a step-by-step method to construct the close-fitting basic bodice block. The term “block” is used to describe a pre-pattern template – additional manipulation is required at the end to generate a pattern (e.g. changing the bust dart, adding seam allowances, etc.). This version of the basic bodice block is used to support the development of the bra pattern posted previously, but can also be used for a variety of other garments. You may also want to look at the companion sleeve how-to. The close-fitting variation has less ease introduced than other blocks. The process involved is called “drafting”, but the term should not cause worry. Each of the steps shall be described in detail so that the beginner can follow the method without previous drafting experience. To follow the steps, you will need a ruler, preferably a transparent ruler about a meter (yard) long, perhaps a smaller ruler, a sharp pencil, and a French curve (although a dinner plate can do in a pinch!). You will also need a calculator, and a set of body measurements. A word about the body measurements needed. The construction method requires the bust measurement, the waist measurement, the shoulder length, the nape to waist length, the neck size, and the chest width. In addition, the back width is used along with the armscye depth and the bust dart width. However, these latter three measurements may be estimated from the former set of measurements. In fact, using only the bust measurement, the nape to waist length and the neck size, the remainder of the measurements can be estimated. However, the more measurement estimation goes on, the less perfect the resulting bodice block will fit. It is better to use more measurements than less, but the construction process can proceed with less measurements. Finally, the construction process described will work for standard body types, but may need additional adapting for higher bust sizes (above 45" (115 cm) and large bra cup sizes (D and above). This block construction method has been adapted from the following reference : Winifred

Aldrich, Metric Pattern Cutting for Women's Wear, 5th ed., Blackwell Publishing: Oxford, 2008, 215 pp. Please note that, as of March 5th, I've made a few relatively minor adjustments to the measurements.

Step 1



Begin with an origin point, located at the top left of your sheet of paper. Your paper sheet should be at least 2" or 5 cm wider than half the bust measurement - if it is not wide enough for the block you will be constructing, tear off two sheets and tape them together (with a small amount of overlap). Leave some space to the left of and above the origin point. Some aspects of the construction process may invade these parts of the page, so you need a little bit of working room there.

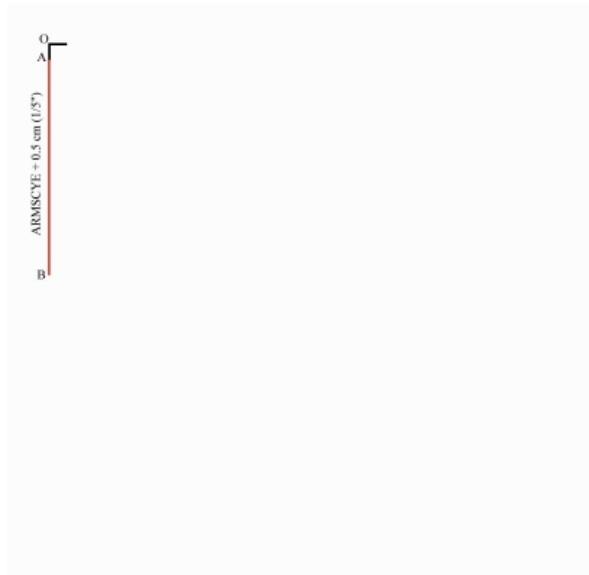
Step 2



From the origin point, measure 1.5 cm (3/5") downwards, along an edge parallel to the edge of the paper. The best thing to do at this point would be to draw a line from the origin to the bottom of the paper (or nearly),

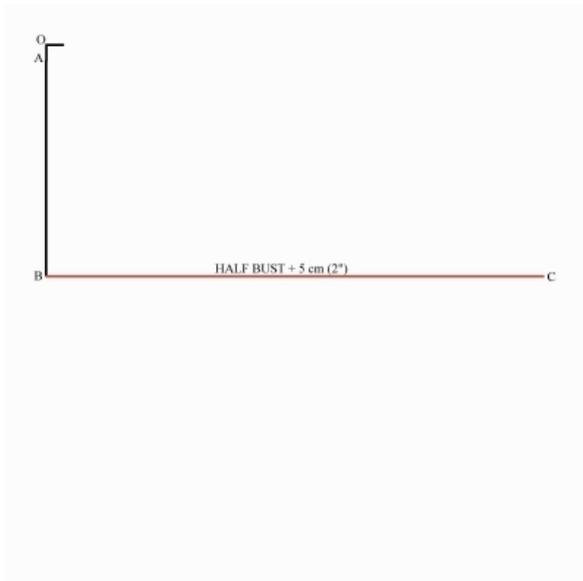
and then measure off the 1.5 cm or 3/5" distance from the origin point along this line. Mark the point A with a little dot or small orthogonal bar so that you can see it beyond the edges of the line. The line may be constructed by measuring the distance from the origin point O to the edge of the paper, at a right angle to the edge, then measuring the same distance near the bottom of the sheet, then aligning the ruler edge to the two marks and drawing the long parallel from the origin point down.

Step 3



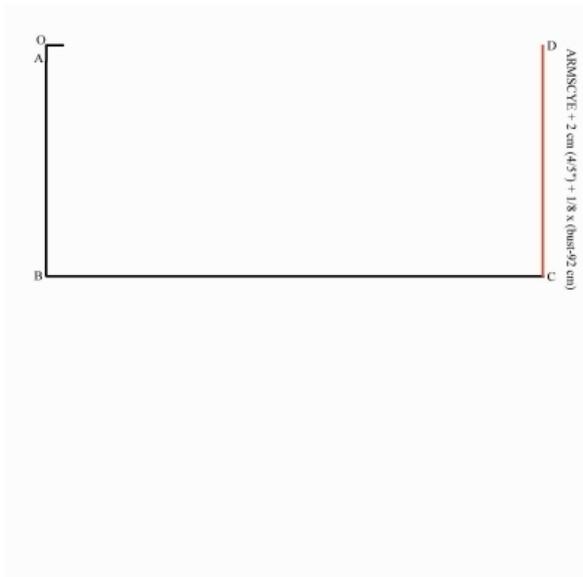
Now, from the point A, you will measure the ARMSCYE depth plus 0.5 cm (or 1/5") to point B. The ARMSCYE depth is half the circumference of the arm at the shoulder joint. However, it may be easier to estimate the ARMSCYE depth from the bust measurement, as follows :
 Metric (BUST -> ARMSCYE) : 76 cm -> 19.8 cm; 80 cm -> 20.2 cm; 84 cm -> 20.6 cm; 88 cm -> 21 cm; 92 cm -> 21.4 cm; 96 cm -> 21.8 cm; 100 cm -> 22.2 cm; 104 cm -> 22.6 cm; 108 cm -> 23 cm; 112 cm -> 23.4 cm; 116 cm -> 23.8 cm; 120 cm -> 24.2 cm; N.B. For each 4 cm above 120 cm, add 0.4 cm to ARMSCYE
 Imperial (BUST -> ARMSCYE) :30" -> 7-4/5"; 32" -> 8"; 34" -> 8-1/5"; 36" -> 8-2/5"; 40" -> 8-3/5"; 42" -> 8-4/5"; 44" -> 9"; 46" -> 9-1/5"; N.B. For each 2" above 46", add 1/5" to ARMSCYE
 Please note that these two scales are skewed - in Imperial measurements, bust is incremented by 2", while in metric measurements, bust is incremented by 4 cm, not 5 cm which would be the equivalent of 2". Hence you are better off deciding which system of measurements to use and converting within that system, than to constantly convert from metric to imperial and back or vice versa.

Step 4



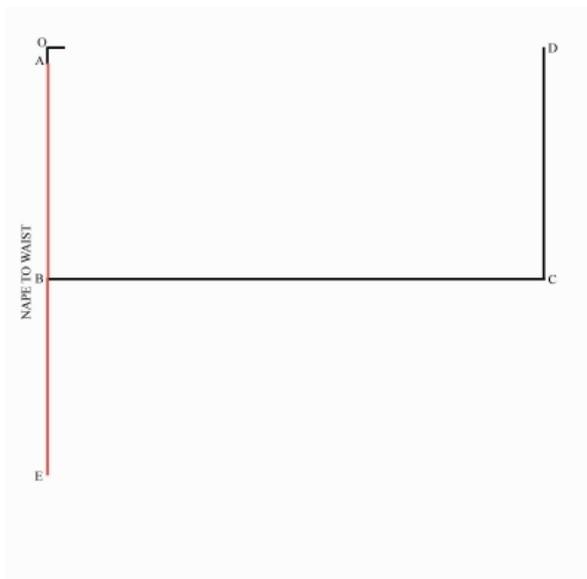
Now draw an line orthogonal to the line O-B at B, across the page nearly to the other edge, and measure off half the BUST measurement plus 5 cm (or 2"). Mark this point (C). The orthogonal line may be drawn using a square, but you may also measure the distance from the top of the sheet to the point B along the line OB, and slide this measurement along the top of the page to another point some distance from the first line, and mark a new point. Then align the ruler along the two points and draw across.
 A word about precision here - the more precise your work, the better the fit in the final garment. Some round-off errors are inevitable, but you should try to be as accurate as possible, to 0.1 cm or than about half a 0.1" increment. The distances sound tiny, but you are only working on half the garment, so the actual errors are doubled, and in some cases multiplied even more. Also, errors tend to accumulate, rather than cancel themselves out, in this kind of process. If you make an error of 0.2 cm once, then a second error, then a third, you are now carrying more than a cm of error in the final garment. These errors accumulate quickly and will slew the results substantially.

Step 5



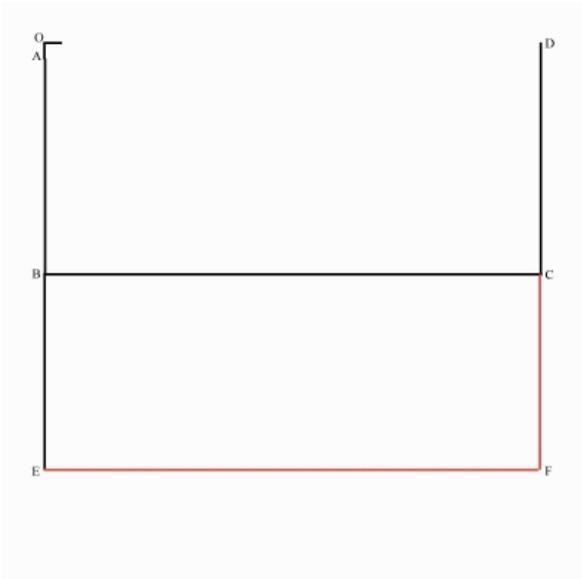
Now draw the line parallel to OB at the other side of the block, upwards for the same distance as the length of OB (this is equivalent to the ARMSCYE depth plus 2 cm or 4/5"). For bust sizes below 92 cm or 36", this will return you to the same height as the origin point. For bust sizes above 92 cm or 36", add one eighth (1/8th) of the amount above 92 cm (or 36") and raise the point D this distance above the level of the Origin point. Hence for a 100 cm bust (39"), you will raise the point D, 1 cm (or 3/8"). Draw a thin line between the origin point (O) and this point (D - note that the thin line is not shown in the diagram). Note that this results in the top edge being skewed - this is normal. If you are estimating the ARMSCYE depth here, please note the measurement - you shall need it several times.

Step 6



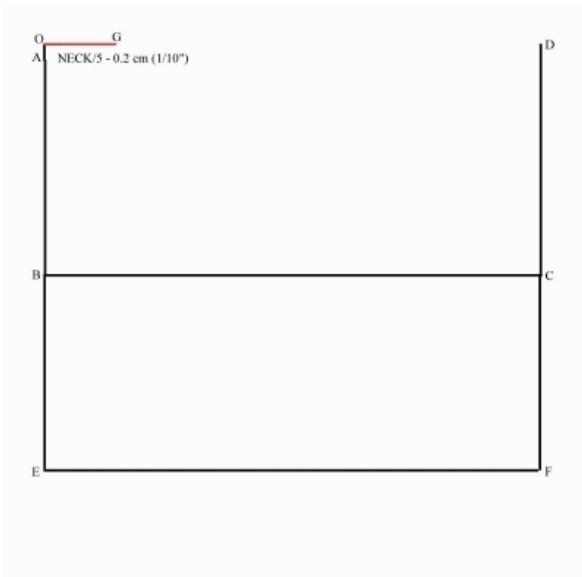
Now go back to the origin point O, and the line from O to B, and mark off a new distance from O, equivalent to the NAPE to WAIST measurement (point E). The NAPE to WAIST measurement can be estimated from the BUST by adding or subtracting 0.4 cm to 41 cm for each 4 cm of bust above or below 88 cm in the metric system, or by adding or subtracting 1/5" to 15-4/5" for each 2" of bust above or below 34". Hence for a 40" bust, you will add 3/5" and arrive at 16-2/5". For a 100 cm bust, you will add 1.2 cm to 41 cm and arrive at 42.2 cm.

Step 7



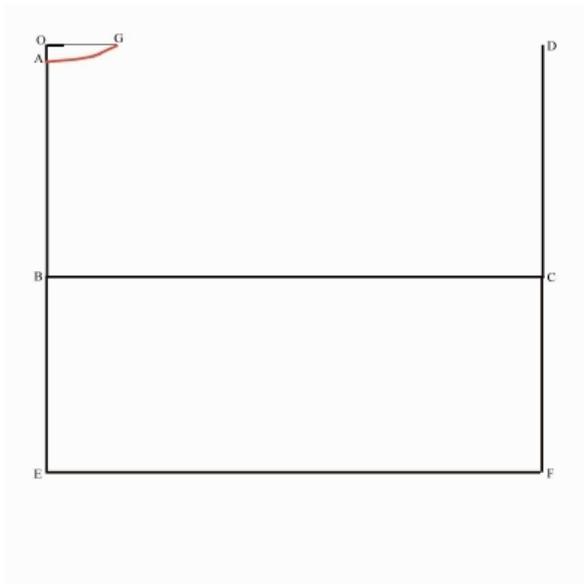
From point E, square across to and mark point F on the downward extension of the line CD. Note that the squaring may also be done by measuring the distance B to E and carrying this across to point C.

Step 8



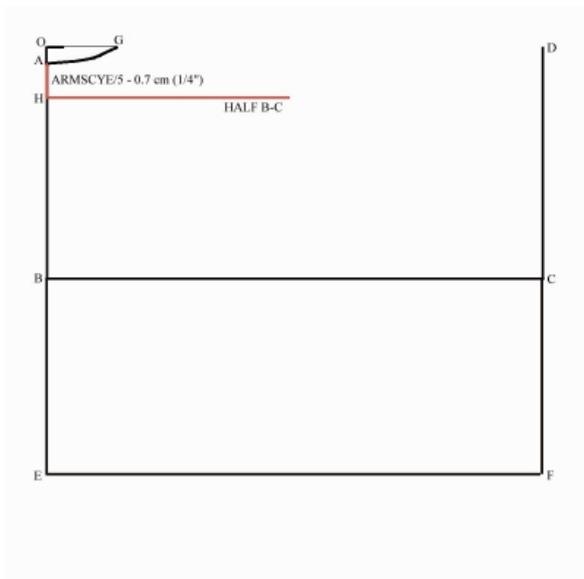
Now, go back to the origin point O again, and measure across one fifth of the NECK measurement minus 0.2 cm (or 1/10") and mark (point G). If you don't have a NECK measurement, you may estimate it from the BUST measurement by adding or subtracting 1 cm to 37 cm for every 4 cm increment above or below 88 cm in the metric system, or by adding or subtracting 1/2" to 14" for every 2" increment above or below 34" in the Imperial system. If you are estimating the NECK measurement from the BUST measurement as presented here, make a note of the result - you shall need this again. You may choose to draw a line from O to G - if you do (it is not, strictly speaking, necessary), then draw it lightly, as this is not part of the final block outline.

Step 9



Draw a shallow upward curve from point A to point G - this is the back neck line. To draw the curve, if you don't own a French Curve (an extremely useful instrument for pattern making), you may use a dinner plate, but you will need to slide the plate along - draw a small segment, then slide the plate along and draw in the next segment, until you are able to reproduce the shape of the curve shown. This may take some practice on a separate piece of paper first.

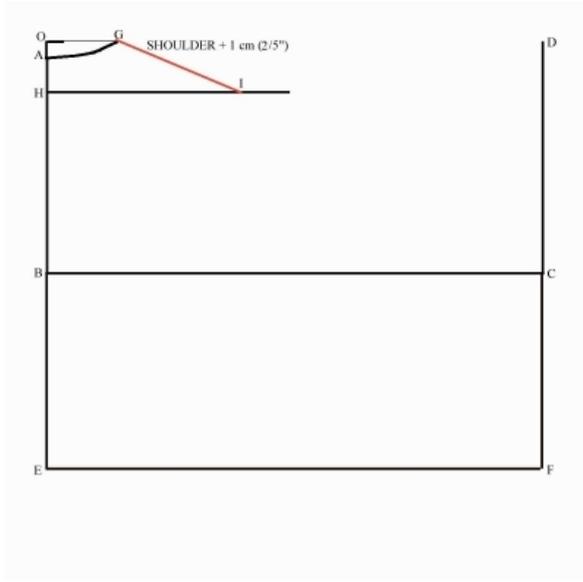
Step 10



Now move to point A (just below point O), and measure downwards one fifth of the ARMSCYE measurement minus 0.7 cm (or 1/4"), and mark (point H). Then draw a line perpendicular to the line OB about half way across. Remember if you don't have a square, measure the distance from the top of the page (or from line BC) to the point H, and slide this measurement across the page, taking care the keep the ruler parallel to the OB line. Note that this line is a construction line - it does not form part of the final outline, but

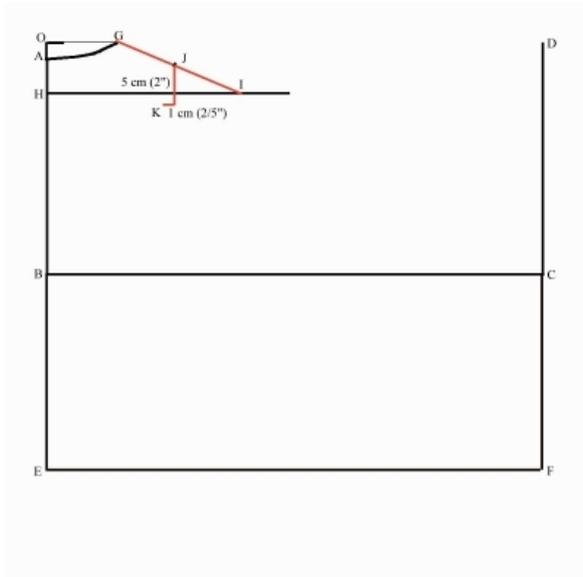
is used to help trace that outline. As such, you may want to pencil this line in somewhat lighter than finished lines that belong to the block outline.

Step 11



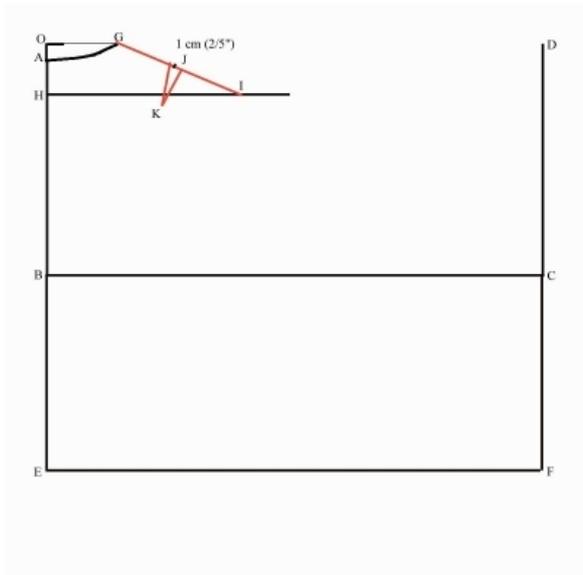
This part is slightly tricky. You will need the SHOULDER measurement. My recommendation is to measure this rather than estimate it - SHOULDER measurements vary a lot from one individual to another. If you must estimate it, then here is the rule : add or subtract 0.25 cm to 12.25 cm for 4 cm of bust increment above or below 88 cm in the metric system, or add or subtract 1/8" to 4-3/4" for each bust increment of 2" above or below 34" in the Imperial system. If you are using this method to determine the SHOULDER measurement, take a note of the result, you will need it again. Now, add 1 cm or 2/5" to the resulting SHOULDER measurement and note the value. You will need to hold this measurement in your mind during the following manipulation, and making a note of it will help. Now, slide the ruler so that the zero mark is next to point G, and pivot the ruler until the distance you have marked (SHOULDER + 1 cm or 2/5") intersects with the horizontal line that passes through H. Draw in the line and mark the intersection point (point I).

Step 12



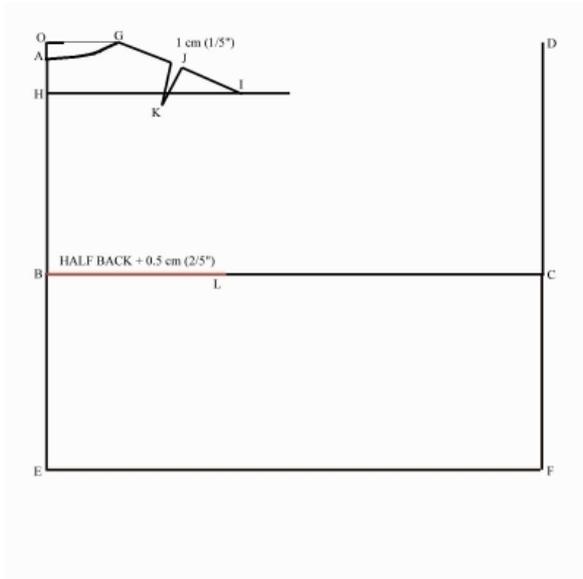
Next, find and mark the point half way from G to I along the shoulder (point J). From point J, measure 5 cm (or 2") down, and 1 cm (or 2/5") to the left. Mark this point (point K). This is the end of the shoulder dart.

Step 13



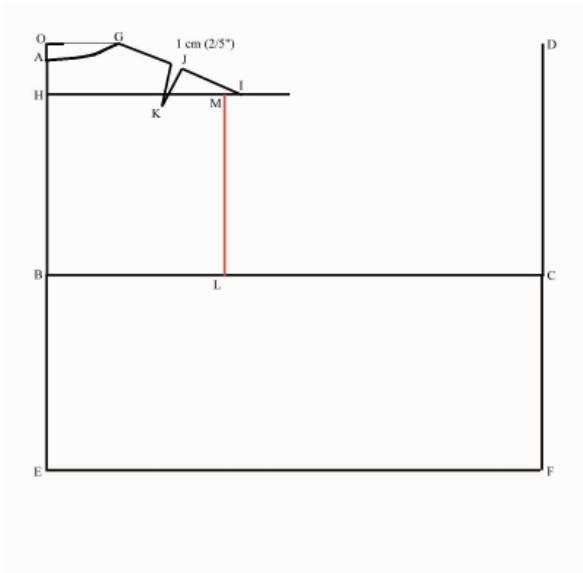
From K, draw two diagonal lines up to the shoulder line GI, ensuring that the distance between their intersection points with the shoulder line is 1 cm (or 2/5"). The two dart lines should be of equal length - this may require that the two halves of the shoulder line be slightly shifted.

Step 14 — Construction of left armhole - 1



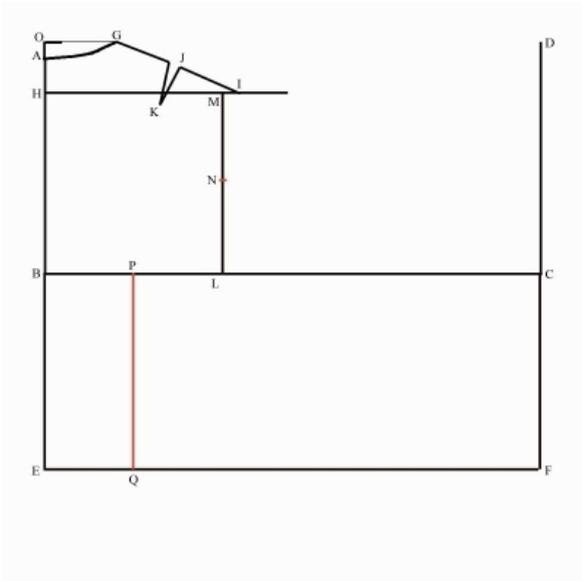
Now move your attention to the point B on the leftmost vertical line. Measure across half the BACK measurement plus 0.5 cm (1/5") and mark the point (point L). Note that the BACK measurement is NOT half the BUST measurement. If you think about it, the BUST is bigger in the front than the back! The BACK measurement is therefore significantly smaller than half the BUST measurement. It should be measured separately. However, I usually estimate it using the formula based on the BUST measurement, as follows : add or subtract 1 cm to 34.4 cm for each bust increment of 4 cm above or below 88 cm if you are using the metric system of measurements, or add or subtract 1/2" to 13-1/3" for each bust increment of 2" above or below 34".

Step 15



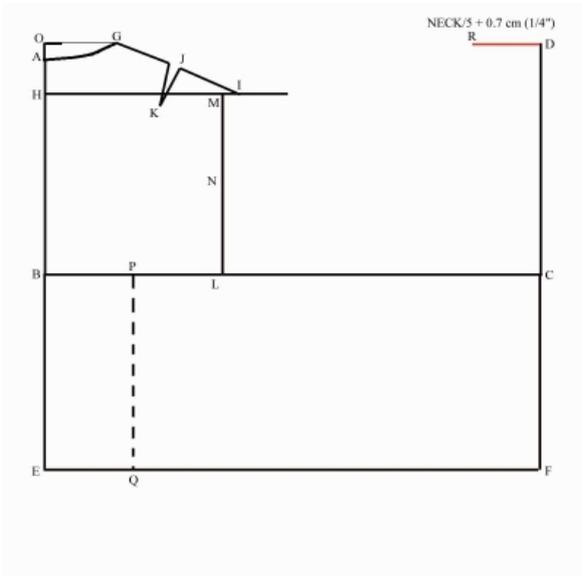
Square up from L to the line HI and mark the intersection (point M). Since this is another construction line, you may want to pencil this in with a thin or light line. Alternatively, measure the half BACK plus 0.5 cm (or 1/5") from point B towards point I, mark the point (point M), and draw the line from L to M.

Step 16 — Construction of the left armhole - 3



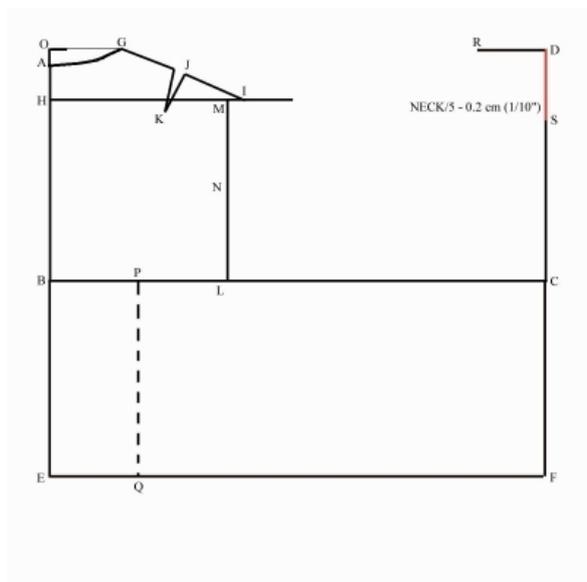
Find the point half way between L and M and mark it (point N). Also, find the point half way between B and L and mark this too (point P). Measure the distance from B to P and mark the same distance along the horizontal line from E (point Q). Draw a dashed line from P to Q.

Step 17



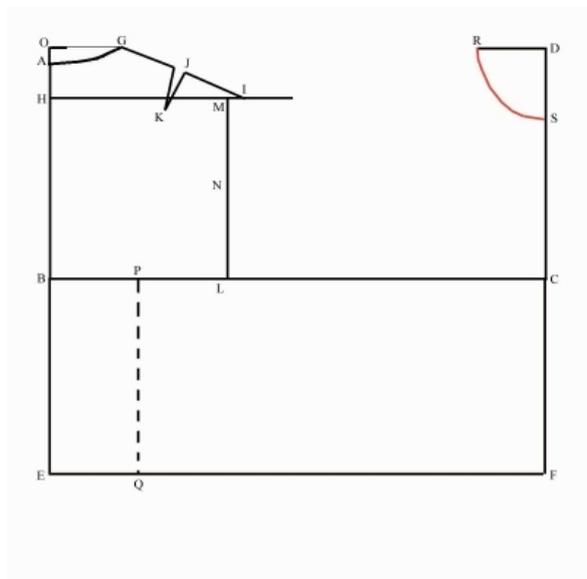
We now move from the construction of the back of the bodice block to the front of the bodice block. Starting from the point D, measure one fifth of the NECK measurement plus 0.7 cm (or 1/4") along the line connecting point D to point O and mark the resulting point (point R).

Step 18



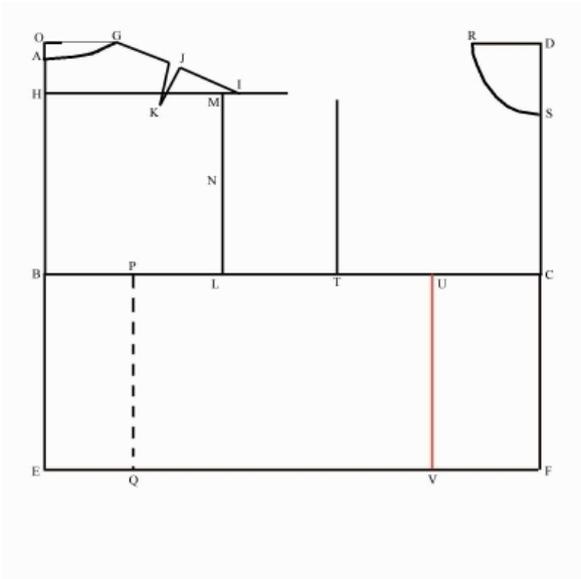
Now measure down from point D, one fifth of the NECK measurement minus 0.2 cm (1/10'') and mark the point (point S).

Step 19



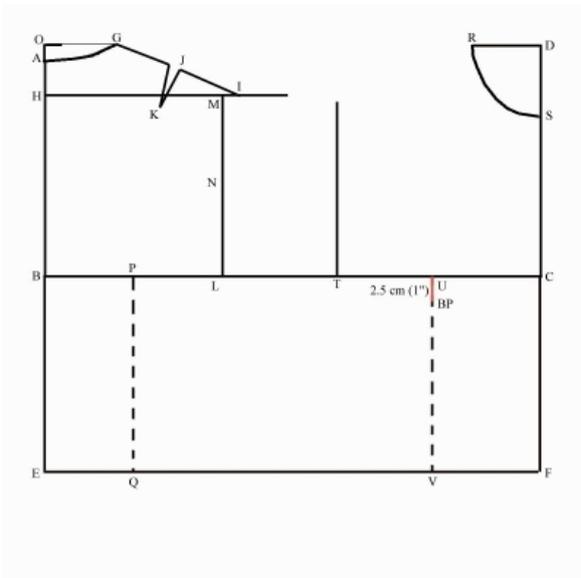
Draw a deep curved line from point R to point S, again, either using a French Curve or a sliding dinner plate. This is the neck edge on the front of the bodice.

Step 20



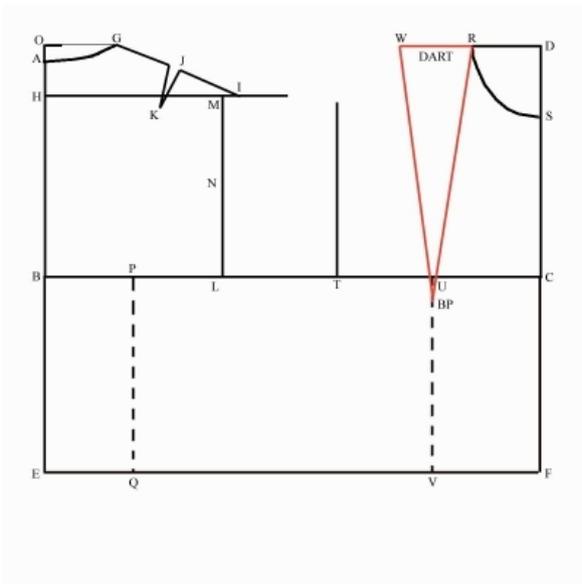
Find the halfway point (point U) between C and T and mark it (alternatively, the distance between C and U is half the bust separation - if this is very different than the norm, it will be important to include the appropriate measurement here). Then draw a dashed vertical line downwards to intersect line EF, and mark the intersection point (point V). This is the mid front line.

Step 22



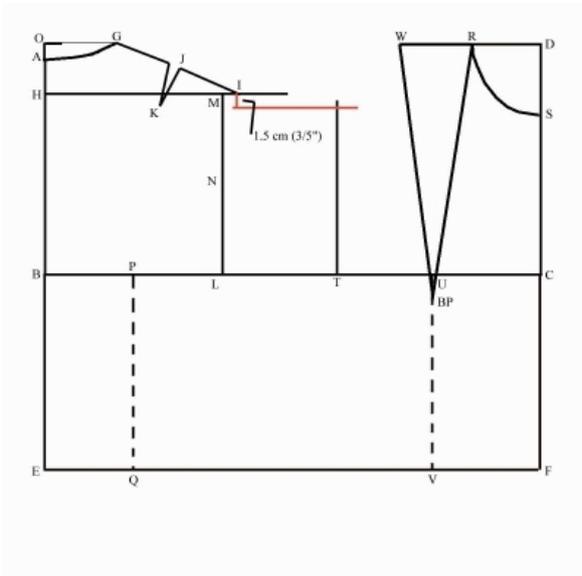
Mark the bust point (BP) at a distance of 2.5 cm (1") below point U. For some pattern manipulations, you will need to draw a horizontal line through the bust point from one side of the block to the other (the BUST LINE).

Step 23



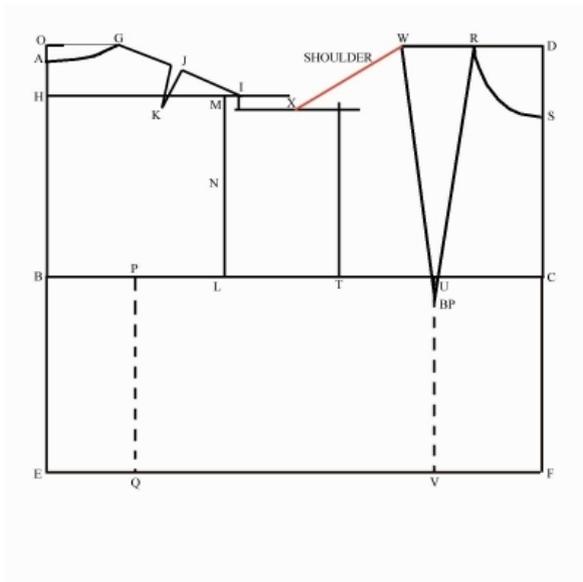
Measure the DART width, as determined in Step 20, from point R along the line connecting points D and O (this line may be oblique for some) and mark the point (point W). Now draw a line from point R down to the bust point (BP), and from the bust point (BP) up to point W. These form the sides of the bust dart.

Step 24



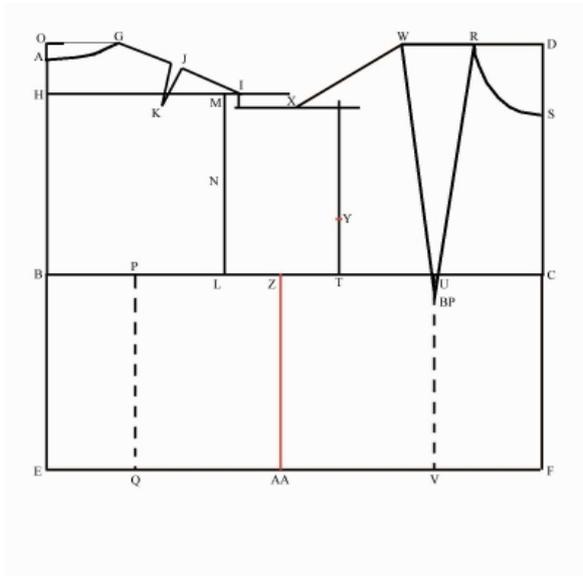
Shift your attention to the construction line passing through points H, M and I. Measure 1.5 cm (3/5") down and draw in lightly a new horizontal construction line across the middle part of the block.

Step 25



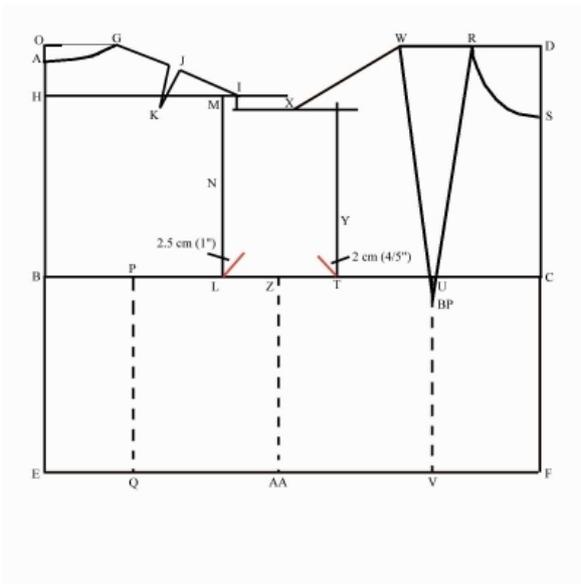
Now we repeat the pivoting measurement we did in Step 11 for the back shoulder. Using the SHOULDER measurement, fix the ruler zero at the point W and pivot the ruler until it crosses the construction line drawn in the previous step at the distance of the SHOULDER measurement, and mark this intersection (point X).

Step 26



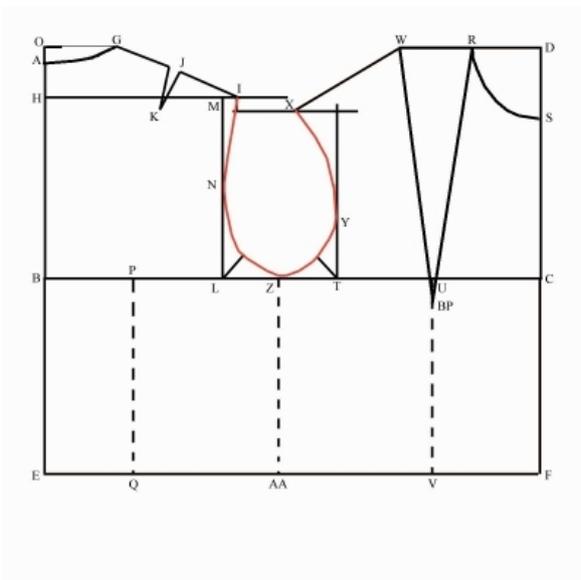
Measure upwards from point T, one third the ARMSCYE depth measurement and mark this location (point Y). Find the halfway point (point Z) between points L and T and mark this point. Draw a dashed vertical line down from this point until it intersects the waist line (line E to F), and mark the intersection (point AA).

Step 27



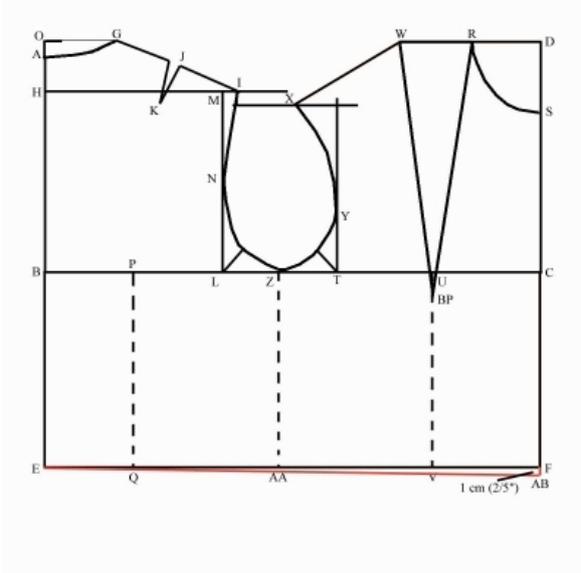
Draw in a small diagonal, inward pointing line from both points L and T. For bust sizes of 82 cm (32") or less, the length of the L segment will be 2.25 cm (or 7/8") while the T segment will be 1.75 cm (or 3/4"). For bust sizes between 82 cm (32") and 94 cm (37"), the length of the L segment will be 2.5 cm (1") while the T segment will be 2 cm (3/4"). From bust sizes of 94 cm (37") to 107 cm (42"), the length of the L segment should be 3 cm (1-1/4") while the T segment should be 2.5 cm (1"). Above bust sizes of 107 cm (42"), the L segment should be 3.5 cm (1-3/8") and the T segment 3 cm (1-1/4").

Step 28



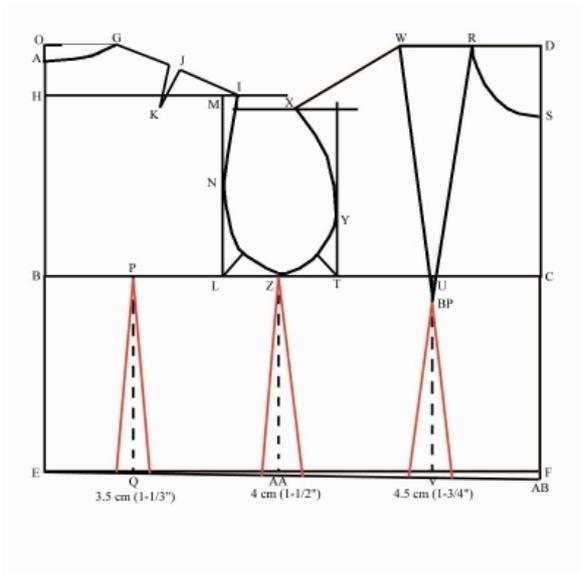
Using a French Curve or sliding dinner plate, draw in the ARMSCYE curve so that it passes smoothly through the construction points I-N-Lsegment-Z-Tsegment-Y-X. This completes the basic bodice block up to the construction of the waist line. If the garment is to be finished at the waist, then one should proceed to the final two steps in which the waist darts are constructed.

Step 29



Extend the line from D to F downwards by from 0.5 to 1.5 cm, depending on the bust measurement (i.e. 1.5 cm for large bust sizes, 0.5 for small bust sizes and 1.0 for intermediate bust measurements) and mark the point (point AB). Draw a line from the point AB to the point E. This will be an oblique line. This extension ensures that the waist remains horizontal and doesn't ride up due to the bust.

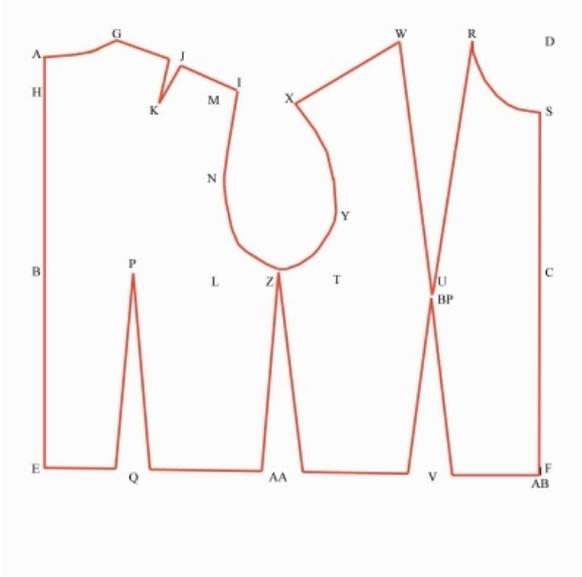
Step 30



Draw in darts around each of the three dashed lines that extend from the lower boundary of the block (line E to AB) to the line B to C. The width of these lines are determined as follows. The standard is to introduce 18 cm (7") of waist shaping, unless this would reduce the waist below the WAIST measurement plus 6 cm (2-3/8") of ease. In the latter case, the waist darts should be scaled appropriately. When the full 18 cm (7") is used, the three darts should be 2.5 cm (1") wide for the back dart, 3 cm (1-1/8") wide in the middle dart and

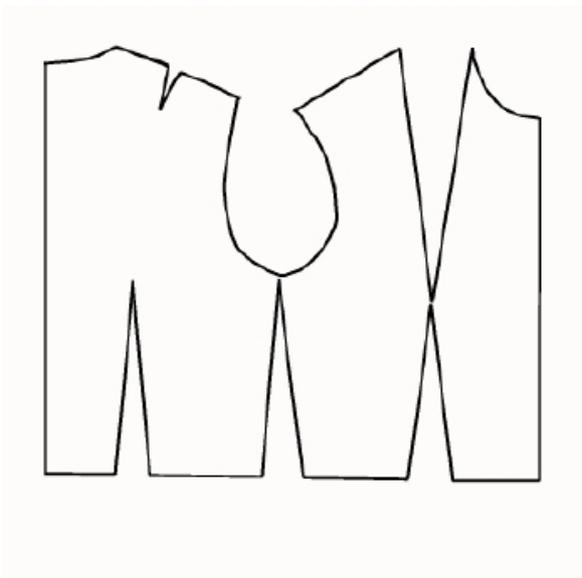
3.5 cm (1-3/8") wide for the front dart - however, the middle dart should be subdivided into 1 cm (3/8") for the backward section and 2 cm (3/4") for the forward section. The bodice block developed so far contains 9 cm (3-1/2") of ease around the bust. The amount to be removed through waist darts is therefore the BUST measurement plus 3 cm (1-1/8") minus the WAIST measurement (the 3 cm (1-1/8") addition is the result of 9 cm (3-1/2") of bust ease minus 6 cm (2-3/8") of waist ease). When this measurement is less than 18 cm (7"), the waist darts should be scaled downwards as appropriate.

Step 31



Redraw the bodice block outline and cut along these lines to get the final close-fitting basic bodice block.

Step 32



Note that the process sounds complicated to describe, but it much easier to do than to explain. Also, if this is for your own bodice block, you may need to do this just once - if you draft onto a piece of cardboard, the resulting block can be re-used as a template time and again for any other manipulations. On the other hand, if you are making clothes for a range of people, experience will quickly render the process relatively painless and quick. It takes about 30 minutes to construct the block when you are used to the process. I have posted a "how to" of the process of adapting the block to develop a bra pattern. As I have time, I should be able to post additional manipulations for other patterns later. Enjoy!

BurdaStyle

Constructing the Basic Bodice Block