



# pattern alteration





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# Pattern Alteration

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Garments made at home can have that custom made look if the garment fits well and is properly constructed. In fact, the true test of any garment, whether it is ready-made or home-made, is the way it looks and feels on you, and nothing affects a garment's appearance and comfort more than the way it fits. Many times the dissatisfaction we experience with a garment can be traced to a fault in fitting rather than in construction. Yet, for many home sewers fitting is often the most difficult part of home sewing. Therefore, it is important that we understand:

1. The basic principles of fitting
2. How to select a commercial pattern that will require minimum alterations
3. How to recognize needed alterations
4. How to make necessary alterations

## Basic Principles of Fitting

Fashion silhouettes change with the seasons, but regardless of the style certain basic fitting principles will apply.

To understand the basic principles of fitting it is necessary to know the qualities of a well-fitted garment. These are:

- **Garment is well balanced** on the figure
- **Center front and center back** of the garment are straight vertical lines at the center front and center back of the figure. Line is perpendicular to the floor.
- **Shoulder seams** are of proper slant and length so that no strain lines or wrinkles appear at bustlines, armscyes, or neckline.
- **Darts** point toward, but do not extend beyond, curved areas of the figure. No strain or wrinkle lines should radiate from the curved area.
- **Waistline** of garment is located at the waistline of the figure or in accordance with the design of the garment.

- **Vertical seams** hang in a straight line perpendicular to the floor.
- **Hem line** is parallel with the floor, except where garment design dictates otherwise.
- **Grain lines** of the garment are in correct position on the figure—vertical grain lines are perpendicular to the floor, and horizontal grain lines are parallel to the floor.
- **Ease allowance** is adequate for comfort, adjusts to the activities of the wearer, and is consistent with current fashions.

## Selecting A Commercial Pattern

All the major pattern companies have standardized their pattern sizes. These sizes are based upon actual body measurements. Examples of these sizes are shown in the measurement chart, Page 7. A similar measurement chart can be found in the back of every pattern book, and on the back of each pattern envelope. Although all pattern companies base their patterns on actual body measurements, they may differ in the amount of ease they believe is necessary for movement and comfort. Fashions also affect the placement of basic lines and the ease requirements. But, because of standardization, a commercial pattern of one company will be very nearly uniform with patterns of the other leading pattern companies. Any alteration made on one company's pattern would apply to another company's pattern as long as the pattern is in the same size and figure type.

Most patterns allow the following amounts for ease:

Ease through bust	4" — (½" tuck on each quarter of blouse).
Ease through front chest	½" to ¾"
Ease through back	¾" to 1"
Ease in blouse length	½" to ¾"
Ease through hips for a plain skirt.	2" — (½" tuck on each side seam) Some fullness can be fitted out later. Personal taste and compactness of figure enters into the amount of ease desired.
Ease in depth of sleeve cap	½" to ¾"
Ease in sleeve width at bottom or armhole	¾"
Ease at elbow of fitted sleeve	1"

## Measurement Chart For All Pattern Companies\*

DRESS SIZES												
<b>Misses' sizes:</b>							<b>Women's sizes:</b>					
Buy size	10	12	14	16	18	20	40	42	44	46	48	50
If bust is	31	32	34	36	38	40	42	44	46	48	50	52
Waist	24	25	26	28	30	32	34	36	38½	41	43½	46
Hip	33	34	36	38	40	42	44	46	48	50	52	54
Back waist length	15¾	16	16¼	16½	16¾	17	17⅞	17¼	17⅞	17½	17⅝	17¾
<b>Half sizes:</b>							<b>Junior misses' sizes:</b>					
Buy size	12½	14½	16½	18½	20½	22½	24½	9	11	13	15	17
If bust is	33	35	37	39	41	43	45	30½	31½	33	35	37
Waist	27	29	31	33	35	37½	40	23½	24½	25½	27	28½
Hip	37	39	41	43	45	47	49	32½	33½	35	37	39
Back waist length	15¼	15½	15¾	16	16¼	16½	16¾	15	15¼	15½	15¾	16
<b>Teen sizes:</b>												
Buy size	8	10	12	14	16							
If bust is	29	30	32	34	36							
Waist	23	24	25	26	28							
Hip	31	32	34	36	38							
Back waist length	14½	14¾	15	15¼	15½							

## Measurement Chart For All Pattern Companies (Continued)

### SKIRTS, SLACKS, and SHORTS

**Teen sizes:**

Waist	23	24	25	26	28
Hip	31	32	34	36	38

**Junior misses' sizes:**

23½	24½	25½	27	28½
32½	33½	35	37	39

**Misses and women's sizes:**

Waist	24	25	26	28	30	32	34	36	38½	41
Hip	33	34	36	38	40	42	44	46	48	50

### CHILDREN'S SIZES

**Sub-teen sizes:**

Buy size	8 s	10 s	12 s	14 s
If bust is	28	29	31	33
Waist	23	24	25	26
Hip	31	32	34	36
Back waist length	13½	13¾	14	14½

**Chubby sizes:**

8½ CH	10½ CH	12½ CH	14½ CH
29	31	33	35
27½	28½	29½	30½
32	34	36	38
12	12¾	13½	14¼

**Children's sizes:**

Buy size	½	1	2	3	4	5	6
If chest is	19	20	21	22	23	23½	24
Waist	19	19½	20	20½	21	21½	22
Hip						25	26
Back waist length							10½

**Girls' sizes:**

7	8	10	12	14
25	26	28	30	32
22½	23	24	25	26
27	28	30	32½	35
11	11½	12¼	13	13¾

\*Courtesy of Butterick Printed Patterns



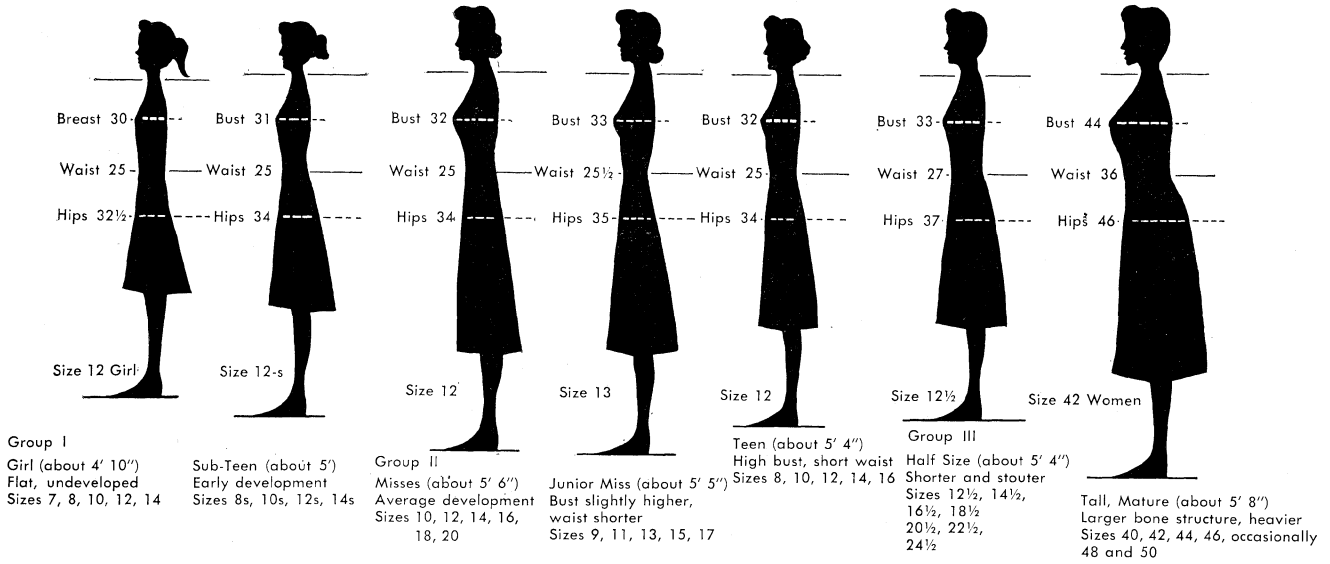


Figure 1. Figure Types. Notice the body characteristics and measurements. Group I—The flat undeveloped figure, Group II—The youthful figure with fully developed bust, and Group III—The mature figure.

## Figure Types

Patterns are sized to fit various portioned figure types as shown in Figure 1, Page 9. If you will select a pattern with a figure type most nearly resembling your own, you will be able to keep pattern alterations to a minimum.

Notice the variation in a size 12 shown in Figure 1. "Girl" patterns usually do not require an underarm dart. "Sub Teen" patterns are styled for the junior high crowd. They are youthful designs with a grown up flare. "Junior Miss" is a size not an age. These garments can be youthful or sophisticated. The "Teen" group also indicates a size not an age. Clothes in this figure type group are usually youthful in design. The more mature figure with narrow shoulders, full bust, and short waist will find dresses from the "Half Size" group more becoming. Dresses in the "Womens" figure type are designed for comfort and to give an illusion of slenderness.

Pattern size is determined from four basic measurements. These are: bust, hip, waist, and back waist length. These measurements are indicated by heavy lines on the sketch in Figure 2.

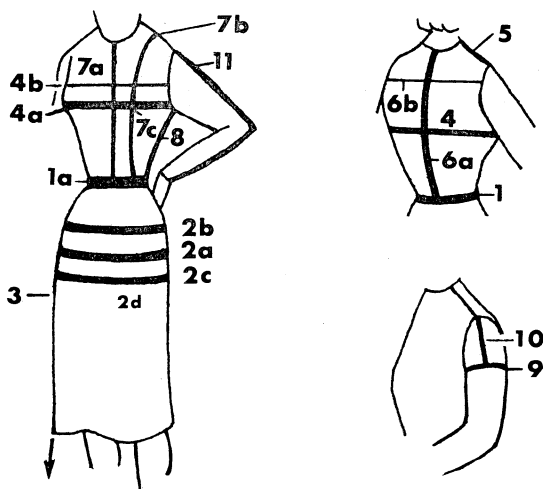


Figure 2—Measurement positions on the figure.

In purchasing your pattern, buy skirts, shorts, and slacks by hip measure; coats, suits, dresses, slips, and night-wear patterns by bust measure. Buy the same size coat or suit pattern as dress pattern, because an allowance has been made for whatever ease is required.

High and low bust measures are often taken to get a better-fitting pattern, especially for a stout figure or one with a prominent bust.

If there are only two or three inches difference in the high and low bust, buy the in-between measure. For example, if the high bust is 36" and the low bust 40", purchase a size 38 pattern.

A person with more than four inches difference between the high bust and full bust measurements should purchase a pattern by the high or in-between bust measure, as this greater difference is due to an unusually large bust. The pattern will have to be altered for the full bust.

If correct size is not available, never buy a pattern with a difference of more than one size between the size needed and the bust measure. Take all measurements over smoothly fitted undergarments. Wear the same foundation garment and brassiere that you plan to wear under the finished garment. Adjust shoulder straps so bustline is in normal position.

Stand with figure relaxed with weight evenly distributed on both feet. Height of shoe heel should be the same as the ones you plan to wear with the garment.

Study the following suggestions for measurements and compare them with sketch in Figure 2. Record your measurements in the first column of the chart on Page 13. Before taking measurements, tie a cord or pin a tapeline around the waist. Leave this on until all measurements have been taken. Measurements should be snug, but not tight.

**Remember: It may be okay to lie about your age, but not about your measurements—Be honest and accurate.**

1. Waist—Total.

Measure around smallest part of the waist, keeping the tapeline parallel to the floor. Allow enough ease for comfort in wearing the finished garment. Then measure and record:

- a. Side seam to side seam across the front. (Front measurement is usually 1" larger than the back measurement.)
- b. Side seam to side seam across the back.

2. Hip and Thigh.

- a. Measure down 7" from waistline at center front, center back, and each side, and place pins. Pass tapeline around hips at these points. Record.

- b. Repeat this procedure, measuring down 3" from waistline.
  - c. Thigh. Slip tapeline down to largest measure of the thigh, keeping tapeline parallel to the floor. Record thigh measurement.
  - d. Record distance from waistline to thigh (measurement 2 c.)
3. Skirt length. Measure from waistline to the floor at (a) center front, (b) right side, (c) center back, and (d) left side. Subtract number of inches the skirt is worn from the floor, then add enough for a hem. Record.
4. Bust.
- a. Full bust—Measure over fullest part of the bust and record.
  - b. High bust—Place the tape measure directly under the arms and across the chest. Lift tape about an inch in center back so it passes over shoulder blades and does not slip down. It should be snug, but loose enough to allow two fingers to pass under tape.
5. Shoulder length. Measure from base of the neck to shoulder joint and record. The shoulder joint can be quickly located by raising arm until crease appears in the flesh above the joint.
6. Back—Waist.
- a. Waist back length. Measure from base of the neck at center back to waistline.
  - b. Back shoulder width. Measure 4" down from base of neck, then measure the distance from armhole to armhole.
7. Front—Waist.
- a. Center front length. Measure from base of neck to waistline.
  - b. Waist front length. Measure from a high point on shoulder, 2" from the neck, over tip of the bust to waistline.
  - c. Length from shoulder to tip of bust. Measure from shoulder line (2" from neckline) to tip of bust. This measurement is needed when darts and a princess line are used.
8. Underarm. Place ruler with tape at 10" mark under arm and measure to waistline. Deduct 10" from resulting measurement.

## INDIVIDUAL AND PATTERN MEASUREMENTS RECORD

	Body	Ease	Total (1&2)	Pattern	Alteration
1. Waistline—total		1"			
a. Front		½"			
b. Back		½"			
2. Hip and thigh					
a. Hip—7" below waistline		2"			
b. Upper hip—3" below waistline		2"			
c. Thigh—over largest part of hips		2"			
d. Waistline to thigh (location of 2.c)					
3. Skirt length—waistline to floor		Hem Allowance 3"-4"			
a. Center front					
b. Right side		3"-4"			
c. Center back		3"-4"			
d. Left side		3"-4"			
4. Bust		Ease 4"			
a. Regular, over fullest part					
b. High bust					
5. Shoulder length—base of neck to tip of shoulder bone					
6. Back—Waist					
a. Center back length		½-¾"			
b. Back width—4" below base of neck		½"			
7. Front—waist					
a. Center front length		½-¾"			
b. Over bust—midpoint on shoulder to waistline		½-¾"			
c. Length from shoulder to tip of bust		½-¾"			
8. Underarm					
9. Arm, upper just below armseye at fullest part with arm bent		3"-4"			
10. Depth of Sleeve Cap					
11. Arm length					
a. Arm bent—shoulder to wrist over elbow—total					
b. Shoulder to elbow					
c. Elbow to wrist					
12. Wrist		½-1"			

9. Upper arm. With the arm bent, measure around fullest part of the arm above the elbow. Record.

10. Depth of Cap of Sleeve. Pin a tape around the upper arm so that it is pushed up as high as possible without being uncomfortable and is parallel to the floor. Measure from the end of shoulder bone to the bottom of the tape measure.

11. Measure and record arm lengths:

a. Length of arm, shoulder to wrists. With the arm bent, measure from top of the arm (shoulder joint) over elbow to the wrist bone.

b. Shoulder to elbow.

c. Elbow to wrist.

12. Measure and record wrist circumference.

## Recognizing Needed Alterations

After purchasing the correct size and pattern type, check pattern for needed alterations. By accurately adjusting the paper pattern to your figure many fitting problems can be eliminated or greatly simplified, and many of these faults cannot be corrected after the garment is cut. Knowledge that a pattern has been correctly altered speeds construction. Many seams and smaller pieces can be permanently stitched before putting them together for the first fitting.

Remember that pattern alteration and fitting are two different techniques. Each pattern piece can be altered within itself. The alterations made are approximate. Garment alteration or fitting must be done through darts and seams. These alterations can be more specific.

There are several methods for checking the fit of a pattern. Two are discussed here. One is by **measuring the pattern** and the second is by **trying on the paper pattern**. In either case, press pattern with a warm dry iron to remove all wrinkles.

### Measuring the Paper Pattern

Record measurements in Column 4, Page 13.

1. Measure pattern at the same place as measurements were taken on the figure.

2. Measure between seam markings.

3. Do not include darts or tucks in the measurements.

4. Actual figure measurements **plus ease** should be very near the pattern measurements. Loosely built people need ease more than compact figures.

Remember that for most pattern pieces you are measuring just half the pattern. For example, twice the measurement of a blouse front plus the ease requirement should correspond to your own bust front measurement.

Allowance for ease depends upon the material and style of the garment. Thin sheer fabrics need more ease than heavy tailored ones; soft dressy styles more than straight slim styles. Allowance also varies with personal taste. Some people like more ease for comfort than others.

## **Fitting the Paper Pattern**

1. Pin together all parts of one section (back or front of blouse or skirt) before joining sections. Then pin sections together (fronts to backs) and finally pin blouse and skirt together.

2. Fold in darts and pleats and pin at right angles to creased edges. Crease shoulder and waistline darts on line nearer the center front or back and lap this line over the outer line. On horizontal bust darts, fold on lower line and bring to upper dart line. Check pattern symbols to determine direction pleats should fold.

3. Pin exactly on and parallel to the seam with pins pointing downward. Pin from right side of pattern to permit repinning of pattern during fitting.

4. Overlap seam allowances within the silhouette, matching the seamlines. Pin silhouette lines, such as shoulder and underarm seamlines on seamline with seam allowance outward.

5. Fold blouse and skirt on the center front and center back lines so that extra facings, pleats or margins will not be involved during the fitting.

6. Crease along the skirt hemline and pin up hem allowance.

7. On a long fitted sleeve, pin in elbow dart, crease the hemline and pin up with edges together. Do not pin sleeve in dress unless it is part of the bodice, such as raglan, dolman, or epaulet sleeve.

8. Fit over a slip and the type of foundation garment you will wear with the dress.

9. Slip into pattern carefully. Leave top two inches underarm seam unpinned to avoid tearing. Do not bring arm too close to side when fitting.

10. Anchor pattern by pinning to undergarments at center back and center front.

**Note:** Ribbon or tape bands are helpful for anchor points. Use ½" bands for neck and waistline and 1" bands for bust and hipline.

If pattern does not reach the center back, do not assume that letting out underarm seam will solve the problem. This would distort armhole. Alterations must come between center line and the underarm seam.

11. After checking dress pattern sections for fit, slip sleeve on and pin to top of shoulder at the shoulder seam. Hold sleeve under the arm then bend arm. Check sleeve length and position of elbow darts.

## Check Points for Paper Pattern Fitting

1. Observe placement of basic lines—the overall effect, including ease; spacing, and the hang of the front, back and sides. Check width of lapels, button, and pocket location—these types of alterations are as important as are alterations in size.

2. **Neckline:** A “basic neckline” is placed at base of throat, crossing at center back on vertebra most important when head is lowered. It should be as high at the center back as the shoulder seam.

3. **Shoulder seam:** Forms a straight line between neck and armhole. Centered on top of shoulder it should be inconspicuous from front or back when viewed at eye level. Round shouldered people may find the line to be more flattering if it is placed slightly back at the armscye. A person with a low bustline may want to place it slightly forward to reduce the apparent length from bustline to shoulder.

4. **Armhole line (armscye):** Usually placed as far out on the shoulder seam as possible without drooping down on the arm. This is an important silhouette line, and fashion dictates the width.

5. **Underarm seam:** Should be centered so it is inconspicuous from front or back and should not exaggerate front or back width when viewed from the side. The skirt side seam should hang perpendicular to floor from hip to hemline and be perpendicular to the waistline from hip to waist.



6. **Underarm seam of sleeve:** The seam should match the underarm seam of the blouse at armhole; and if continued beyond wrist it would go down the center of the palm.

7. **Waistline:** The normal waistline usually comes where the circumference of the body is the smallest. It should appear level from the side. Waistlines change with the whim of fashion. Find your most becoming line that is consistent with the prevailing style.

Remember—waistlines will appear higher as the body moves. To avoid too high a line, allow a little blousing in the bodice.

8. **Blouse:** The front should provide ease directly over the bust and at side in front of the arm. Armhole should fit smoothly from shoulder to underarm. The back should provide ease directly over shoulder blades and just behind the arm.

The armhole line should fit smoothly from shoulder seam to the underarm with no excess to bulge. A vertical fold (blade) in line with the armhole gives ease for the back.

9. **Ease around bust:** The minimum should be 3". Note position of darts. Mark with pins the point of the bust.

In checking the fit, remember the paper pattern fitting cannot be accurate because of the difference in texture between paper and cloth. In general, cloth will appear larger and looser than does paper.

For accurate fitting a trial garment made of muslin exactly like the original pattern is helpful. Fit the trial garment, make any necessary alterations, then transfer these alterations to the paper pattern. This is a good practice to follow when the fabric to be cut is expensive as in the case of tailored garments of wool. If a great many changes are necessary in your patterns, a well fitted basic pattern can be a guide for future alterations.

For a basic pattern, select a simple shirtwaist style with a plain skirt. Make it up in muslin or other inexpensive cloth. Alter the muslin until it looks and feels just right on you. Slash or take tucks where needed. Rub each seam, dart, tuck or pleat with colored tailor's chalk. Rip dress apart, press, and make the same changes in your paper pattern. A more durable pattern can be cut out of brown wrapping paper using as a guide either the altered muslin or the altered paper pattern.

The altered basic pattern can be used to check lines and proportions of other patterns. You can compare shoulder length, bust fullness, waist length, width across back and chest, depth of armhole, length of sleeve

cap as well as skirt length and flare. Keep your basic pattern up to date by making a new one occasionally so that you will have shoulder, armhole and waistline seams that are in fashion. If you sew a great deal, you might want to make a new one each year.

## Making the Basic Alterations

Patterns are drawn to scale by skilled draftsmen. Each piece is designed to match another piece with accurate precision. In altering a pattern it is necessary to keep this fact in mind so that the original accuracy is maintained.

There are five general principles of pattern alteration that apply to all alterations.

1. Preserve the pattern **outline**. When possible, retain the original shape of the pattern at armholes, necklines, and waistlines.
2. Preserve the original **grainline**. Make slashes or folds either parallel or perpendicular to the grainline whenever possible.
3. Avoid changes that disturb any structural or design details. Make the changes between dart and outside edge wherever possible.
4. Preserve **proportional length** when altering adjoining edges. Any change made on a section that joins another must be made on both sections. For example, a blouse front cannot be shortened without consideration for the blouse back that joins it at the underarm seam.
5. Keep the identical **ease allowance** provided in the pattern for proper fit and graceful movement.

Patterns can be altered either by "cutting and spreading," "cutting and lapping," or "pleating". Figure 3, Page 19.

**Cutting and Spreading** provides extra length or extra width. To cut and spread:

- a. Extend lengthwise grainline full length of the pattern.
- b. Draw a line across the pattern where it is to be enlarged. If lengthening, make line perpendicular to lengthwise grainline. If widening make line parallel to lengthwise grainline.
- c. Matching notches can be made along this line if pattern is to be put back together accurately.

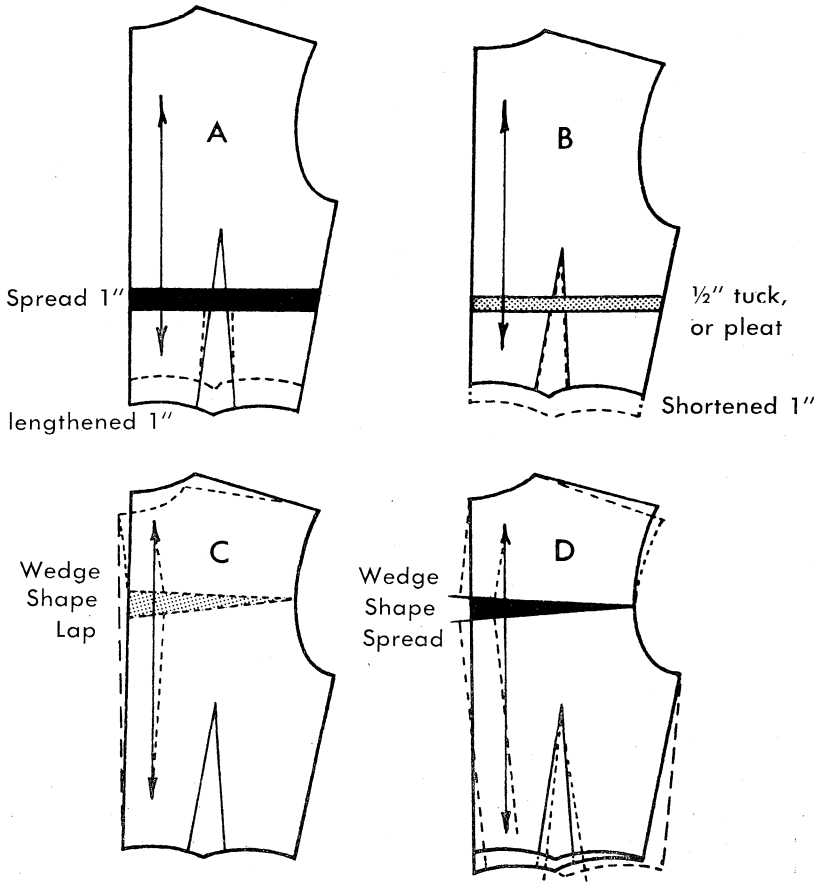


Figure 3—Patterns can be altered by “cutting and spreading,” “cutting and lapping” or “pleating.”

- d. When whole section is to be enlarged (example, lengthening pattern), draw two parallel lines across a piece of heavy paper, the space between the lines equal to the amount to be enlarged. Cut pattern apart and pin or scotch-tape along the lines marked on the heavy paper. Figure 3.
- e. When enlargement extends only partially through the pattern section, (example, increasing center back length only) cut, spread, and pin to heavy paper. Redraw grainline so that it is straight.

**Cutting and Lapping** shortens or removes extra width. To cut and lap, see Figure 3:

- a. Extend lengthwise grainline full length of pattern.
- b. Draw cutting line where decrease is desired. If shortening, draw line perpendicular to lengthwise grainline. If decreasing in width area, draw line parallel to lengthwise grainline.
- c. Cut on line. Cut must extend through pattern to opposite seamline, but not through it.
- d. Lap the desired amount and taper the splash as needed to make the pattern lie flat.
- e. Pin or scotch tape in place.

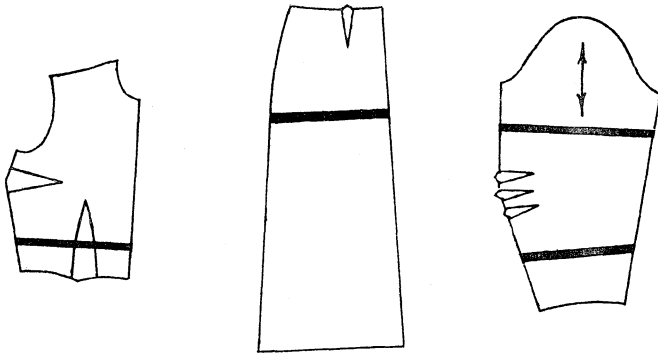
**Pleating or Tucking** shortens or removes extra fullness. To pleat:

- a. Draw two parallel lines across the pattern at the place it is to be decreased, the space between these lines **equal** to the amount the pattern is to be decreased.
- b. Fold on one line and bring to the other. The folded pleat will be **half the width** of the total decrease.
- c. Pin pleat in place.

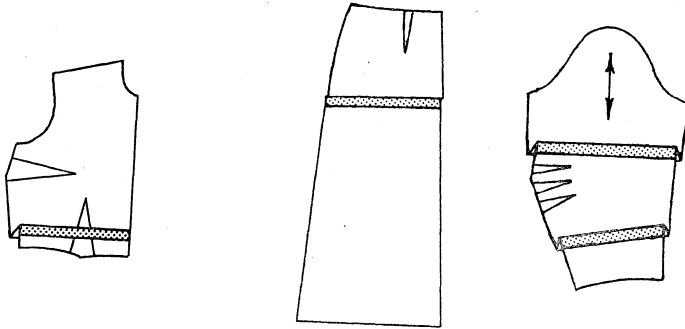
The most common alterations on patterns are those needed to shorten or lengthen a pattern. Leading commercial pattern companies have complete directions for their alterations in their guide sheet as well as a printed line on the pattern, showing where to make the alterations. They are lengthened with the cut and spread method, and are shortened by pleating on lines indicated for this purpose. Remember, the depth of the pleat or tuck should be **half the amount desired to shorten**. For example, a half inch tuck will shorten a garment one inch. See Figure 4, Page 21.

Long sleeve patterns may have two alteration lines. One above the elbow; the other below. The measurement of your arm to the point of the elbow (check measurement chart) will indicate whether the alteration is needed above the elbow, below the elbow, or at both places. Be sure to keep elbow dart pointing to the elbow.

To lengthen a back of a garment but not the front cut the pattern from the center back to **side seam only**. Place paper underneath and pin or scotch-tape in place. Draw a new grainperfect center line. Draw a new cutting outline on side seam. Straighten waistline darts. Figure 5, Page 22.



4a—Cutting & Spreading



4b—Pleating

Figure 4 a & b—Example 4a shows lengthening the pattern by "cutting and spreading." Figure 4b shows shortening by "pleating."

Shortening the back and not the front would be similar alteration except a wedge shape lap would be taken from outer back which would taper to nothing at the side seams. Straighten or correct the center back line and dart lines. Figure 6.

## Relocating Darts

A dart is a method of molding or shaping fabric over the contours of our body and of keeping the grainlines in correct location. These contours are sometimes referred to as "body bulges." There are seven important "bulges". These are: Shoulder blade, elbow, bust, back hip,

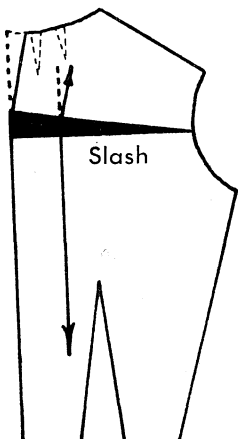


Figure 5—Altering pattern back to give additional length.

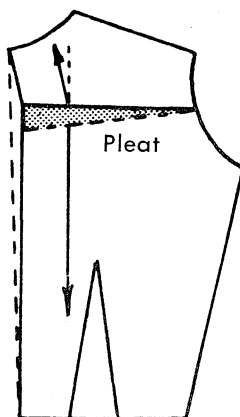


Figure 6—Altering pattern back to remove extra length.

side hip, abdomen, and shoulder. Darts may also appear in the form of released darts, tucks, gathers, shirring, yokes, gores, etc. Darts are seldom stitched completely to the point of the bulge as this accents the bulge. They must point toward the bulge. Darts are used to create design as well as control fullness.

Often the dart placed in a pattern is not in the right place. This dart must not be pinned out without releasing the fullness at some other point. This may be accomplished in several ways:

**Method I.** Pin out the unwanted dart. A bulge will appear at the end of the pinned dart. Slash pattern on the new dart line location until pattern lies flat. The resulting slash will be longer than the finished dart. This long slash can be thought of as a designer's dart. A dart as long as the slash would not be becoming, Figure 7b. A shorter dart known as a dressmaker dart is more flattering. Be sure that the new dart is directed toward the point of the bust. With this method any dart can be changed to another position in the same pattern piece or the fullness may be divided into two or more narrow darts.

**Method II.** Changing the position of an underarm dart by tracing the dart onto a piece of heavy paper and cutting it out for a pattern. Use the pattern dart as a guide to draw the new location on your pat-

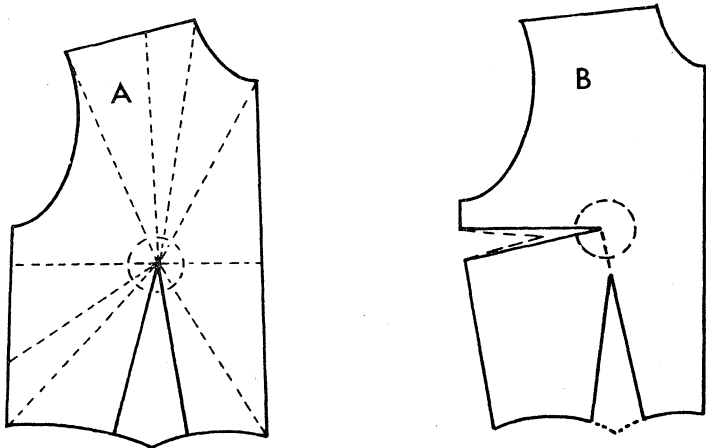


Figure 7a—Darts can be rotated to any new position around the point of the bust, See Method I, Page 22. 7b—Darts stitch to the point of the bust is not becoming. End stitching 1½" to 2" from bust point.

tern. Place the dart in the new location with the end pointing toward the tip of the bust. This point should have been marked on the pattern during the paper fitting. Paste or tape extra paper to underarm seam. Fold out the new dart, turning fold down as it would be pressed in a garment. While folded, redraw underarm seam and cut off excess paper. Figure 8.

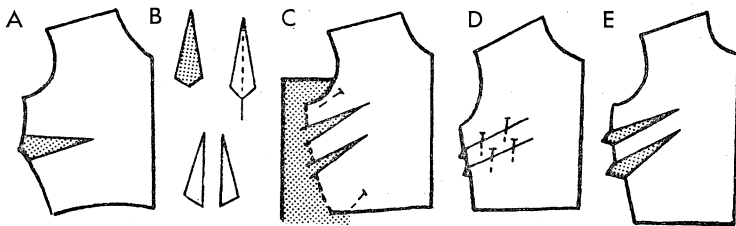


Figure 8—Changing dart location, or dividing one dart into two darts by redrawing dart location. Method II, Page 22.

**Method III.** Raise or lower the dart by the combining of the cut and spread method with a pleat. Figure 9. A woman with a high bust and normal waist might use Method A above. Fold a pleat across the pattern above the dart and at right angles to center front. Spread pattern the

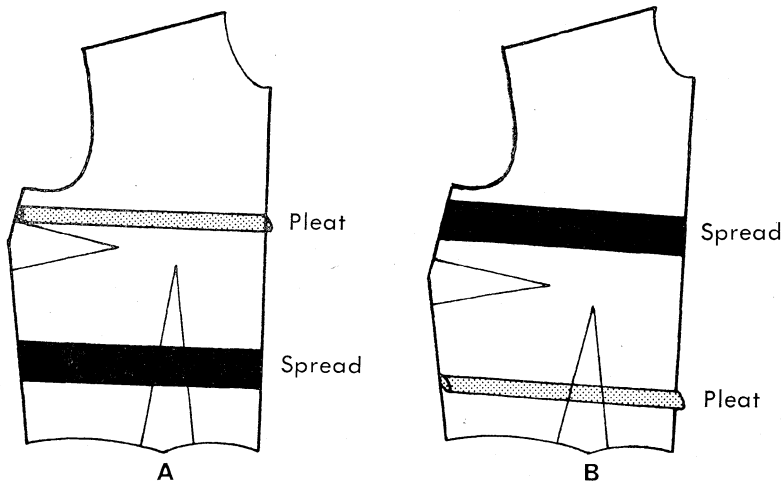


Figure 9—Raising or lowering dart position by combining a "cut and spread" with a pleat. Method III, Page 23.

amount taken out in the tuck and correct the cutting line. A woman with a low bust and a normal waistline would use the Method B. Pleat would be below the dart and the cut and spread area above the dart.

## Problem Alterations

### For the Figure With a Full Bust

A common alteration is the one for the full bust. This can be accomplished by several methods.

**Method I** Lengthens the blouse front thus allowing extra fabric to curve over the bust. This alteration maintains the proportional length of the side seam by deepening the underarm dart or by adding an extra dart. Two darts may be more becoming than one deep dart. Figure 10,

**Method II** Increases blouse front and adds an underarm dart. Figure 11. In this alteration, start at the tip of the underarm dart and draw a line parallel to the center front and another diagonally from this point to the armhole notch. Starting 1" below the underarm dart slash horizontally to  $\frac{1}{2}$ " of the vertical slash. Spread the vertical slash the amount needed in the bust area and the horizontal slash enough to make the vertical slash even in width. Straighten bottom of the pattern by adding enough paper to the front to duplicate the original pattern line.



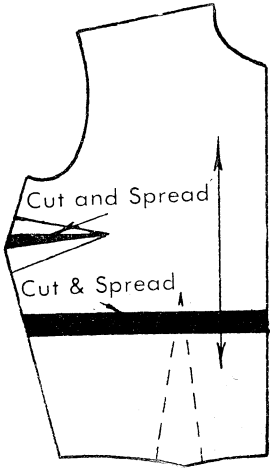


Figure 10—Enlarging pattern for figure with full bust, Method I.

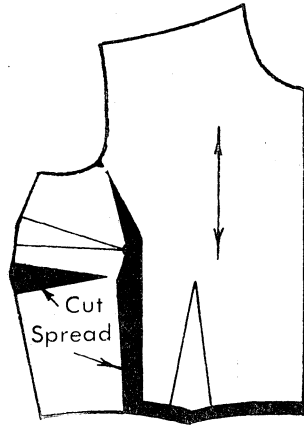


Figure 11—Enlarging pattern for figure with full bust, Method II.

**Method III** Increase the blouse for large bust through underarm and waistline darts. Mark a dot just off the tip of the underarm dart. Starting at the center of the waistline dart cut vertically to the tip of the dart, then diagonally through the drawn dot to a point near the sleeve

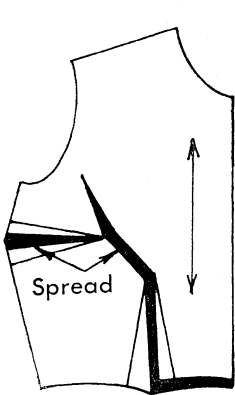


Figure 12—Enlarging pattern for full bust, Method III.

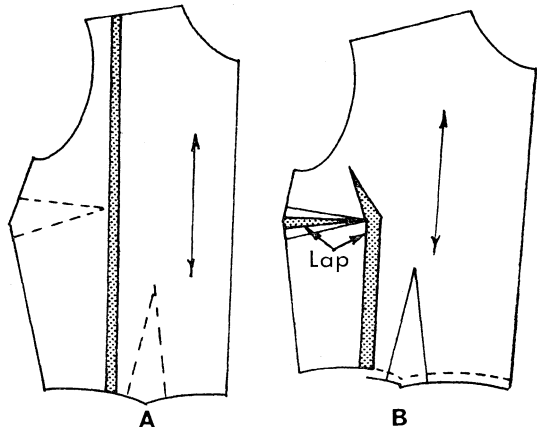


Figure 13—Two methods of decreasing pattern for figure with small bust.

notch. Cut pattern a second time through the underarm dart to a point near the drawn dot. This will allow the underarm dart to spread making the dart wider, but leaving angle unchanged. Figure 12. If the resulting dart is too wide the dart could be divided and made into two darts.

### For the Figure With a Small Bust

Extra fullness can be removed by a vertical tuck from waist to shoulder as in Figure 13A. This alteration reduces length of shoulder: thus, a shoulder dart or ease would be required on the blouse back.

Fullness can be removed by cutting and lapping the pattern as shown in Figure 13B.

### For the Figure With a Flat Chest

Remove extra fullness by cutting and lapping in a diagonal line from 3" below the neckline to the lowest shoulder point. Figure 14.

### For the Figure with a Flat Chest and Small Bust

Combine method discussed for the small busted figure with that recommended for the flat chested figure. Figure 15.

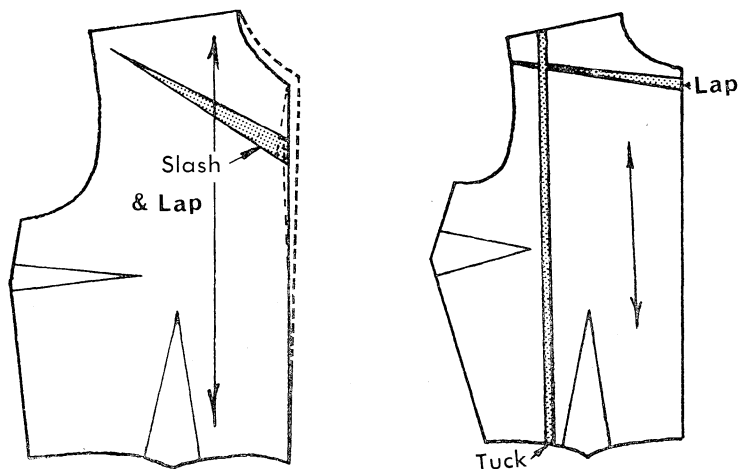


Figure 14—Altering pattern for figure with flat chest.

Figure 15—Altering pattern for flat chest and small bust.

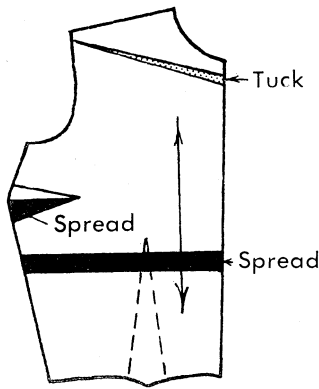


Figure 16—Alteration for the figure with flat chest and a large bust.

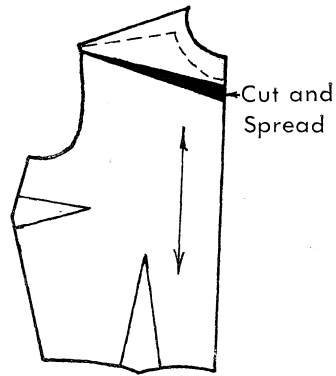


Figure 17—Alteration for the figure with sloping shoulders.

### **For the Figure with a Flat Chest and a Large Bust**

Combine the “cut and spread” method with the alteration for the flat chested figure. Figure 16.

### **For Sloping Shoulders**

Cut pattern from a point an inch or two below the neckline to the lowest point of the shoulder. Spread pattern until the desired shoulder slant is obtained. Figure 17.

### **For Square Shoulders**

Make a tuck from a point one or two inches below the neckline to the lowest point of the shoulder. Figure 18. Some people may need deeper armholes and more length from shoulder to waist; in such instances, cut pattern through the armhole on a line perpendicular to the lengthwise grainline. Slash should be about midway of the shoulder. Then, cut on a diagonal line to the top of the shoulder. This alteration changes the armhole so that same alteration must be made in the sleeve cap. Cut across the sleeve cap on a line perpendicular to the lengthwise grainline. Raise the sleeve cap to equal the alteration of the blouse front and back. Figure 19.

### **For Round Shoulders, Stooped or Rounded Backs**

The alteration needed here is to allow extra width and length to the back. This may be accomplished in several ways:

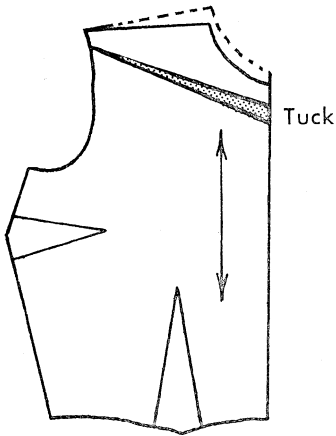


Figure 18—Alteration for the figure with square shoulders.

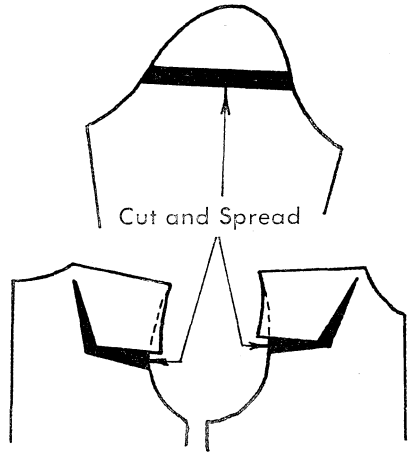


Figure 19—Pattern alteration squares shoulder line and deepens armhole.

**Method I** Cut pattern horizontally from point opposite the curve that is most prominent to the armhole. Usually this is just above the armhole notch. Spread the upper portion of the pattern until desired amount of length is achieved. Straighten center back line. The additional width added at neckline may be removed with small darts to bring pattern back into configuration. Figure 20.

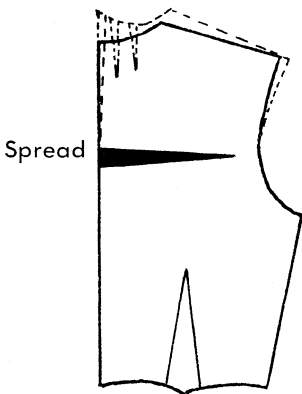


Figure 20—Method I, for figure with round shoulders, stooped or rounded back.

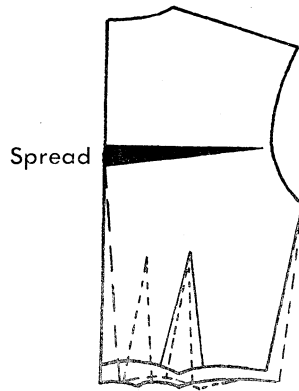


Figure 21—Method II, Adding extra length to blouse back.

**Method II** Make cut in pattern as in Method I. Spread lower portion of pattern. This method increases waistline. If increase is not needed, remove surplus fabric with extra dart. Figure 21.

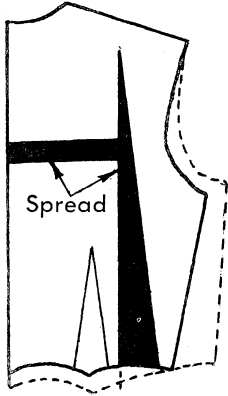


Figure 22—Method III, Adding length and fullness to blouse back.

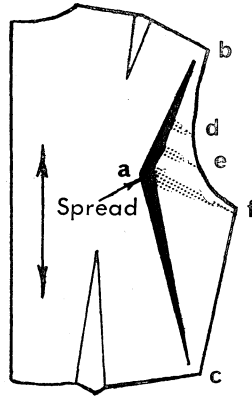


Figure 23—Method IV, Adding extra width without increasing back length or enlarging waist.

**Method III** Cut pattern horizontally as in Method I, then make a vertical cut from waist to mid point of shoulder. This slash should be parallel to the center back or lengthwise grainline. Spread as needed. Adjust waistline with darts or gathers. Example shown illustrates the width being removed with two darts. Figure 22.

**Method IV** Allows extra width without changing back length or enlarging the waist. At point of bulge make a pencil dot (a) on pattern. From this point cut diagonally to shoulder tip (b) and to waistline-underarm tip. (c) Spread the desired amount. Make additional slashes as needed to make pattern lie flat. (d, e, f). Figure 23.

### For the Too-Erect Figure

Alteration for this figure is the same as the alteration for the square shoulder figure. Fold a tuck from a point one or two inches below the neckline to the lowest point of the shoulder. Figures 24a and 24b.

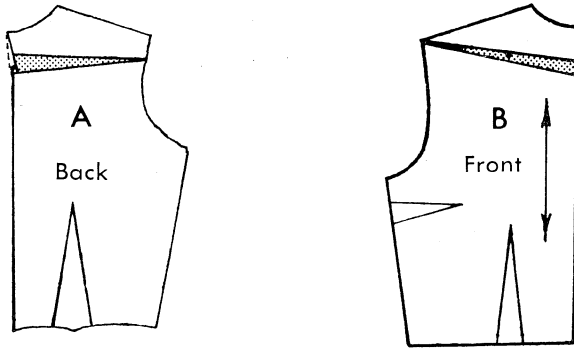


Figure 24a and b—Alteration for too-erect figure. Tuck removes extra fullness and squares shoulders.

### For the Broad Shoulder or Narrow Shoulder Figure

Cut both the front and back blouse patterns starting 2" from outer end of shoulder seam diagonally just to the seamline at a point a little above the armhole notch. Lengthen the seam for the broad shoulder figure by spreading the slash as needed (25a); shorten the seam for the narrow shoulder figure by lapping the necessary amount (25b). Before



Figure 25a and b—Adjust pattern shoulder length. Example A shows widening the shoulder, Example B narrows the shoulder.

making this alteration check pattern illustration carefully to see where the shoulder seam is designed to fall. Fashion dictates the length of the this alteration check pattern illustration carefully to see where the length of the shoulder seams unnecessarily.

## Fitting The Skirt

The skirt, like the blouse, may be lengthened or widened by cutting and spreading the pattern. It can be shortened or decreased by tucks. Figure 26.

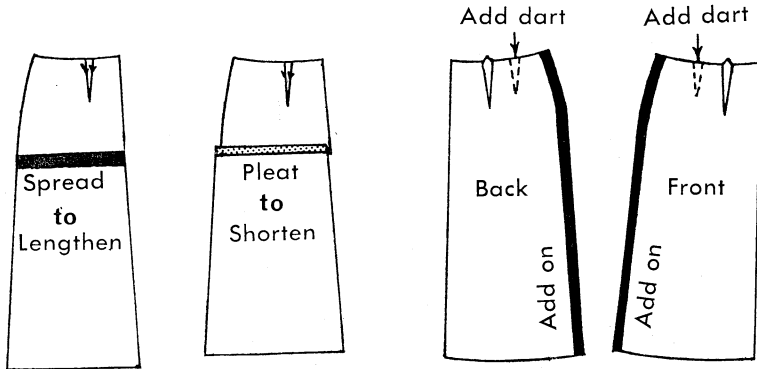


Figure 26—Alter the length of skirt by "cutting and spreading" or by "pleating." Alteration lines are shown on the pattern.

Figure 27—Increase width on side seam when the amount of increase needed is less than two inches.

When the amount to be increased is small (2" or less) the additional amount may be added to the side seams. Add only one-fourth of the total amount needed to the seam. Extra width at waist can be removed by increasing the depth of the skirt darts or adding new ones. Figure 27.

## For the Figure with Wide Hips and a Natural Waistline

Cut on a line parallel to lengthwise grainline up to but not through the waistline. Make a second slash through the side seam perpendicular to the first slash. Spread as needed. Figure 28. **Note:** Side seam of skirt front would have to be altered to fit back side seam. Figure 29.

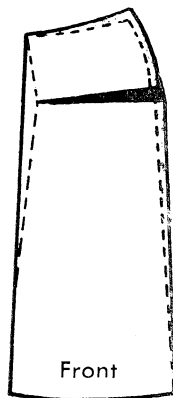
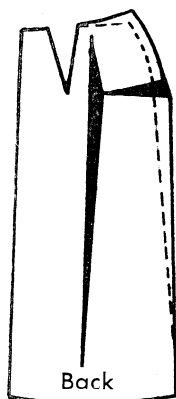


Figure 28—Altering skirt back for large hips and natural waistline. Figure 29—Adjusting skirt front to match alteration on Fig. 28.

## Prominent Front Hip Bones and Natural Waistline

**Method I** Cut on a line parallel to lengthwise grainline up to but not through the waistline. Spread pattern as needed. Tuck side section from slash to side seam until pattern lies flat. Redraw hem line back to original configuration. Figure 30.

**Method II** Increase waistline by adding extra fabric at side seam. Fit by placing a dart from the waistline to the point of the bulge Figure 31, Page 33. If pattern has a front dart, move it so that it is positioned nearer to the point of the bulge and increase the dart so that skirt shapes over the bulge. **Note:** It may be necessary to relocate waistline darts in blouse to meet those in the skirt.



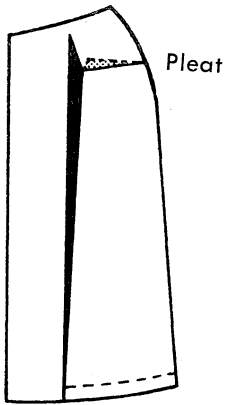


Figure 30—Method I, Adjusting skirt front for prominent hip bones.

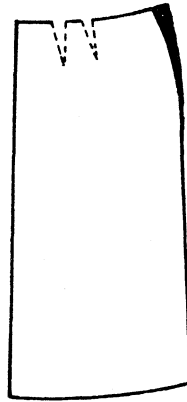


Figure 31—Method II, Altering skirt front for prominent hip bones.

### For the Figure with a Sway Back

Pin tuck across the top of the skirt from center back diagonally to top of side seam tapering to nothing at this point. Figure 32.

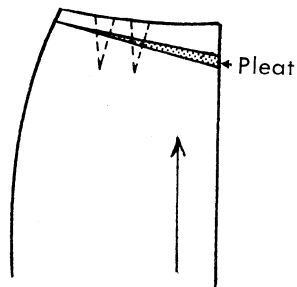


Figure 32—Adjusting skirt for sway back.

## For the Figure with a Flat Derriere

With the flat derriere the amount of shaping given by the back darts is not needed. Reduce the size of the back darts and remove the excess from the side seams. If skirt sags in back, make a diagonal tuck across the back from a point an inch or so below the waist to the top of the side seam. Figure 33.

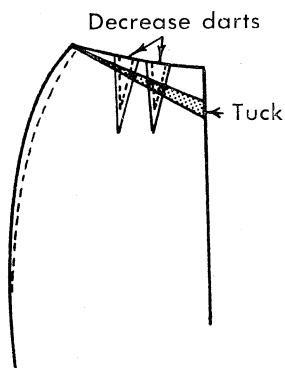


Figure 33—Adjusting skirt for flat derriere.

## For the Figure with a Large or Protruding Abdomen

**Method I** Make a lengthwise cut parallel to the lengthwise grainline. Make a second cut from center front to side seam. Cut is made perpendicular to the lengthwise grainline and across the point of the bulge. Spread as needed. Fit to waist with small darts. Figure 34.

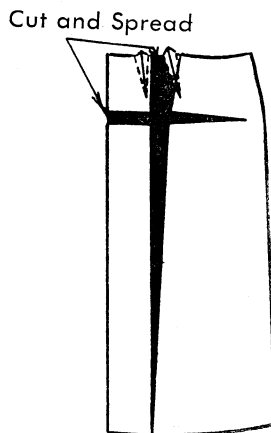


Figure 34—Method I, Adjusting skirt front for the large abdomen.

**Method II** If extra hip width is needed, make horizontal cut perpendicular to the lengthwise grainline. Spread desired amount. If waistline is increased too much, remove extra width with small waistline darts. Figure 35.

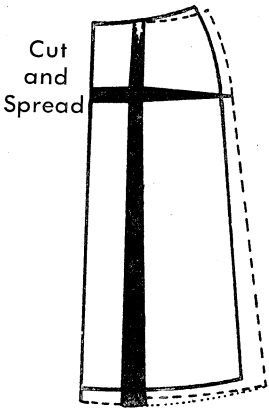


Figure 35—Adjustment for large abdomen and hips. No increase in skirt sweep. Method II.

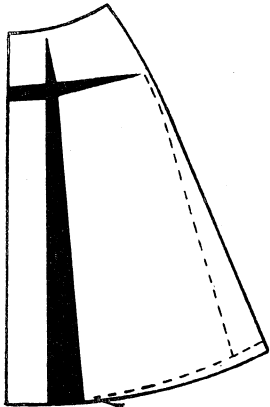


Figure 36—Method III, Adjustment for large abdomen. Skirt sweep is increased.

**Method III** Make a vertical cut from hem to waistline but not through it. Cut should be parallel to hip line. Spread center front section for the desired width and length needed over the abdomen. Spread side section as needed for hip width. Figure 36. Note: this alteration changes the sweep of skirt. Skirt back would need to be altered also.

## For Large Hips and Smaller Than Average Waist

**Method I** Cut pattern horizontally from side seam perpendicular to the lengthwise grain. Slash should be about 3" deep. From waistline cut a second slash perpendicular to the first so that a right angle is formed. Twist this section to allow a spread on the side seam and an overlap at the waistline. This allows extra length over the hip and decreases the waistline. Figure 37.

**Method II** Cut pattern on a horizontal line, perpendicular to lengthwise grainline from the side seam to the center front line. Spread upper portion to allow extra length over the hip; decrease waistline by making dart deeper. Figure 38.

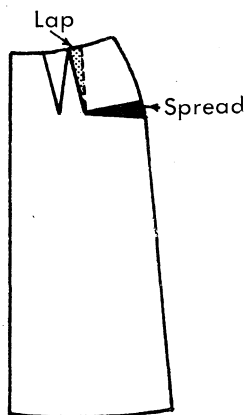


Figure 38—Another method of altering pattern for the smaller than average waist and large hips.

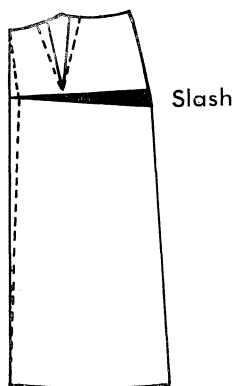


Figure 37—One method of adjusting pattern for the smaller than average waist and large hips.

## For Figure with One Hip Higher or Larger

Cut the pattern at the hip line to the center front and center back, spread pattern so that skirt hangs level with the floor. When this type of alteration is needed on one side only, the skirt is cut from one thickness of cloth. One side is cut from the unaltered pattern, then the pattern is turned and the second half is cut from the pattern altered as above. People with this figure problem may find it easier to cut a special pattern from heavy paper. This becomes a basic skirt pattern that can be used many times. Figure 39.

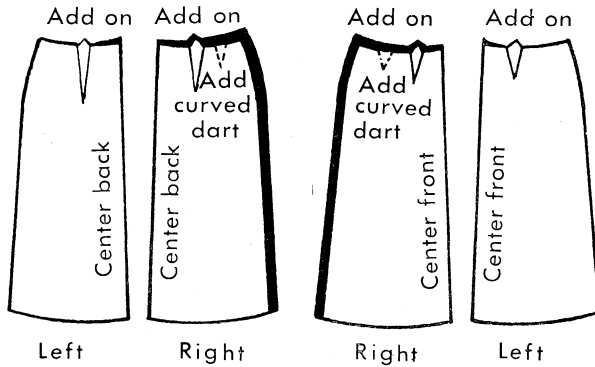


Figure 39—Altering skirt pattern for the figure with one hip higher than the other.

## Fitting The Sleeve

### For the Short or Long Arm

Alterations for lengthening and shortening the sleeves are shown in Figure 40.

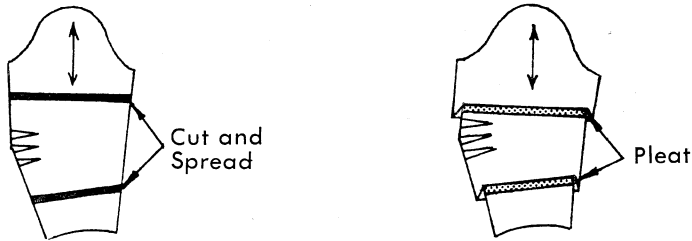


Figure 40—Alter sleeve length by "cutting and spreading" or by "pleating."

### For the Large Upper Arm

Cut sleeve pattern lengthwise through the center parallel with the lengthwise grainline. At the area where greatest width is desired cut horizontally making each slash perpendicular to the lengthwise slash. Before spreading pattern, trace sleeve cap outline on another piece of

paper. Spread pattern as needed. Note: The horizontal slashes overlap thus lowering the sleeve cap. This is undesirable and would be uncomfortable. Therefore, scotch-tape sleeve on paper where the original sleeve cap was drawn and cut on the original cap line. Bodice front and back will require adjustment. Add half the amount of the increased width of sleeve to underarm side seams of bodice front and back, tapering to nothing at the waistline. Figure 41.

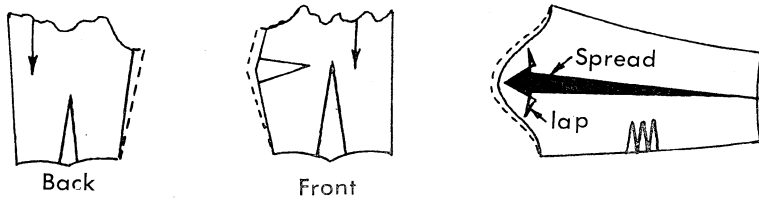


Figure 41—Adjusting sleeve and bodice for large upper arm.

## Slacks

Slacks are here to stay. They started as a necessity when women took on men's jobs in defense plants during World War II. Since then they have moved out of the factory into the home. There are slacks for sports and slacks for dress. Whether you are the type for slacks is for you to decide; but, regardless of whether you were made for slacks or not—slacks can be made for you. As in other garments, slacks are made to fit the average figure. Because few of us are average, a certain amount of alteration is necessary.

### Know Your Measurements

Before you can begin to alter your slack pattern you must know your measurements so that you can check these against your pattern measurements (Figure 42). List your measurements on the chart on Page 39. Examples of how you take your measurements are shown in Figure 42, Page 40.

1. Waist—Measure around the smallest part of the waist. Leave a tape or ribbon around waist for other measurements.
2. Hips—Measure 7" down on center front, center back, and side seams. Mark with pins. Pass tape measure around these points.

## Measurement Chart for Slacks

	Inches	Ease	Total	Pattern	Alteration
1. Waist		1"			
2. Hips—7" down		2"			
3. Knee		1"			
4. Calf		1"			
5. Instep		2"			
6. Length to Knee					
Left side to knee					
Right side to knee					
7. Length to Ankle					
Left side to ankle					
Right side to ankle					
8. Crotch length					
Estimate of Ease:					
Small hips, below 35"		½"			
Medium hips, 35-38"		¾"			
Large hips, over 38"		1"			

3. Knee circumference—Measure around the knee.
4. Calf circumference—Measure around the calf.
5. Instep—Measure around heel and over instep. (This is not too important except with narrow tapered slacks. Check to see that there is enough room to allow foot to slip through easily.)
6. Side length to knee—Measure from waistline tape to knee.
7. Side length to ankle—Measure from waistline tape to ankle.
8. Crotch length—Sit on a straight chair, bench, or table (need flat surface). Measure from waistline tape to the top of flat surface.

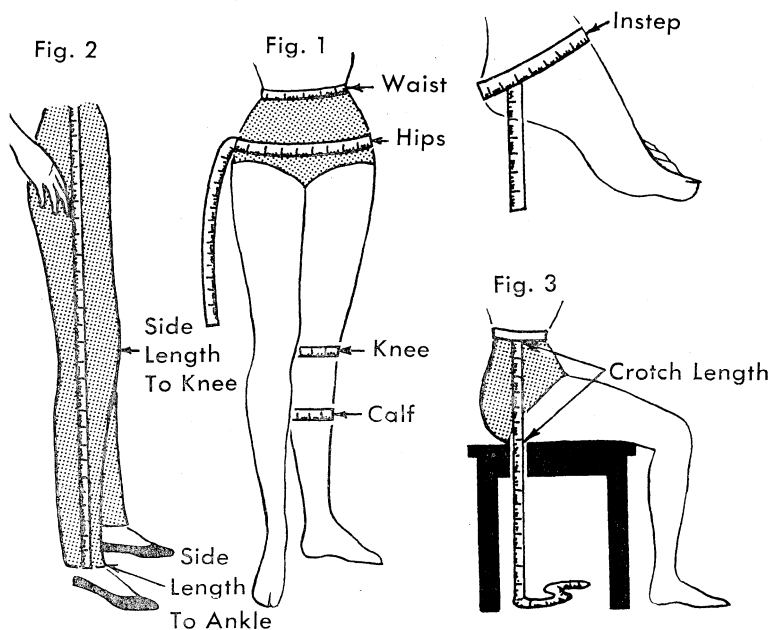


Figure 42—Measuring the figure for slacks alteration.

### Prepare Pattern For Alteration

Buy your slacks pattern according to your hip measurement. This will greatly reduce alterations in the crotch area.



Most slacks patterns will have alteration lines for lengthening and shortening. These will be in the crotch area as well as in the leg area. Draw a line parallel to the alteration line seven inches from the waistline seam. Compare your pattern measurements at this line to your own hip measurement and determine how much you need to increase or decrease your pattern. Figure 43.

Draw a line at the crotch that is perpendicular to the lengthwise grainline. This line should be drawn at the deepest point of the crotch to the side seam. Figure 43. Compare the pattern measurement from this line to waistline plus the necessary ease (See Chart) with your crotch measurement and determine if crotch length needs to be increased or decreased. Mark adjustment needed on the chart.

Draw a knee line on your pattern half way between crotch line and hip line. Figure 43. This line should be perpendicular to the lengthwise grainline. Such a line is helpful in determining whether or not the alteration for length in the legs is better above or below the knee. With this information your slack pattern can be used as a basic pattern to style different lengths of pants such as jamaicas, bermudas, and pedal pushers, calf skimmers, and capris. Figure 44.

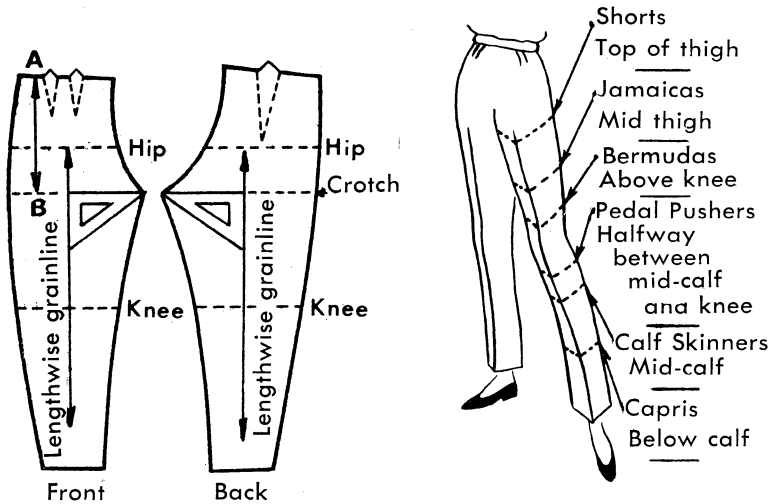


Figure 43—Preparing the pattern for alteration.

Figure 44—Examples of various lengths of pants and their names.

# Altering the Pattern

## For Crotch Length:

If pattern is too long in the crotch area fold a pleat on the hip alteration line. The pleat should be half the amount you wish to remove. For example, to shorten the crotch 1" make a 1/2" pleat.

If the pattern is not long enough in the crotch, cut pattern on the hip alteration line and spread the needed amount. Figure 45.

## For Leg Length

If slacks are too long in the leg length, pleat out the extra amount on the line indicated. If no line is shown make the alteration on a line below the knee. Pleat should be half the amount needed for shortening as explained above. Figure 45.

If slacks are not long enough in the leg length, cut and spread the desired amount. Make alteration on line indicated on pattern. If line is not shown, make the alteration below the knee level and parallel to it. Figure 46.

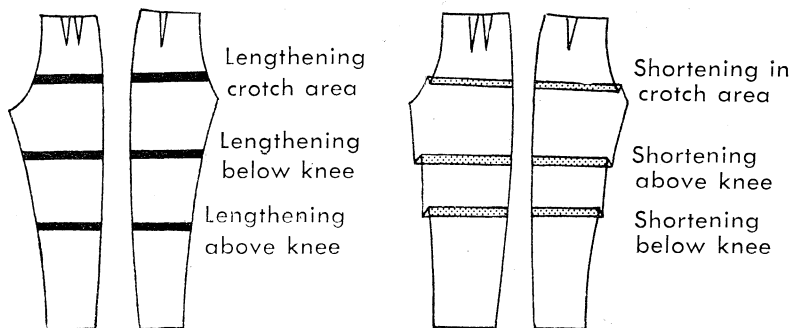


Figure 45—Alteration points for adjusting slacks length. Alter by "cutting and spreading" or "pleating."

## For Hip Alteration:

Check pattern measurement by pinning front and back pattern pieces together at the side seams at a point 7" down from waist. Figure 46. Measure on this line from seamline to seamline. Double this amount

and compare the total plus 2" ease to your hip measurement. If alteration is needed make the alteration on a vertical line drawn between the darts and the side seam. This alteration line should be drawn parallel to the lengthwise grainline.

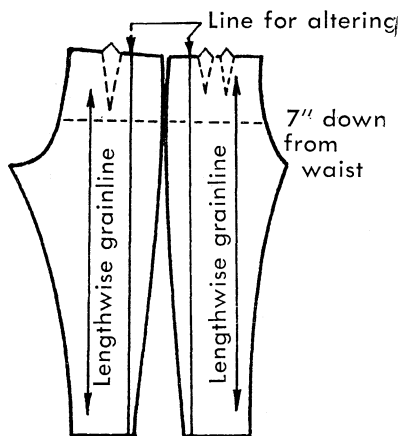


Figure 46—Alter slacks for width on a vertical line drawn parallel to lengthwise grain. Compare figure and pattern measurements at a location 7" down from waist.

round in front and flat behind, enlarge the pattern in the front only—if you are flat in front and generously rounded in back, enlarge the back only.

to the lengthwise grainline. If pattern is too large, make a pleat on the alteration line that is equal to half of the amount you wish to remove. If pattern is too small, cut pattern on the alteration line and spread equal to the amount needed. Remember, your pattern is only half of a side. To alter the pattern one inch too large you would want to make a  $\frac{1}{8}$ " vertical pleat on the back alteration line and a  $\frac{1}{8}$ " vertical pleat on the front alteration line. This would remove  $\frac{1}{4}$ " from each pattern section and  $\frac{1}{2}$ " from the garment back and  $\frac{1}{2}$ " from garment front—a total of 1".

Sometimes the alteration is needed more in the front than in the back or vice versa. Examine your figure in the mirror and if you are

## Cutting Slacks

Follow layout suggestion on pattern guide sheet. Provide extra fabric for fitting purposes by increasing seam allowance from  $\frac{5}{8}$  to 1" on sides and center front and center back seams. Figure 47. This extra allowance often comes in handy during the first fitting.

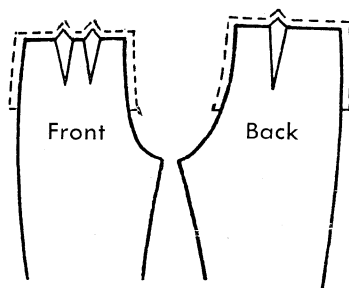


Figure 47—Increasing seam allowance at area shown when cutting slacks out will provide extra fabric for fitting purposes.

# First Fitting Alterations

Using direction on the pattern guide sheet stitch slacks together using a machine basting stitch. Baste front fold of zipper down and mark with basting the seam line. Ease in the one inch of ease allowed on the waistline of slacks to the slacks waistband. Try on slacks, pin zipper opening closed and check for additional fitting problems. Some authorities suggest that you check for the following:

1. Comfort in waistband, let it in or out as necessary. Change darts in slacks accordingly.
2. Hip comfort—let in or out at side seams.
3. Crotch length—does it hang too low? Pin out excess.
4. Crotch width—are you comfortable? Is there pull across front or back at the crotch point level? Let out seams on the inner legs. Is there too much room? Take in seams on inner leg.
5. Check for leg comfort—this is a matter of taste as well as fit. Take in or let out seams as necessary.

**For the flat derriere:** Slacks appear too large in the seat and they droop: Pin tuck under waistline tapering to nothing at the seamline. Figure 48. Make similar alteration on pattern and recut slacks.

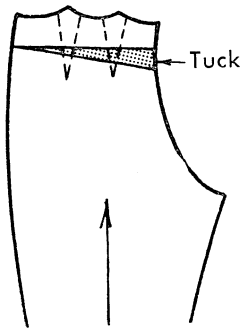


Figure 48—Adjusting slacks for the flat derriere.

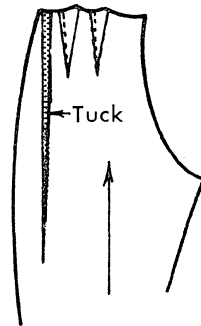


Figure 49—Adjusting slacks to fit in seat area.

Slacks appear too full over seat area: Darts may be too deep thus causing the fabric to curve more than necessary. Stitch darts narrower and remove extra fabric at the side seam, starting at waist and tapering to nothing below hip line. Figure 49. Make similar alteration on pattern for future use by folding a long vertical tuck.

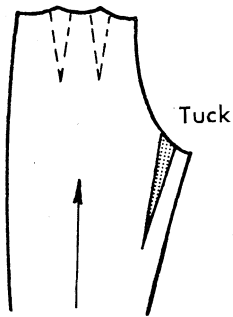


Figure 50—Another method for removing fullness in the seat area.

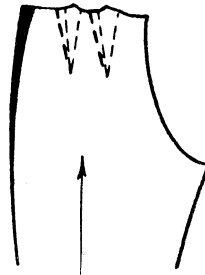


Figure 51—Adjusting slacks for the full derriere.

Slacks appear too round below the fullest part of the hips: Make a tuck at the back crotch. Figure 50. Make similar alteration on pattern and recut.

**For the full derriere:** Slacks need more shaping over full part of hips: Make back darts deeper. This reduces the waistline and extra fabric may be necessary on side seams. Figure 51. This is why it is wise to increase seam allowance as suggested in Figure 47.

**For waist small for hip size:** Slacks fit well through hips but waistline is too large: Place a tuck between darts and side seam. Begin at waistline and taper to nothing. Make similar alteration in pattern and recut Figure 52.

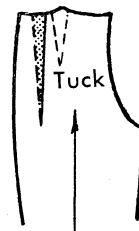


Figure 52—Adjusting slacks for the smaller than average waist.

**For action slacks with bending room:** Action slacks for strenuous sports need more rise. Cut pattern from center back to side seam, spread  $\frac{1}{2}$ " and adjust crotch curve as in Figure 53.

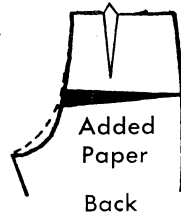


Figure 53—Adding back length for action slacks.

**For those extra curves and bulges:** Some of us have prominent hip bones, others have extra padding at sides just below the waistline. A small extra dart may be needed at these areas. Pin a small dart  $\frac{1}{2}$ " deep and 2" long. Figure 54.

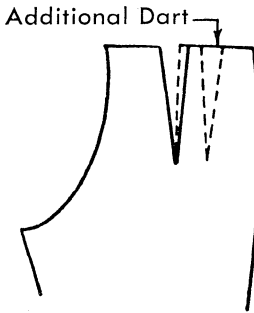


Figure 54—Add additional darts for figure with prominent hip bones or extra padding.

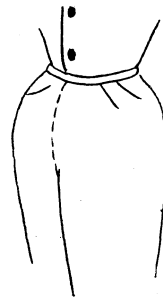


Figure 55—Direct darts toward the point of the bulge.

Remember darts need to be directed toward the bulge but should not extend completely to it. Move darts as instructed by tracing a pattern of the dart and pivoting as needed. Many times angle darts are more flattering. Figure 55. Or, two short narrow darts would look better than one long dart. Figure 56. If your curves are rounded the dart may be improved by stitching a curved line. Figure 57.

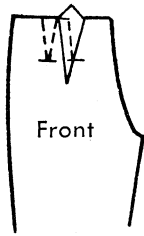


Figure 56—Two small darts may be more becoming than one long dart.

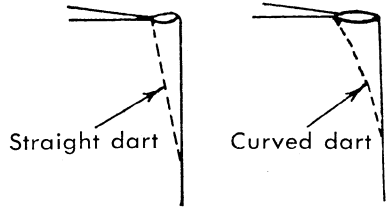


Figure 57—Rounded figures may find curved darts more flattering than a straight dart.

## In Conclusion

There are many combinations of figure problems and only a few have been included here. However, by thinking through the basic principles you should be able to apply these to your particular problem. The methods shown here are not the only ones. As you read and explore other reference material you will see others. Use the method that serves you best.

A correctly altered basic pattern can serve as a guide for alterations on future patterns. Keep a record for future reference of all changes made. Remember that patterns come in *figure types* and the alterations vary from one figure type to another. These alterations you make on a *misses* size 16 are not the same as those you would require in a *teen* size 16. By selecting the correct size and figure type pattern your pattern alterations can be kept at a minimum.

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