Patterns and Instructions for sewing TR3A Seat Covers
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Introduction

These instructions include a set of full-size patterns for sewing replacement TR3A (horizontal pleat) seat covers. The plans were derived from the careful disassembly of an existing set of seats. I used 40mil cloth-backed marine-grade vinyl for my seats, but thinner vinyl or leather may also be used. I am a complete novice when it comes to sewing – these seats represented my very first use of a sewing machine, and more experienced readers should make allowances for any errors in terminology or technique. I was able to lay out, cut, and sew the covers for both seats in about 30-40 hours of work.

Equipment and Supplies

First and foremost, you will need a sewing machine that is powerful enough to sew through at least 6 thicknesses of vinyl or leather plus two half-inch thicknesses of cloth-backed foam rubber. This represents the most complicated seam you will need to sew, and most seams are only two or three thicknesses of vinyl. I used a heavy-duty machine I found second-hand on eBay for a couple of hundred bucks, but the old Singer you have around the house may work just fine. Try what you have (or can borrow) before buying anything. Whatever model you use, you will need one that is equipped with a foot pedal, leaving your hands free to guide the material.

Other stuff you will need:

• Heavy duty sewing machine needle

• Straight stitch "foot" for the sewing machine (this is the normal sewing foot)

Standard foot

• A "zipper foot" for the sewing machine (lets you make seams right up against piping)

Zipper Foot

• Good sharp pair of scissors

• Polyester (not cotton), outdoor, UV resistant thread to match your vinyl or leather color (close is OK). You will need 2-3 spools, 200 yards each.

Polyester Thread

• Common household stapler and staples – used to align panels before sewing. Don't even bother trying to use pins to hold the panels together – it's a pain, it doesn't work, and staples are better and easy to remove afterwards.

• Needlenose pliers – for removing the household staples after the panels have been sewn together.

• Staple gun and 1/4" box of staples (can be found at any hardware store) – used to attach covers to seats

• Marine-grade, UV resistant vinyl (or leather). I got mine from:

Rochford Supply
866-681-7401
www.rochfordsupply.com

You will need about 5-10 yards of 54-inch wide vinyl or the equivalent in leather (which Rochford also sells). Since I was also doing interior panels to match my seats, I ordered 20 yards. Depending on the brand you get, the cost for 10 yards of high quality vinyl will be about $90-$100, and for 20 yards, about $170. Be sure the vinyl you order is cloth-backed (normally the case). I used the Biscayne brand and was very pleased with its feel and appearance. Compared to the vinyl you get from suppliers such as Moss Motors, the Biscayne 41-mil vinyl looks about twice as thick:

Moss Motors vinyl on left, Biscayne vinyl on right

• About 3-5 yards of 1/2 inch cloth-backed foam rubber – also called "pleating foam". This is also available from Rochford Supply or most upholstery shops. This foam is sewn to the backside of the cushion panels and the front-facing seat back panels. The cloth backing prevents the stitches from pulling through the foam.

If you plan to use the traditional springs in your seats, you will likely also want to use traditional horsehair and batting. Since I decided to use all-foam seats, I will leave it to the reader to obtain the proper upholstery materials required for spring seats.

• 1/2 plywood for foam-filled cushion base (not needed with springs).

• Upholstery foam and batting. I used four 96-inch sheets of 1-inch foam that I bought from Wal-Mart because it was easy for me to cut to shape with scissors. They also had the polyester batting (I used two bags) .

You can obtain much thicker high-density upholstery foam from Rochford that you will need to cut to size (see pictures in the Instructions section). You can buy precut foam seat kits from suppliers on eBay.

• The passenger side seat folds forwards, pivoting on a bolt through each side. I found some very nice chrome carriage bolts, washers, and acorn nuts at Ace Hardware if you need to replace your existing bolts.

• Some black Rustoleum or other spray paint to make your steel seats ready for recovering. I sandblasted mine, gave them a coat of red primer, followed by a coat of the black enamel.

• Contact cement – used to attach material to the steel seats. I like the small jars with the brush built into the top. I seem to use the last bit of cement from the jar just about the time that enough glue has built up on the threads to make screwing on the top impossible, so this works for me. I used two or three small jars.


• Some type of non-permanent marker or chalk to draw the patterns onto the vinyl.

• A straight-edge ruler is useful – I used a steel carpenters square, 24 inches long.

• If you need to replace the wood tacking strips on your seats, you can use 1/4 inch scrap plywood for the underside of the drivers seat. I found that trying to make the curved piece that goes on the bottom front of the seat back on each seat too much of a pain, so I made mine using built-up strips of adhesive-backed veneer, available from home improvement centers and online at various suppliers. This veneer has a peel-off paper backing and a special 3M pressure sensitive adhesive. Just peel and stick. This let me create a paper model of exactly the shape I needed and then cut out the shape from the veneer with scissors. I needed six thicknesses of veneer to make the 1/4 inch x 1 inch tall tacking strip for each seat – I stuck the first layer right to the seat and then each successive layer on top of the last. Finally, I used the existing pop-rivet holes to drill through the veneer layers from the back and install new pop-rivets (you need the pop rivets – the veneer glue isn't enough by itself).

• X-Acto Knife – useful for trimming vinyl after attaching to seats and other uses.

• Piping – either white or matching your vinyl. I easily made my own from 1 1/2 inch wide strips of vinyl and some small-diameter hemp twine (instructions included).

Instructions

• Print out the pattern pages contained in this document. Any laser or inkjet printer is fine, mono or color. Note that the patterns all have a background marked off in 1-inch grids, allowing you double-check that what you have printed is the correct size (and you should check. Scale the printing up or down as needed until you get it right).

• Assemble the pattern sheets together for each panel. Pages for each panel are indicated in light grey printing in the background. Cut the margins as needed and tape the sheets together using scotch tape for each panel.
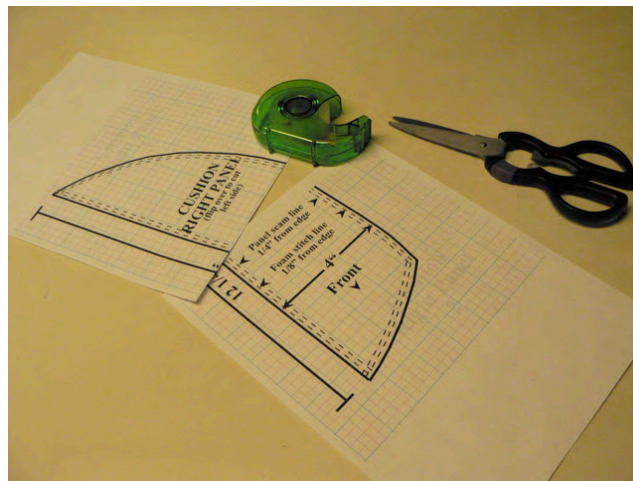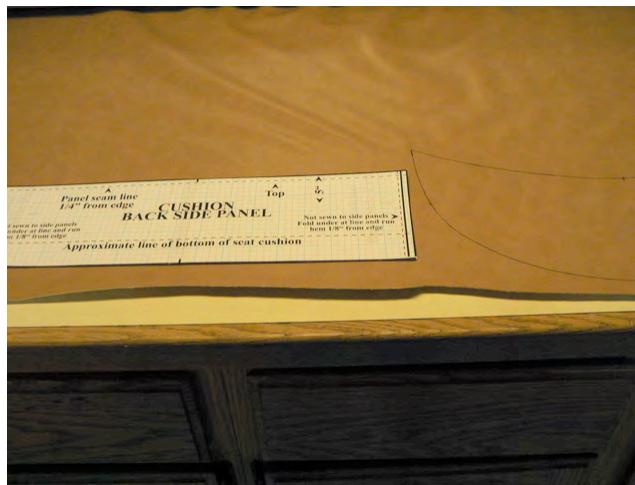

Cut and tape sheets for each panel

• Cut out the pattern from the assembled sheets along the bold edge. The panel pattern is now ready to use.
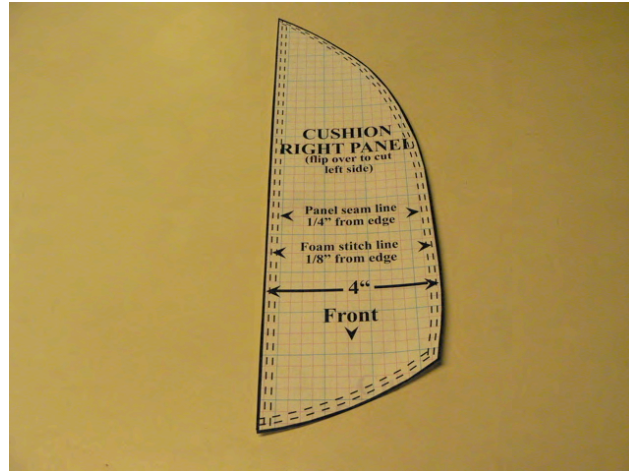
Completed panel pattern

• Using a large flat table or counter, roll out your vinyl so it lays completely flat. Lay each panel pattern on the vinyl in turn and mark around the edge with a non-permanent marker or sewing chalk.


Panel layout onto vinyl

• Note that some panel patterns are provided for the left or right side only and require that you flip the pattern over to mark out the opposite side.

• It is easiest to lay out a few panels across the width of the vinyl, then cut them out, trim off the scrap vinyl, roll out some more, and continue marking and cutting until all panels have been cut out.

• Note that all panels already include allowance for a 1/4 inch seam, so you need not increase the panel size from the patterns in any way. After cutting, the panels are ready to be sewn together. Also note that some panels (such as the center and front panels) have a centerline marked. Transfer this mark to the vinyl (marking 1/4 inch to edge on vinyl side and cloth side) to allow centers of these panels to be aligned when sewing – you really will need those marks later. It is also very useful to mark (in pencil on the cloth

side of the vinyl) arrows clearly pointing to the front, top, and bottom edges of each panel. This will prove useful when aligning the panels for sewing.

The following shows the order in which the Cushion panels will be assembled
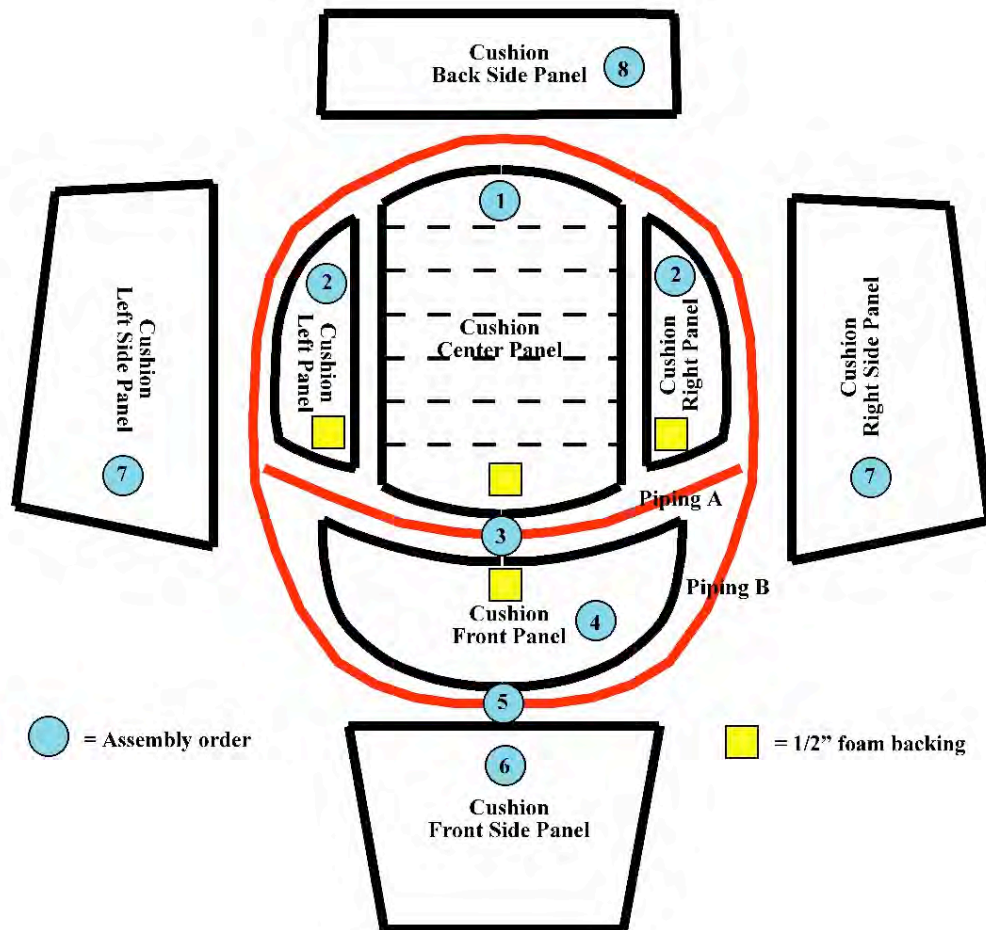

Cushion Assembly and Build Order

The pleated center panel is sewn first. The process of making the pleats attaches it to its foam backing. The left and right panels are attached to their foam backing then sewn to the center panel. The front panel is sewn to its backing then sewn to a strip of piping before being attached to the center assembly. Another strip of piping is sewn completely around the top cushion assembly. The front side is then joined to the left and right sides. The back panel is attached to the top assembly followed by the left-front-right side assembly, completing the cushion cover. Details on all these steps are described below.

Making the Piping

If you will be making your own piping (either using contrasting white vinyl or using matching vinyl), you can do so using the following steps.

• Cut 1 1/2 inch strips of vinyl across the width of the 54-inch roll. I just eyeballed the strip width without measuring. Each cushion will require two strips (joined together at the ends), each seat back will require three strips (joined together at the ends).

• You will be using the zipper foot to sew the piping.

• Unroll a bit of the hemp twine (or whatever you are using for the piping filler), and sandwich the twine in a fold of the vinyl strip.
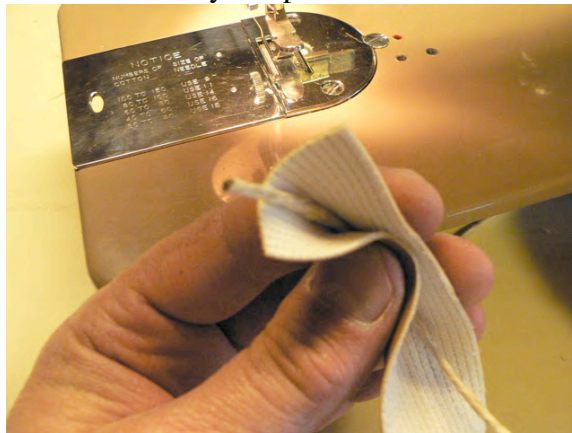
Sandwich the twine in the vinyl

• Lower the zipper foot so that the stitch line will run right up against the twine. Sew an inch or two at a time, then prepare the next few inches of sandwich, sew a couple more inches, etc. It helped me to feed the material at a slight angle to the foot to keep it running up tight to the twine.

Sew the piping

• For the cushion, you will need a length of piping that is slightly longer than the standard 54-inch width of a roll of vinyl plus a length of piping that is about 20 inches long. To do this, you will need to continue sewing your piping by overlaying the last half

inch or so of the first vinyl strip with a second vinyl strip so you end up with a piping length equal to two vinyl strips. You can then cut off the piping as needed during sewing.

• For the seat back, you will need two lengths of piping, both of which are slightly longer than the 54-inch width of a roll of vinyl. To do this, make a continuous length of piping using three strips of vinyl as described above, then cut as needed during sewing.

Sewing the Cushion

• Mount the straight stitch foot on the sewing machine.

• Unroll some 1/4 cloth backed foam and lay the center seat section on top of the foam. Cut out the foam to be about an inch or so longer than the vinyl on the front and back edges, and even with the vinyl along the sides. I simply eyeballed this as the object is to have the foam be larger than the vinyl. You will cut the extra off the edges after sewing is complete.

• Align the paper seat section pattern used to cut the vinyl along the edge of the vinyl and mark where the pleat lines will be sewn. Do this for both left and right sides, then use a straightedge to connect your marks from side to side. Use a non-permanent marker or sewing chalk,

Center section pleat lines marked and foam cut ready for sewing

• You will be sewing pleat lines beginning with the frontmost pleat. The cloth side of the foam should face downwards and the vinyl should be face up on top of the foam. Ensure that the left and right edges of the foam are aligned with the vinyl, and sew right along the pleat line as shown below, keeping the stitch straight. Slow down the stitch rate using the pedal until you are comfortable with the speed and your ability to guide the material in a straight line.
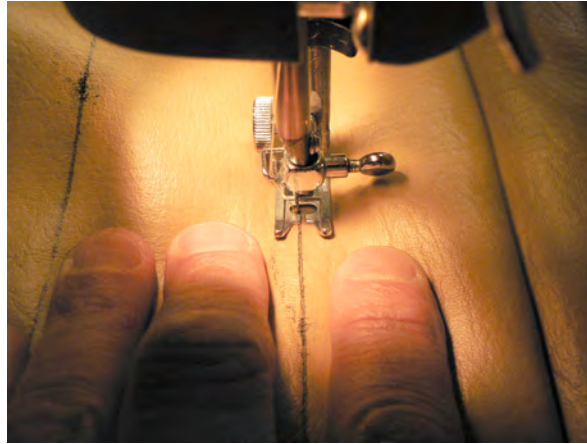
Sew right along the pleat line.

• After sewing along the pleat line, fold the vinyl over the just-completed seam and sew a second seam 1/8 inch from the fold line (see below). Keep the vinyl tightly folded so that your new seam doesn't wander over the first seam.
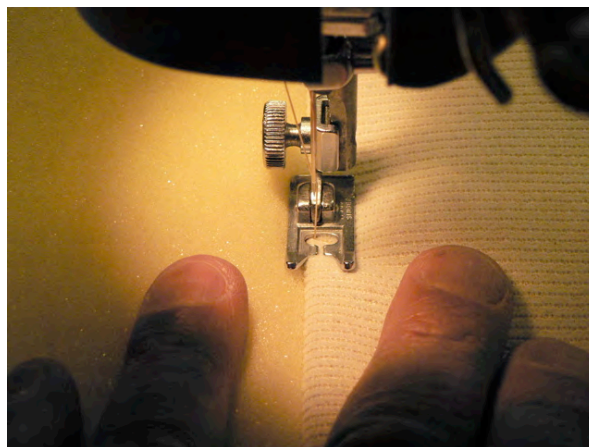
Sew the second pleat seam after folding the vinyl

• Lay the vinyl back face up, pull the vinyl so it is taut and once again ensure that it is aligned with the left and right edges of the foam. Sew along the next pleat line, fold the vinyl, sew the second seam, etc and continue this process until all seams have been sewn.

• With the vinyl pulled taut, tack the front and back edges of the vinyl to the foam. Note that the left and right side of the panel are not tacked down.

Tack down the front and back 1/8 inch from edge

Tack seam detail

• Use the scissors to trim the excess foam along all edges. This completes the center section.

• Lay left or right seat panel on some 1/4 foam and cut out the foam, cutting it about an inch wider than the vinyl around all edges. Keeping the foam taut so it does not wrinkle, tack the vinyl to the foam 1/8 inch from edge on all sides. Note that you should be able to stop at each corner, raise the foot slightly, turn the material, and continue the tack stitch without having to cut the thread and start a new seam.

Tack foam to left and right seat panel

• Use the scissors to trim the excess foam around all edges.

Trimming excess foam

• Repeat the above until both left and right and front panels have been tacked and trimmed.

• Lay the left and right seat panels alongside the center panel so get an idea about how they are oriented. Next, place the left panel face down on top of the center panel, aligning the panel edges that will be joined. Note that you will likely need to slightly stretch the center panel until both front and back ends can be aligned.

• Using the common household or office stapler, begin at the front of the panels and staple the left panel to the center panel, placing your staples a bit less than 1/4 inch from the edge. The idea is to temporarily join the panels together with staples while avoiding placing staples on the seam you will be sewing. You will need to carefully stretch the panels as needed so that when your stapling is complete, both front and back of both panels end up the same length and are aligned all along the edge to be sewn. If this is not the case, you can remove the staples using the needlenose pliers and try again. After stapling, you can carefully open the panels a bit to get an idea how the pleats will look after the seam is sewn.

• With the left panel cloth backed foam face up, sew the panels together about 1/4 inch from the stapled edge. I just eyeballed the 1/4 inch distance.
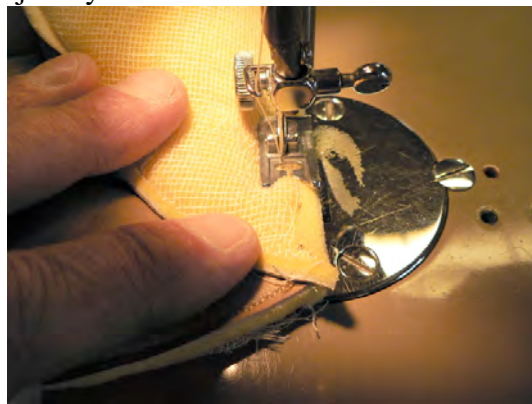
Sew left panel to center panel

- Use the needlenose pliers to remove the staples

- Repeat the above procedure to join the right seat panel to the center.

- Cut a section of piping about 2 inches longer than the inside curve of the front panel. Working from the center outwards and keeping both piping and the panel face up, staple the piping 1/4 inch from edge along the inside curve of the front panel.

Staple piping to inside curve of front panel

- Mount the zipper foot to the sewing machine

- Keeping the front panel face up, sew the piping to the inside curve of the front panel. Use the needlenose pliers to remove the staples after sewing the seam, and trim the excess piping from the ends of the panel.

- Find the marked centerline on the inside curve of the front panel and the front edge of the center panel. Using these marks as guides and with the vinyl face of the front panel against the vinyl face of the center panel assembly, work from the center outwards and staple the front panel to the front of the center panel assembly. You may need to stretch panels slightly so that the outer ends of the front panel and outer ends of the left and right panels meet. Note that due to the curvature of the front panel, once the staples have been inserted, the entire assembly may no longer lay flat.

Stapled assembly ready to be sewn

• Sew the front panel to the center panel along the stapled seam. Sewing may prove difficult in areas where the seam travels over the ends of the seams joining the left and right panels to the center. I found that a brief burst of speed on the pedal can help sew across these thick problem areas. In some cases it may be necessary to slightly raise the foot in order to enable it to travel over these areas. All of this needs to be done while attempting to keep the zipper foot laying the seam as close to the previously sewn piping as possible.

• Using the needlenose pliers, remove the staples from the completed seam.

• With the assembly face up, staple piping all around the seat assembly, crossing the piping at the back of the seat where the ends come together and leaving a inch or so extra on each end. Curve and staple the ends downward so that they may later be trimmed off. Using the scissors, make a slight cut in the piping every few inches to allow it to more easily be positioned around the curve of the seat.

Stapled seat piping ready to be sewn

Piping curve relief cuts

• Sew the piping to the seat cushion assembly, keeping the zipper foot tight up against the piping. Problem areas will be where the piping crosses existing panel seams. A burst of speed or raising the foot may be necessary to traverse these areas as described above.

- Remove the staples after completing the seam.

- Mount the straight stitch foot on the machine.

- On the back side panel, fold over the left end and run a seam 1/8 inch from the fold, creating a reinforced end edge. Repeat for the right side.

- Find the centerline mark on the back edge of the seat top assembly and the top edge of the seat back side panel. Working from the centerline outwards with vinyl facing vinyl, staple the back side panel to the back edge of the seat top assembly. Set aside for now.

- Find the frontwards edge of the left side panel and the left edge of the front side panel. Place vinyl against vinyl and run a seam 1/4 inch from the aligned edges.
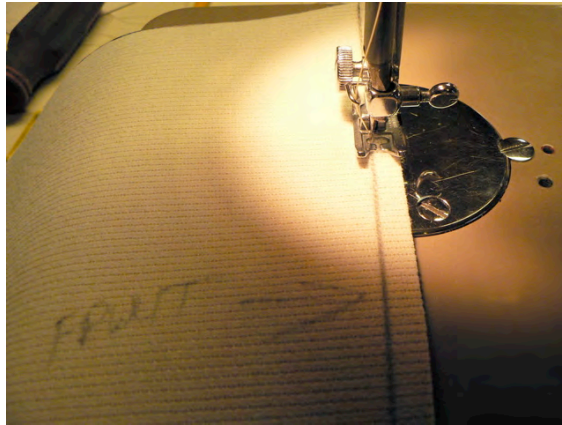
Join left to front side panel

- Turn the panels face up and lay the joined pieces flat on the machine, ensuring that the 1/4 inch seam material is bent towards the rear. Run a seam 1/8 in back of the panel join seam, thus creating a nicely reinforced and decorative seam (see detail below).

Reinforced side panel seam detail

- Repeat the above to join the right side to the front and create a reinforced seam.

• Locate the centerline mark on the front panel and the centerline mark on the front of the front panel of the seat top assembly. Working from these aligned marks and with vinyl against vinyl, staple the side panel assembly to the seat top assembly. The rear ends of the left and right sides should overlap the previously stapled back panel.

• Mount the zipper foot to the machine.

• Working with the cloth side of the foam upwards, run a seam from the middle of the back panel completely around the entire seat, using care when crossing existing seams and raising the foot as necessary. This will be the most difficult seam since you are sewing through several layers of vinyl, foam, and piping.

• Use the needlenose pliers to remove the staples after the seam is complete.

Turn the assembly right side out. This completes a seat cushion cover!

Completed seat front detail   Completed seat back detail

Sewing the Seat Back

Sewing the seat back is very similar to sewing the seat cushion. The front panels of the seat back are backed with 1/2 inch foam in the same manner as the top panels of the seat cushion.

The following page shows the order in which the Seat Back panels will be assembled.
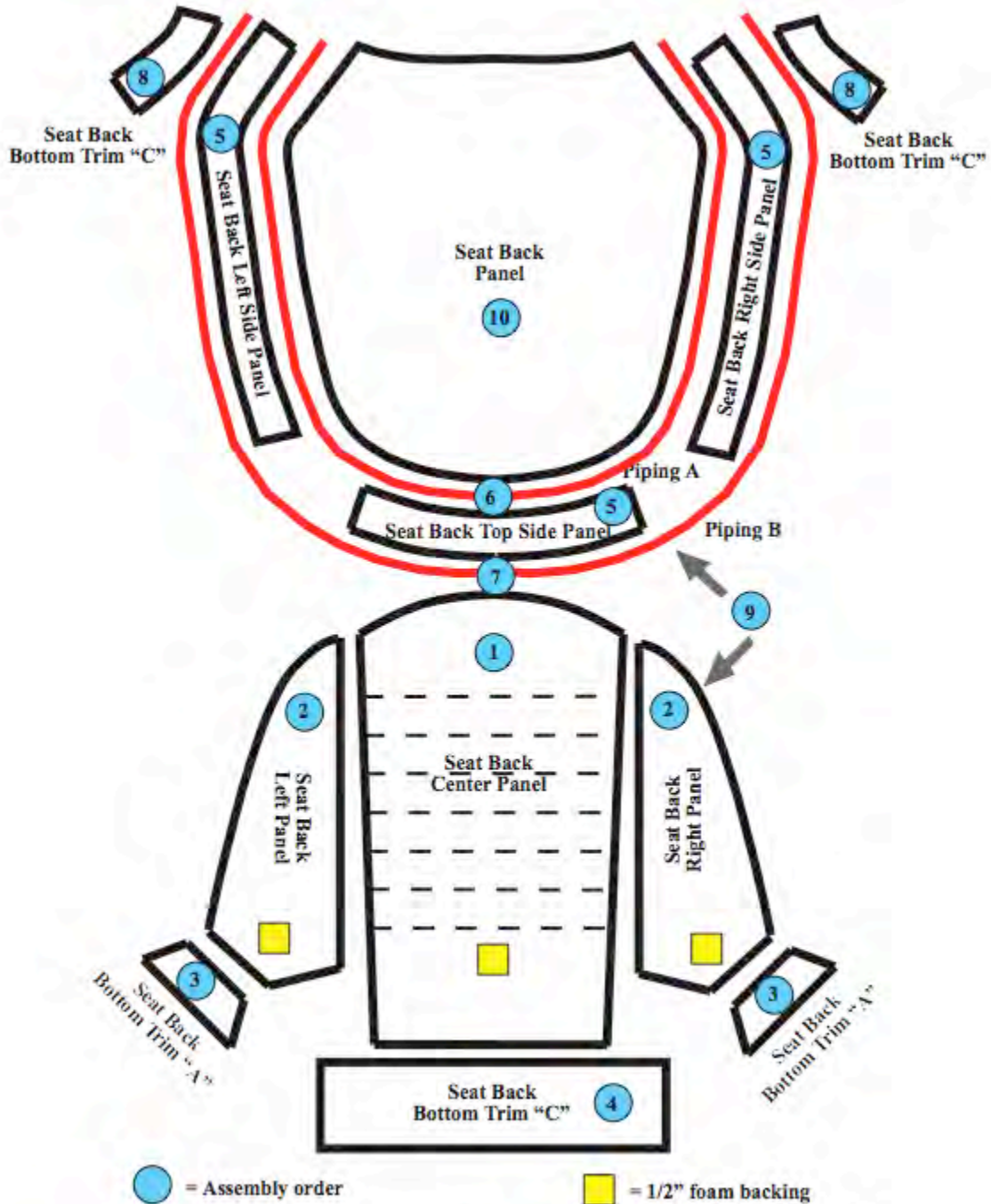
Seat Back Assembly and Build Order

Labels in figure: Seat Back Bottom Trim "C" (8), Seat Back Bottom Trim "C" (8), Seat Back Left Side Panel (5), Seat Back Right Side Panel (5), Seat Back Panel (10), Piping A, Seat Back Top Side Panel (6)(5), Piping B, (7), (9), (1), Seat Back Left Panel (2), Seat Back Center Panel, Seat Back Right Panel (2), Seat Back Bottom Trim "A" (3), Seat Back Bottom Trim "A" (3), Seat Back Bottom Trim "C" (4)

○ = Assembly order   ▢ = 1/2" foam backing

The pleated center panel is sewn first. The process of making the pleats attaches it to its foam backing. The left and right panels are attached to their foam backing then sewn to the center panel, followed by the small bottom trim pieces. The narrow left, right and top sides are joined together and piping and trim attached before being joined to the front assembly. Finally, the back is sewn to the front/side assembly, completing the seat back cover. Details on all these steps are described below.

• Mount the straight stitch foot on the sewing machine.

• Cut the 1/2 inch foam backing for the seat back center panel. Because the center section is slightly tapered, leave at least 1 inch of extra foam on all sides, to be trimmed later. Use the paper pattern as guide to mark out the pleat lines using a non-permanent marker or chalk. Also mark the line for the bottom trim panel seam, which will be needed when aligning the sides with the center. With the vinyl face up and the cloth side of the foam down, sew all pleats, working from the bottom of the panel towards the top. Be careful not to make one side of a pleat larger than the other or your panel will end up with a curve. The best way to ensure this is to carefully pull the vinyl taut (not tight) so that there is no loose vinyl on either end of the pleat, and hold it down this way while sewing along the pleat line. Do not sew the marked bottom trim panel seam.

• Tack the top edge and bottom edge of the panel to the foam 1/8 inch from the edge. Do not tack down the sides.

• Trim the excess foam from all sides.

• Cut 1-inch oversize foam for the seat back left and right panels, and tack these to the foam 1/8 inch from the edge. Trim off excess foam.

• Hold the left side panel face-to-face with the center panel and staple the side to the center in a similar manner as was done for the cushion center/left/right panels. Note that the tops of each panel should align when opened and face up, and the seam line along the bottom edge closest to the center panel should align with the marked bottom trim seam line marked previously. You may need to slightly stretch or compress the pleated edge of the center panel to make the alignment work. Open the vinyl face up (gently) to check that the pleats will have a pleasing appearance once the seam is completed.

• Sew the left side to the center. Remove staples using the needlenose pliers.

• Repeat this procedure for the right side seat back panel.

• Staple the bottom trim strip into position along the marked center panel seam line, ensuring that the panel also stretches across the bottom edges of the left and right panels (see illustration below).

Completed seat back front detail

• Sew the bottom trim to the left/center/right assembly. Remove staples.

• Staple and sew the bottom left and right trim pieces to the bottom of the left and right panels. See illustration above for detail. Remove staples.

• Locate the narrow seat back left, right, and top side panels. If you indicated the front edge of each panel on the back side, you will easily be able to position the left and top panels for joining. Use some care here and be certain that you understand how the bottom portion of both the left and right side panels curve towards the rear of the seat – not forwards. Position the narrow edge of the top of the left panel and the left edge of the top panel face to face and sew the seam (you do not need staples to make this short seam). When positioned correctly the top will flow into the sides and there should not be an abrupt bend either forwards or backwards at the seam.

• Bend the 1/4 inch material inside the seam downwards toward to the bottom of the seat and holding the vinyl face up, sew a decorative reinforcement seam 1/8 inch from your panel join seam. See illustration below.
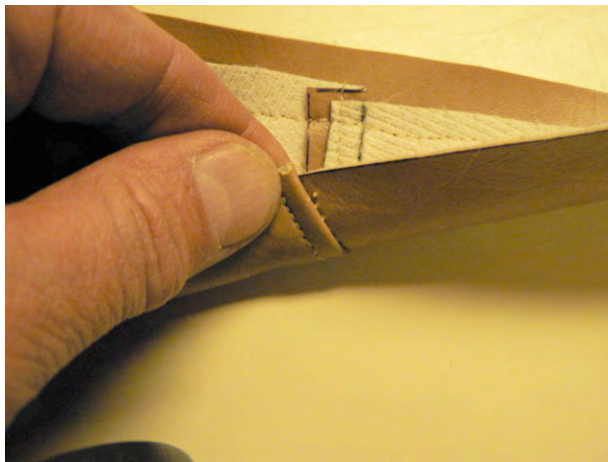
Seat Back top to side panel seam detail

• Repeat these steps to join the right side panel to the top panel.

• Using one of the long piping lengths sewn earlier, measure and cut a piping to run along the entire front edge of the left/top/right side assembly, running the piping all the way past the curves at the bottom of the left and right sides to the end of each front side. You will need to make relief cuts to allow the piping to easily bend around the outside curve at the bottom the of the left and right panels.
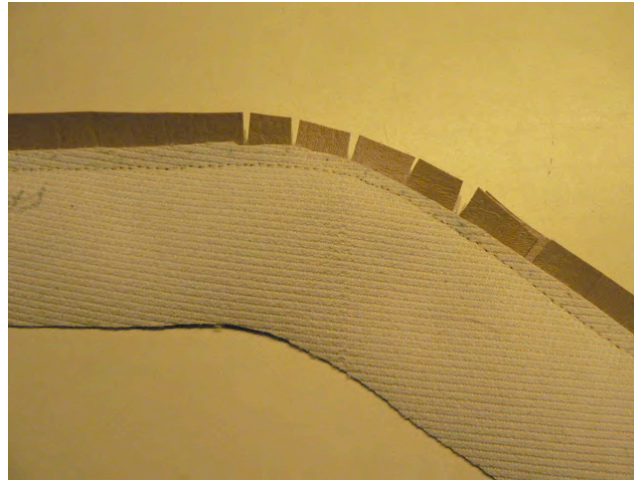
Seat Back side piping relief cuts

• Holding the piping on the face of the vinyl left/top/right assembly, staple the piping into position.

• Mount the zipper foot on the sewing machine.

• Sew the front edge piping to the left/top/right side assembly.   Remove staples.

• Measure, cut, position, and staple piping onto the back edge of the left/top/right side assembly. When positioning the piping on this edge, it is useful to look at the face of the vinyl to ensure that the piping is relatively parallel to the front edge piping, maintaining a pleasing appearance. You will need to make "V"' cuts in the piping to negotiate the inside curves (on the back bottom edges of the left and right panels. Sew the piping to the assembly and remove staples.

• Staple the "C" trim pieces into position along the bottom front edge of the left and right side panels. Sew the trim pieces into position and remove staples.

• With the seat back front assembly face down and the top towards you, locate and align the centerline marks at the top of the center panel and the middle front of the top side panel. With the vinyl face-to-face, staple the front of the left/top/right side assembly to the edge of the seat back front assembly (see below). Sew the side assembly to the front assembly, keeping the zipper foot against the piping as much as possible. This is an

awkward seam to sew due to the bulkiness of the assembly – you may wish to enlist some temporary third hands to help keep the piece in position during sewing.

Seat Back front and side assembly

• With the front/side assembly positioned as shown above, place the large back panel face down on the assembly, aligning the centerline marks at the top of the rear panel and the rear edge of the top side panel.
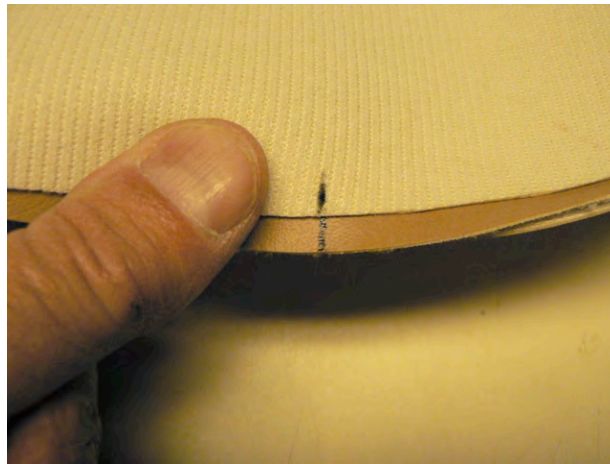
Seat Back mark alignment

• Staple the rear panel into position. Note the relative positioning of the panel vinyl and the piping – the goal is to have the piping seam positioned 1/4 from all edges of the rear panel (which is where you will be making your last seam). See below. The curves at the bottom edges of the left and right side of the rear panel should align with backward curves at the bottoms of the left and right side panels.

Back panel to piping detail

• Enlisting an extra set of hands, sew the rear panel to the front/side assembly. This will be a difficult seam to sew, so proceed carefully. Remove staples when done.

Stapled and ready for final seam

• Turn the completed seat back assembly right-side out.

This completes a set of seat covers! Repeat the above for the second seat.

Covering the Seats

Before padding and covering the steel seats, you will need to attach tacking strips to the inside of the seat back and (for the drivers seat only) the underside rear. To construct the underside tacking strips, I simply made a paper pattern from the seat and cut strips from scrap 1/4 ply. Positioning the strips against the bottom, I used a pencil to mark through the rivet holes onto the wood and drilled proper size holes to receive the rivets. I then used a pop rivet gun to attach the strip to the underside of the seat (see pictures below)

For the insides of the driver and passenger seats, I first made a paper pattern that I transferred to a sheet of hardwood veneer – the type that has a peel-off sticky backing.

For each seat, I then cut six strips that I simply stuck into place on top of one another. The adhesive on the veneer is insufficient to hold tight against the strains of upholstering, so the built-up strips must also be attached with pop rivets. Simply drill through the existing pop rivet holes in the steel seats and through the wood and attach the rivets. This veneer method really was easy and the staples hold just as nicely in the built-up veneer as they do in plywood.

Before padding the seats, the bottom outside and inside edges must be covered with vinyl. On the drivers seat, this bottom covering need extend only just past where each seat back side curves upward – the rear panel and bottom trim panels cover the rest (see pictures below).

When cutting the vinyl of the seat bottom trim, allow at least a 1/2 inch of extra material to be glued to the underside of the seat and an inch on the inside of the seat. Your strip will also need to be higher to cover the start of the curve upward of the seat back. I used a small jar of contact cement to attach the vinyl to the seat – the kind with the brush attached to the lid, which was convenient.

Bottom trim being attached

Once glued to the outside of the seat, the vinyl can be easily folded over into the inside without any relief cuts. I also did not need any relief cuts to fold over the material on the underside of the seat.

Driver seat bottom detail

On the passenger seat, you will likely need to glue vinyl to the last couple of inches of the seat back "horns" – the tips of the seat back where a bolt attaches the back to the bottom of the seat ad allows it to fold forward. The bottom trim on the covers doesn't quite reach this area. Also, for the passenger seat, note that the bottom trim must cover the entire circumference of the seat bottom since the seat back cover does not attach to the bottom as it does on the driver side. In the picture below, I eventually replaced the temporary (ugly) bolt with a nice chrome bolt, washer, and acorn nut purchased from the local (Ace) hardware store.

Passenger seat side detail

If you will be using springs, you need not read further as the rest of this document describes how I used foam sheets and batting purchased from Wal-Mart to pad out my seats.

When using foam, you will need to make plywood cushion bottoms to support the foam and provide rigidity. The cushion cover is eventually stapled to the underside of the plywood. I used 1/2 inch treated plywood I purchased at Lowes – a quarter sheet was plenty to make two seat bottoms.

When cutting out the seat bottoms, be sure to leave appropriate holes so that the existing spring retainer clips on the bottom of the seats do not get crushed (I did not use the clips to hold the plywood-based cushion to the seat bottom, although you could engineer something if desired).

I used 96-inch long 1-inch upholstery foam sheets purchased from Wal-Mart to pad out my seats. I used four sheets plus two bags of polyester batting. You can also purchase foam cushion kits for seats on eBay or craft your own from thicker sheets if desired.

I padded and covered the seat backs first. I used 3M Super 77 spray adhesive to attach the foam to the seat, which worked quite well. The front of the seat back is covered with one layer of foam and the back is outlined with strips of foam that are first glued on and then bent forward around the edges of the seat back to meet the front side foam. You will

need to make relief cuts in the foam before bending it forward and gluing into place. The bottom of the front side foam should not cover the plywood tacking strip which will be later used to hold down the covers to the seats.

Seat back front padding detail
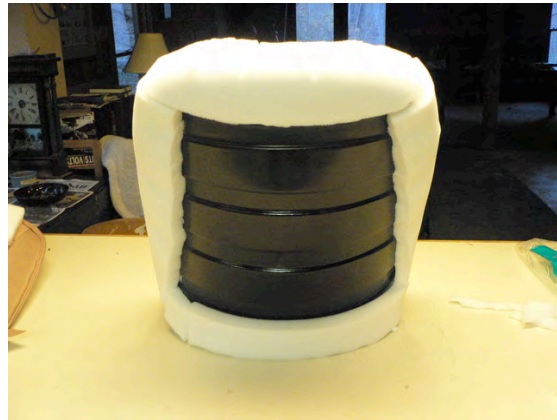
Seat back rear padding detail

After gluing on the foam, I glued on a thin layer of batting to smooth any foam edges.

Batting detail

The next step is to install the seat back cover. I borrowed a trick recommended by others of slipping a plastic garbage bag over the back of the seat, then pulling on the seat cover. After the cover is well on, the garbage bag is ripped out. This trick allows the foam to be easily compressed and the cover to slide on without grabbing the foam.

You will need to have your 1/4 inch staple gun ready to tack down the front and back edges of the seat covers to the riveted plywood tacking strips installed earlier. This operation goes much easier with some extra sets of hands to hold the cover in position while you operate the staple gun. Pull the cover tight, eliminating as many wrinkles as possible while positioning the side piping appropriately. I had good luck doing the front side first, followed by the back, then the sides. You may need to undo and redo staples several times to get the cover the way you want.

I built up the cushions from pieces cut from the 1-inch foam sheets. A standard spring supported cushion – when measured from the bottom of the front to the front piping is 7 inches tall in front sloping back to about 4 1/2 inches in the back. To get this slope, I alternated full size sheets with sheets that only went 3/4 of the way from the front to the back.
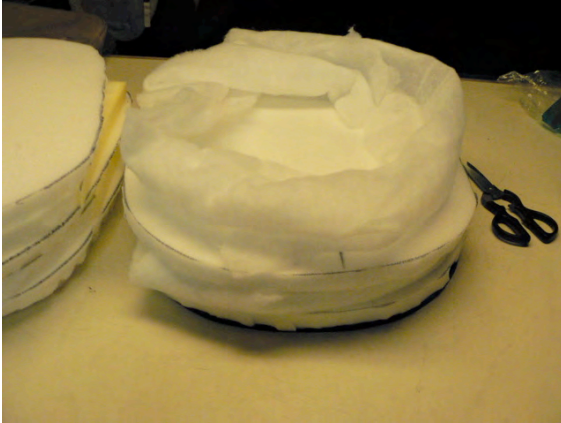
Cushion building – note batting "donut" every 2nd layer   A finished cushion stack

I cut each sheet about 1/2 inch larger than the sheet beneath to simulate the small outward slopes present on the front and sides of spring-based cushions. Every 2nd layer I added a batting "donut", with the expectation that this might help to make the cushion more easily compressible in the center, avoiding the problem of side-slippage reported by some foam cushion owners in the past. Each layer was attached to the previous layer with a few sprays of adhesive to hold the stack in place.

Once completed, the cushion cover is turned inside out and placed in position over the stack. I then turned the stack and the cover upside down so that I could pull the cover sides tight and staple them to the bottom of the plywood base. Some trial and error was necessary to remove wrinkles, achieve the slope I desired, and even up the piping around the seat. Afterwards I trimmed off the excess vinyl from the bottom of the cushion and placed the cushion on the seat.

Driver seat side detail

To finish off the seat, you may need to tuck or glue the bottom seat back trim over the edge of the seat back where it curves into the seat bottom (see above). I finished up the drivers seat with a few hand stitches to neaten up the trim.

The passenger seat back is covered in the same way as the driver seat back with the exception that the bottom of the rear panel is stretched underneath the seat back and tacked to riveted strip on the bottom of the front side of the seat back. The front is then pulled tightly down and tacked over the rear material. The passenger seat cushion is identical to the driver seat cushion.

A finished seat

I found the seats to be quite comfortable with little "side-slippage" and nice back support. My goal was to restore my TR3 seats with quality vinyl of my own choosing for a price less than that of purchased sets, and this seems to have worked out better than I had hoped. I'm sure that more experienced sewing machine operators and upholsterers could do a much better job, and I hope the patterns contained in this document are found to be of some assistance, since they do not appear to be available elsewhere.

Where I goofed

• In the picture of the finished seat above, note how the left and right sides of the cushion seemed to be slightly "pinched in". This was because the pattern I used for the cushion front panel was 1/2 inch to narrow on each side. This has been corrected in the patterns in this document and your seat should not have this defect.

• In the picture of the two seats on the front page of this document, you can see that the pleats on the back of my passenger side seat are slightly higher than those on the driver side. This was caused by not pulling the passenger cover as tight as the driver cover – a defect I corrected later by removing the staples and retightening the cover.

Cushion
Back Side Panel
1

Panel seam line
1/4" from edge

Not sewn to side panels
Fold under at line and run
hem 1/8" from edge

Approximate line of

BACK S

CU
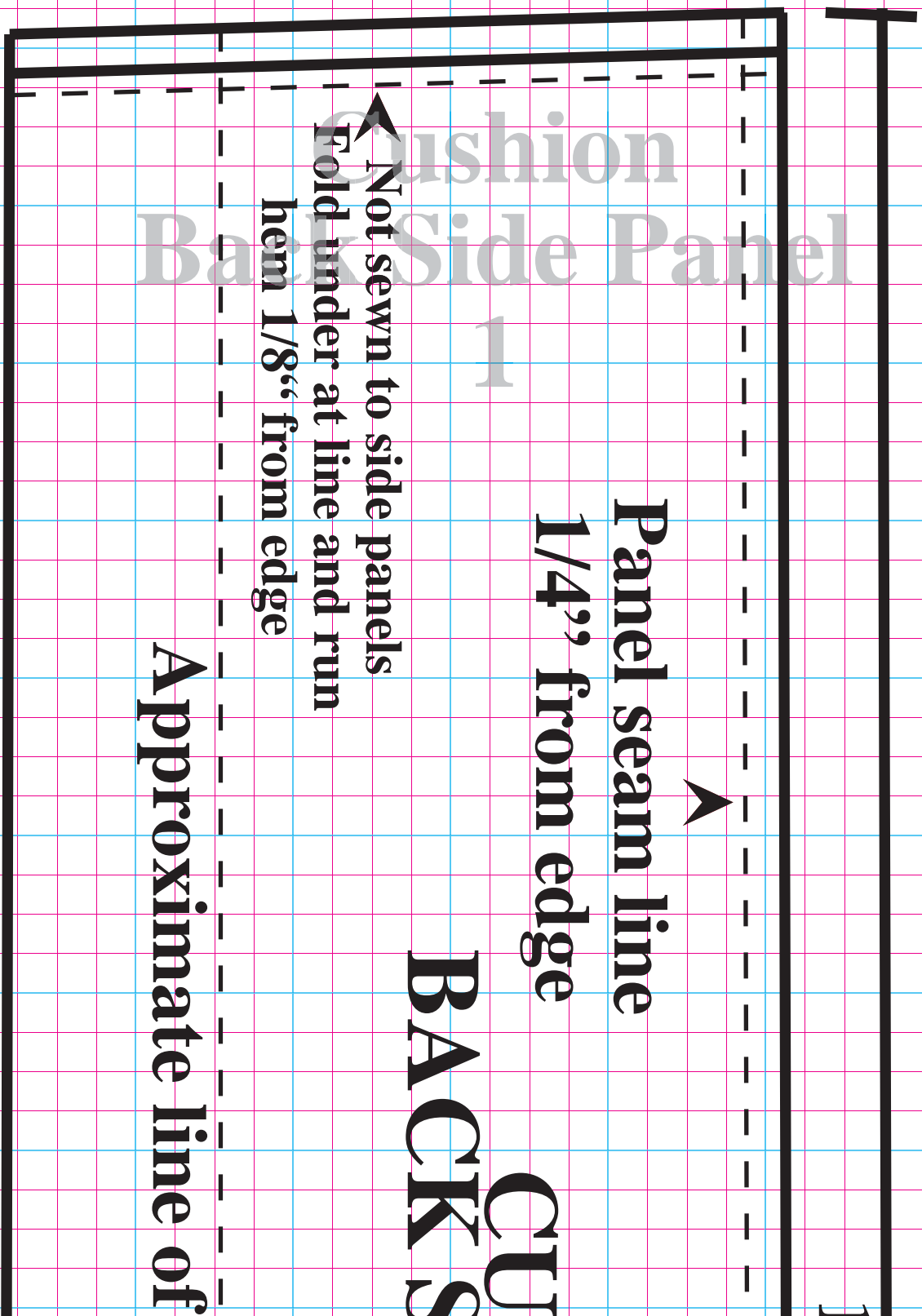
BACK

CUSHION
SIDE PANEL

17 1/2"

Top

5"

Not sewn to side panels
Fold under at tie and run
hem 1/8" from edge

bottom of seat cushion
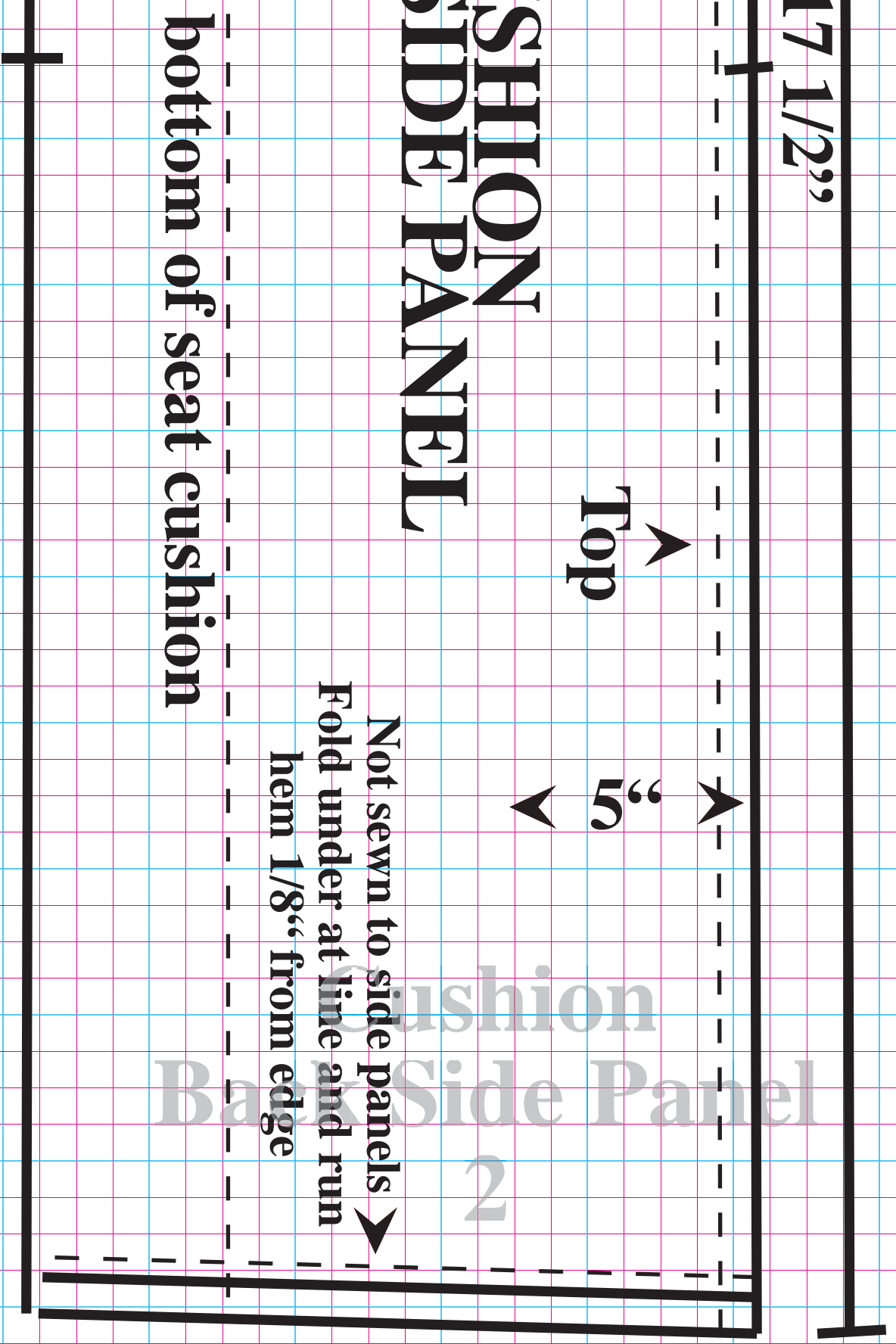
Cushion
Back Side Panel
2

Cushion
Center Panel
1

Foam stitc
1/8" from

N

Cushion
Center Panel
2

Back

ch line
n edge

Panel seam lin
1/4" from edge
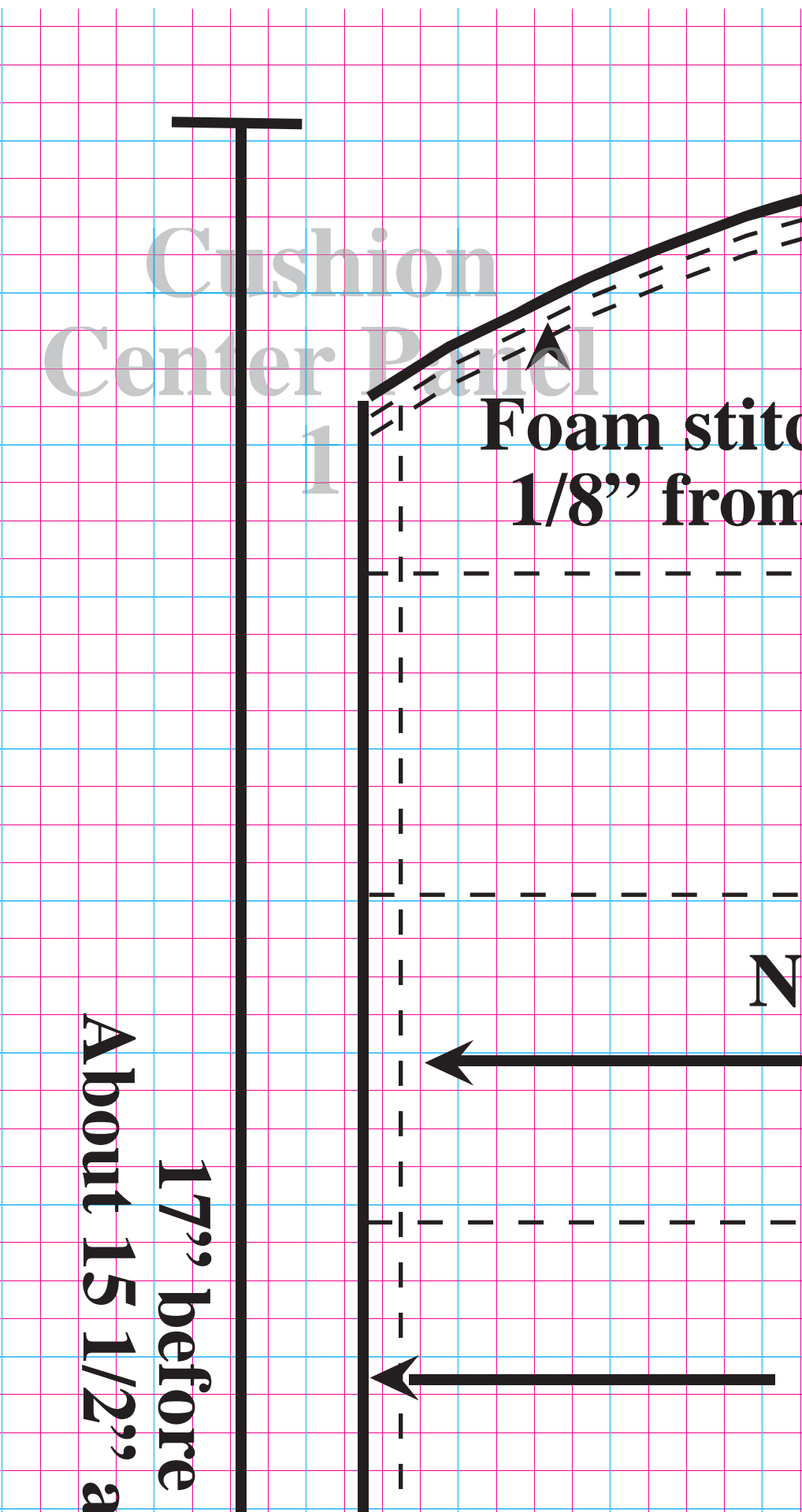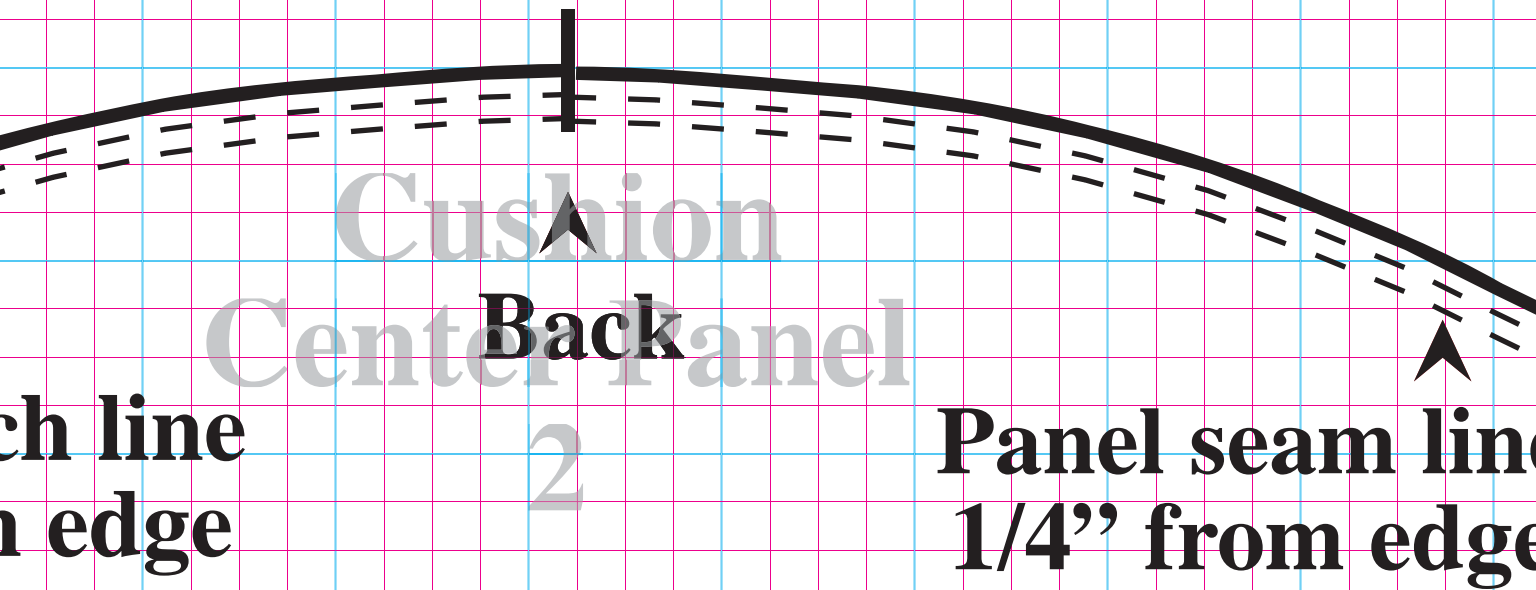
CUSHION
CENTER PANEL

OTE: Foam is not stitched on
left and right edges - only
along front and back edge

11 3/4 "

Cushion Center Panel

3

How to mak

1. Sew along marked pleat line to join vinyl and foam (foam will draw up tightly again vinyl)

Vinyl

Foam

Front of panel ▼

2. Fold vi sew sec

First s

Make pleats fro
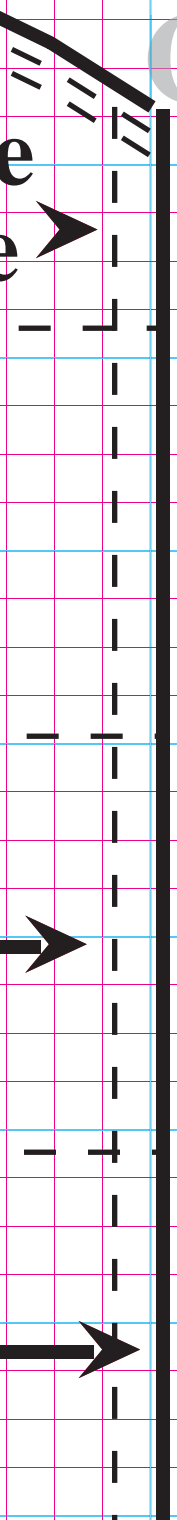
pleats are sewn

after pleats are sewn
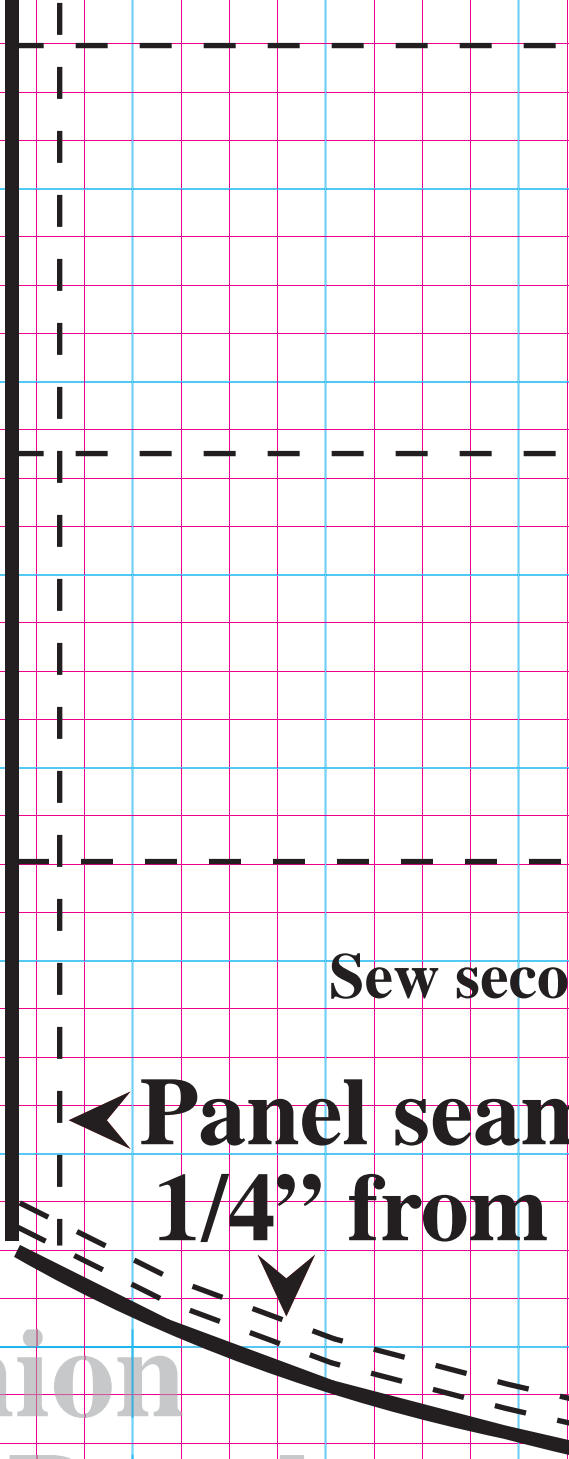
Sew seco

‹Panel sean
1/4" from

Cushion
Center Panel
4

Mark pleats every 2 1/8"

First pleat mark is
3 1/4" from front edge

Sew marked pleat line first.
nd pleat line 1/8" in front of first line on all pleats
(see directions on right)

n line
edge

Front

Foam stitch lin
1/8" from edg

Cushion
Center Panel
5
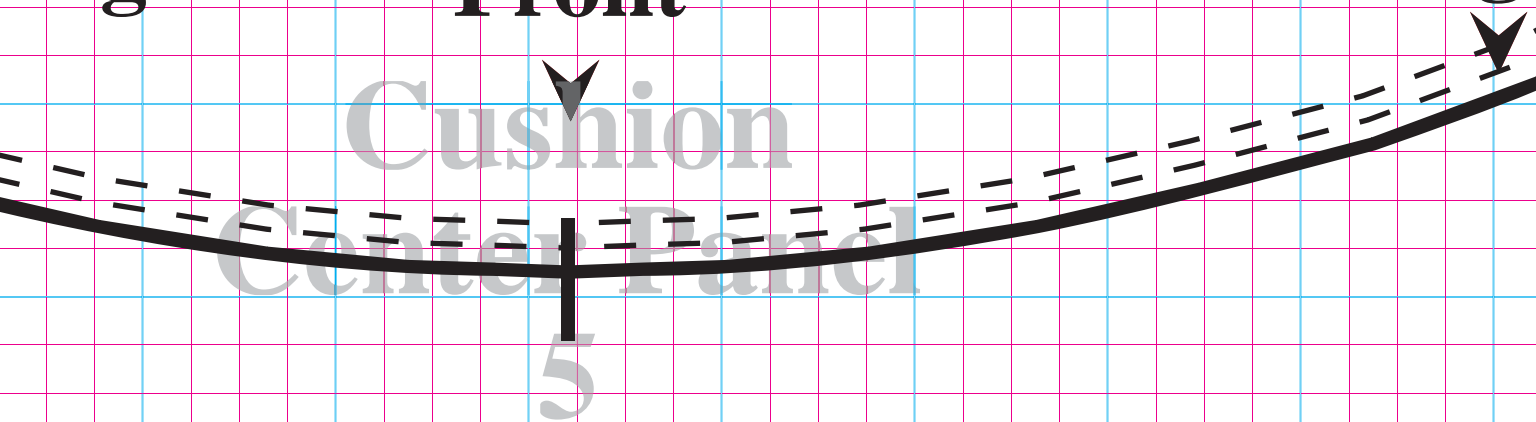
e pleats:

nyl back at first seam and
cond seam 1/8" in front

Second seam

seam

3. Lay vinyl face up and start next pleat

n front to back

e
e

Cushien
Center Panel

6
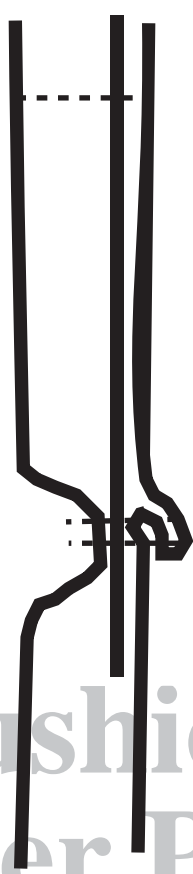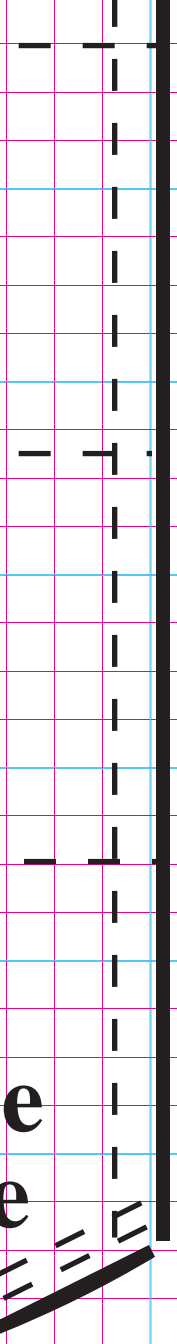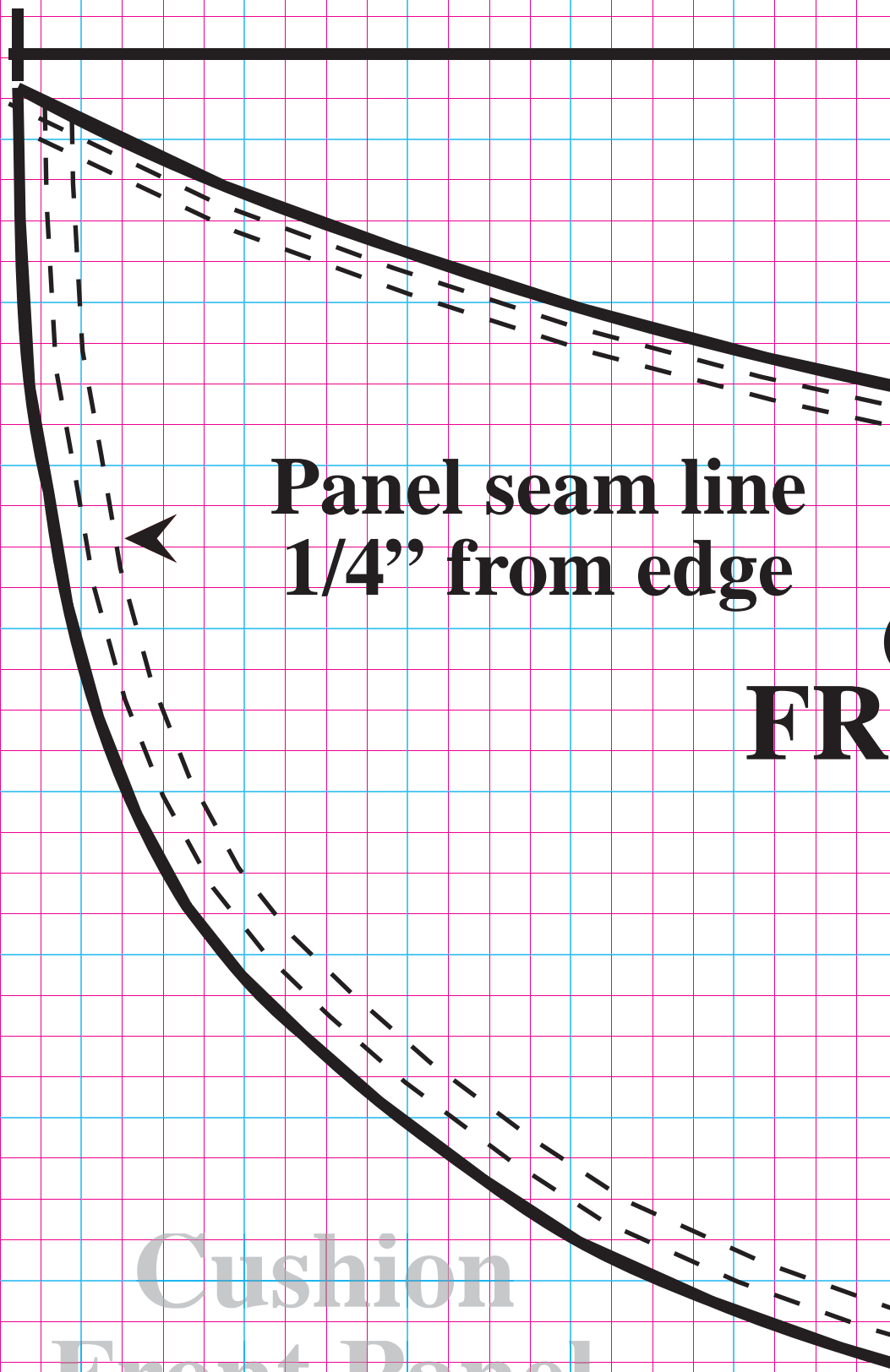
**Panel seam line
1/4" from edge**

FR

Cushion
Front Panel
1

18 3/4"

CUSHION
ONT PANEL

Front

6 1/8"

2
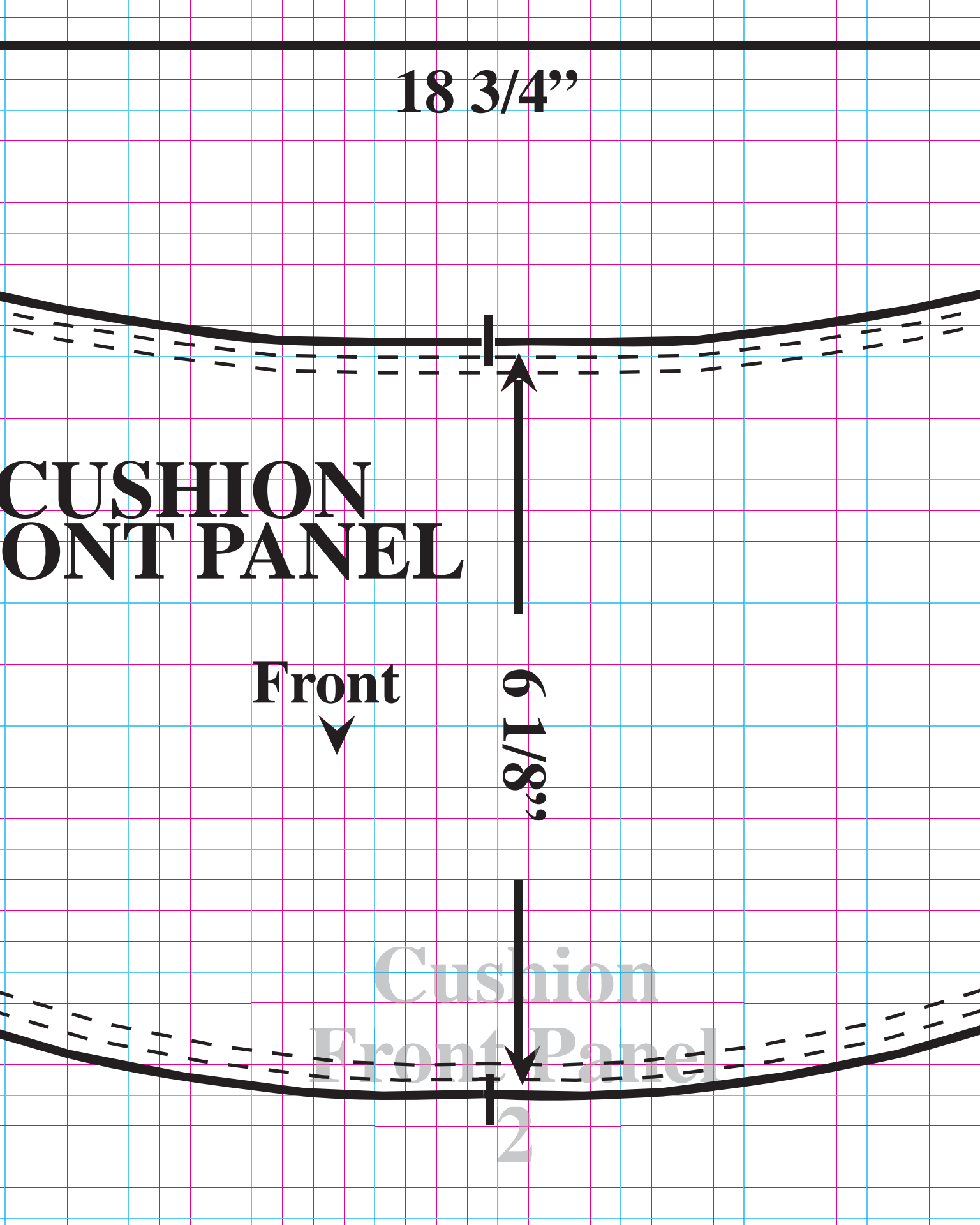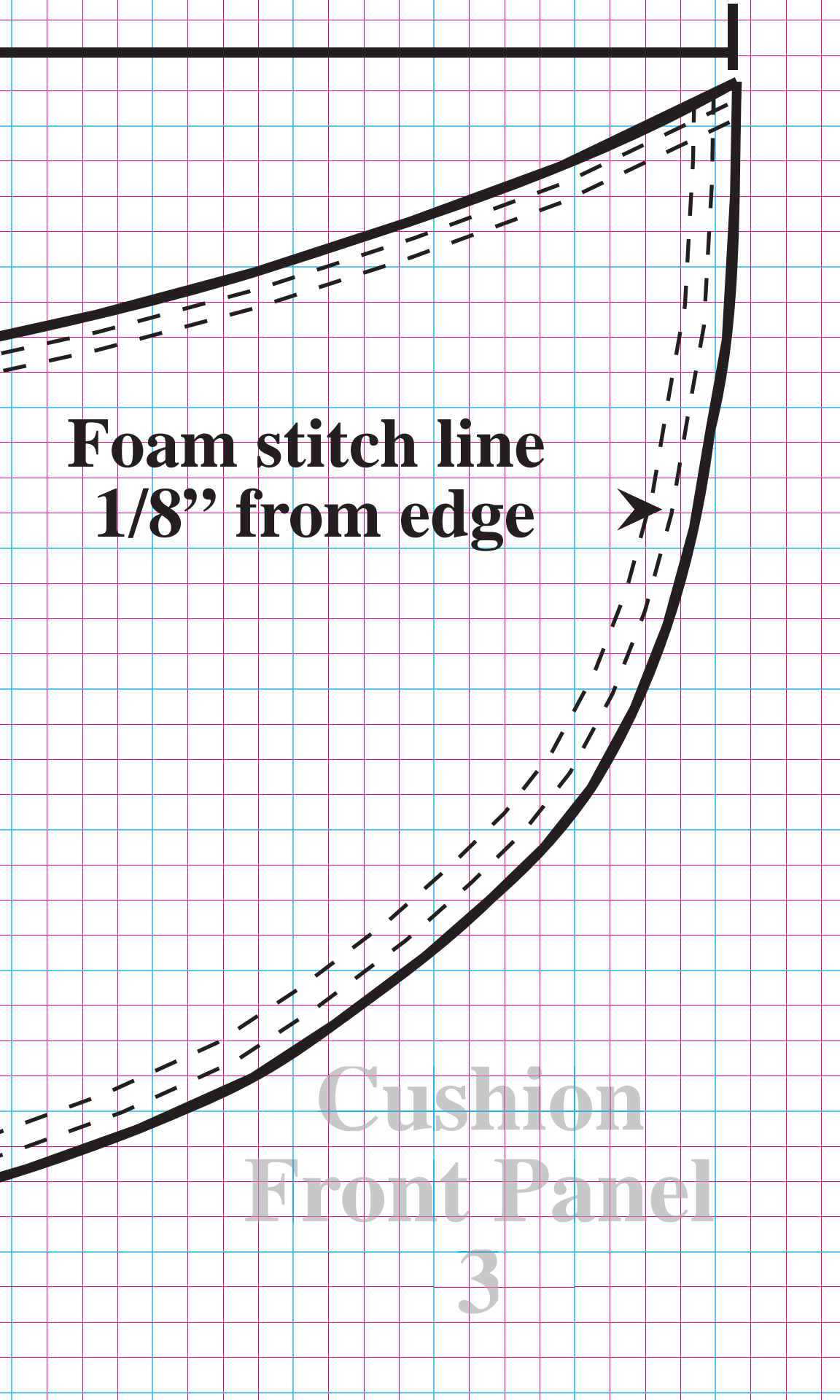
**Foam stitch line
1/8" from edge**

Cushion
Front Panel
3

Cushion
Front Side Panel
1
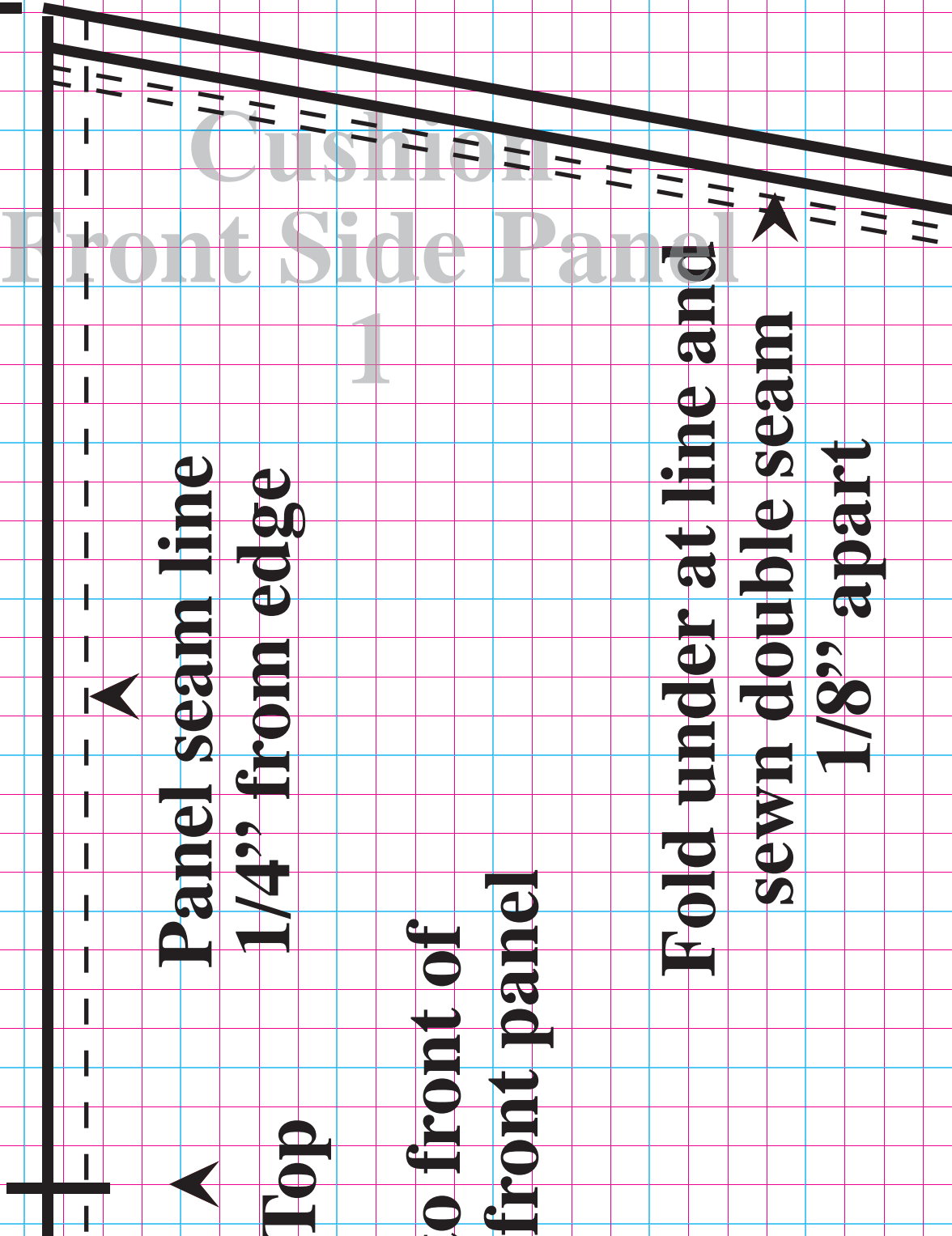
Panel seam line
1/4" from edge

Top

o front of
front panel

Fold under at line and
sewn double seam
1/8" apart

5 1/4"

Cushion
Front Side Panel
2
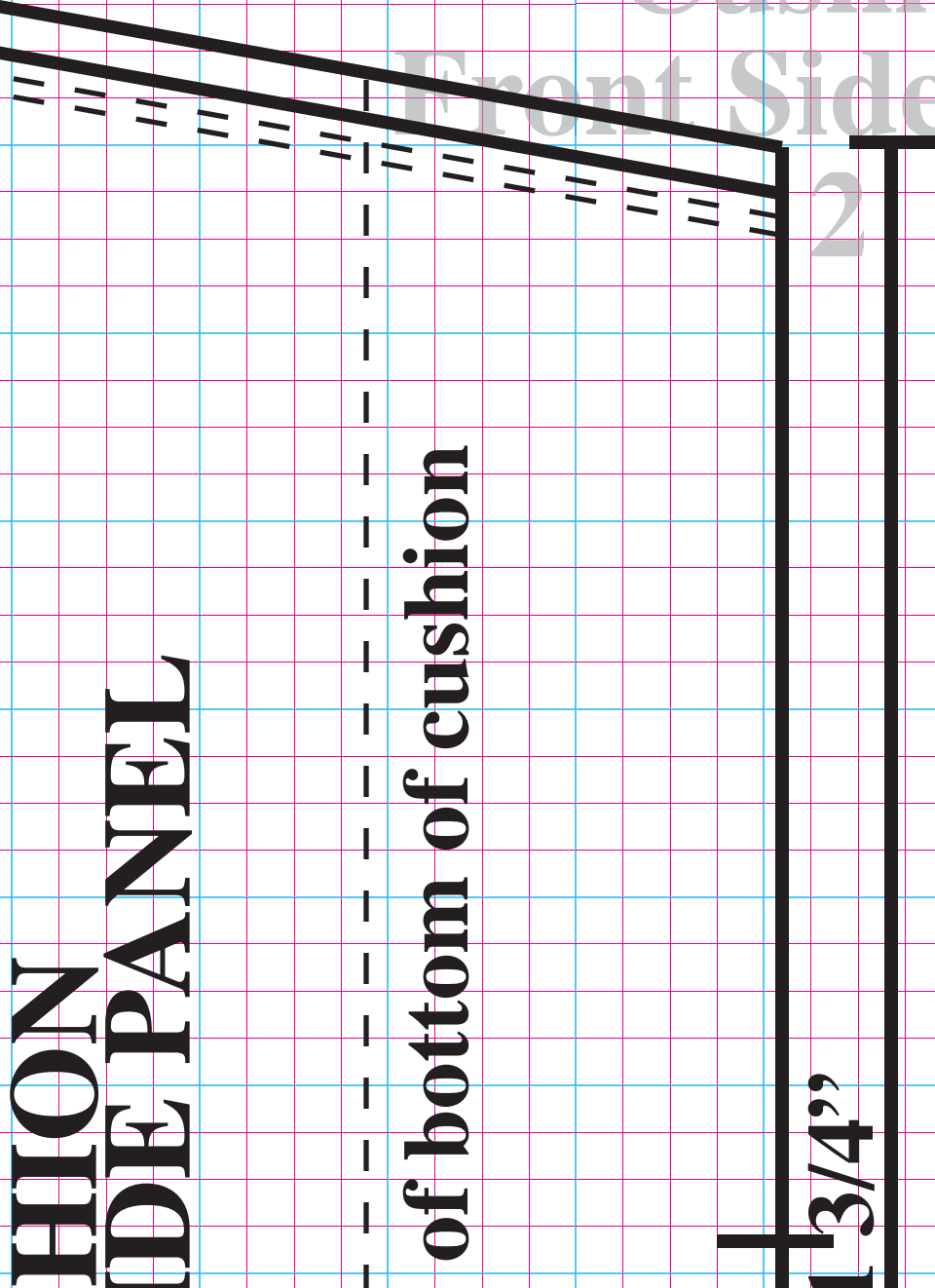
of bottom of cushion

HION
DE PANEL

HION
DE PANEL

1 3/4"

15

Sewn t͏ cushion

Fold under at line and sewn double seam 1/8" apart

←——— **10"** ———→
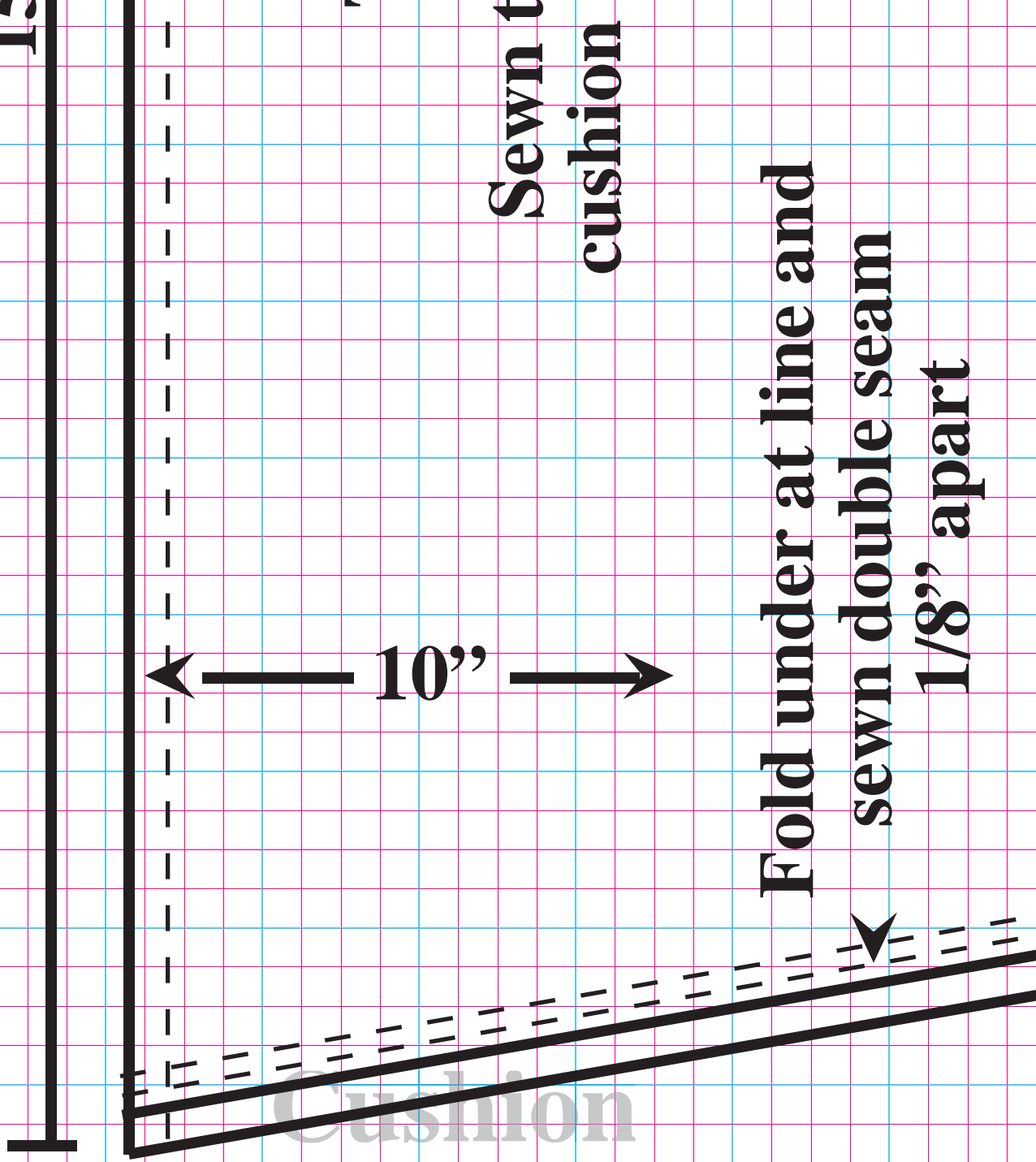
Cushion
Front Side Panel
3

CUS

FRONT S

Approximate line
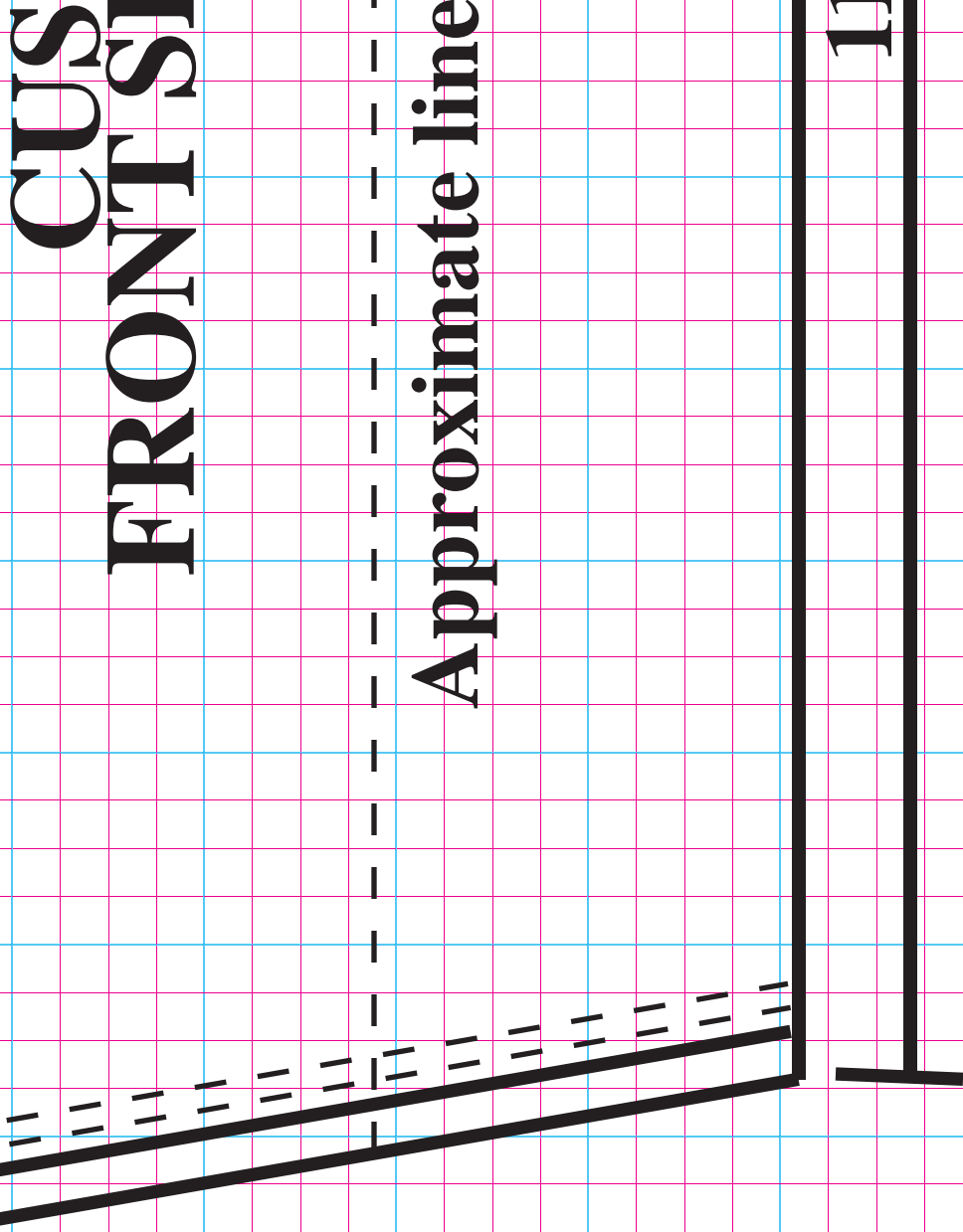
Cushion

Front Side Panel

4

Cushion
Left Side Panel
1
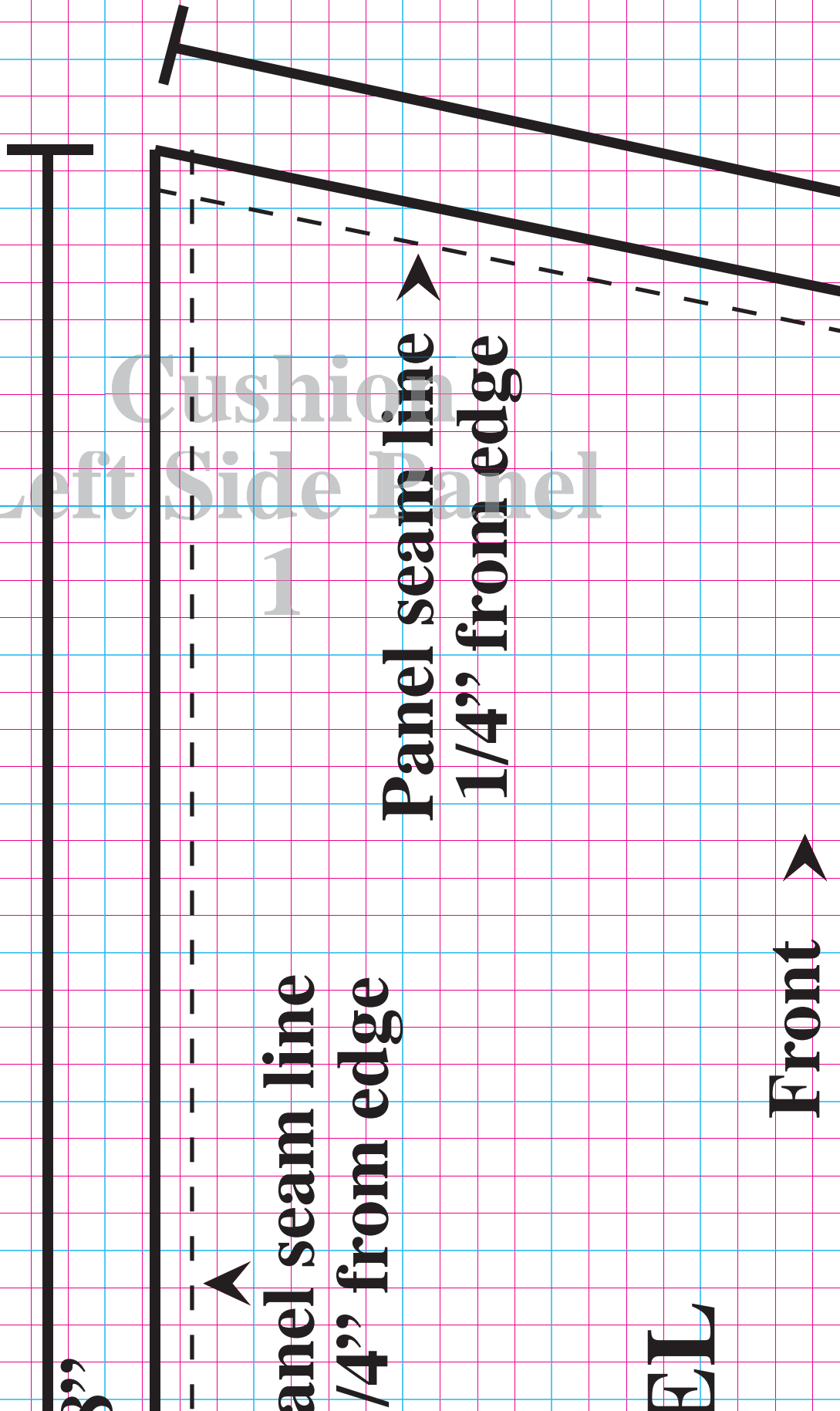
Panel seam line
1/4" from edge

Panel seam line
1/4" from edge

anel seam line
/4" from edge

Front ➤

EL

10"
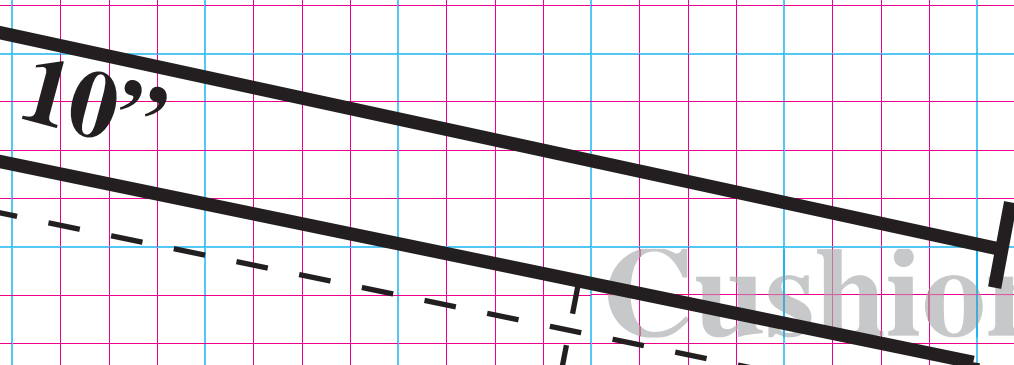
Cushion
Left Side Panel
2

om of seat cushion

17 7/8"

Pa
1

Top

△

CUSHION
LEFT SIDE PANI
(flip to cut right side)
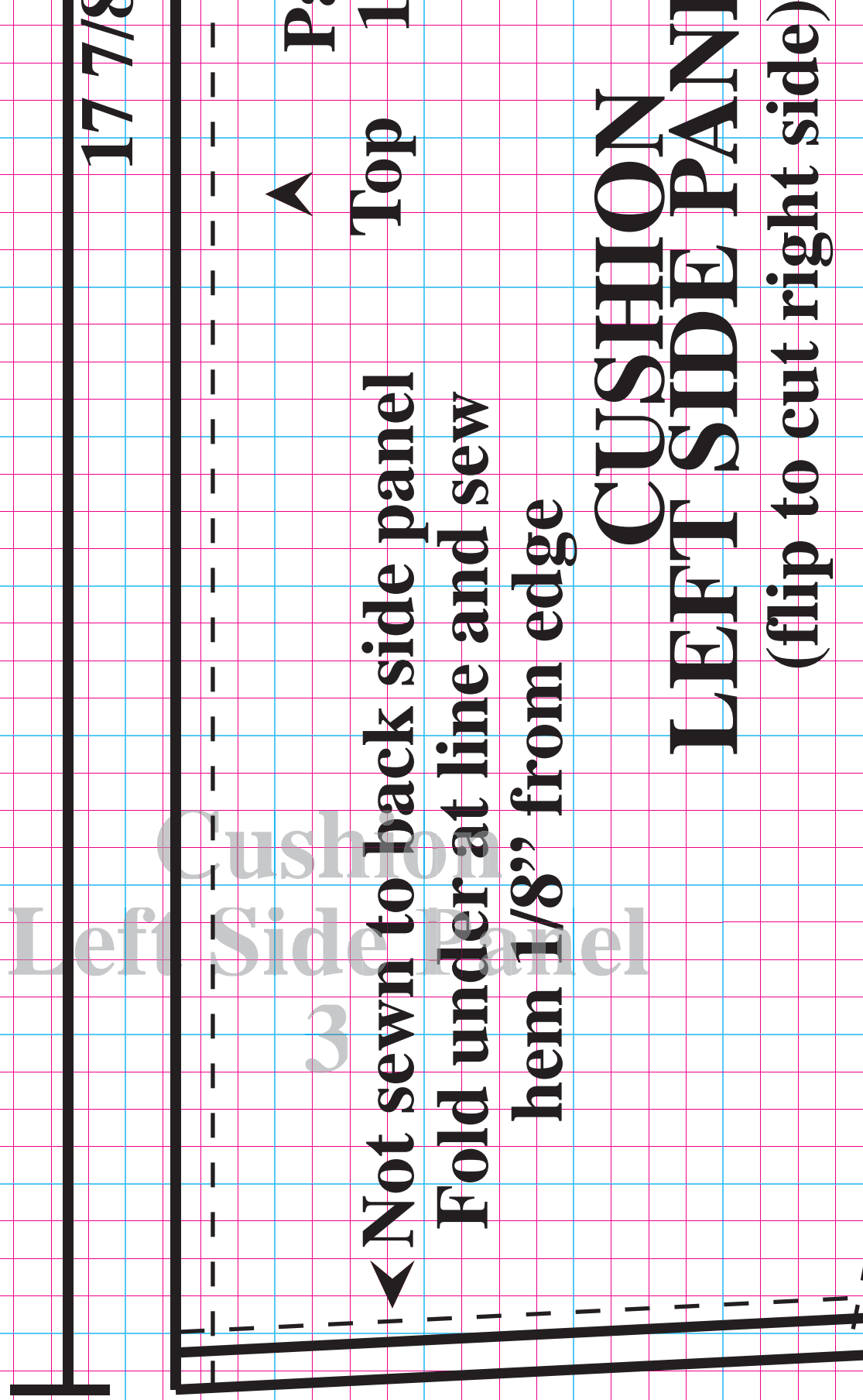
◄ Not sewn to back side panel
Fold under at line and sew
hem 1/8" from edge

Cushion
Left Side Panel
3

Approximate line of bott

Cushion
Left Side Panel
4
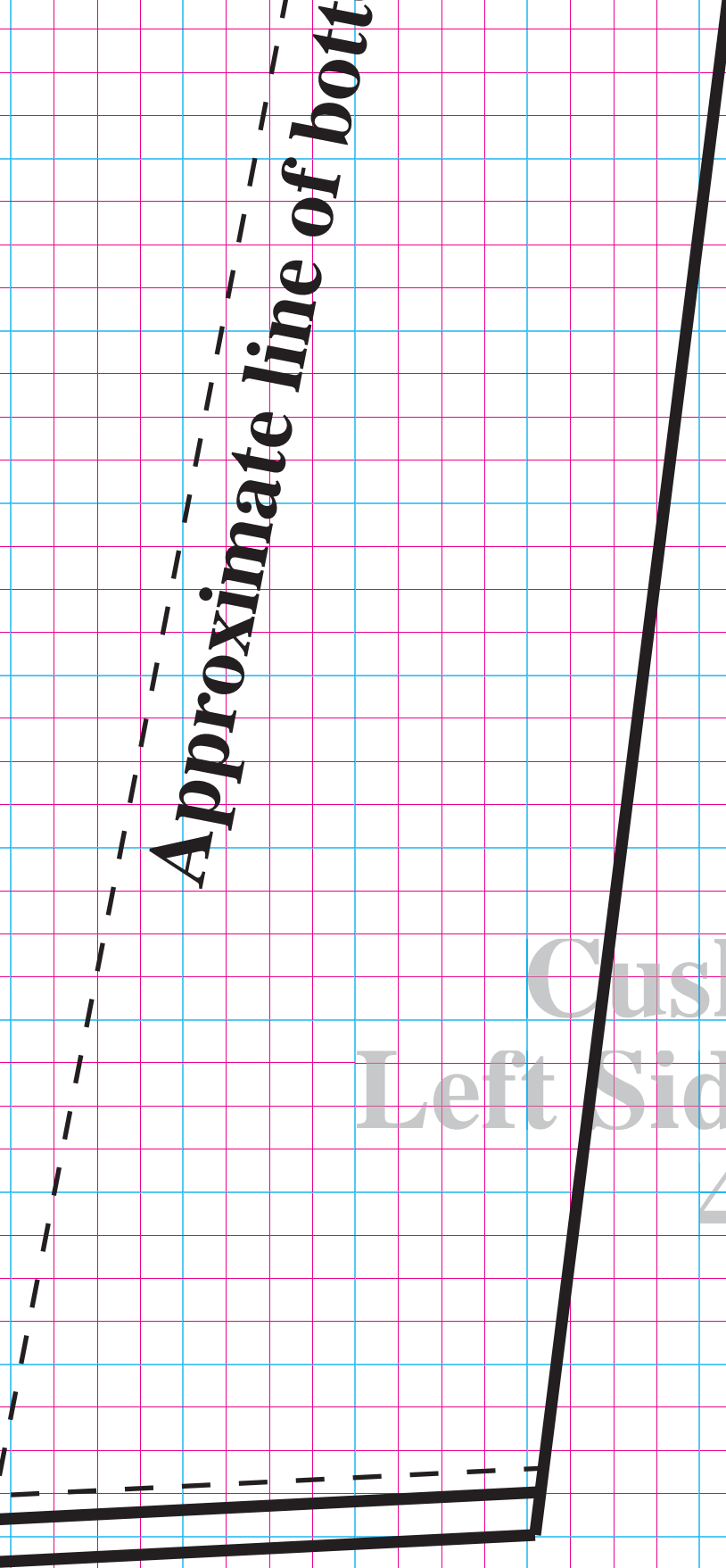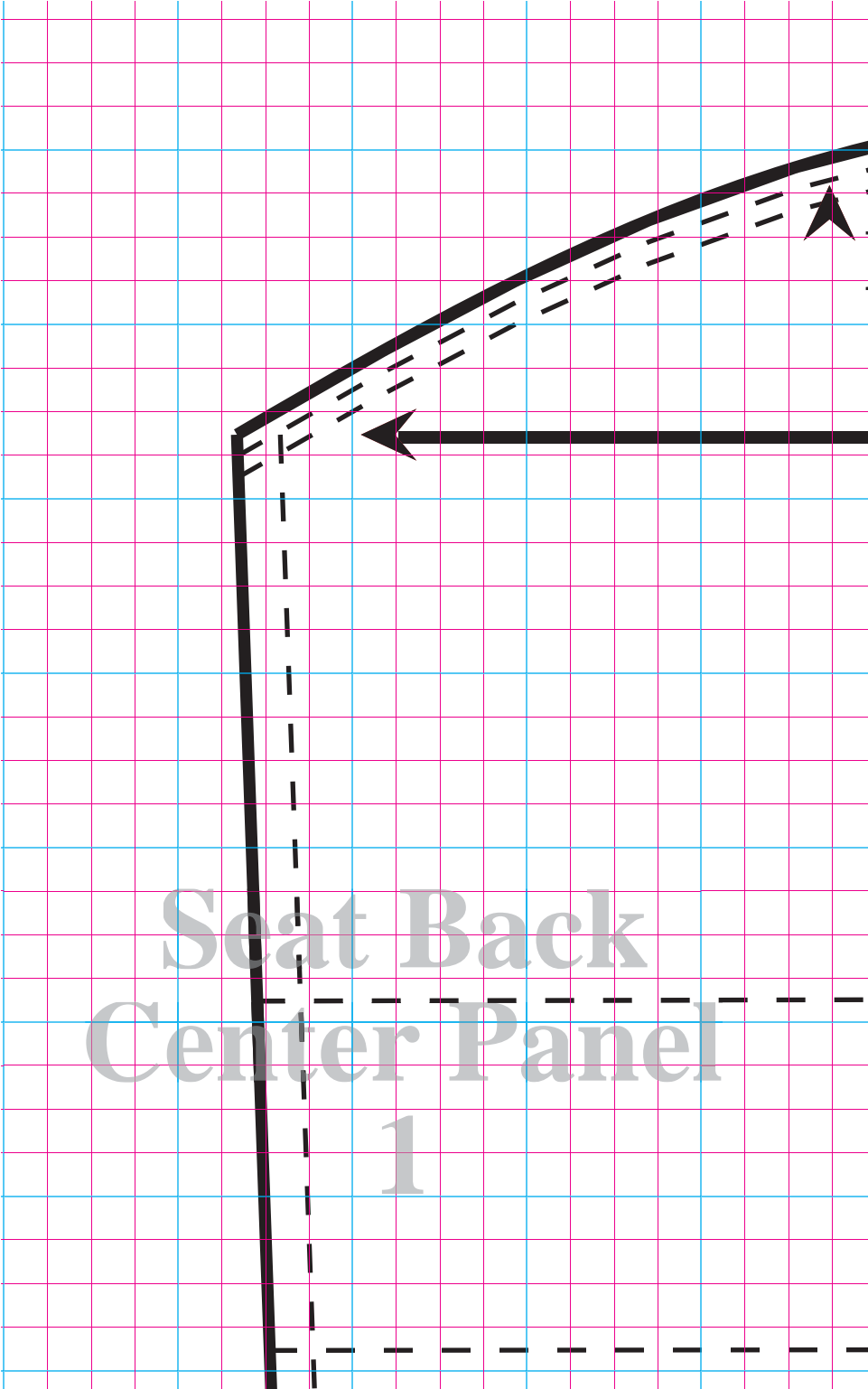
Cushion
Right Panel
1

**CUSHION
RIGHT PANEL**
**(flip over to cut
left side)**

12 1/4

**Panel seam line
1/4" from edge**

**Foam stitch line
1/8" from edge**

4"

Front

Cushion
Right Panel
2
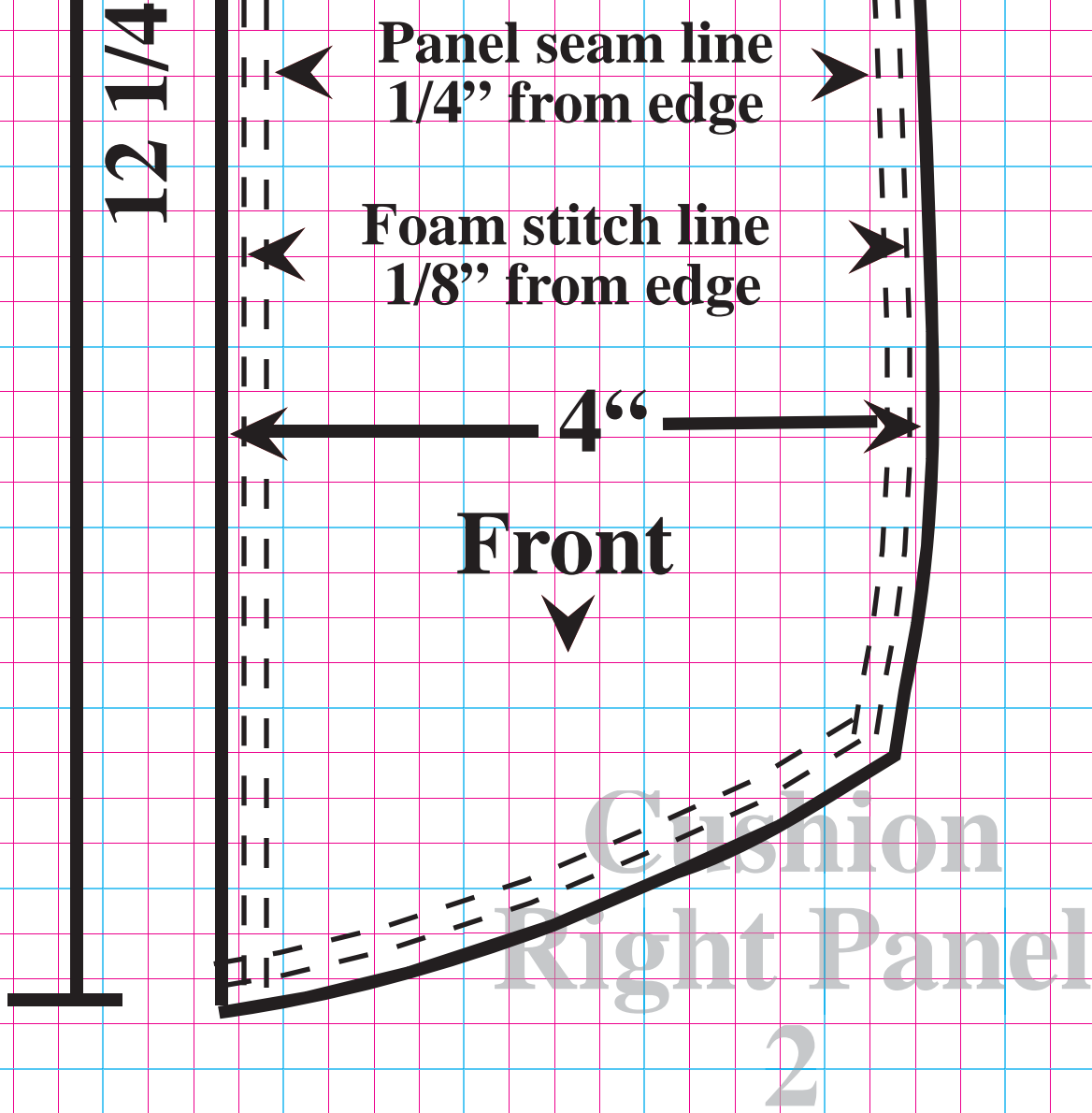
Seat Back
Center Panel
1

Foam stitch line **Panel seam line**
1/8" from edge **1/4" from edge**
13 3/4"

SEAT BACK
CENTER PANEL

3 1/4”

Seat Back
Center Panel
3

Make pleats from bottom to top →

Seat Back
Center Panel
4

See

◄ **Note:**

◄ **Panel seam**
1/4" from

M

seat cushion for how to sew pleats

foam is not stitched to panel on sides

n line
edge

Panel seam l
1/4" from ed

Iark pleat lines every 2 inches

Seat Back
Center Panel
6
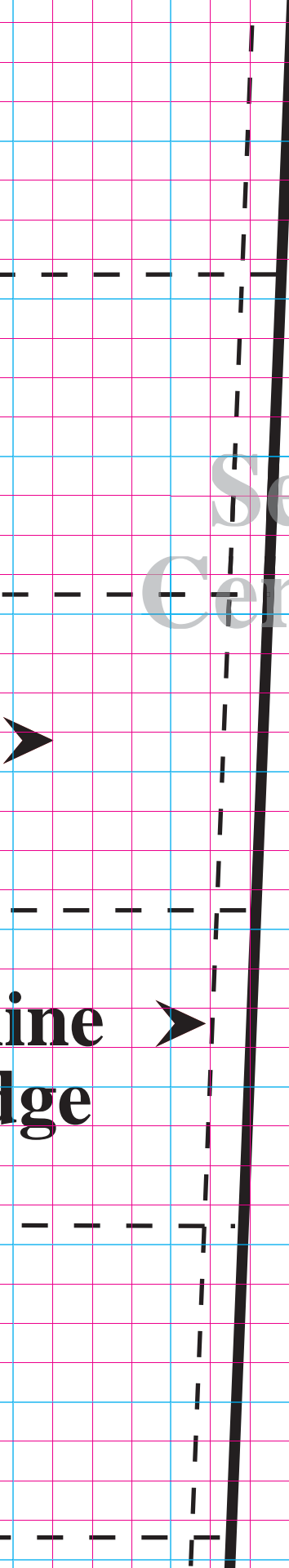
23 1/2" before pleats are sewn

out 21 1/2" after pleats are sewn

ine
lge

Seat Back
Center Panel
7

h

**Bottom trim panel attaches
here and drapes over tacking strip** ∨

- -

**Approximate line of nailing
to wood tack strip** ∨

- -

Foam stitch line 1/8" from edge ∨

- -

12 "

Seat Back
Center Panel
9

Ab

6"

2 1/4"

1

6 1/2"

SEAT BACK LEFT PANEL

BOTTOM TRIM "A"

(flip to cut right side)
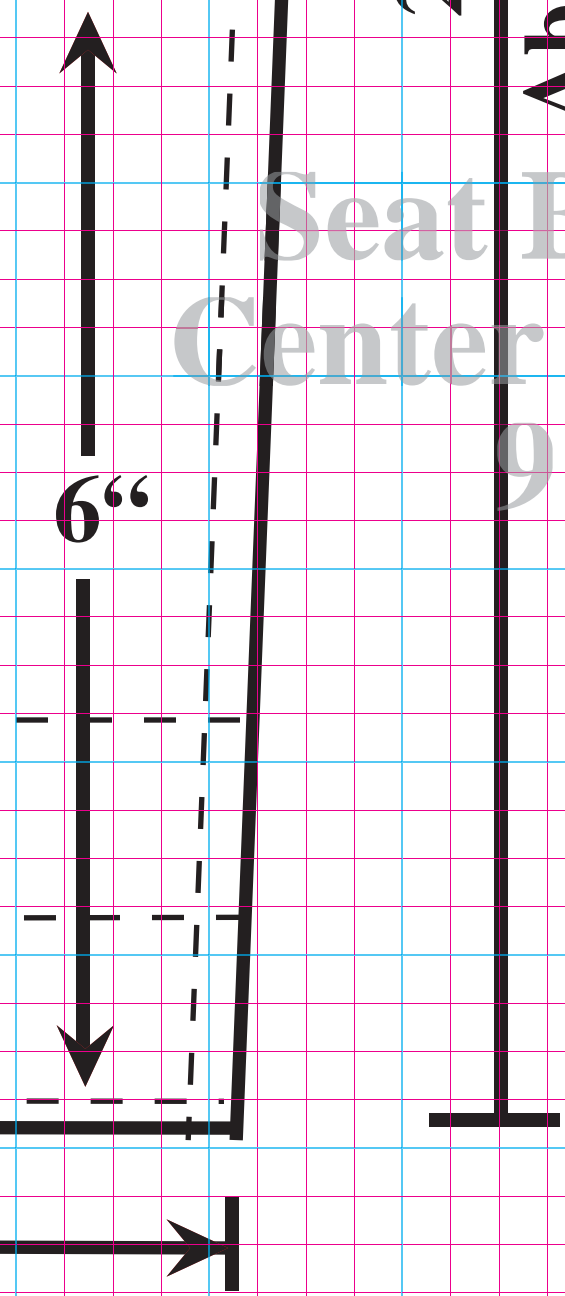
Bottom

Joins with bottom of
seat back panel this side

1

◄ **Front**

SEAT BACK RIGHT SIDE

BOTTOM TRIM "B"

(flip to cut left side)

Bottom ⌄

6 1/2"

2 1/2"
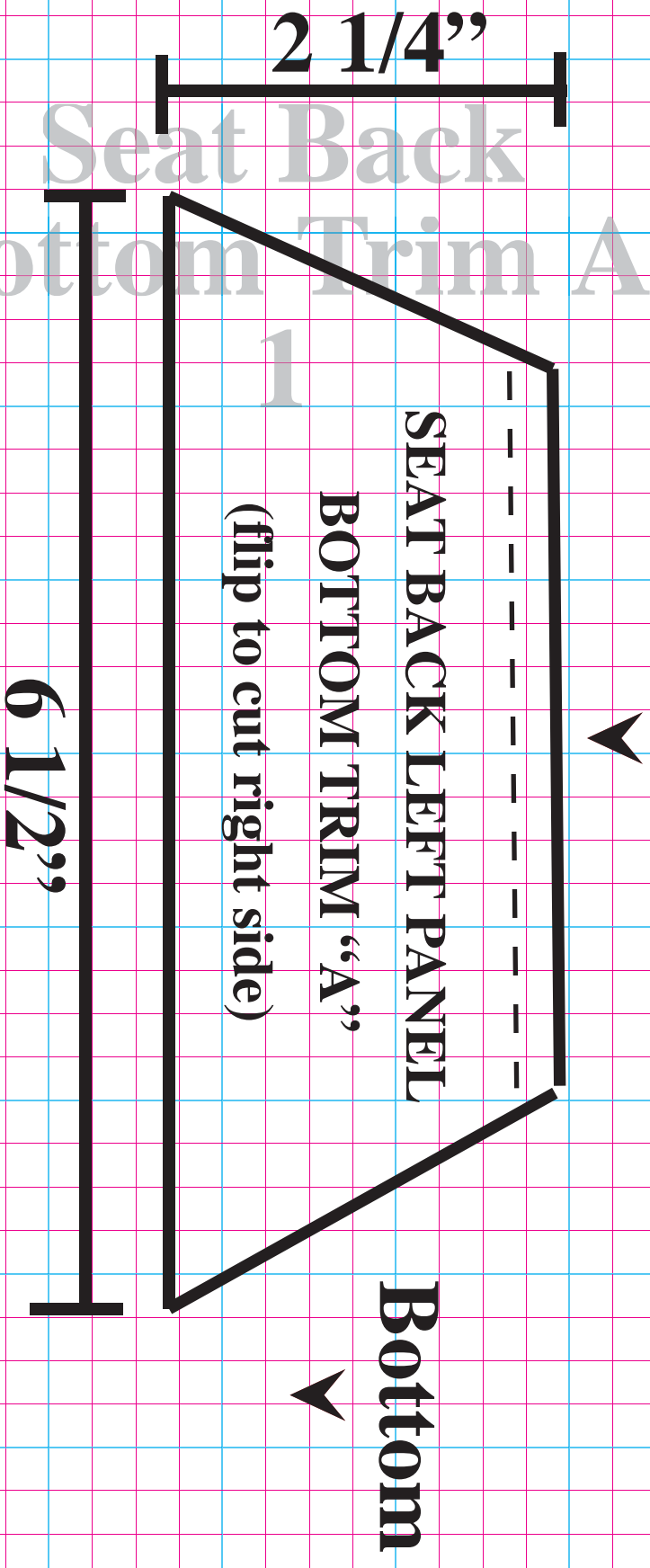
Joins with Seat Back right
side panel this side
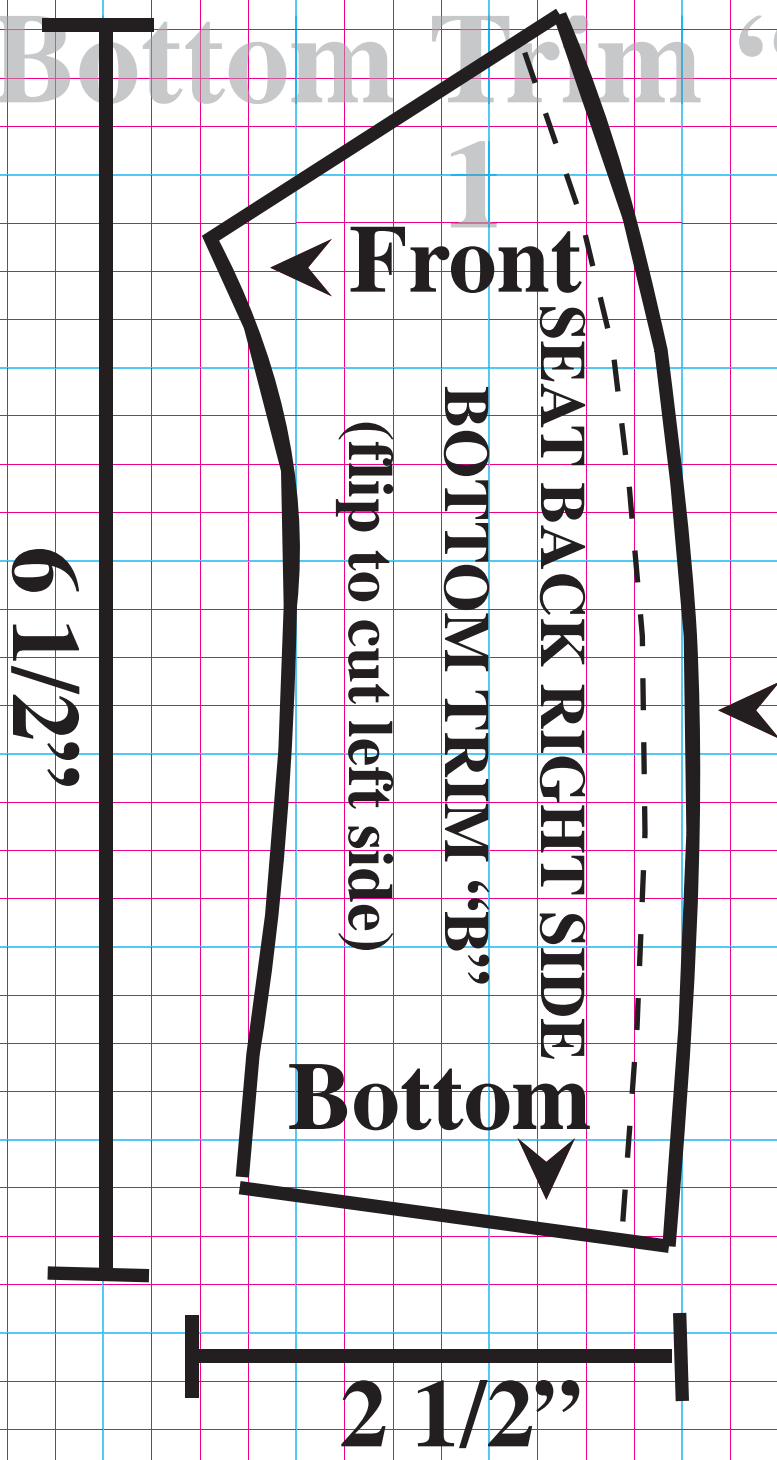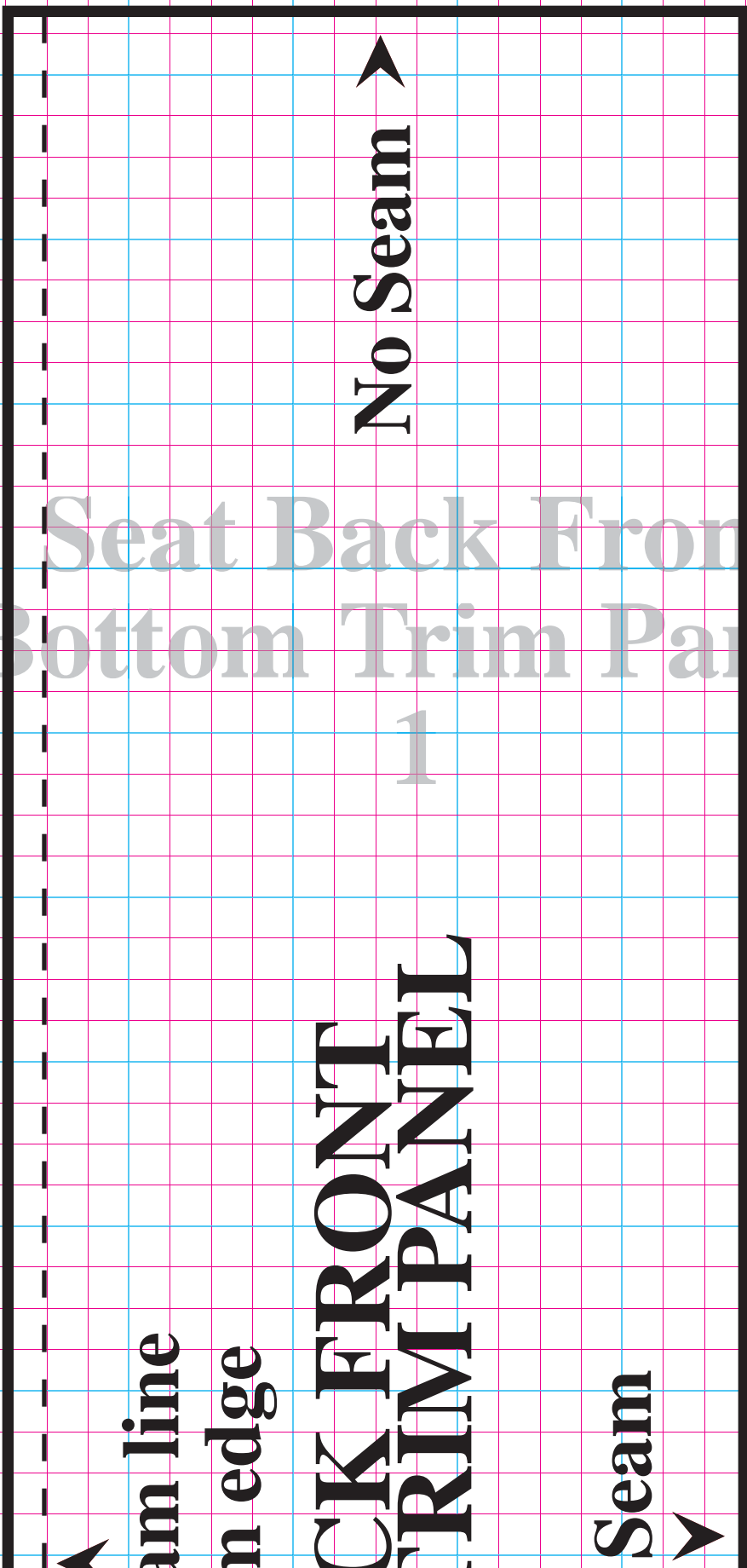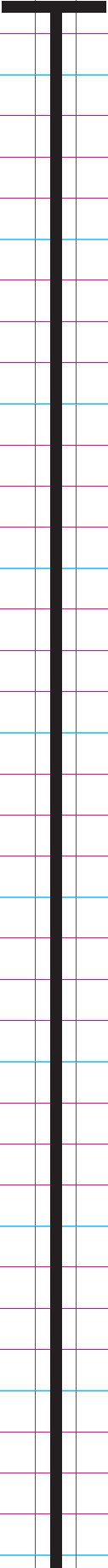
No Seam ➤

Seat Back Front
Bottom Trim Panel
1
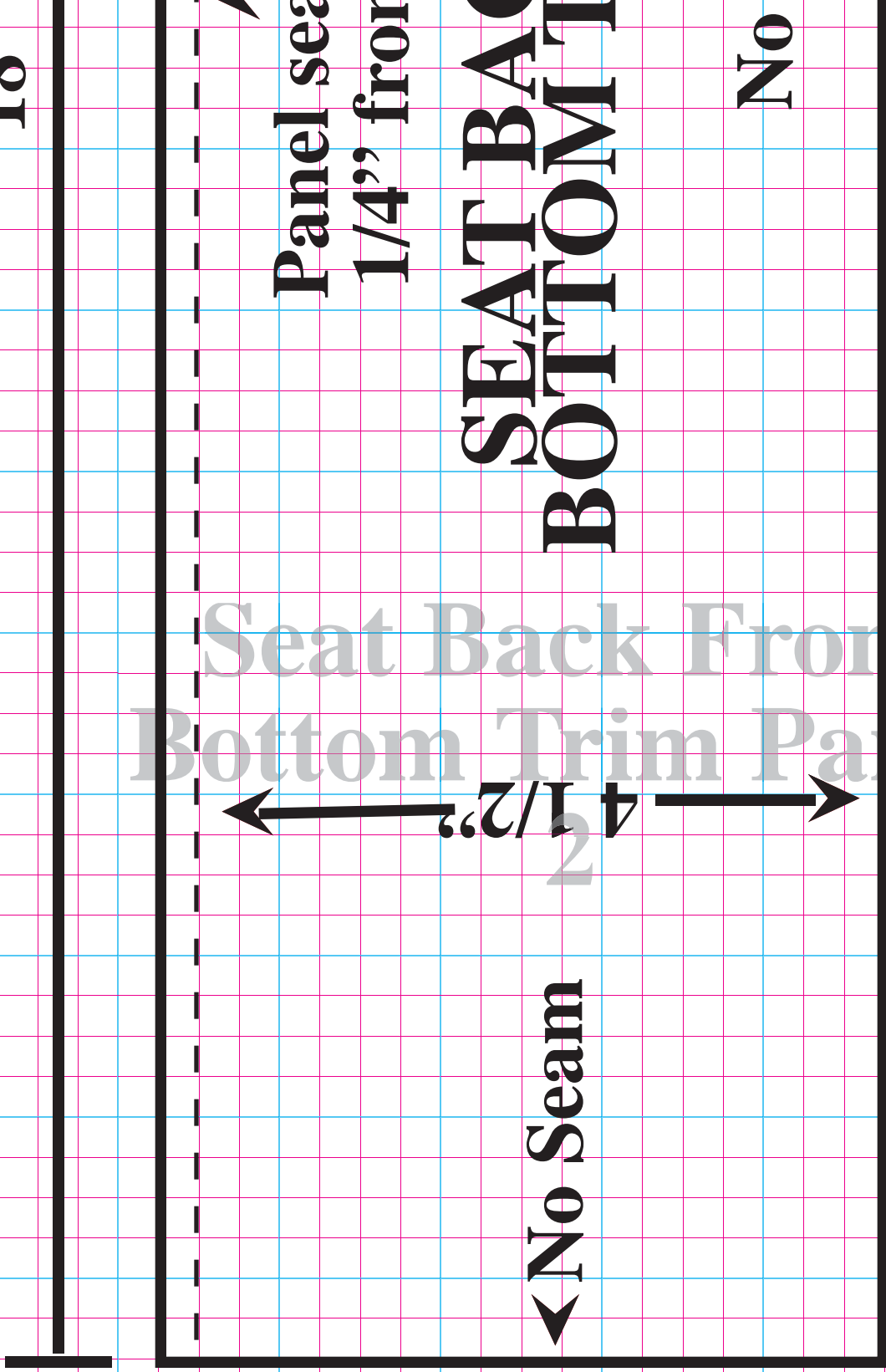
...am line
...n edge

...CK FRONT
...RIM PANEL

Seam ➤

18"

Panel sea
1/4" fron

**SEAT BAC
BOTTOM**

No

Seat Back Front
Bottom Trim Panel

4 1/2"

No Seam

Joins trim panel "B"

Panel seam line
1/4" from edge

Seam Back
Left Side Panel
1
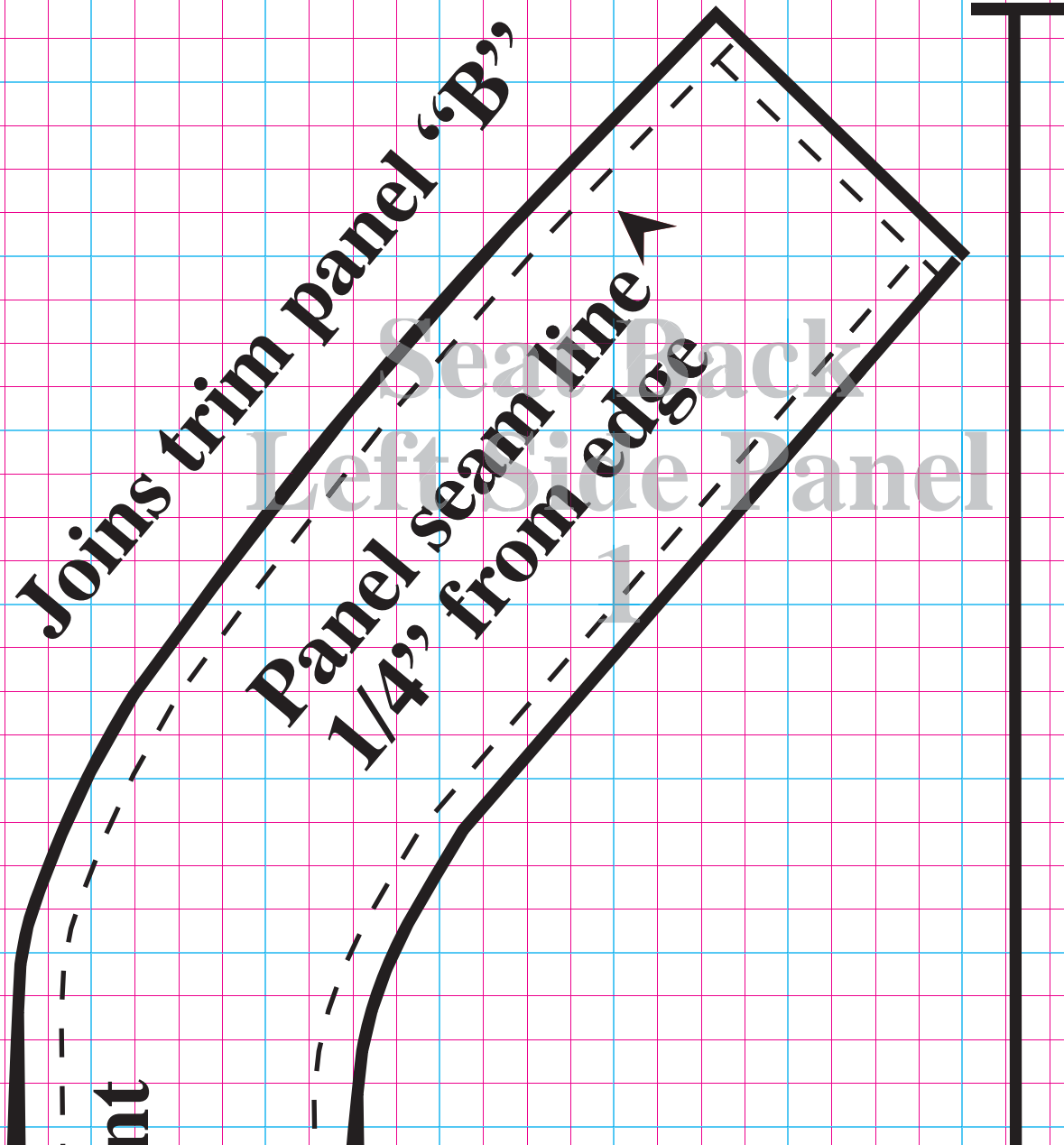
▲Fro[n

SEAT BACK LEFT SIDE PANEL
(flip to cut right side)

Seat Back
Left Side Panel
2

21 1/4"

Seat Back

Left Side Panel

3

Joins Top Panel

2 1/4"
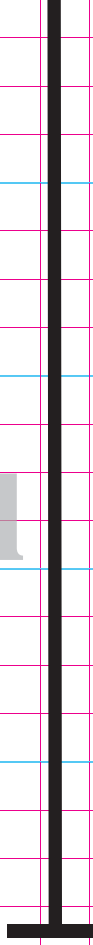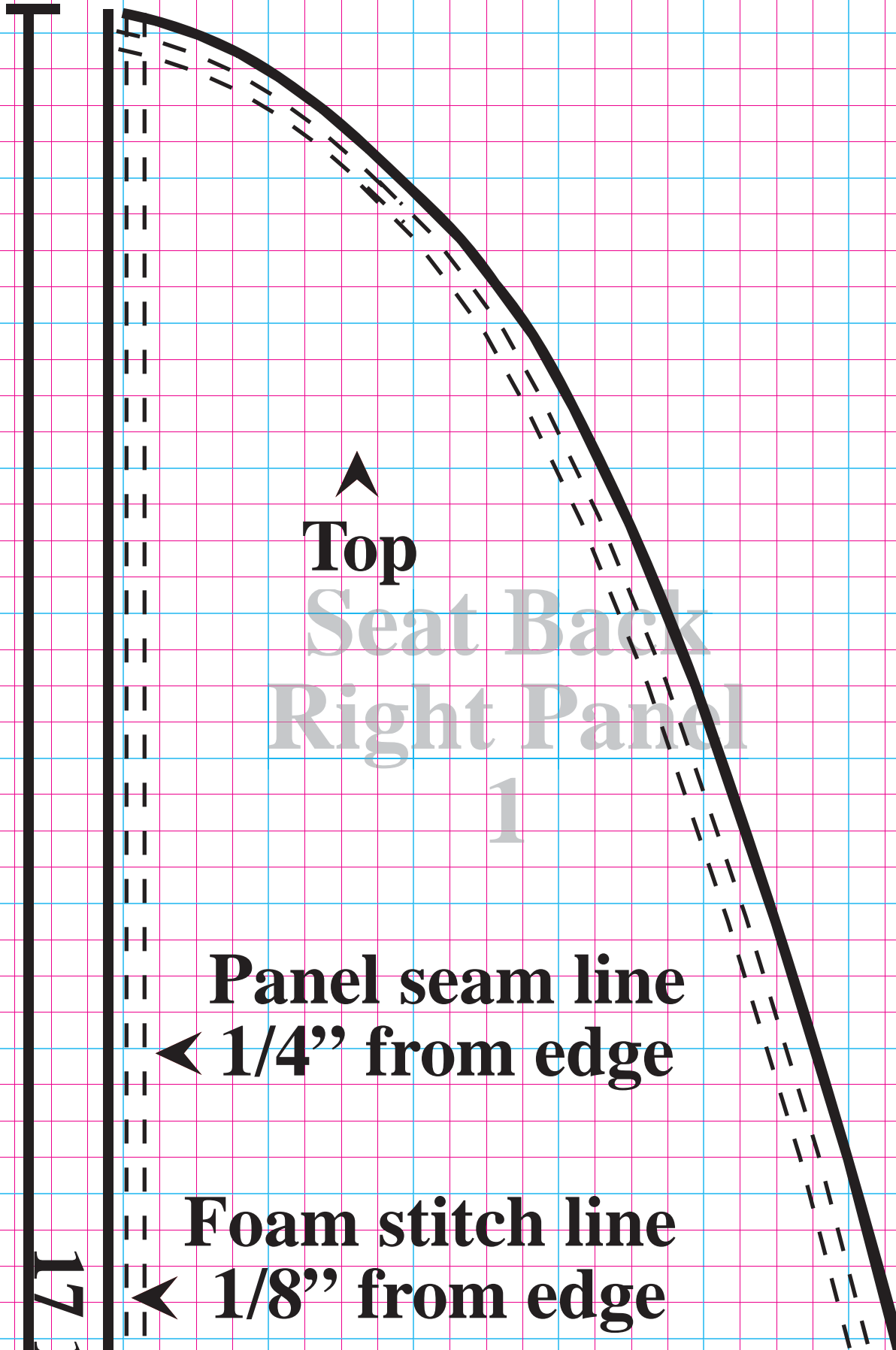
Top

Seat Back
Right Panel
1

**Panel seam line
◄ 1/4" from edge**

**Foam stitch line
◄ 1/8" from edge**

17

SEAT BACK RIGHT PANEL

(Flip over to cut left side)

Seat Back Right Panel 2

1/4"

3/4"

6 3/4"

Joins Bottom Trim Panel "A"
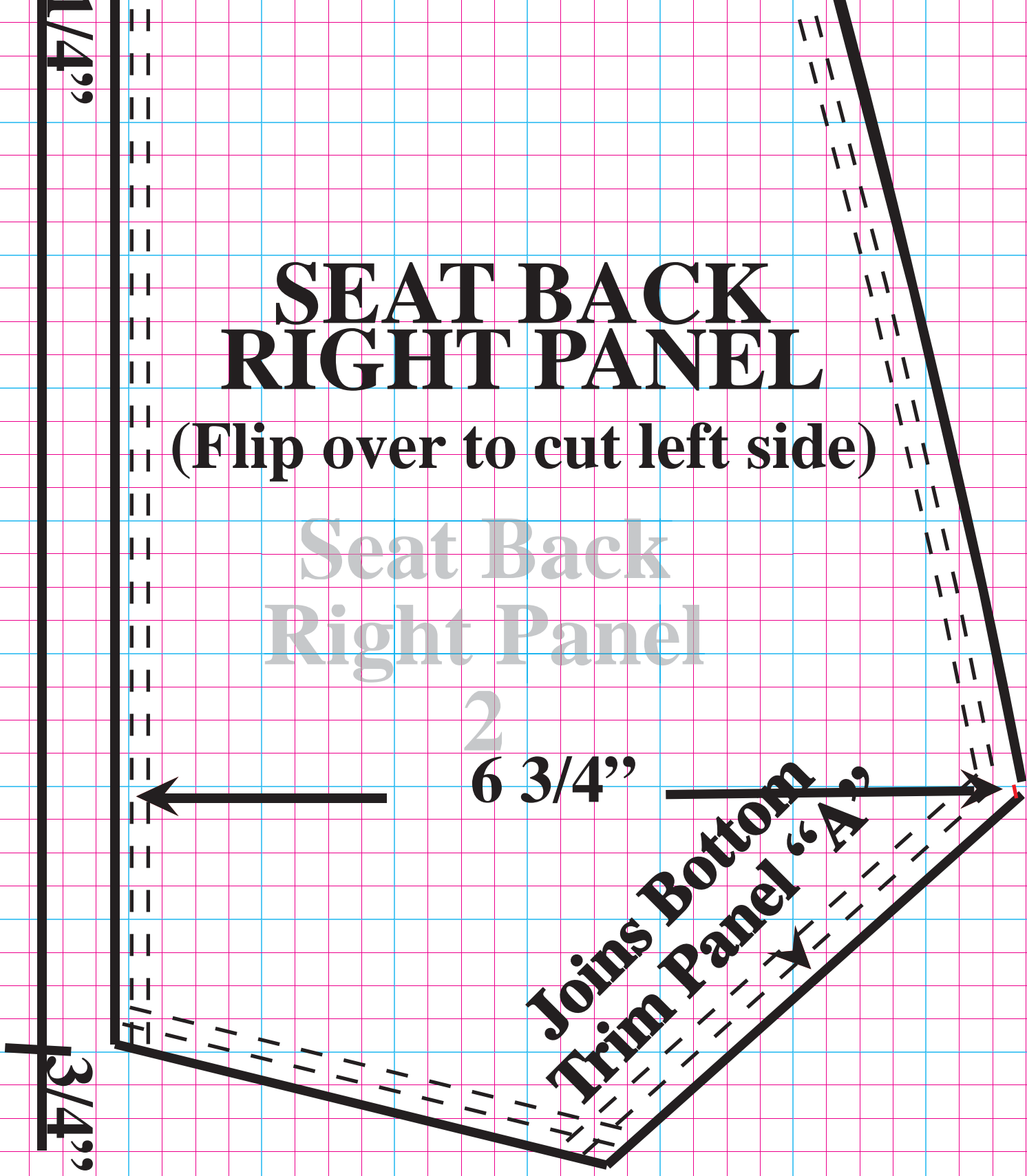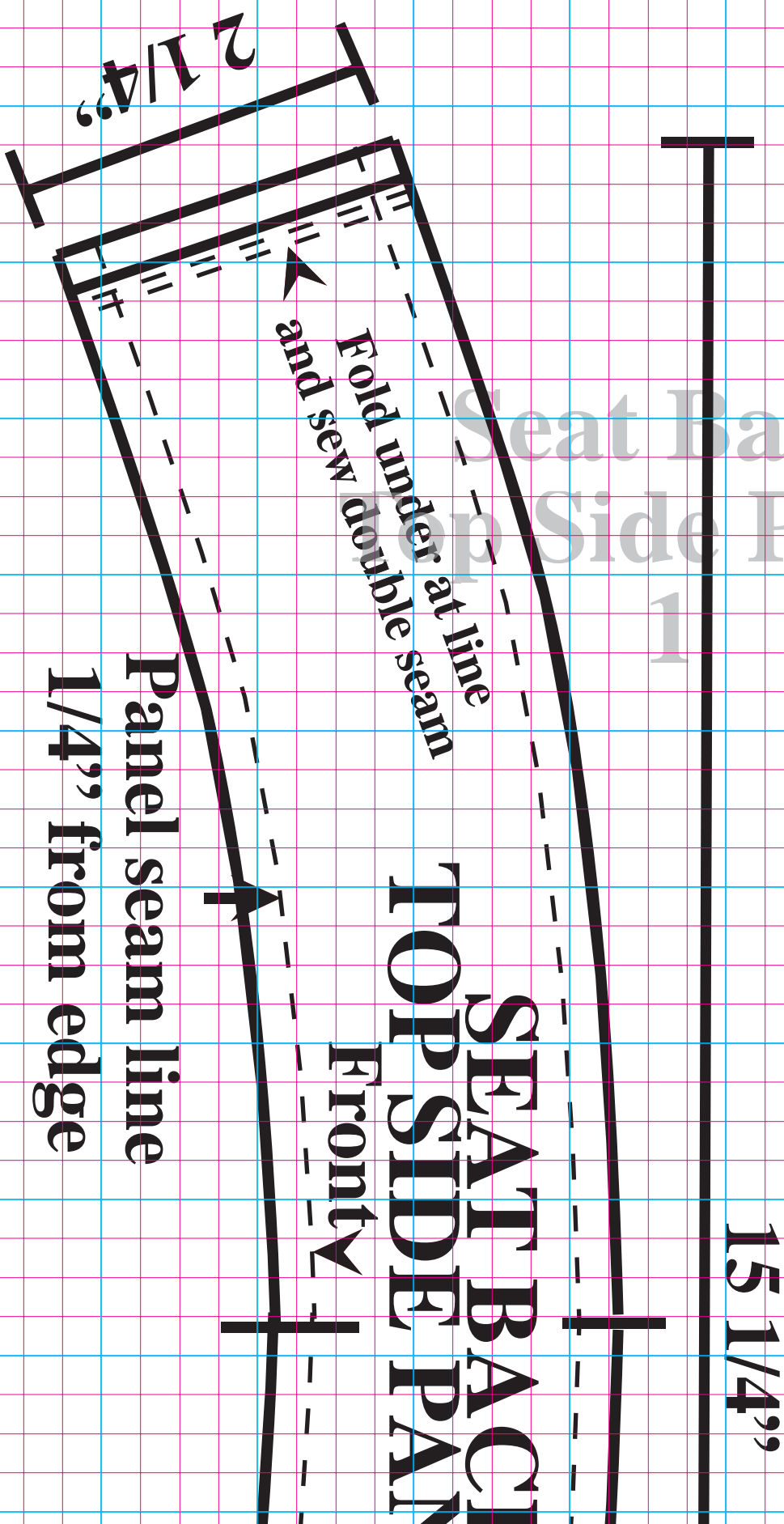
2 1/4"

15 1/4"

Fold under at line and sew double seam

Panel seam line
1/4" from edge

SEAT BACK TOP SIDE PAN

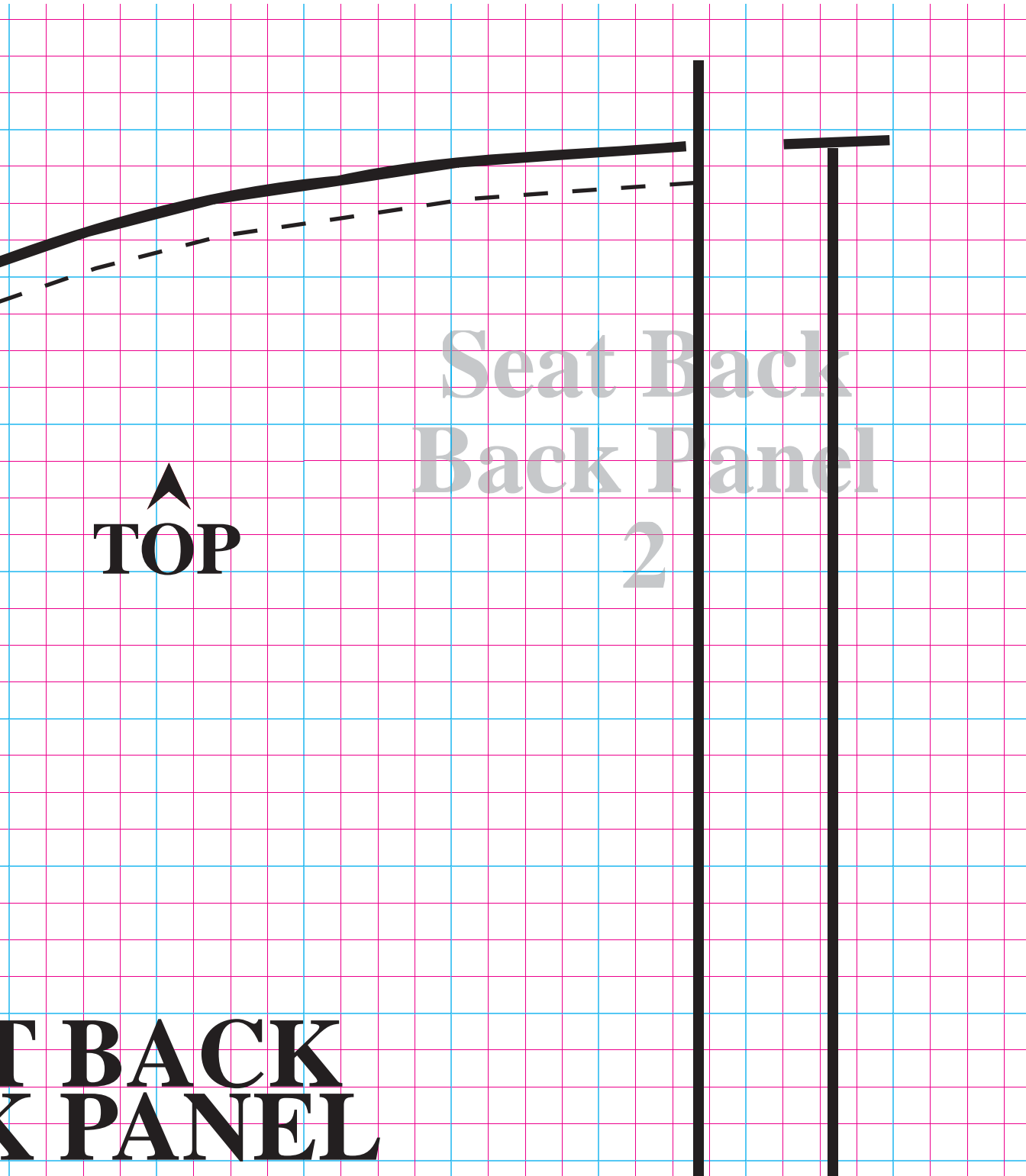Front
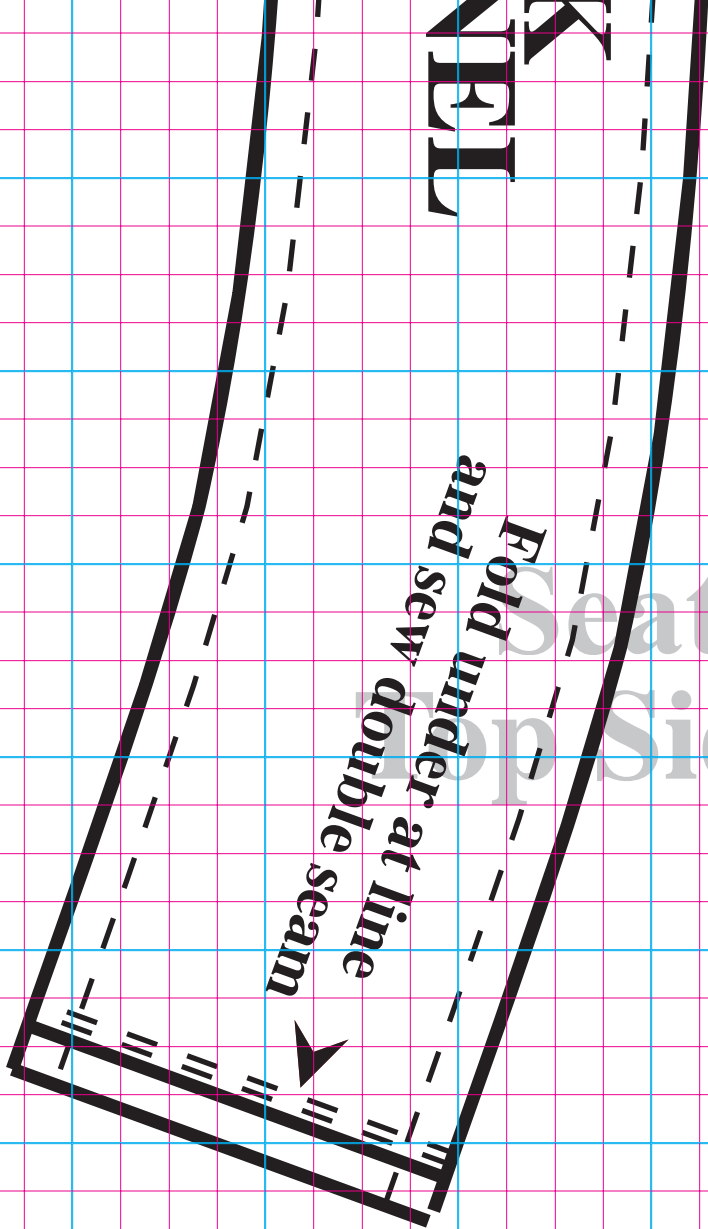
Fold under at line and sew double seam

Seat Back
Top Side Panel
2

Seat Back
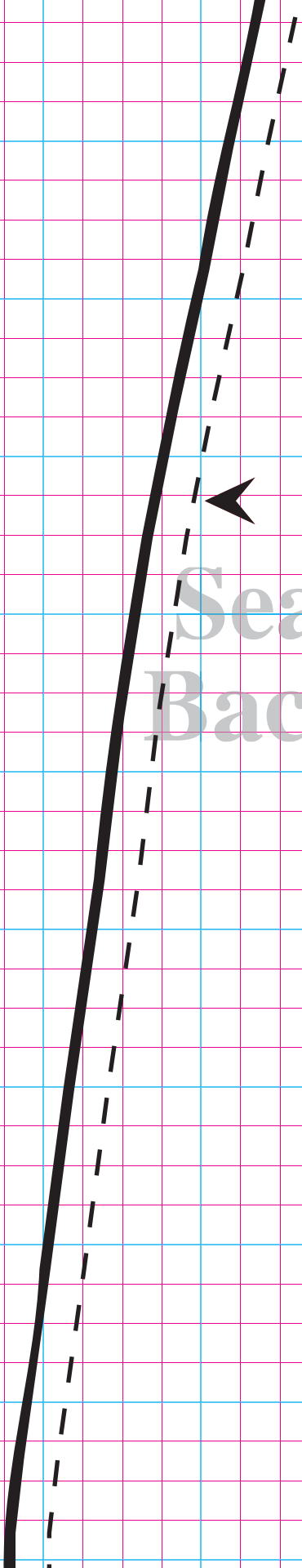Back Panel
1

SEAT
BACK
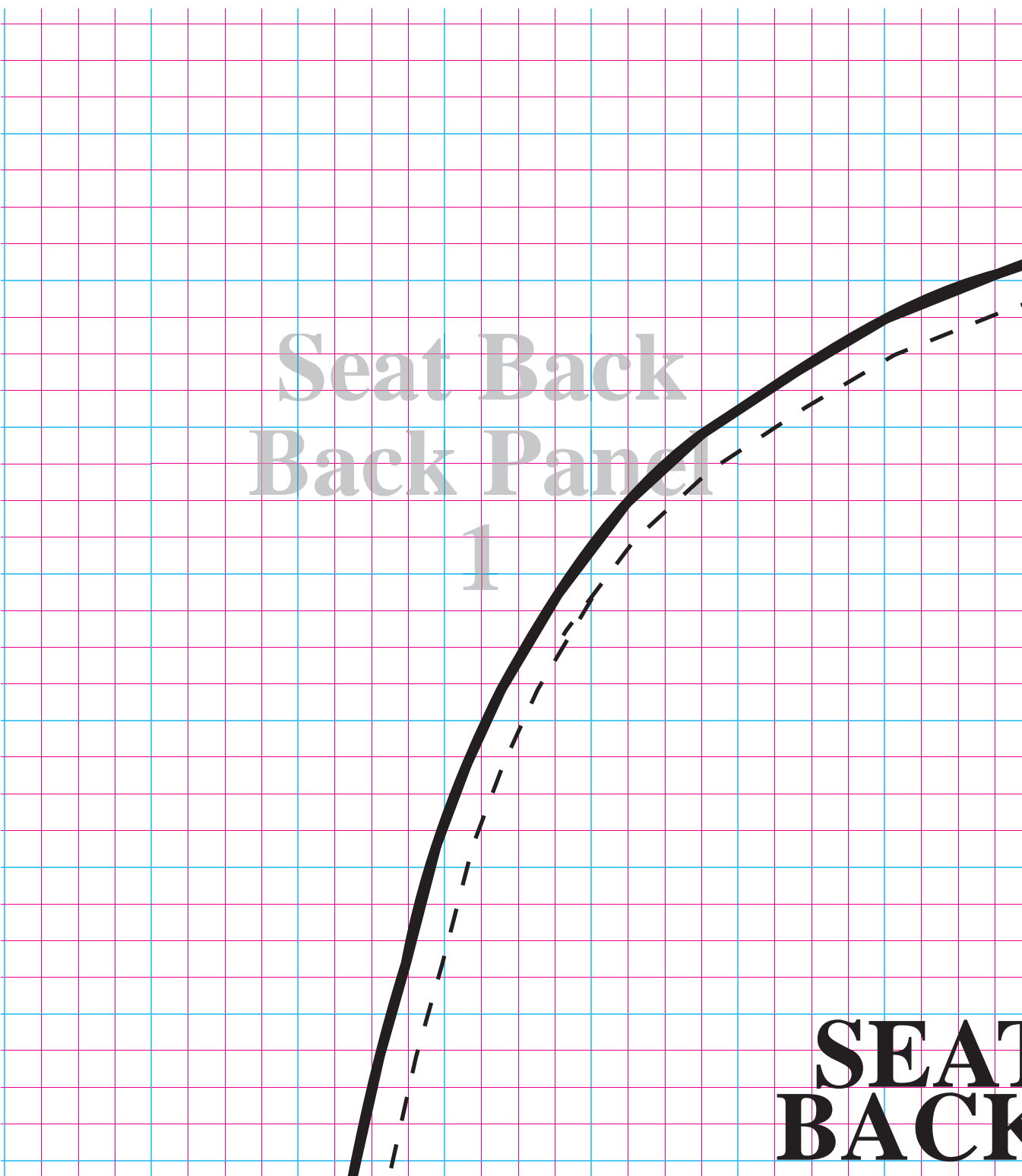
TOP

Seat Back
Back Panel
2

T BACK
K PANEL

**Panel seam line
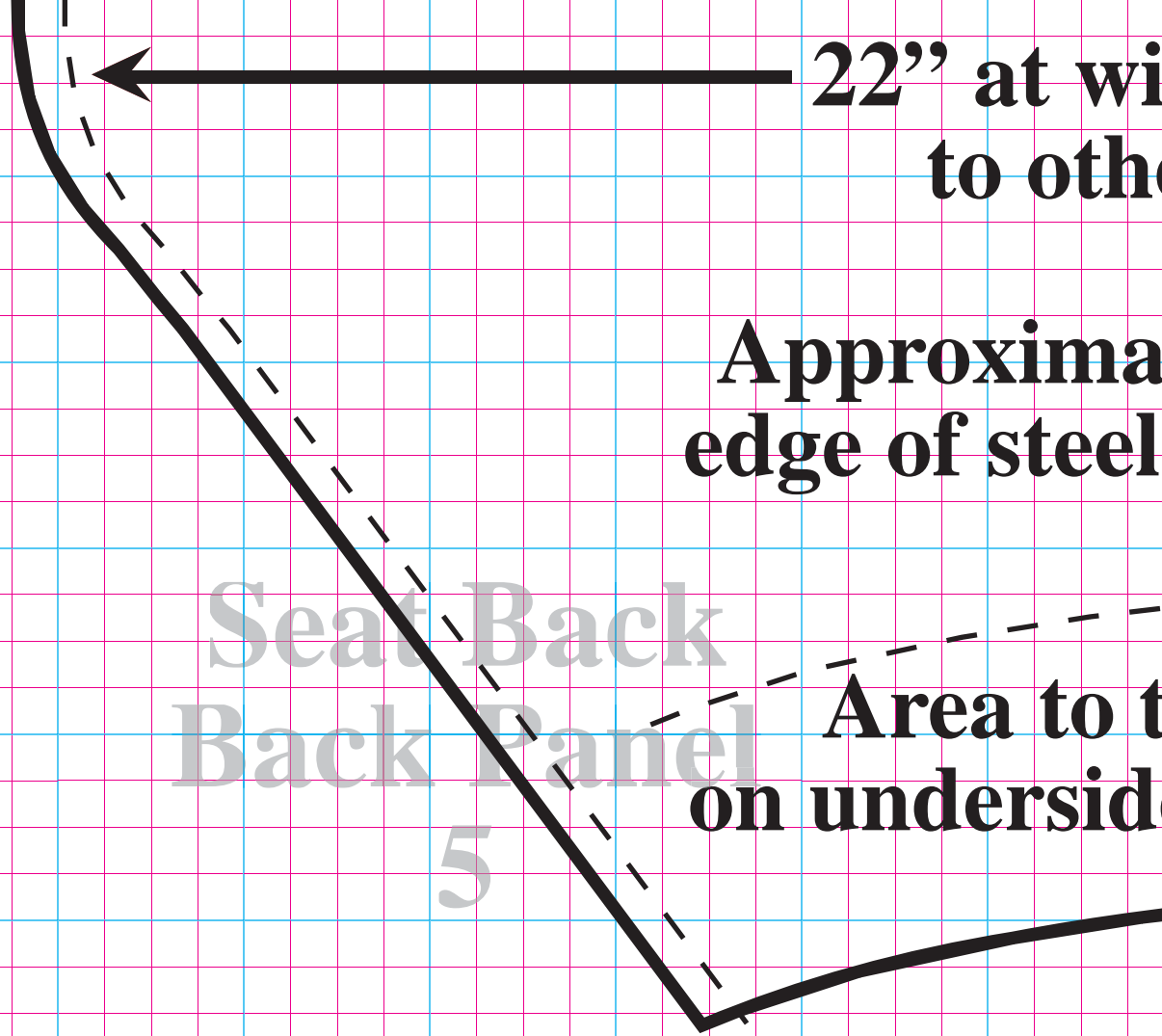1/4" from edge**

Seat Back
Back Panel
3

**ng center line
cut other side)**

Seat Back
Back Panel
4

No cut - No seam - Center Line
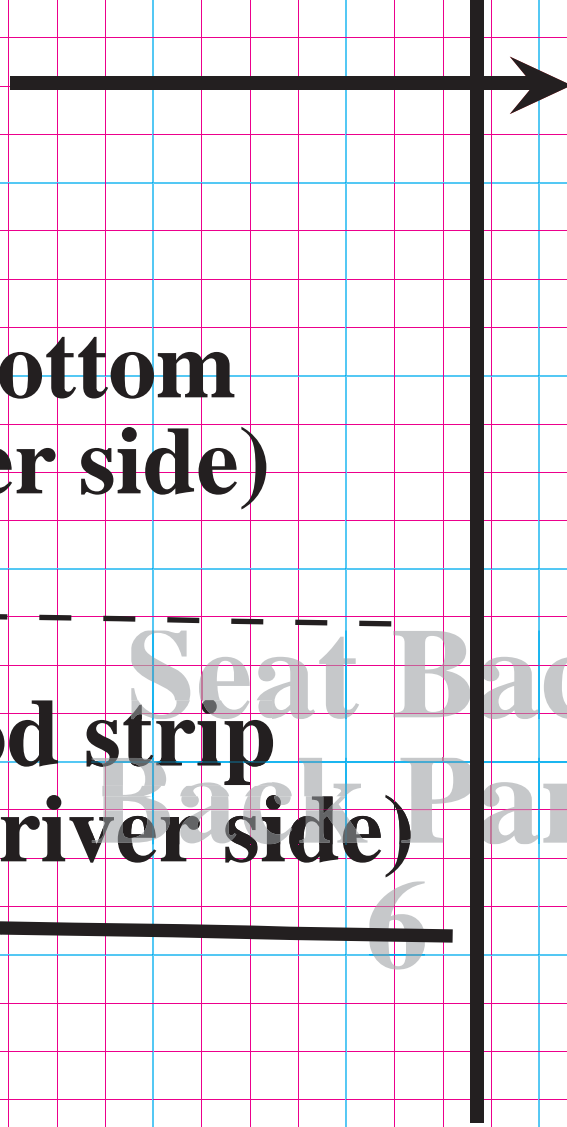
22"

22" at wi
to oth

Approxima
edge of steel

Area to t
on underside

Seat Back
Back Panel
5

dest point
er edge

te line of bottom
seat (driver side)

⌄

- - - - - - - -

Seat Back
Back Panel
6

ack to wood strip
e of seat (driver side)