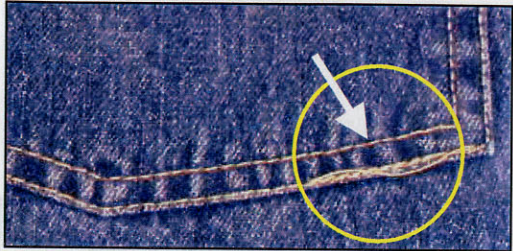
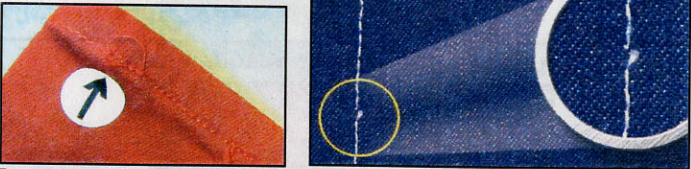



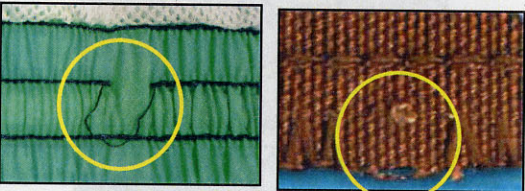


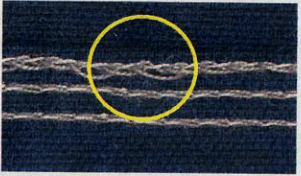
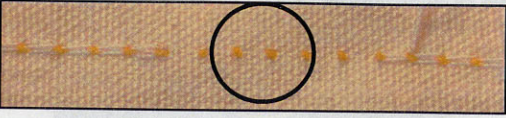


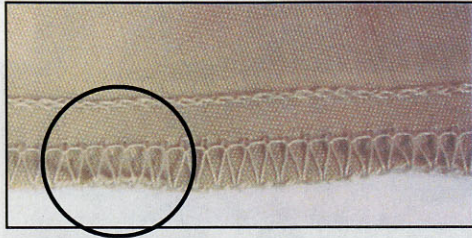


SEAM UNQUALITY PHOTO OR DRAWING	DESCRIPTION	RECOMMENDED SOLUTIONS
 <p>RESTITCHED SEAMS / BROKEN STITCHES</p>	<p>RESTITCHED SEAMS / BROKEN STITCHES - where there is a "splice" on the stitch line. If this occurs on Topstitching, then the seam does not appear to be 1st quality merchandise. Caused by 1) thread breaks or thread run-out during sewing; or 2) cut or broken stitches during a subsequent treatment of the finished product (I.e., stone washing).</p>  <p>Excessive Restitched Seams</p>	<p>MINIMIZING THREAD BREAKAGE - 1) Use a better quality sewing thread. This may include going to a higher performance thread designed to minimize sewing interruptions. (see A&E "Thread Selection Guide" and/or A&E's Technical Bulletin "Minimizing Thread Breakage & Skipped Stitches"); 2) Insure proper machine maintenance and sewing machine adjustments; 3) Make sure sewing machines are properly maintained and adjusted for the fabric and sewing operation; (see A&E's Technical Bulletin - "Machine Maintenance Checklist". 4) Observe sewing operators for correct material handling techniques.</p>
<p>301 Stitch Loops on underside of seam</p>  <p>IMPROPER STITCH BALANCE - 301 LOCKSTITCH</p>	<p>IMPROPER STITCH BALANCE - 301 LOCKSTITCH - where loops are seen either on the bottomsides or topside of the seam. This is particularly evident with different colored needle and bobbin threads. Also where the stitch is too loose.</p>  <p>Poor Stitch Balance - Too Loose</p>	<p>SOLUTIONS - 1) Use a quality thread with consistent frictional characteristics; and 2) Properly balance the stitch so the needle and bobbin threads meet in the middle of the seam. Always start by checking the bobbin thread tension to make sure it is set correctly, so minimum thread tension is required to get a balanced stitch.</p>  <p>Proper Stitch Balance</p>
 <p>401 Chainstitch 503 Overedge</p> <p>SKIPPED STITCHES</p>	<p>SKIPPED STITCHES - where the stitch length is inconsistent, possibly appearing as double the normal stitch length; or where you can see that the threads in the stitch are not properly connected together. Caused by the stitch forming device in the sewing machine missing the thread loop during stitch formation causing a defective stitch. On looper type stitches, this will allow the stitch to unravel causing seam failure.</p>  <p>301 Lockstitch Skipped Stitches</p>  <p>Bottomside of 401 Skipped Stitch</p>	<p>MINIMIZING SKIPPED STITCHES - 1) Use a better quality sewing thread. This may include going to a higher performance thread designed to minimize sewing interruptions. (see A&E "Thread Selection Guide" and/or A&E's Technical Bulletin "Minimizing Thread Breakage & Skipped Stitches"); 2) Insure proper machine maintenance and sewing machine adjustments; 3) Make sure sewing machines are properly maintained and adjusted for the fabric and sewing operation; (see A&E's Technical Bulletin - "Machine Maintenance Checklist". 4) Observe sewing operators for correct material handling techniques.</p>
<p>401 Stitch Too Loose</p>  <p>IMPROPER STITCH BALANCE - 401 CHAINSTITCH</p>	<p>IMPROPER STITCH BALANCE - 401 CHAINSTITCH - where the loops on the bottomsides of the seam are inconsistent and do not appear uniform.</p>  <p>401 Stitch Too Tight</p>	<p>SOLUTIONS TO IMPROPERLY BALANCED 401 CHAINSTITCH- 1) Use a quality thread with consistent frictional characteristics; and 2) Properly balance the stitch so that when the looper thread is unraveled, the needle loop lays over half way to the next needle loop on the underside of the seam.</p>   <p>Proper Stitch Balance</p>

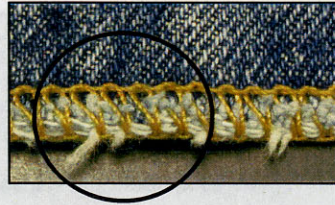
SEAM UNQUALITY PHOTO OR DRAWING

DESCRIPTION

RECOMMENDED SOLUTIONS

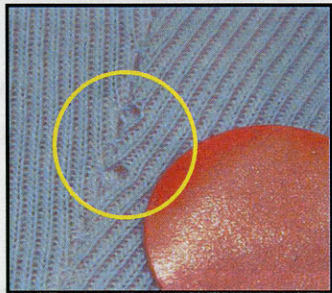


RAGGED / INCONSISTENT EDGE - where the edge of the seam is either extremely "ragged" or "rolls" inside the stitch.

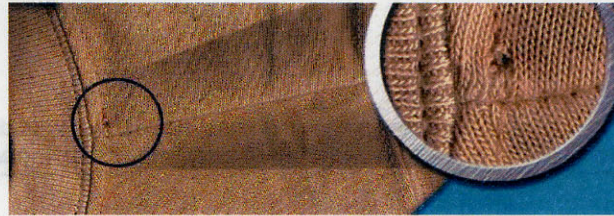


SOLUTIONS TO RAGGED / INCONSISTENT EDGE - 1) Make sure the sewing machine knives are sharpened and changed often; 2) The knives should be adjusted properly in relationship to the "stitch tongue" on the needle plate to obtain the proper seam width or width bite. In the photo, the trimming knives have been set wider than the "stitch tongue" on the needle plate causing the "ropy" appearance.

RAGGED / INCONSISTENT EDGE ON OVEREDGE OR SAFETYSTITCH SEAMS

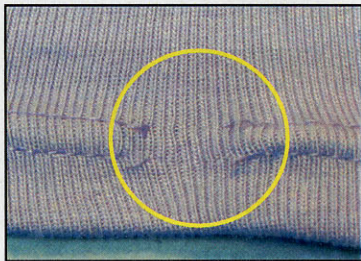


NEEDLE CUTTING ON KNITS - where needle holes appear along the stitchline that will eventually turn into a "run". Generally caused by the needle damaging the fabric as it is penetrating the seam.

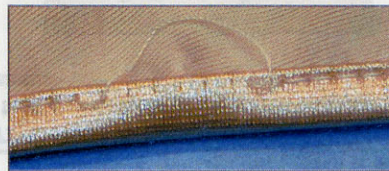


MINIMIZING NEEDLE CUTTING ON KNITS - 1) Make sure the proper thread size and needle type and size are being used for the fabric - see A&E Technical Bulletin on "Minimizing Needle Cutting"; 2) Make sure the fabric has been properly stored to prevent drying out and has been finished properly; 3) Check with your fabric manufacturer.

NEEDLE CUTTING ON KNITS



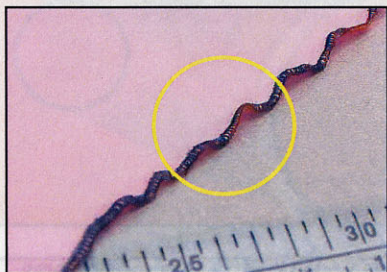
OPEN SEAM - SEAM FAILURE - STITCH - where the threads in the seam have ruptured leaving a hole in the stitchline. Caused by 1) Improper stitch for application; 2) Inadequate thread strength for seam; 3) Not enough Stitches Per Inch.



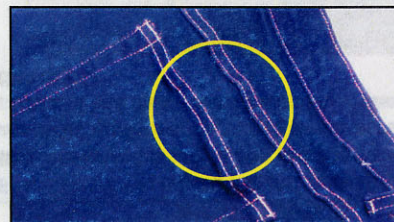
MINIMIZING SEAM FAILURES - STITCH - 1) Use a better quality sewing thread. This may include going to a higher performance thread designed to give greater seam performance. (see A&E "Thread Selection Guide"); 2) Use the proper size thread for the application; 3) For knit fabrics, check for "Stitch Cracking". Stitch Cracking can be caused by any of the following: not enough stitches per inch; improper seam width or needle spacing for application; improper stitch balance; and improper thread selection.

Seam Failure on Stretch Knit Fabric

OPEN SEAM - SEAM FAILURE - STITCH



PUCKERED SEAMS - KNITS & STRETCH WOVENS - where the seam does not lay flat after stitching.

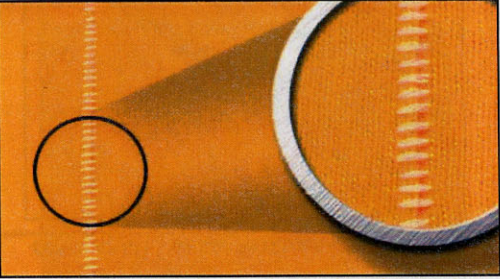
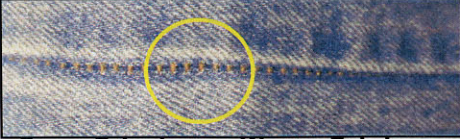
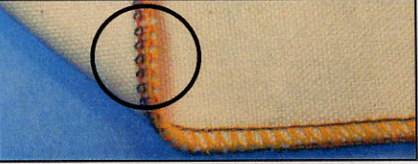
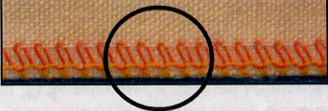





SOLUTIONS - 1) If sewing machines are equipped with differential feed, set properly for the fabric; 2) Use minimum presser foot pressure during sewing; and 3) Observe operator for correct handling techniques. Too much stretching of the fabric by the sewing operator will cause this problem. See A&E Technical bulletin - "Sewing Stretch Knits".


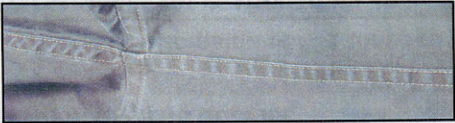

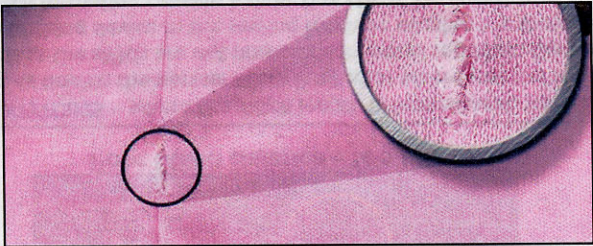
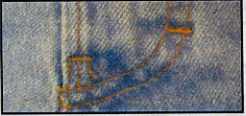
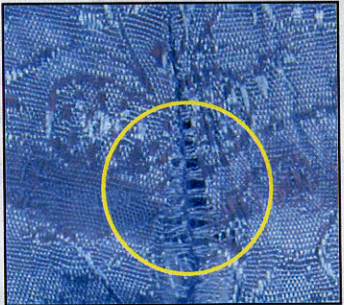
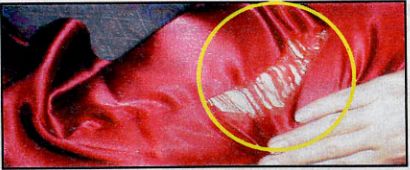
PUCKERED SEAMS - KNITS & WOVENS **STRETCH**

Stretch Denim - Wavy Seams

COMMON SEAM QUALITY DEFECTS

SEAM UNQUALITY PHOTO OR DRAWING	DESCRIPTION	RECOMMENDED SOLUTIONS
 <p>EXCESSIVE SEAM GRIN</p>	<p>EXCESSIVE SEAM GRIN - is where the stitch balance is not properly adjusted (stitch too loose) and you can see the seam opening up. To check for Seam Grin, apply normal seam stress across the seam and then remove the stress. If the seam remains opened, then the seam has too much "Grin through".</p>  <p>Seam Grinning on Woven Fabric</p>	<p>EXCESSIVE SEAM GRIN - 1) To correct, readjust the sewing machine thread tensions so the proper stitch balance is achieved. Too much tension will cause other problems including seam failures ("Stitch Cracking"), excessive thread breakage and skipped stitches.</p>
 <p>IMPROPER STITCH BALANCE - 504 OVEREDGE STITCH</p>	<p>IMPROPER STITCH BALANCE - 504 OVEREDGE - where the needle loop is not pulled up to the underside of the seam and the "purl" is not on the edge of the seam.</p>  <p>Purl not on Edge</p>	<p>SOLUTIONS TO IMPROPER BALANCED OVEREDGE - 1) Use a quality thread with consistent frictional characteristics; and 2) Properly balance the stitch so that the needle loop is pulled up to the bottom of the seam and the "purl" is on the edge of the seam.</p>  <p>Proper Stitch Balance</p>
 <p>UNRAVELING BUTTONS</p>	<p>UNRAVELING BUTTONS - generally where a tail of thread is visible on the topside of the button and when pulled, the button falls off.</p>	<p>SOLUTIONS TO UNRAVELING BUTTONS - 1) Use a quality sewing thread to minimize skipped stitches; 2) Specify attaching the buttons with a Lockstitch instead of a single thread Chainstitch Buttonsewing machine.</p>
 <p>STITCH RUN OFF</p>	<p>STITCH RUN OFF - where the stitchline runs off the edge of the seam and the edge of the seam is not properly stitched.</p>	<p>SOLUTIONS TO STITCH RUN-OFF - 1) Check to make sure the folder or guide used to make the seam is the proper capacity for the fabric being sewn; 2) Observe the sewing operator for proper handling techniques during sewing.</p>

COMMON SEAM QUALITY DEFECTS

SEAM UNQUALITY PHOTO OR DRAWING	DESCRIPTION	RECOMMENDED SOLUTIONS
 <p data-bbox="94 514 519 534">EXCESSIVE SEAM PUCKERING - WOVELS</p>	<p data-bbox="578 137 1334 346">EXCESSIVE SEAM PUCKERING - WOVELS - where the seam does not lay flat and smooth along the stitchline. Caused by one of the following: 1) Feed Puckering - where the plies of fabric in the seam are not being aligned properly during sewing; 2) Tension Puckering - where the thread has been stretched and sewn into the seam. The thread then causes the seam to draw back and pucker; 3) Yarn Displacement or Structural Jamming - caused by sewing seams with too large of thread that causes the yarns in the seam to be displaced, giving a puckered appearance.</p> 	<p data-bbox="1334 137 2007 346">MINIMIZING EXCESSIVE SEAM PUCKERING - 1) Use the correct thread type and size for the fabric. In many cases a smaller, higher tenacity thread is required to minimize seam puckering but maintain seam strength (See A&E's "Thread Selection Guide" or their Technical bulletin "Minimizing Seam Pucker"; 2) Sew with minimum sewing tension to get a balanced stitch; 3) Make sure machines are set up properly for the fabric being sewn; and 4) Check for proper operator handling techniques.</p>
 <p data-bbox="124 859 472 884">OPEN SEAM - SEAM FAILURE - FABRIC</p>	<p data-bbox="578 534 1334 597">OPEN SEAM - SEAM FAILURE - FABRIC - where the stitch line is still intact but the yarns in the fabric have ruptured.</p> 	<p data-bbox="1334 534 2007 691">MINIMIZING SEAM FAILURES - FABRIC - 1) Reinforce stress points with Bartacks. Make sure the bartacks are the proper length and width for the application; 2) Check to make sure the patterns have been designed for proper fit; 3) Make sure the ideal seam construction is being used; and 4) Contact your fabric supplier.</p>  <p data-bbox="1412 827 1855 852">Bartacks used to Reinforce Fly Seam</p>
 <p data-bbox="138 1204 433 1227">SEAM FAILURE - SEAM SLIPPAGE</p>	<p data-bbox="578 884 1334 989">SEAM FAILURE - SEAM SLIPPAGE - where the yarns in the fabric pull out of the seam from the edge. This often occurs on fabrics constructed of continuous filament yarns that are very smooth and have a slick surface. Also caused by loosely constructed fabrics.</p>  <p data-bbox="723 1188 1181 1213">Seam Slippage on 100% Rayon Fabric</p>	<p data-bbox="1334 884 2007 984">MINIMIZING SEAM FAILURES - SEAM SLIPPAGE - 1) Consider changing the seam construction to a french seam construction; 2) Increase the seam width or width of bite; 3) Optimize the stitches per inch; 4) Contact your fabric supplier.</p>

COMMON SEAM QUALITY DEFECTS

SEAM UNQUALITY PHOTO OR DRAWING	DESCRIPTION	RECOMMENDED SOLUTIONS
 <p data-bbox="153 439 357 470">Margin too Wide</p> <p data-bbox="132 540 459 564">IMPROPER MARGIN CONTROL</p>	<p data-bbox="582 156 1318 211">IMPROPER MARGIN CONTROL - where the stitchline does not maintain a consistent distance from the edge.</p>  <p data-bbox="827 478 1062 509">Margin too Narrow</p>	<p data-bbox="1328 156 1992 258">SOLUTIONS TO IMPROPER MARGIN CONTROL - 1) Check to make sure the appropriate folder or guide is used; 2) Use a yielding presser foot with guiding section; 3) Observe the sewing operator for proper handling techniques during sewing.</p>