JOHNSTONS OF ELGIN

SINCE 1797

TRAINING MANUAL

Department: WEAVING

Job Title: WEAVER

1 INDUCTION

- **Welcome**

  You are joining a company with a proud heritage of textile production in Elgin since 1797. The success of Johnstons, past, present and future depends on the skills of its workforce.

  The textile industry in Scotland has a long tradition of producing fine woven textiles that are valued around the world. World market forces fluctuate and in the past the textile industry in Scotland has had difficult periods resulting in the loss of structured technical training in specialised colleges. However, recent years have seen positive growth and increased demand for more highly skilled workers.

  Almost all training for production areas of Johnstons is now carried out in-house and the company is investing in developing a more structured approach to training which will lead to formal qualifications.

- **Roles and Responsibilities**

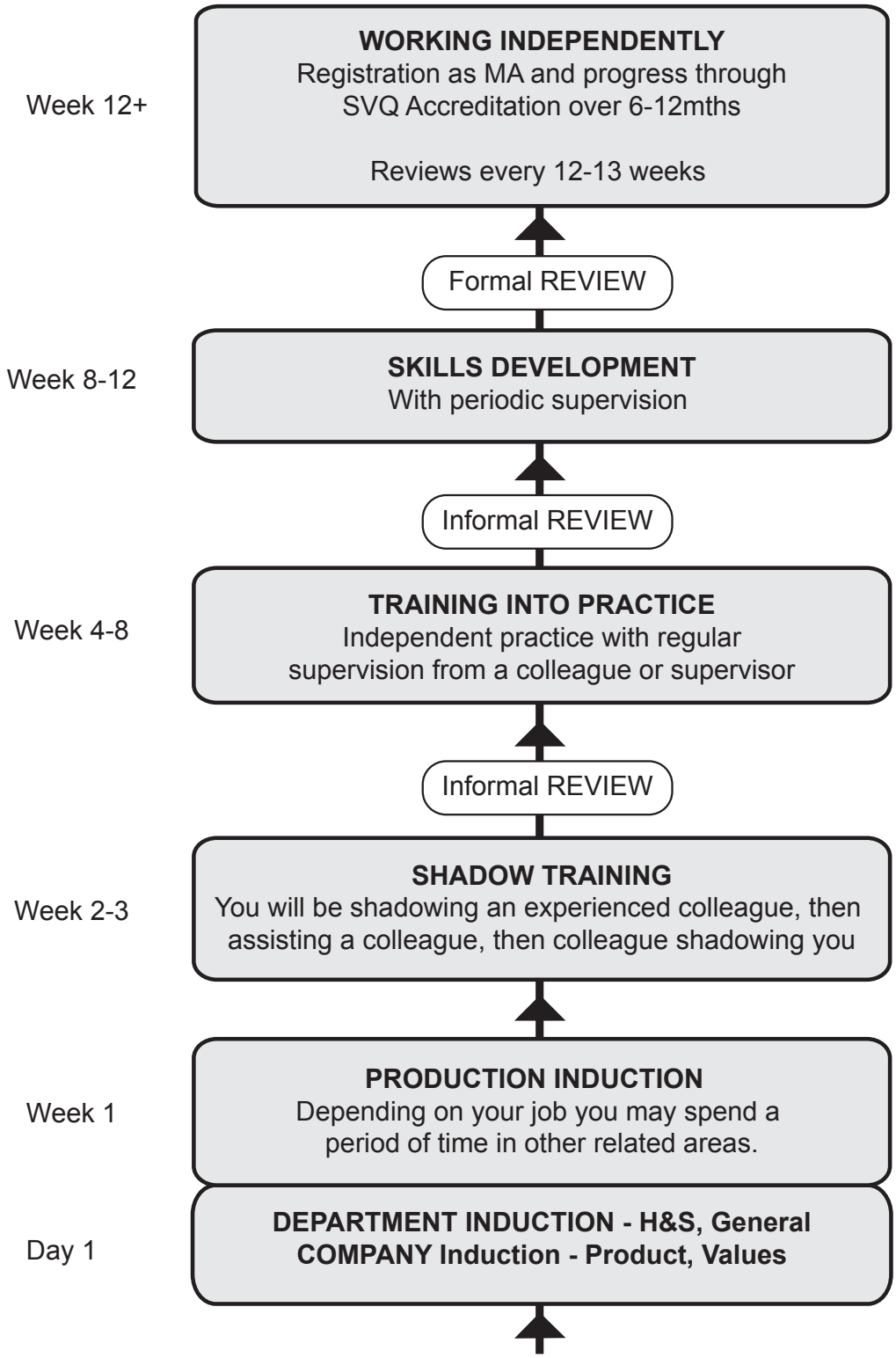
  It is our responsibility to provide you with the best possible training and it is your responsibility as a new employee, or as an existing employee learning new skills, to work with your Trainer and work colleagues to make most effective use of the training provided.

- **How your training will be structured**

  The type of training you will be given and how it will be delivered will vary depending on your job and what you need to learn.

YOUR JOB	
PERFORMANCE the activities you need to learn to do your work	**KNOWLEDGE and UNDERSTANDING** is what you must know to understand why you are doing things

PRODUCTION TRAINING STRUCTURE



Starting your new job

NB: This is given as a guide, the exact structure and timeframe for your training will vary depending on your job.

PRODUCTION INDUCTION

Your Supervisor will mark the areas that you will spend time in to give you a broad understanding of the production process that impact on your work or the quality of your work impacts on them.

☐ **YARN STORE** Time allocated for training:

- Yarn quality and colour coding and labelling
- Different types of yarn – fibre type, yarn count, woollen/worsted, singles/two-fold
- Production batches

☐ **WARPING** Time allocated for training:

- Reading work instructions for warp patterns
- Shadow a warper to see the process of warping
- Learn about the potential faults in warping

☐ **DRAWING** Time allocated for training:

- Reading work instructions for drafts
- Learning how to thread a series of draft patterns by hand
- Learn about potential faults in drafting

☐ **TYING** Time allocated for training:

- Reading work instructions for tying
- Shadow a colleague tying to see the process
- Learn about potential faults in tying

☐ **LOOMING** Time allocated for training:

- Reading work instructions for looming
- Shadow a colleague carrying out looming to see the process
- Learn about potential faults in looming

☐ **WEAVING** Time allocated for training:

- Reading work instructions for weaving
- Shadow a colleague weaving to see the process
- Learn about potential faults in weaving

☐ **DARNING** Time allocated for training:

- Reading work instructions for darning
- Shadow a colleague darning to see the process
- Learn about potential faults and how they impact on quality

The person responsible organising for your training is:

_____

2 HEALTH, SAFETY AND SECURITY

You will be given an Induction on general Health & Safety information and procedures relating to working at Johnstons on your first day.

You will also have a Department Induction to introduce you to colleagues and procedures in that area.

For your own safety and the safety of others, please take note of the particular risks that affect the Weaving Dept and the steps that you must take to minimise risk:-

- **Noise -** Wear hearing protection at all times
- **Accidents**
  - Wear correct protective footwear provided
  - Stay clear of moving parts of machinery & equipment
  - Do not wear loose clothing
  - Tie back long hair
  - Use and store weavers truck correctly
- **Slips** - take care and don't run
- **Trips** - take care and avoid leaving trip hazards
- **Lifting** - use mechanical methods where appropriate and manual handling techniques.
- **Electrical faults** - regularly carry out Electrical Visual Inspection

3 What you need to know and understand

- **Health & Safety precautions particular to your job**
  - What are the risks?
  - What actions do you take to reduce risk?
- **Materials - Basic introduction to:**
  - Wool, cashmere, fibre types – appreciate different fibres and characteristics
  - Woollen and worsted yarn/cloth – explain and identify differences
  - Yarn counts & coding – explain and identify differences
- **Machinery and Equipment**
  - Loom – function and parts
  - Any moving equipment
- **Understanding work instructions**
  - Work tickets
  - Understanding instructions regarding drafts & colour patterns
- **Processes**
  - Weave basics
  - Different drafts (the order that the warp ends are drawn through the heddles)
  - Different types of faults, how they occur and how to fix them

Health & Safety precautions particular to your job

Your Supervisor or colleague will demonstrate your job and explain the risks involved in that job and what you can do to reduce those risks to yourselves and others.

Materials – basic introduction

At Johnstons we are mostly working with wool and cashmere which are NATURAL fibres which come from sheep and goats. There are many grades and qualities of wool and cashmere (long or short fibres, fine or very fine, different natural colours) but we source the best quality fibre in each fibre type for our cloth and product.

Like all natural fibres the quality can vary depending on many factors such as animal breed, origin, care, health. While we make every effort to ensure the raw materials we work with are the best quality and consistency there can be differences between different batches. This means that when we are working to produce the highest quality textiles we rely on skills that are often based on years of experience…and getting to know how the raw materials and equipment will react and perform through all the processes in the mill.

The main fibres we work with as raw materials:

Fibre type	Characteristics
Lambswool	• First clip from the young sheep is the finest for that type.
Merino	• Merino sheep are renowned for producing some of the softest, finest wool.

Cashmere	• Extra fine fibre that comes from goats. It is a 'hair' fibre rather than a 'wool' fibre. Average yearly production per goat is approx 150g pure clean cashmere (a merino sheep might produce up to 18kg greasy wool per year -). • Very expensive
Vicuna	• The finest wool fibre in the world • Extremely expensive
Silk	• From the silkworm cocoon. • Can be blended with the wool or a separate yarn. • Lustrous
Linen	• A natural fibre from the Flax plant. • Unlike wool, linen has no stretch

We talk about different QUALITIES in yarn and cloth. In this case we talk about a 'quality' as a type of yarn or cloth made from a specific fibre, weight, thickness and method of production. Ask your trainer about the different qualities you will be using and any changes you need to make in how you handle the different materials in your work area.

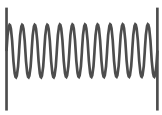
Wool characteristics

Wool is collected, graded and sold depending on different physical properties. We provide a specification when purchasing fibre based on the characteristics that provide the best raw material for the products that we make. We routinely test the fibre to ensure our suppliers deliver the fibre to the correct specification.

Micron
Micron is the term used to describe the thickness of the fibres. The micron of the fibre will determine the end use of the yarns and fabrics. Finer micron fibre are softer. Just as human hair may vary in thickness and strength (ave 75 microns), so too does wool and animal hair such as cashmere (15-19 microns). Fine micron fibre is delicate and can be easily damaged resulting in weaker yarn and ultimately, faulty cloth.

Crimp


1 crimp per cm


12 crimps per cm

Wool has a natural wave or crimp.

The crimp gives wool many of its natural properties such as elasticity, crease resistance, durability and ability to resist damage in processing and in end use.

Staple length
The length of the wool and cashmere fibres is called the staple length.

Fibre of different staple length will be used for different purposes. Longer staple lengths are used for worsted spinning and shorter staple lengths are generally used for woollen spinning.

The staple length for efficient carding and spinning is governed by the micron and the

fibre distribution of the long, medium and short fibres in the base raw materials. The finer the count the longer the fibre required to hold it together when twisted.

Raw fibres must be processed through teasing and carding to enable them to be spun into yarn however the very nature of the processes can cause separation of longer/shorter staple length or damage to the fibre. Broken fibres result in shorter staple lengths which can affect the quality of the yarn when the fibres are twisted. Therefore maintaining the highest quality of the resulting yarn and maximum efficiency of processing across a number of yarn qualities is a fine art requiring technical skills and years of hands on experience.

Colour
In wool, micron has the biggest impact on the value of the fibre, however within a set quality of micron and staple length, the colour of the fibre may also impact its use for a particular product. The whitest fibre offers the greatest scope for dyeing light colours. Fibre may be purchased classified as “white for white” for light/pastel colours or “white for colour”. “White for white” is usually slightly more expensive.

In cashmere it is a combination of the fibre length, micron and whiteness that determines the cost with the longest, finest and most white material being the most expensive and mostly, this will be geared towards making fine worsted product.

Felting or Fulling

Scales on wool fibre

A wool fibre has an outer skin of overlapping scales called the cuticle.

This physical structure enables wool fibres to be felted and gives wool great flexibility, softness and comfort.

When wool is rubbed or agitated as in warm water washing, the fibres are stretched and the scales in the fibres become entangled. As the the agitation is stopped and the fibres cool they contract and the scales on the fibres become locked together. This is the FELTING or FULLING process.

This characteristic is unique to wool and cashmere but the extent and circumstances in which it happens will vary.

Great care is taken when dying loose stock/ fibre dyeing to allow the even distribution of the dyestuff in the machine with minimal agitation of the fibre that might result in the fibre matting together before starting processing in teasing and carding.

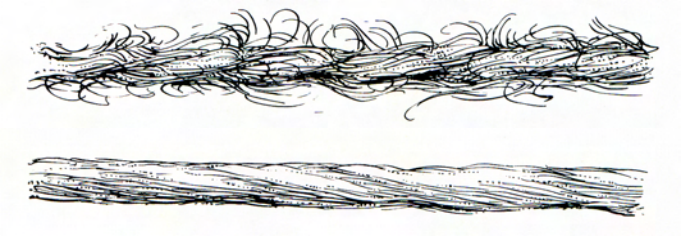
Materials - Yarn spinning – woollen and worsted

Raw fibre is processed by teasing the fibres apart, by carding to align the fibres and then spinning in to yarn.

There are two types of spinning methods for wool and cashmere - **“woollen”** and **“worsted”.**

At Johnstons we produce our own “woollen” spun yarn. We may buy “worsted” spun yarn from other yarn spinners.

Woollen spun yarns tend to be softer and bulkier and fuzzy to touch. Worsted yarns are generally, harder, denser and smoother.



Woollen spun yarn

Worsted spun yarn

Woollen cloth is made with yarns spun on the woollen system and worsted cloth made with yarns on the worsted system. Sometimes we use woollen and worsted yarns together for a different effect.

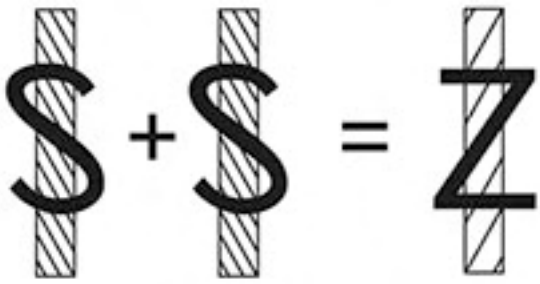
Implications of spinning for WEAVING:

- A worsted yarn might be slippier to handle and may need additional care when tying knots
- Woollen yarns may be fuzzier and more prone to sticking in the warp
- Woollen and worsted yarns may behave differently in the rapier requiring different tensions

Materials - Yarn twist

Fibres when spun into yarn can be twisted in either direction which is noted as either “S” twist or “Z” twist.

“S” and “Z” twist singles yarns



Two singles yarns twisted to make a 2-fold yarn.

The two singles yarn are the same twist and are twisted in the opposite direction to make the 2-fold as this makes a more balanced yarn.

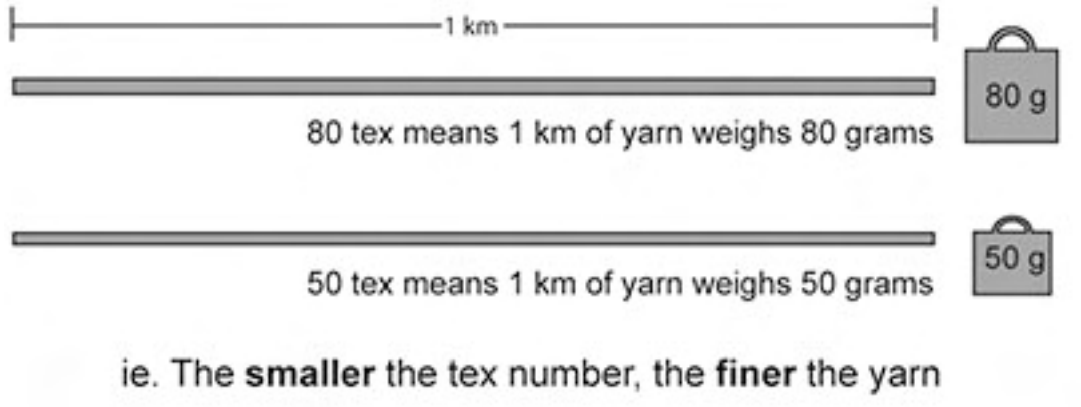
Implications of twist direction for WEAVING:

- Always check the ticket on the cone matches the work ticket. Yarn of the wrong twist direction may look very similar but can alter the appearance of the cloth in finishing.
- Tying ends of different twist direction together may result in the ends pulling apart

Materials - Yarn counts

Yarn count refers to the thickness of a yarn and is determined by its weight per unit length.

There are different measurement systems but we use TEX system at Johnstons.



You need to understand the difference between yarns of different counts because:

- It may help to be able to identify yarns that are incorrectly labelled
- You need to understand what information you are comparing when checking against the work ticket

Materials - Coding system

- YARNSTORE (YA) The main inside store beside Production Office
- YARNSTORE (YB) The large outside store behind Production
- YARNSTORE (YC) The small outside store under the Training

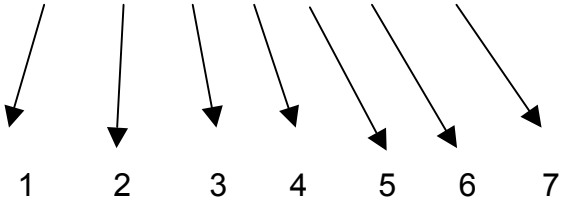
COLOUR CODES TYPICALLY USED IN YARNSTORE;

A = WHITES, GREYS THROUGH TO BLACKS
B = BROWNS
C = GREENS
D = BLUES
E = REDS
F = YELLOWS
G = ORANGES
H = MIXTURES SHADES – CAN BE ANY MIX OF COLOURS
U = SHADE THAT IS TOO DIFFICULT TO CATEGORISE

- Parcel numbers used for yarns are always in 10 Digits ie. 0000106524

YARN CODES USED;

YD 0080 DB S E 0552 01 = 080DBE552 (this is how we write on tickets)



1 = Yarn A (cashmere), B (blends), C (camelhair), D (wool)
2 = Tex of the yarn (ie the yarn count)
3 = Quality of the yarn (eg BO= cashmere, DB= Lambswool, EZ= worsted cashmere, etc – there are many quality codes)
4 = **S** for SOLID shade, or **H** for MIXTURE shade
5 = Letter for colour code reference – details above
6 = Number for yarn shade reference
7 = The ply of the yarn 01 = single ply, 02 = 2 ply, 03 = 3 ply and so on.

Please note: multiple twists are a little more complicated. Multiple twists have a new code from which it is not possible to identify the component yarns. To find out the component yarns you should check the label in the cone or check on the Jomar system.

Example:

YD00040000529602
037ZHB222 twisted with 078YNH670

This number refers to the 2 Colours on Jomar system (SB0222/HU0670)

Although codes for twisted yarns are very complicated on Jomar, all cones which have been twisted have internal labels showing all the details:-

- Jomar 16 digit code
- yarns which have gone in to the twist
- the parcel number.

Example of cone label:-

JOHNSTONS OF ELGIN
YD00040000529602

37ZH B222 / 78YN H670
0000123456

Other examples might be:-

YB00750000141302
(HB0012/SB0372) This is a twist of TV/ZJ qualities

YD00080000130102
(SB0108/HB0333) This is a twist of DX/ZO qualities

Equipment and process

The purpose of the looms are to produce cloth or accessories from yarns that interlace. We have both **dobby** and **jacquard looms** at Johnstons.

The threads that run from the back of the loom to the front are the **warp ends**. Each end is threaded through a **heddle/eye** and then multiples of threads will be grouped together and pulled through (called **sleying**) the **dents/splits** in the **reed**.

A dobby loom has the heddles attached to one of a number of **shafts** and on a jacquard loom each heddle can be lifted individually by the jacquard module/harness. The threads that interlace across the warp are called the **weft**.

Different weave structures & patterns can be made either by changing the order of threading or **draft** (dobby loom) or by lifting the warp threads in different combinations (both dobby and jacquard). The **lifting pattern** (as well as the **weft pattern**) is programmed electronically by the loomer/technician.

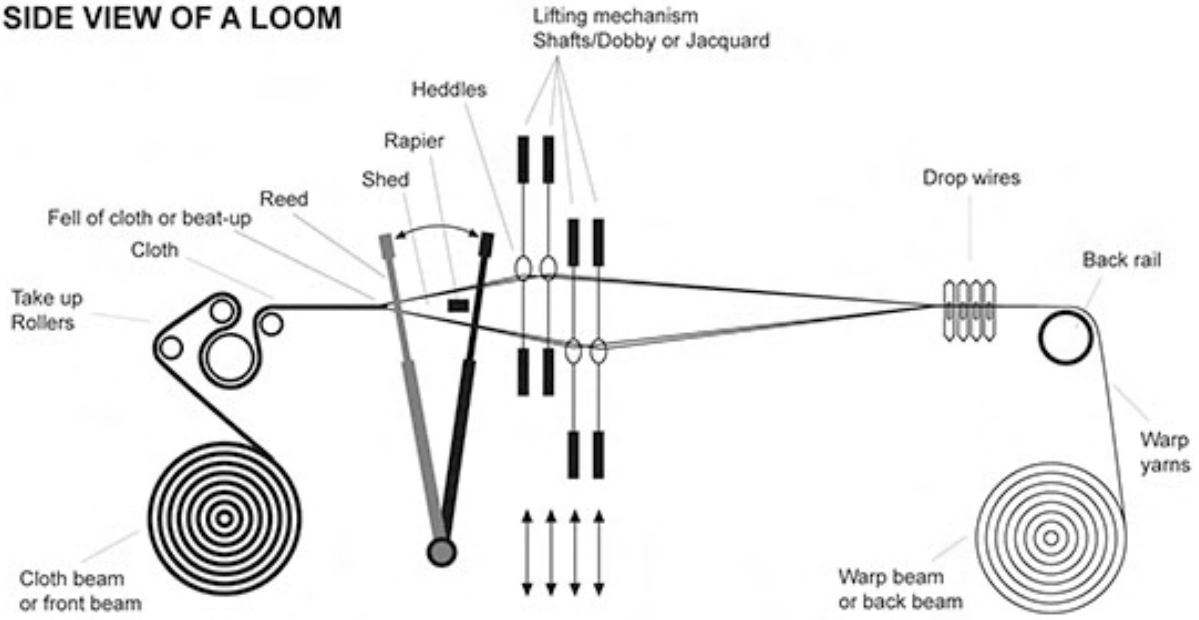
Combinations of warp threads are lifted leaving a gap between the lifted threads and those left down. This gap is called the **shed**.

The **rapier** picks up the weft yarn selected according to the **weft pattern** and pulls a length of weft through the shed. The reed moves forward and pushes the weft pick forward into place and the reed returns to the back position as the lifting mechanism changes holds the weft pick at the fell of the cloth. At the side of the cloth the **klockers** lift additional ends called the **leno** which hold the ends of the weft pick securely. A narrow strip of cloth may be woven at the sides called the **list** to stabilise the fabric, but these are cut and are fed to a waste container at the side of the loom.

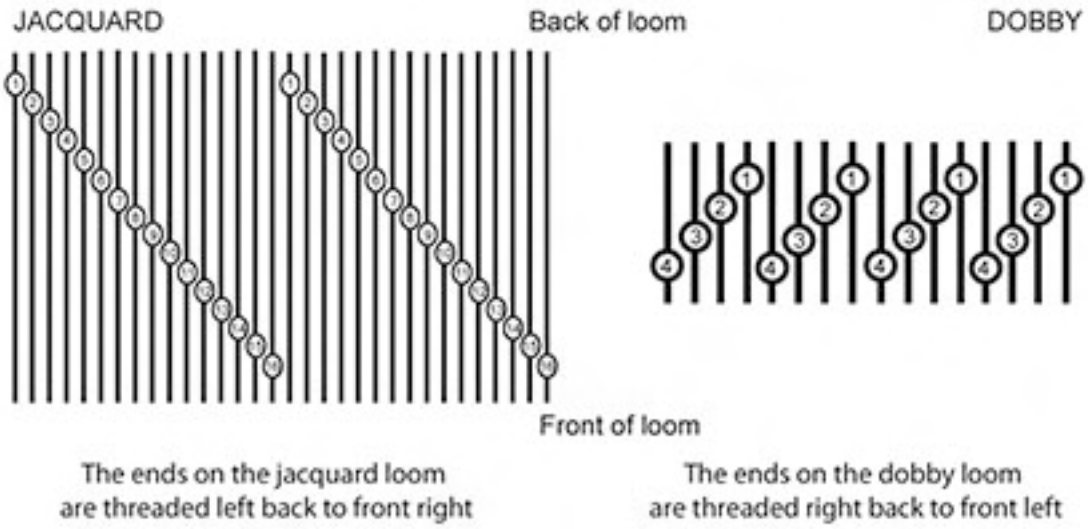
The purpose of the **reed** is to space the warp threads evenly across the width of the loom. Reeds are made in different sizes which is noted on the work ticket. Just as there are different systems for describing yarn there are also different systems for describing reeds. At Johnstons we use the Gala system which describes the number of dents in 1 & 7/8 inches

A reed of 14/4 means the reed has 14 dents in 1 & 7/8 inches and 4 ends in one split/dent.

SIDE VIEW OF A LOOM



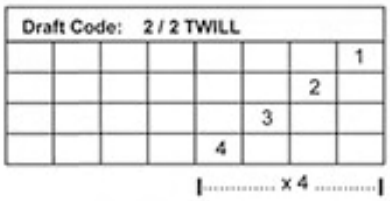
THREADING DIRECTION

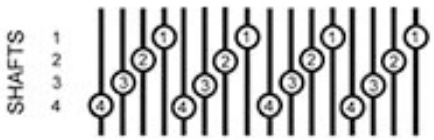


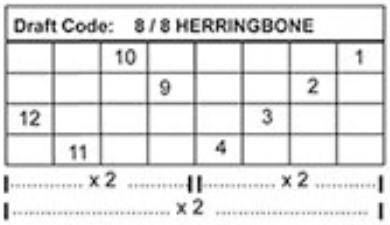
The ends on the jacquard loom are threaded left back to front right

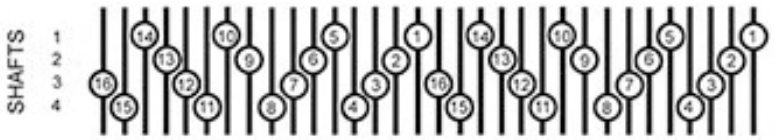
The ends on the dobby loom are threaded right back to front left

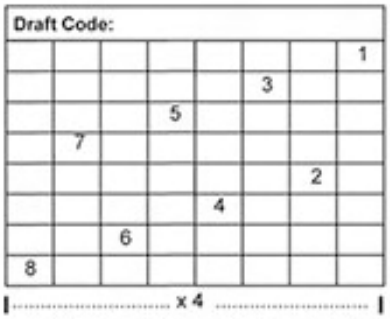
INFORMATION on WORK TICKET and how it relates in the DRAFT (dobby)

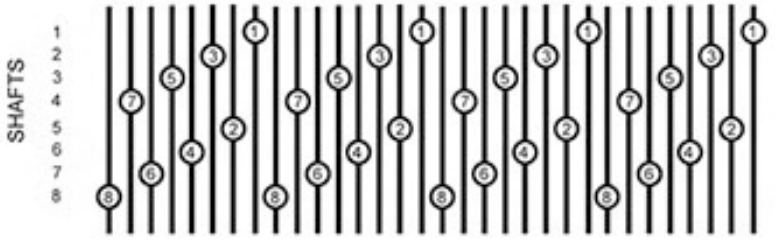




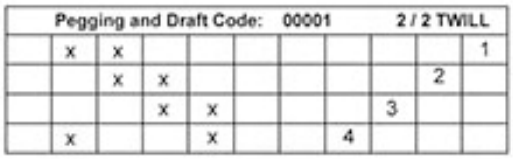






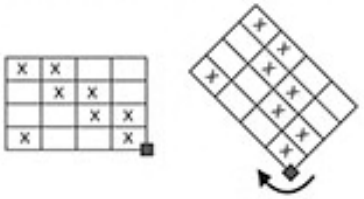


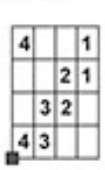
INFORMATION on WORK TICKET and how it relates ON THE LOOM (dobby)



A cross on the pegging pattern means all the warp ends on that shaft are lifted.

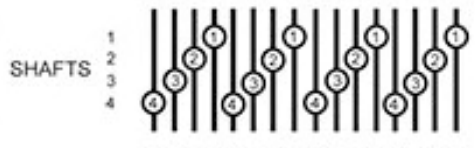
Read the pegplan by turning 90 degrees clockwise.

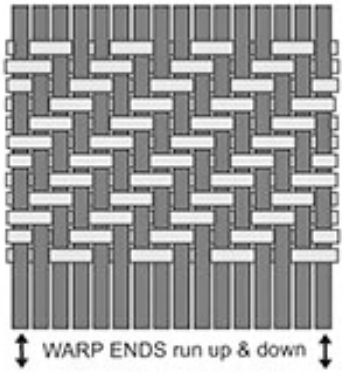




OR ...

Read picks right to left





EXAMPLES of DIFFERENT DRAFTS (Scottish System)

Read from RIGHT to LEFT and BACK to FRONT

COMMON TWILL on 4 shafts (or 2/2 TWILL)

			1				1				1				1				1				1
		2				2				2				2				2				2	
	3				3				3				3				3				3		
4				4				4				4				4				4			
																				One repeat = 4 ends			

4 x 4 HERRINGBONE

		6					1			6					1			6					1
			5			2					5			2					5			2	
8					3			8					3			8					3		
	7			4					7			4					7			4			
																One repeat = 8 ends							

POINTED DRAFT on 8 shafts

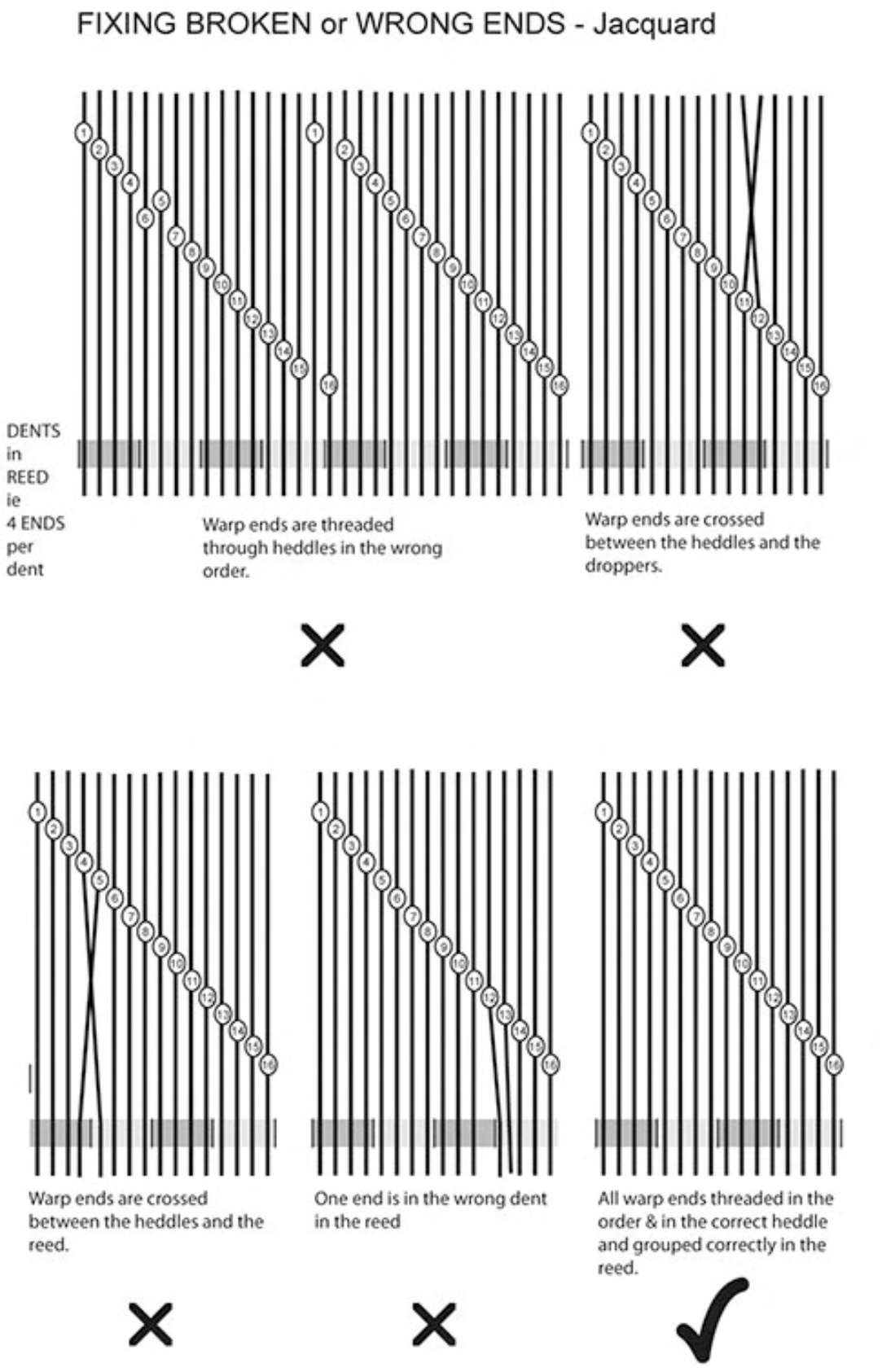
													1														
14												2		14												2	
	13										3				13										3		
		12								4						12								4			
			11						5								11						5				
				10				6										10				6					
					9		7												9		7						
						8														8							
														One repeat = 14 ends													

BROKEN DRAFT

		26				18					1			26				18					1
			25				17			2					25				17			2	
28					19				3			28					19				3		
	27			20				4					27			20				4			
X 4 = 16				X 2 = 8				X 4 = 16				X 4 = 16				X 2 = 8				X 4 = 16			
												One repeat = 40 ends											

klockers
heddles
klockers
heddles
klockers
reed with 2 ends per split/dent
leno ends
warp ends
leno ends
warp ends
leno ends
cutters
scarf/cloth
list
false selvedge waste

When a warp ends breaks in production great care must be taken when replacing or fixing the end. If the end is threaded through the heddle or through the reed incorrectly there may be faults in the cloth which occur, but do not trigger the alarms on the machine, and therefore can result in metres of cloth woven which will need to be darned. Incurring extra production costs and reduction of productivity.



Weavers knots

In the production of woven textiles there are many stages at which two pieces of yarn need to be joined.

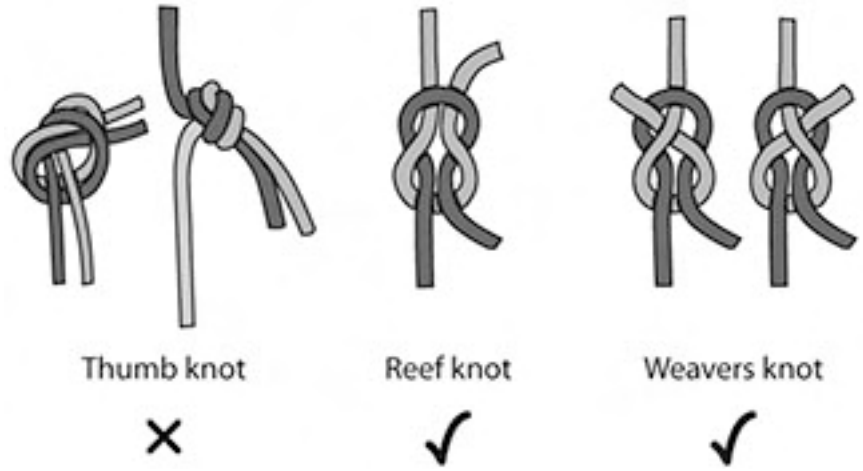
In all cases the method used to join the ends of yarn will have an impact on all other processes that follow, all the way through production to darning. Knots that look or feel bulky need to be darned and this slows production and adds cost.

The best method for joining two ends of yarn is the Weavers Knot because it is

- secure
- less bulky and lies flatter in the fabric – less likely to need darning
- the loose ends of the knot are more likely to lie in parallel with the line of the yarn – less likely to snag in the heddle or reed in weaving and less likely to need darning
- if the knot does need to be darned, then it is far easier to untie and mend

The length of tail left when tying a knot is also important as even though it might not affect your work, it could affect production in another stage of production, for example in weaving long tails on a knot in the warp are likely to twist around other ends in the warp resulting in broken ends and weaving faults. Long tails left when joining cones in the weft will leave more clearly visible faults that may otherwise not required darning.

Reef knots (or sheet bend) is sometimes called a Weavers Knot, and though not as secure as a the Weavers knots on the right below, they can also be untied relatively easily, by pulling one of the loose ends in the opposite direction.



4 PREPARE FOR WORK

The preparation activities you will do in your job are described in detail below.

These activities will be demonstrated to you by your training buddy, your trainer and/or your Supervisor on the job.

Prepare for work
1. Wear any appropriate PPE. 2. Carry out required takeover activities (where appropriate) 3. Gather resources together and check materials, machinery and equipment meet spec 4. TAKE 5 a. Add weavers colour code yarn snippet at start of shift and on every subsequent new piece b. Set the clock on the machine c. Check labels on inside of the cones matches Work Papers d. Set up the correct positioning of cones for multiple weft colour patterns

5 JOB ROLE and PRODUCTIVITY

- **The activities you will do in your job**

These activities will be demonstrated to you by your training buddy, your trainer and/or your Supervisor on the job.

Carry out weaving activities
PATROL LOOMS and REPAIR WARP?WEFT BREAKAGES **1.** Act quickly to any machine stoppage. Green and red lights signify whether it is a warp or weft breakage. **2.** Assess the problem and repair as required. **3. WARP STOPPAGE** • **Broken end behind heddles.** Locate the broken end either through visual check of front or back of loom, or by locating a fallen wire dropper. Get a new length of yarn (ensuring it matches the warp) and use a weavers knot to tie it to the end coming from the warp beam. Trim tails if necessary. Tie other end of the new length to the broken end coming from the front of the loom. Move to front of loom and pull through the new length until tension is the same as the other warp ends… hold end down against the cloth and restart loom. Once new length is securely woven in trim tails to approx 2-3cm to allow darners to locate and mend. • **Broken end in front of heddles.** Locate the broken end either through visual check of front or back of loom, or by locating a fallen wire dropper. Get a new length of yarn (ensuring it matches the warp) and use a weavers knot to tie it to the end coming from the warp beam. Trim tails if necessary. Move to front of loom. Locate empty heddle and pull the missing warp end through in the correct heddle/sequence using heddle hook. Pull end through reed in the correct dent, ensuring ends are not crossed. Pull through the new end until tension is the same as the other warp ends… hold end down against the cloth and restart loom. Once new length is securely woven in trim tails to approx 2-3cm to allow darners to locate and mend. • **Slack end allowed dropper to fall.** Locate the broken end either through visual check of front or back of loom, or by locating a fallen wire dropper. Move to front

of loom and pull through the slack end until tension is the same as the other warp ends… hold end down against the cloth and restart loom. Once new length is securely woven in trim tails to approx 2-3cm to allow darners to locate and mend. **4. WEFT STOPPAGE** • Remove broken weft yarn in the open shed. • Rethread selected weft colour for rapier pick up. • Restart machine. **REPLACE EXPIRED WEFT CONES** 1. All weft cones when being loaded for the first time must be positioned in sequence according to the pattern. 2. Add a second cone for each selector (checking correct colour/yarn is used) and tie top of second cone to the tail of the first USING a WEAVERS KNOT. Trim tails. 3. When a cone is empty, replace with new one (checking correct colour/yarn), tie tail end to top of next cone with a weavers knot. **REMOVE FINISHED CUT FROM MACHINE.** 1. Remove finished cut from the machine (amber light) by means of hydraulic trolley. 2. Drop beam onto trolley and replace with empty beam. 3. Wrap cloth f the new piece around the cloth beam neatly and with care not to damage the cloth. Ensure cloth tension is even across the beam. 4. Restart the machine. 5. Take cloth to darning area and iron barcode label to the end of the piece.
Complete records and store job
1. Take cloth to darning area and iron barcode label to the end of the piece.

- **Housekeeping duties**

These activities will be demonstrated or explained to you by your training buddy, your trainer and/or your Supervisor on the job.

Carry out routine housekeeping
1. Brush round looms at end of shift 2. Clean dust from loom with air hose gun 3. Empty all waste bins 4. Ensure empty cones are stored correctly throughout the shift

- **Productivity**

Productivity and the success of the business is affected by many factors but everything you do has an impact on productivity.

What are some of the things you can do to ensure production is safe, efficient and our products are always of the highest quality?

- Organise your work as efficiently as possible
- Carry out all quality checks when required
- Learn about potential problems and faults with materials, processes and equipment and take responsibility for your work.
- Rectify all problems, alert your Supervisor of any problems that you cannot rectify yourself as soon as possible

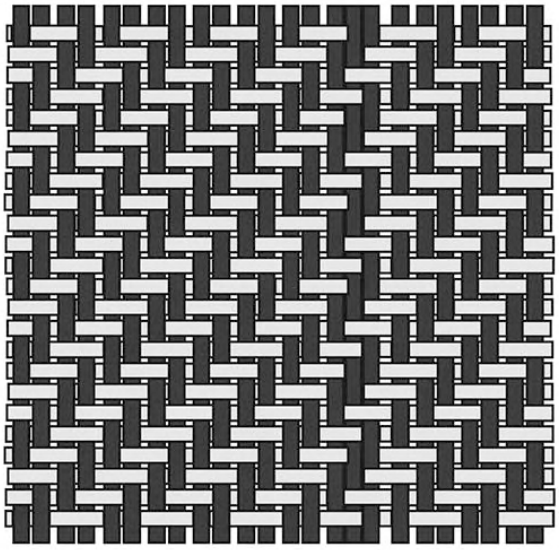
6 PRODUCT QUALITY

- How you influence the quality of the product

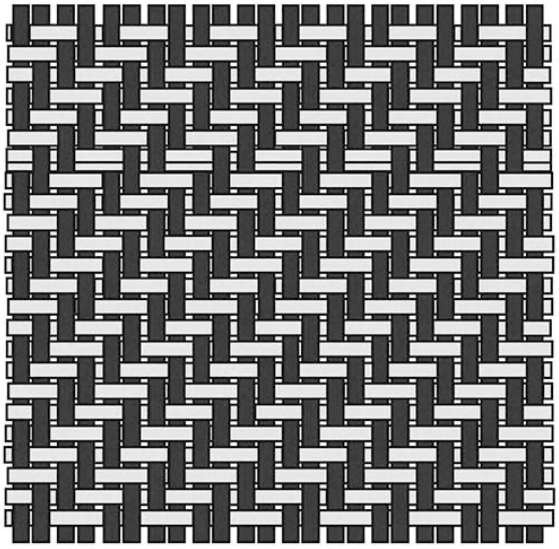
FAULTS in MATERIALS and PROCESSING		
Characteristic	**Potential problems**	**Who is responsible and How do you handle them**
Warp alarm sounds (green)	Broken warp end or loose end. Potential for wrong colour/quality yarn to be used to replace end. Loom stoppage - loss of production.	Weaver. Locate the broken end and tie (weavers knot) on a long enough length to pull through to front of loom ie ONE knot per break. Check correct yarn is used. Report unusually high level of stoppages to Supervisor
Weft alarm sounds (red)	Weft issue. Loom stoppage - loss of production	Weaver. Remove broken end from shed. Rethread weft for pick up by the rapier. Report unusually high levels of stoppages to Supervisor.
Incorrect draft – warp ends in the wrong heddles	Cloth may be woven with a fault. End will have to be darned in for the full length of the fault.	Weaver should fix but report to Supervisor
Weavers knot is not used when tying-in a new end	Bulky knot. Problems in darning as knot does not pull out.	Weaver. Use correct knot
Two knots used to fix broken ends	Potentially twice the work in darning to mend a fault.	Use one weavers knot to tie-in a new – long – length of yarn and pull any slack through at the front of the loom. Restart loom.
Ends are crossed behind the heddles	Warp colours might be in the wrong order. NB: Cloth might look OK if a solid warp, however These ends may weave tight/slack due to the different tension, which might cause distortion in finishing.	Weaver is responsible to ensure all ends are positioned and working correctly.
Empty heddle	The warp end will not be woven and will go slack. Faulty cloth.	Weaver is responsible to ensure all ends are positioned and working correctly.
Ends are doubled in the same dent	Uneven spacing of the warp will show as a flaw in the cloth	Weaver is responsible to ensure all ends are positioned and working correctly.

Ends are crossed between the heddles and the reed	Warp colours may be in the wrong order. Potential weave/lifting fault. Higher risk of ends breaking. Uneven tension on the warp	Weaver is responsible to ensure all ends are positioned and working correctly.
Overhand or thumb knot is used at inappropriate time	This causes a bulkier knot, more likely to need to be darned and impacts on the overall quality of the cloth.	Use the appropriate knot method, generally a weaver's knot is best.
Tails are not trimmed after knotting	In warp ends there is potential for the tails to snarl with neighbouring ends and cause more breakages or weave faults. In weft it can cause problems for darning impacting on productivity.	Ensure tails of yarn are trimmed after knotting. Report unacceptable levels of bad knots that are in the warp.
Broken leno ends	Weft yarn will not be held in position resulting in an unacceptable ragged edge to the cloth/scarf.	Weaver is responsible to ensure all ends are positioned and working correctly.
Start up after loom stoppages not done correctly	Horizontal bar marks	Report to tuner or Supervisor
Double picks	Faulty cloth which will need to be darned. Weft selector or rapier not working correctly	Stop loom and report to Supervisor
Weft colour cones loaded incorrectly	Wrong positions will result in the cloth design being incorrect. Cloth will need to be re-woven, holding up production.	Check labels on cones to ensure correct colour/quality is used and ensure they are loaded in correct position
Lack of care when wrapping beginning of new piece to cloth beam/roller	Potential damage to the cloth, high wastage	Handle cloth with care and attention
Woven cloth does not match the sample	Wrong pattern may be programmed and woven	Stop loom and report to Supervisor

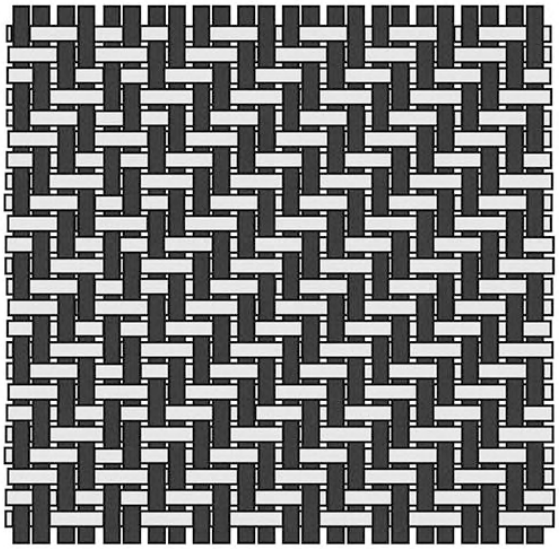
PROBLEMS WITH EQUIPMENT		
Characteristic	**Potential problems**	**How do you handle them**
Droppers not working correctly	Faults with warp ends slack or broken may not trigger alarm resulting in faulty cloth.	Routinely check droppers
Short picks	Faulty cloth at the edge. Rapier not functioning correctly	Stop loom and report to Supervisor
Unusual noise/smell/vibration	Potential damage to machine and/or product	Stop loom and report to Supervisor
Cutters not working correctly	Damage to the cloth	Stop loom and report to Supervisor
Rapier not picking up the weft	Faulty cloth	Stop loom and report to Supervisor



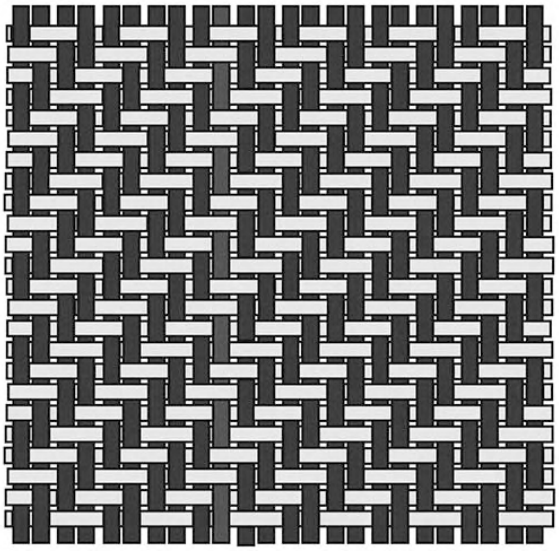
Fault name: Wrong split



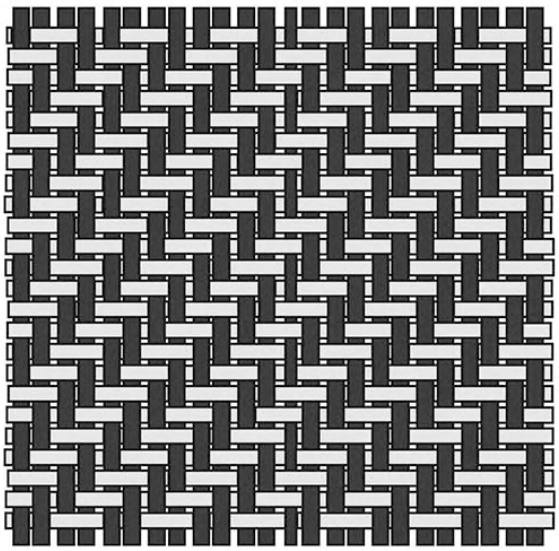
Fault name: Double weft shot



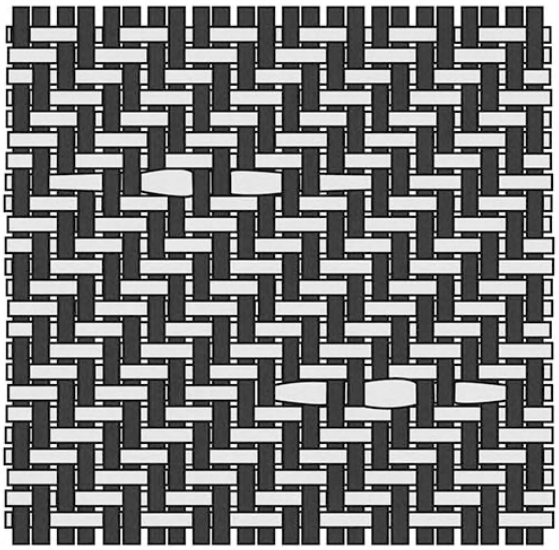
Fault name: Misplaced



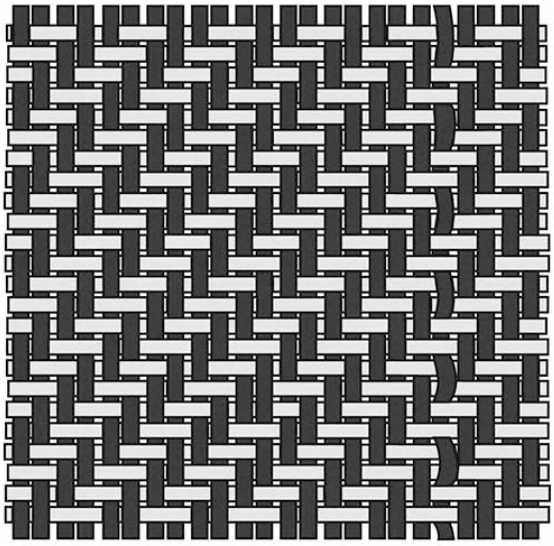
Fault name: Wrong colour end



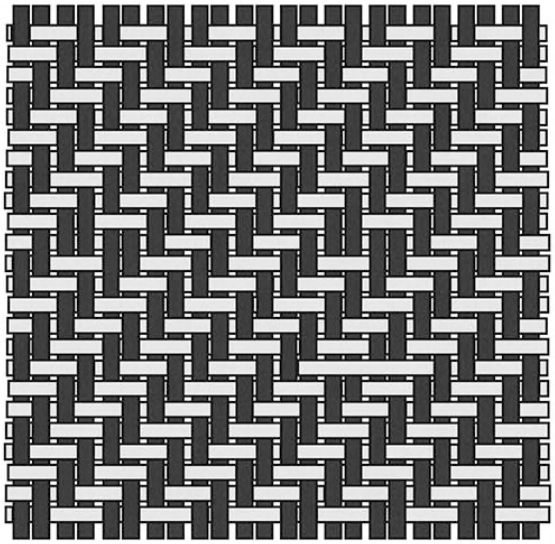
Fault name: Wrong/thin end



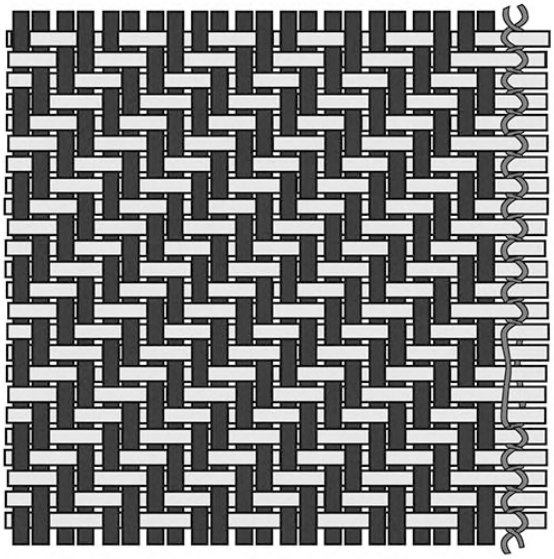
Fault name: Slubby weft



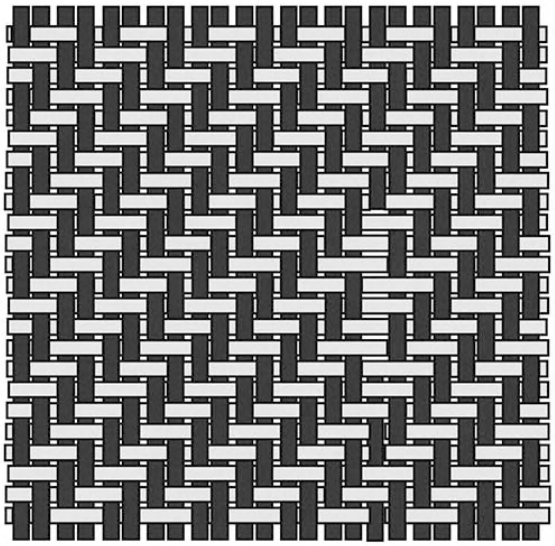
Fault name: Slack end & floating end



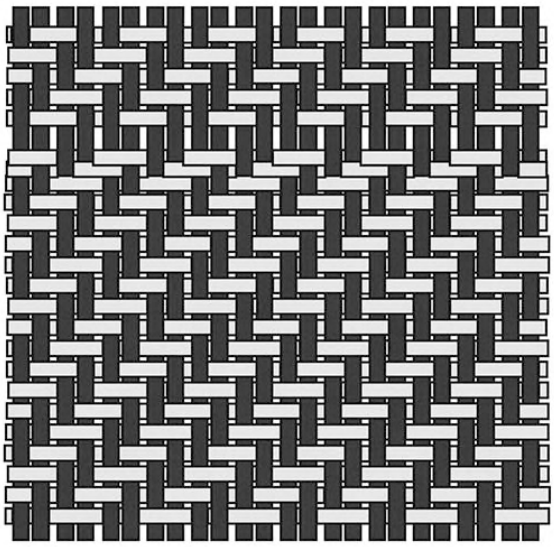
Fault name: Floaters



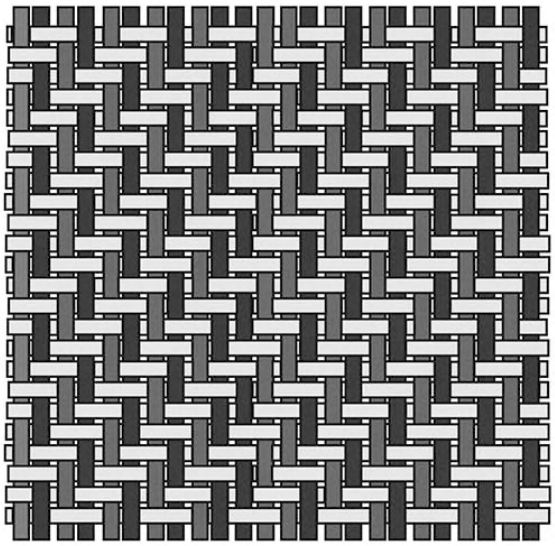
Fault name: Leno/binders not working



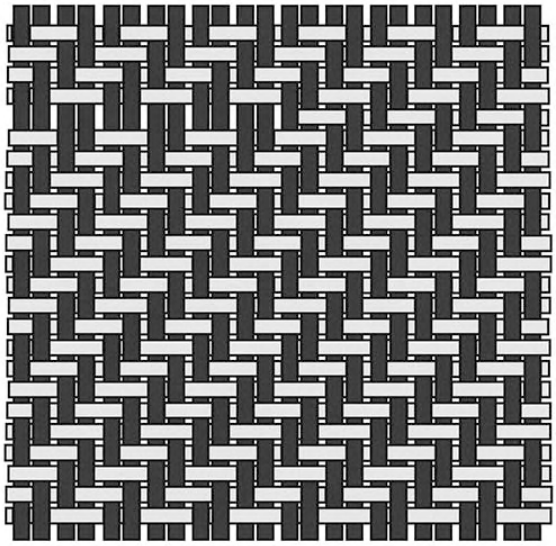
Fault name: End out



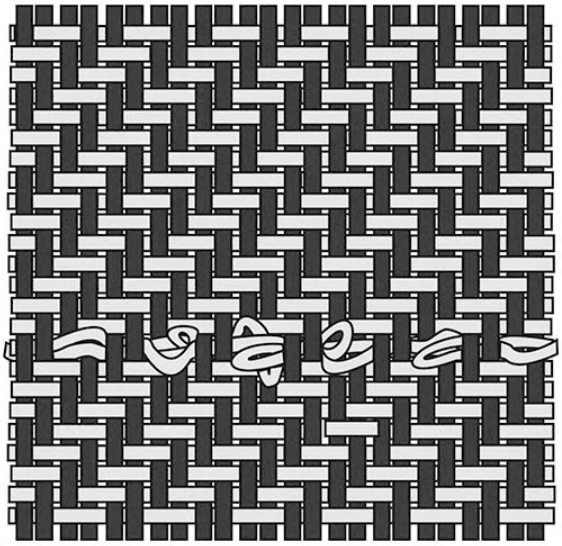
Fault name: Weft bar



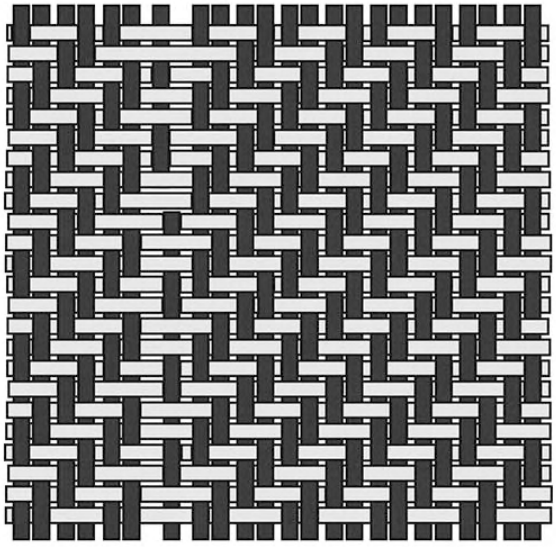
Fault name: Reverse colours



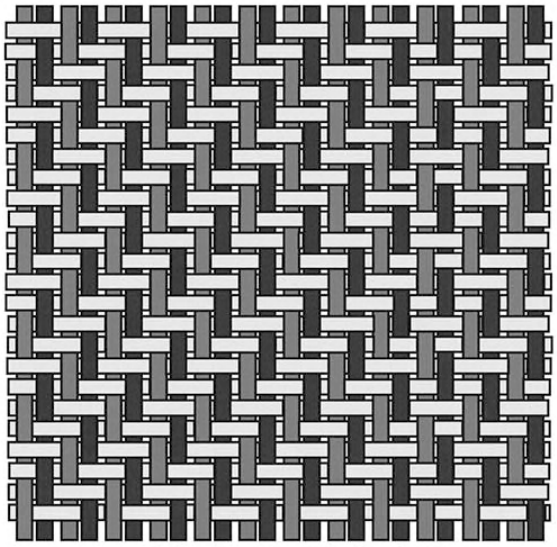
Fault name: Pick out



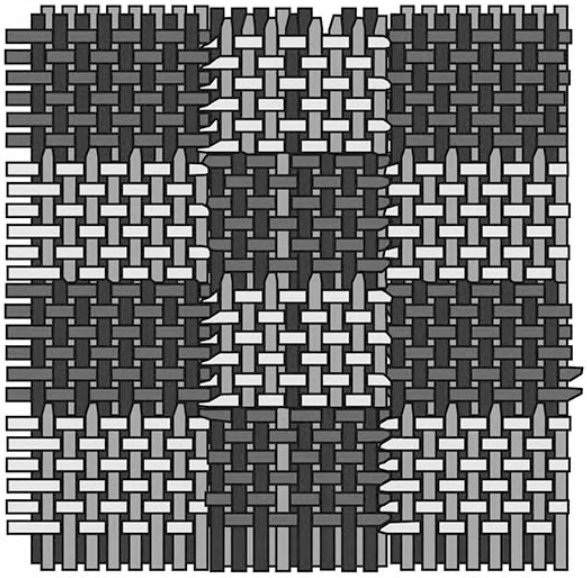
Fault name: Snarl



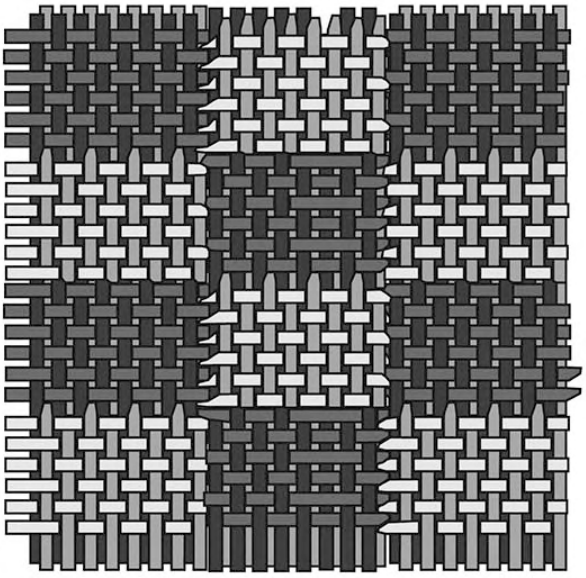
Fault name: Ends out



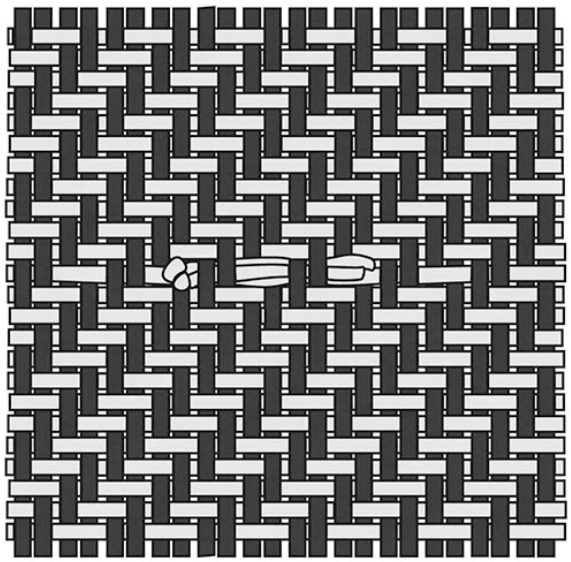
Fault name: Misplaced ends in draft



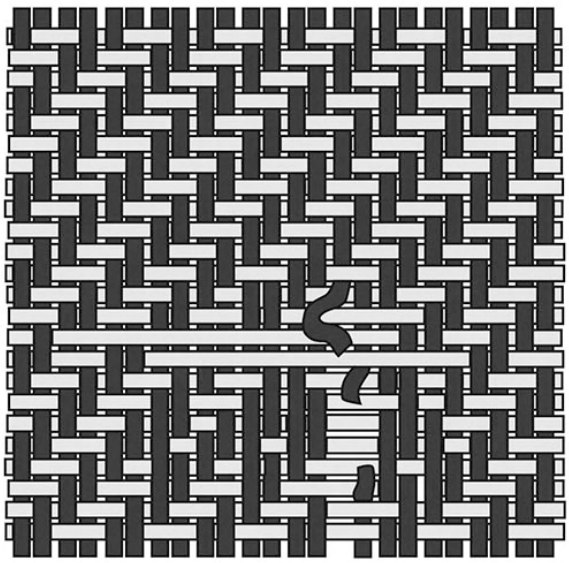
Fault name: Reverse ends



Fault name: Floating warp end



Fault name: Knot



Fault name: Scob

6 LEARN, MAINTAIN AND IMPROVE YOUR WORK

Our most valuable asset is the people who work with us. All our employees are valued members of the Johnstons of Elgin team. We are an equal opportunities employer and support our staff with personal and professional training. We are especially concerned with the preservation of traditional textile skills and do our utmost to ensure the conservation of these special, and increasingly rare, skills.

We will endeavour to provide you with the training you need to do your job but also to help you reach your full potential within the company, but you must also think about your own attitude to training and improving your work.

- How do you feel about learning new skills?
- How do you respond to feedback about your work?
- Do you have a positive or negative attitude to your work and learning?
- How does learning new skills help you?
    - Enjoyment, satisfaction and pride in your work
    - More productive
    - Increased confidence
    - Willingness to learn makes you a more valuable employee
    - Increased responsibility leading to higher pay
    - Possibilities to progress within the company

Everyone at Johnstons contributes to the success of the company at whatever job role or level that they work at. We want a strong and dynamic team to build on our successes and ensure a secure future for all the team.

What are the skills and characteristics Johnstons are looking for in new employees?

- Positive, can-do approach
- Enthusiastic
- Reliable
- Attention to detail
- Eager to learn and constantly improve their work

What can you do to maintain and improve your work?

- Make the best use of the training provided to you
- Ask your Supervisor for feedback on your work
- Ask questions if you are unsure about anything
- Learn from others and help others learn
- Get interested in what you are doing and why
- Be the best you can be

How can you find out about training opportunities?

- Ask your Supervisor
- Ask in the HR Department
- Watch for new positions on Notice Boards