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A guide to Machine shearing

Installing Machines

When installing machines, always try to give consideration to the porthole or gate where the shorn sheep is to go out. When facing a machine from the front, the porthole should be on the right hand side of the down tube. If set correctly, all a shearer has to do on completing a sheep is release it, and out it goes. To have the ideal set-up, provide individual catching pens within easy distance of the machine (see below), so that the Shearer may catch his sheep and drag it backwards directly into position. In other words your catching pen is on the left hand side of your down tube.

Install the machines in a position where there is plenty of fresh air and light, but no direct breeze on the shearer. The height of the machine must be such that when the long and short gut cores are connected and hung, they just do not touch the floor (i.e. 7mm up).

The same ruling applies for the flexible tube. This is very important and makes it difficult for the shearer if incorrect. If it hangs too low it will cause the hand piece to slide around on the floor when the machine is switched off. It is worse if it is too short however, as it makes it difficult

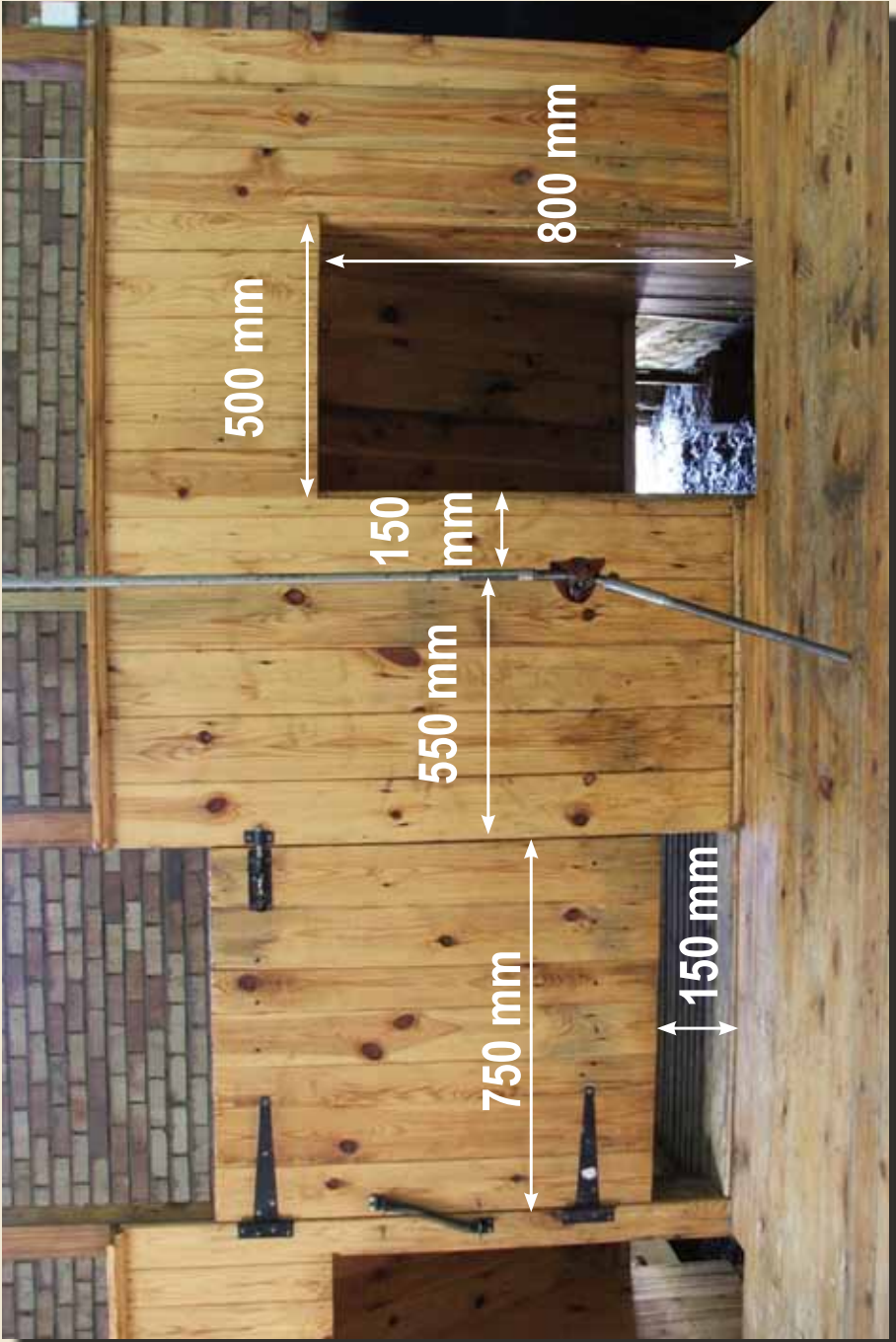
for the shearer, who has to force the hand piece to reach certain places while shearing. This is particularly the case on big sheep.

The "on/off" cord or switch must to be ideal, be 45cm above the floor.

Be extremely careful when transporting or installing units, as any bad bumps or rough handling may result in damage. The friction wheel is particularly vulnerable to damage or warping and if this happens, it not only causes noise and vibration, but also can be extremely unpleasant for the shearer to use.

Another point to bear in mind is NEVER allow a friction wheel and cone machine to remain in gear out of season, as this may cause a flat spot on the cone surface. Such a spot will also result in noise and vibration. This spot can possibly be removed with emery paper or a flat file. These must be used carefully on the cone while it is in motion. If this fails it is best to replace the cone.

Whenever a machine is purchased, study the manual carefully, and lubricate and maintain the unit as recommended by the manufacturer.



The down tube

In this country we have the solid and flexible down tubes offered by the dealers. The flexible down tube is easier to use and will follow the sheep's position more easily. However, it must be noted that in New Zealand and Australia only solid tubes are used by the gangs for crutching and shearing. The farmer for odd crutching and dagging jobs normally uses the flexible tube. This is particularly the case if the unit is portable or on a sliding rail system, normally above a race in the kraals.

A comparison between the solid and flexible down tubes.

1. The solid down tube is more a heavy-duty model and will outlast the flexible tube, as these tend to twist off periodically.
2. The solid tube is definitely more difficult to learn on than the flexible tube, as a shearer must keep to the correct positions. Once mastered, however, it is a winner.
3. The flexible shaft is more prone to tangling in the sheep's legs and getting in the shearers way. However, shearers do learn to adjust to this.
4. Top shearers say that they much prefer the solid down tube, because it is alive, and not a dead weight as is the flexible tube. In fact, these shearers make tremendous use of their down tubes.

They get into rhythm with their down tubes swing, using its momentum.

SETTING UP A DOWNTUBE

The flexible tube

The first point is that of the machine; it must be set up so that the down tube hangs just above the floor (i.e.7mm above).

Secondly, have the bayonet joint (inner section) protruding about 7mm. If it is not, coupling problems may occur.

The solid tube

The dealer will explain the assembly of the down tube to you. However there are certain points to bear in mind when assembling.

1. When setting up a down tube, be sure the guts are the right length and, when hung, do just clear the floor, as explained in the section on installing machines. Some guts vary in length. However the manufacturers have standardised in recent years and this is no longer such a problem.
2. Try to use the maximum amount of tube spring possible when setting up, but be careful not to cover any of the oil holes.
3. When the short standard tube is fitted, allow the short gut to protrude about 7mm, otherwise

coupling problems may be experienced. Secondly, be careful not to cover the oil hole at the top end, where the short down tube is attached to the tube joint. *Spline driven short gut ends should protrude from the short tube by approximately 4mm.*

4. Once the entire down tube is completely assembled and tightened, it must be set. This is done by releasing the top sleeve's top wing nut and bolt and allowing the long stand tube assembly to slide down until it rests on the tube joint. Now raise the tube assembly about 20 mm, retighten the wing nut and bolt, and your down tube is set. This play **MUST BE** allowed because when a machine runs, a nylon core will expand on warming up. If the 20mm play is not allowed, the tube joint may heat up as the machine is used causing the gut to break. If the setting is made too big, a vibration will be caused.
5. The downtube should hang 40cm out from the wall

Downtube Maintenance

The manufacturer's instructions on when and where to oil and grease must be strictly followed, but briefly this should involve:

1. The down tube must be oiled every two hours. Neglect to do so can lead to heating, vibration and wear. Ensure that oil holes are not blocked.
2. If a solid tube has gut cores, these must be well greased weekly. Nylon guts only require oil. **DO NOT GREASE.**
3. The caps on the tube joint and the top bearing should also be greased weekly.

Gut and Nylon Core Repairs

It is good practice to have spare cores in a shed. The two longer sections of two broken long standard gut or nylon cores can be spliced together using a splicing ferrule. These must be measured carefully to get the correct length.

The Hand Piece

There are different makes of hand pieces. All are good and if cared for well will give good service. ***It is good practice to give shearers their own set to use, as they will naturally maintain and care for it better.*** The condition of the hand piece is of utmost importance, as it is the most important part of the shearing plant. A shearer cannot be expected to do a good job and is very handicapped by a worn-out hand piece. Symptoms of such a hand piece are continual overheating and or excessive noise and vibration.

A NEW HAND PIECE

When a new hand piece is purchased, it is factory assembled and set and requires no further adjustment or change.



All new hand pieces come out with a felt rug or cover. This should be left on to run the hand piece in, and for learner shearers. Accomplished

shearers, however, may remove this rug if they so prefer, as it gives a smaller and better grip, is lighter and is easier to control.

SETTING UP A HAND PIECE

This is the process of fixing a comb and a cutter to a hand piece prior to using it. It is very important, as the way you set up your gear greatly affects your shearing. A shearer, in fact, always sets up his gear to suit the sheep being shorn.

Briefly, a comb is placed on the hand piece and the comb screws are tightened down lightly. The cutter is then placed in position and the tension nut tightened until the cutter is held securely but is still slightly loose and easy for cutter to move across comb. The comb is now moved and adjusted until the desired lead and throw are obtained. Now the comb is tightened down securely and the tension set.

NB. If the tension nut is too tight when the comb is tightened down, the tension prevents the comb from tightening down all the way - when the tension nut is released while setting the tension the comb will loosen again. When this happens the comb and cutter will both fly off when the machine is started or during shearing.

1. Setting the Lead

The lead is the distance allowed between the tips of the comb and the cutter. To set the lead, always line up the centre tip of the cutter with the centre tooth of the comb, and then move the comb back or forward until the required distance is obtained.

When difficult shearing sheep are shorn, i.e. lambs or any sticky, difficult combing sheep, the lead must be reduced to a minimum of 2mm behind the scallop of a new comb.

Merinos or fine-woolled sheep should be shorn with a fairly long lead, particularly if they are good shearing, as the comb must comb the wool before cutting it. Crossbreeds and stronger-woolled sheep require less lead.

Always remember that too little lead can cause cuts on good shearing sheep because their skin is thin and tender.

On sticky, tough sheep, too much lead results in difficult penetration of the comb into the wool. Secondly, the comb will tend to ride out and not stay on the skin, causing wool to be left on and double cuts.



Always remember the cutter's tips should never be in front of the scallop on the tip of comb teeth, otherwise gear will not cut effectively.

2. Setting the Throw

The throw is the distance between the edge of the comb and the outer edge of the cutter, as it reaches its outer limit. The throw on either side must be exactly the same. When the cutter reaches its outer turning point, its outer tips must be on the comb's cutting surface. The screw slots on the comb allow for this adjustment.

3. Setting the Tension

When the "tension" is referred to, we refer to the tension of the cutter on the comb surface, which is set by tightening and loosening the tension nut. This tension is very important and plays an important part in effective cutting and the durability of your gear.

To check a setting, place your thumb in the back cogs and if the fork can just be turned over the eccentric with firm pressure of the thumb, it is about right.

If the tension is set too light, the gear will chew and bog down in the wool, and little balls of wool will get in under the cutter (i.e. it wools up). Once this happens the cutter will not cut as well until it is reground. The balls of wool also cause the gear to heat.

If on the other hand the tension is too heavy, the gear will become overheated and blunt with the cut-

ter spoiling the comb's cutting edge. This may result in scour marks on the comb.

For good clean cutting shear with as light a tension as possible. **When the gear dulls a bit, do not screw the tension down, but change the cutter.** If gear is properly ground and sharp it does not need tight tension and should not run hot, unless of course, there are special circumstances such as dusty sheep.

Once a hand piece is set up, all shearers must get into the habit of connecting it to the machine and starting it to check, before shearing.

If anything is incorrectly set up it will probably be detected right away and can be rectified. This is safer and better than having something go wrong as you start to shear.

HAND PIECE LUBRICATION AND CARE

The following is a brief explanation of the various points to watch and

when and where to lubricate your hand piece.

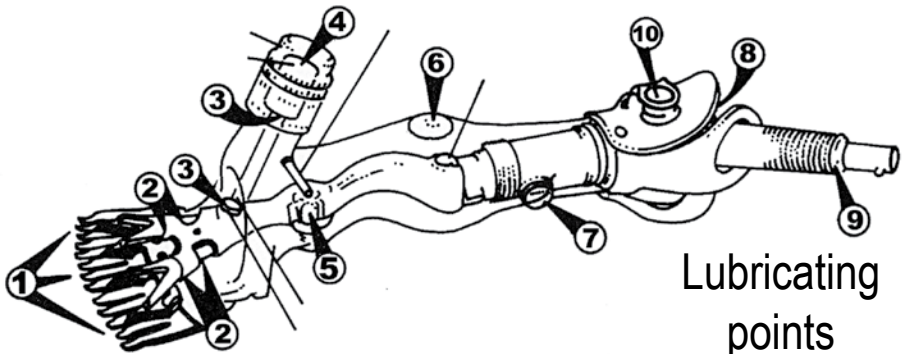
This can be briefly sub-divided into maintenance at various stages.

1. Before Every Run

Firstly, the oil well (barrel) (no 7) must be checked before every run, i.e. \pm every 2 hours. Secondly, lubricate the back joint spindle and pin, the cogs and the crank roller, the center post and the bottom cup, the tension pin and top cup, the fork yokes and comb and cutter. The oil to use is SAE 30 or what the manufacturer recommends.

2. During a Run

If it is necessary every so often, the back of the comb should be cleaned of packed wool grease, using a screw-driver and/or a cleaning brush dipped in water. If this is not done, the entry into the wool is impaired. This is particularly important with learners. A more accomplished shearer moves faster so grease does not pack to the same extent. Lubricate the comb and cutter.



3. General Care

The top sleeve (no.3) must be greased every second day or so. Another point, which is often overlooked, is the back joint caps (no 10). These must also be kept clean and greased every second day. The ferrule must be kept clean, as a dirty ferrule will not work freely on the down tube. Make use of spare time and at least once in two weeks remove your hand piece's main working parts, clean all thoroughly, check oil and reassemble them. If you work on more than one hand piece at a time, be careful not to mix the parts. This is of utmost importance as parts wear together to form a smooth running unit.

The above stripping and cleaning also applies at the end of shearing, except that a more detailed inspection of parts should be made. The hand piece must then be well oiled and stored in a dry place.

IF A HAND PIECE RUNS HOT

If a hand piece ever runs a bit hot, do NOT dip it in water to cool it down. Rather change your cutter or oil it. Water has a quick-wearing and dulling effect on parts and gear. The main causes of over-heating are as follows:

Incorrect Tension

This is by far the most common cause of overheating. The setting, if too heavy or too light, will cause overheating. The reasons why and how are given in the section on setting up a hand piece.

Blunt Gear

If cutters and/or combs are used too long and allowed to become blunt, the result is heat. This is a result of gear not cutting well and little balls of wool forming under the cutter (woolling up). These balls cause friction, which result in over heating.

Dirty Hand Piece

If a hand piece is not cleaned after each run, i.e. all the pieces of wool, dirt and excess grease, etc. removed from the front, overheating will result, as the airflow through the hand piece is restricted. Secondly, if a hand piece has not been stripped or cleaned for some time or if very dusty sheep are being shorn, a build-up of dust and grit result. This leads to over heating and excessive wear. Under severely dusty conditions a hand piece may have to be cleaned daily or even more often to prevent wear and overheating. This can be done very effectively and quickly by removing the fork body and running hot water into and over the hand piece. This has a good cleaning effect and removes the oil and dust rapidly. The water also heats the hand piece so that it dries out well. ***Sealed bearing back end: do not immerse in water. Simply squirt extra oil in the handle and run for a few seconds to flush it clean. New bearing kits are available and will need to be replaced periodically.***

Worn Components

If a hand piece continually heats up despite all the above and regardless of

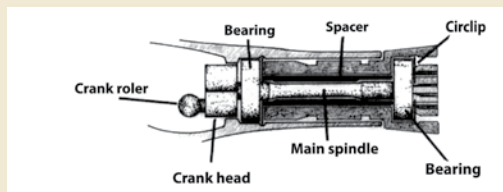
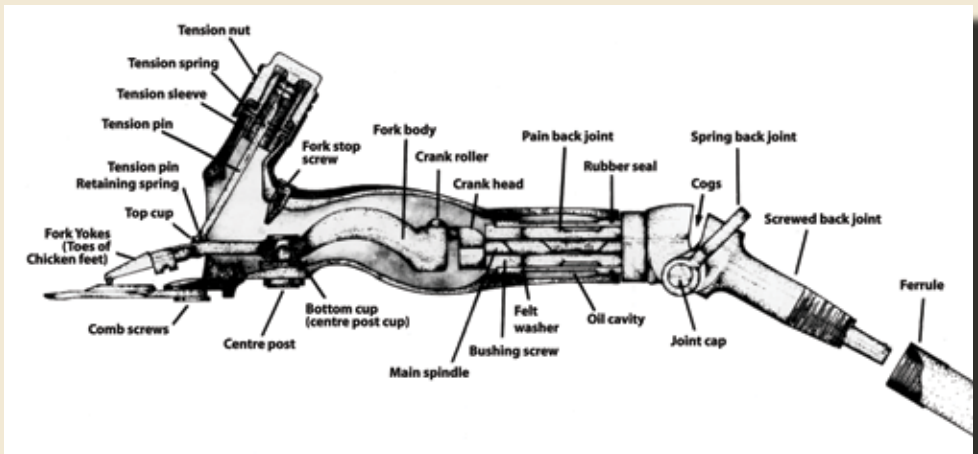
sheep, then it must have worn parts, something bent, or a more involved problem. Such a hand piece must be overhauled or taken to a dealer for more detailed repairs.

CHANGING GEAR

Never be reluctant to allow shearers to change gear, particularly cutters. A comb, if ground correctly, should last for a run of 1 to 2 hours if the sheep are fairly good shearing. Three to four cutters should be used per single comb. There is no fixed rule, but the shearer will learn to judge just when a change is needed. **In this country,**

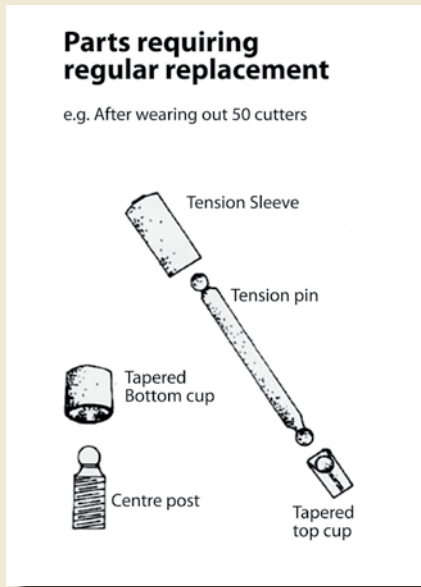
as soon as a cutter dulls a bit, shearers tend to tighten it down instead of changing it. This is bad practice as it starts a vicious circle. The tightened cutter causes the comb to blunt and so the shearer tightens it further. Eventually both comb and cutter are blunt and overheated. If he now changes the cutter it may cut for a short while, but as his comb's cutting edge is gone, changing and tightening will not help. The comb will also require excessive grinding to sharpen it again.

Parts of the Hand Piece



MAINTENANCE - REPLACING PARTS

There are some parts of the hand piece that require regular replacement. After wearing out 50 cutters, which is the normal number a professional shearer would carry per hand piece, you should replace the tension sleeve, the tension pin, the top cup, the center post and the bottom cup (a minor kit).



Parts Requiring Periodic Replacement

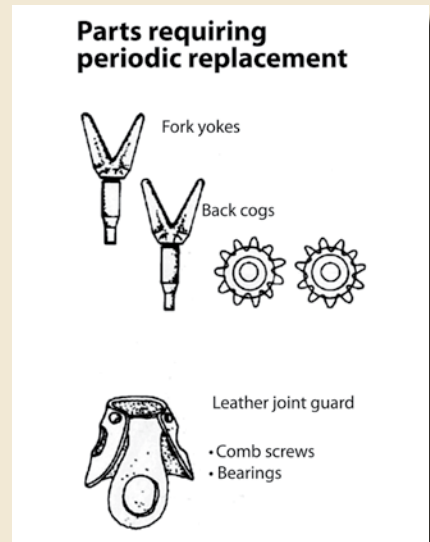
Fork yokes, comb screws, bearings, back cogs and the joint guard will require periodic replacement.

Bearings in hand pieces wear, affecting the cut and causing vibration. When in need of replacement:

- Find out what model of hand piece you have and purchase the appropriate bearing kit.

- Follow the step-by-step manufacturers instructions for your hand piece.
- Be sure to use the correct tools e.g. soft hammer and the correct tool for removal and placement of bearings.

NOTE: Refer to the manufacturers instructions.



Essential safety parts

NEVER operate a hand piece without them. They are there for the shearer's protection:

Tension Spring



The tension spring should be working properly, stopping the tension releasing. Without the spring, unnecessary tension is often used and accelerates the speed at which gear wears.

If a new spring is too tight, remove it and squeeze it up before refitting. This will allow it to retain tension without making it so tight that it makes changing cutters difficult.



Fork Yoke Retaining Bar

This bar is designed to secure the fork yokes to the fork.



Tension Pin Retaining Spring

This simply holds the tension pin in place. The hand piece is unsafe to use without it.

NOTE: The lack of an effective tension spring will contribute to lock-ups.

Center Post and Cup

With normal use, the back of the post wears against the back of the bottom cup to form a smooth complementary pivot surface. Once this surface is created, it is important that the post is not moved from its original working position.

The only time the post should be adjusted is when you are installing a new post and bottom cup. You would normally replace the cent-

er post and bottom cup when you are setting up a new supply of cutters.

With the hand piece set up with a comb and half worn cutter, the correct setting is when one third of the crank roller is visible above the fork body, when you look down the barrel from the front. On a new hand piece the center post is normally correctly set, but should be checked.

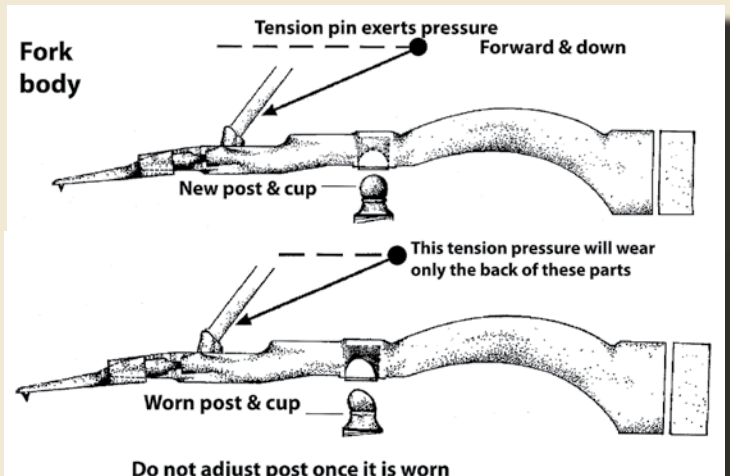
Once it is bedded into the cup the center post **SHOULD NOT** be adjusted.

The Comb Bed

The hand piece is a piece of precision machinery, which can be easily distorted by rough treatment.

Constant dropping on the floor, being kicked from the shearer's hand to smash against the wall or other maltreatment can bend the comb bed.

The distortion of the comb bed is a major reason for poor performance.

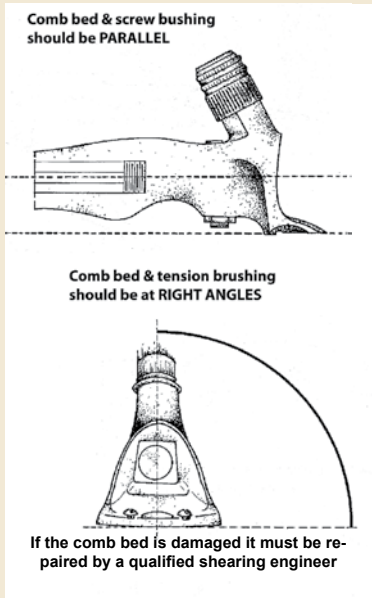


This fault is best fixed by sending the body of the hand piece to a suitably equipped engineer or agent who specialises in hand piece repairs.

A correctly aligned bed will be parallel to the screw bushing and at 90 degrees to the tension bushing.

Identify faults in the comb bed by:

- Using a straight edge on a comb bed
- Noticing one side of the comb is excessively scoured
- Excessive woolling in the cutter



Safety Tips

Do not operate the hand piece with badly worn fork yoke pins or when the fork yokes are sloppy inside the fork sleeves.

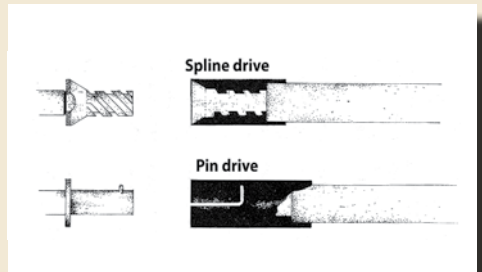
Do not start the hand piece without checking that:

- The comb screws are firmly tightened (note excessive tightening will eventually strip threads and crack comb screws).
- The fork yoke pins are securely located in the cutter holes.
- The correct starting tension is applied. Using the thumb on the back cogs, move the cutter across the surface of the comb. A safe starting tension will leave a good impression of the cogs on your thumb.

Spline Drive

When operating with a spline drive, the hand piece usually unlocks from the gut before any serious damage occurs. With the outdated pin drive, a lock-up will normally result in expensive breakage and possible loss of work through injury.

Some machines are not fitted with spline drives. Shearers can overcome this by carrying their own short gut and fitting it into the machine before they start.



Flex drive and some lagging plants still have the older pin drive so, where possible, a slip clutch arrangement should be used for safety.

Testing the Spline Drive

Start the hand piece and ensure that you can pull it off the down tube with a sudden pull while it is running.

Correct grinding

Grinding is an important part of shearing. Many shearers are limited because of poor grinding technique or equipment. Some shearers blame the sheep, the hand piece, the make of combs or cutters, and other things when the fault may be incorrect grinding. As a result their gear may not be sharp. Here are some important points that may help if you have a problem.



The Hollow Grind

What is it? How do we get it? Why do we need it?

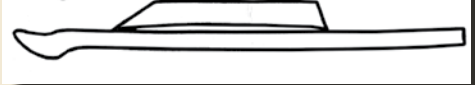
A grinding disc has fallen from the centre to the outside, therefore is a cone shape. Any radius when crossed at 90 degrees is a high spot. Putting a straight edge across the disc can see this. (See Figure 1)

Figure 1



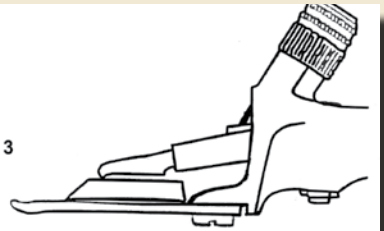
When a comb or cutter is ground a very slight hollow is left in it. The hollow runs from the heel to the tip, with a depth of approximately the thickness of a fibre of crossbred wool. (see Figure 2)

Figure 2



The hollow is important as it brings the cutting edges of the comb and cutter together properly, to create a scissor action when tension is applied (see Figure 3).

Figure 3

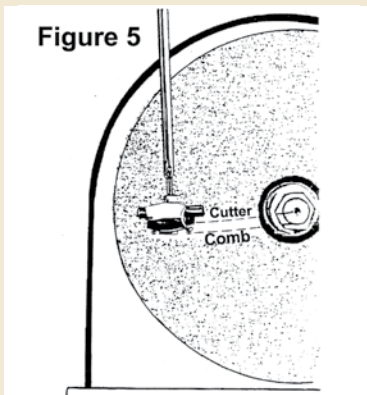


PENDULUM SETTINGS

1. With the pendulum hanging from the hook, the heel of the comb or cutter **MUST** touch the disc before the tips. This setting may vary



with different pendulums, but is not critical as long as the heel touches first. (see Figure 4)



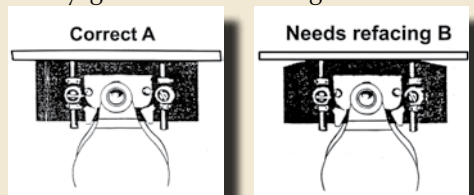
2. Approximate height setting for cutters is, the pin to the centre of the shaft (see Figure 5)
3. Approximate height setting for combs is, the pin to the bottom of the shaft (see Figure 5)
4. The correct height setting for combs and cutters is; when finishing near the outside of the disc, the majority of the sparks should flow up the pendulum rod and parallel to it, as they leave the teeth. Holding the pendulum still



at the end of the grinding procedure for a few seconds will ensure the hollows in the correct place. (see Figure 6)

PENDULUMS

The pendulum head needs to be in very good condition to get an accu-



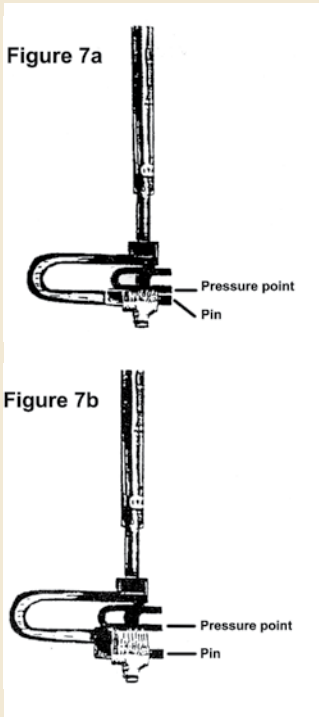
rate grind. The magnetic head assembly pressure point needs to be straight all the way across (see Figure A).

Round corners will not give an accurate grind (see Figure B). If the pressure point is not true it will need refacing.

PIN HEIGHTS

Different pin heights alter the pressure point on combs and cutters, which make them, grind more to the tip, or more to the heel.

- a) Pins too close to the pressure point grind too much off the heel (see Figure 7a)
- b) Pins too far from the pressure



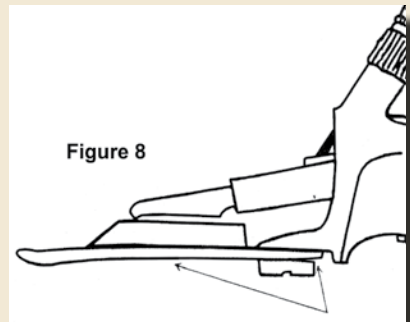
point grind too much off the tip (see Figure 7b)

HEEL GRINDING

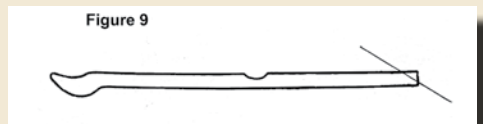
Although a very slight heel grind is preferable, a big problem noticed among shearers is excessive heel grinding.

This is caused by the pins on the pendulum head being too close to the pressure point. This prevents enough pressure being put on the cutting edges to sharpen them properly.

Excessive heel grinding creates too much flex in the heel of a comb. The comb screws may not contact the comb properly (see Figure 8)



If a comb is grinding too much to the tip, grinding some metal from the heel will help stop it. (see Figure 9)



SETTING EMERY PAPERS

The main point to consider when setting a paper is discussed briefly.

1. The Glue

The glues that have become very popular in recent years are the latex type. These are rubber-based glues used for carpets and various other jobs. With these glues, when the old paper is removed, the glue tends to stick to it and what remains on the plate can simply be rubbed off with the dry hand. Secondly, these glues dry faster and can be used within a couple of hours of setting.

In fact, when using latex glue, you must work fast, particularly in warm weather, as the glue sets very quickly.

2. Cleaning the Disc

This must be done thoroughly. Remove the old paper and clean the plate. Depending on the glue used, proceed as stated in the section above on glues. It is very important that all dirt, rust and old glue be removed. If any difficulty is experienced doing this, a trick that helps is to clamp the disc back onto the grinder, start it and run a wire brush across it in a grinding motion. This cleans a disc off very effectively.

NB. Never use emery paper to clean the surface of a disc.

3. Cleaning the Clamp

The clamp must be thoroughly cleaned, particularly its face where

the emery lies. All dust, dirt, grease and old glue must be removed. Rust can be removed by using a piece of emery paper.

4. Apply the Emery Paper

The paper to use for combs is the coarse or 40 grade, and for cutters the fine 80 grade. Papers must be stored in a dry, clean place, lying flat and NOT rolled up. Use a weight to keep them flat. Cut a hole in the centre of the emery paper if it does not already have one to take the stud of the clamp plate. Lay the emery paper face down on the clamp plate. Now spread glue evenly over the entire surface of the grinder disc, which you have prepared, taking care that glue does not get into the recess. Place the disc on top of the emery cloth. If latex (rubber based) glue is used, squeeze out any surplus glue and air bubbles, and tighten down the disc on to the clamp plate. If non-rubber glue is used, it is good practice to give the disc half a turn or so once placed on the emery. This has the effect of spreading the glue evenly. Now tighten the disc down. ***A thin flat sheet of cardboard between the emery and the clamp will reduce the crushing of the emery grit.***

5. Trimming the Set Disc

Once the paper is set and dried, unbolt and remove the disc, taking care not to lift the emery paper in any way. Now trim around the edges of the disc using a sharp implement or

knife. It is important to cut only on the down stroke as you do not want to lift the cloth from the disc in any way. If in your down motion you try to cut the disc itself, you will find this cuts the emery neatly and virtually seals it against the disc. Also cut out the emery covering the recess in the centre of the disc, taking the same care. Remove all excess glue in the recess and around the outside edge of the disc.

DISC CARE

To get your emery paper to last its full life-span make sure the gear is properly cleaned before grinding. Any grease, oil or dirt remaining on the gear will gum up the paper and in no time at all your paper will be useless. A paper that is gummed up can be cleaned to an extent by running either a wire brush or a nail across its entire surface, while the grinder is running. This causes a number of sparks, but cleans the paper of well.

Secondly, dipping a cleaning brush into soapy water and brushing the plate off can wash a plate. This will wet your emery and it should be allowed to dry before use. A good way of doing this is to put it out in the sun where it will dry fairly quickly. The emery paper must be flat and smooth, with no air bubbles, bumps or loose sections. If one of these does occur, the affected section will cause a rough vibration while grinding, and the user will soon realise that something is wrong. To trace an air bubble or loose section, run a nail

lightly across the plate while it is in motion and you will hear a definite loose-sounding noise when the air bubble or loose section is reached. Avoid this section when grinding and use only the good section of the emery until the paper is changed. Emeries should be changed about twice a week or more often if used a lot. However, with good care they can last longer. A good rule as to when to change your paper is if, when you grind, your gear only comes up when too hot to touch. Your gear should never become too hot to touch or turn a blue colour, as this takes out its temper and it will not keep its cutting edge for long.

Ensure used combs and cutters are thoroughly washed and dried before grinding, to prolong the life of emery papers.

CORRECT GRINDING PROCEDURE

This is the part that affects shearing the most. It stands to reason that if the combs and cutters - which do all the work - are well ground, shearing will be easier and better. Points to bear in mind when grinding are the following:

- 1. Always grind your gear with the comb paper on the left hand thread side, and the cutter paper on the right.** This is done with the bottom teeth of both the combs and cutters on the outside of the disc, where it revolves the fastest, so they get the most grinding. It is the bottom teeth that do most of the cutting of wool.

2. **Make sure your emery is in good order and not worn out.** If you get very little or no spark with a reasonable pressure, your paper is worn out. If you force gear to grind on such a paper, you will probably do more harm than good.
3. **Stand square on to your grinder in a relaxed and comfortable manner.** This way you can concentrate on the spark and the job you are doing. Do not have the grinder tucked away so that you have to grind from an awkward position.
4. **Do not force your gear to grind.** It is better to take twice as long with a fairly light pressure. If you force gear, it does not allow the emery to cut to its best plane.
5. **It is important that the heel of the comb or cutter should touch first.** If your comb points touch first, it will sharpen them, and this causes skin cuts when shearing. Such a comb must be corrected before being used. If your cutter points are tipped, your cutter will not cut properly until ground out evenly and flat all the way to the tips.
6. **Always grind by spark.** You will notice that initially the comb and cutter will spark more on the out-sides, and that as you grind, the sparks even up until you get a nice, even flow of sparks off the entire comb or cutter. At this stage it should be ground, so take it off and check.
7. **Always apply an even pressure while grinding.** If you do this your spark will be nice and even across the entire surface of the comb or cutter. If you apply uneven pressure, you will notice more sparks on the one side. If you continually grind like this it will eventually result in your gear becoming lopsided and spoilt. Thus, if you always grind by spark with an even pressure, your gear will wear down evenly without your ever having to swap discs around as some people recommend.
8. **Always make sure your gear goes on and comes off your emery squarely.** Begin grinding in the central position, then move from side to side fairly slowly using your entire grinding surface. Before removing gear give comb or cutter slightly firmer pressure.
9. **It is important to finish $\pm 25\text{mm}$ from outside edge of disc.** This gets the grain of the grind to run straight up the teeth of the comb. The grain - if sharpened correctly - should curve across the heel of the comb and then run straight up the teeth. This gives the best cut. If you find that the grain is not as just explained, then check the pendulum adjustment and adjust it until the grain comes up correctly.
10. **Move your comb across your paper four to six times and your cutter two to three times depending on the condition of your paper.**



CMW/OVK DIENSTE

- ◆ Tegnieuse velddienste
- ◆ Skeerdiens
- ◆ Finansiering
- ◆ Handelsdienste
- ◆ Bemarking van wol
- ◆ Bemarking van sybokhaar
- ◆ Lewendehawe en eiendom
- ◆ Kuddebestuursopleiding
- ◆ Abattoir

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SAAM

bereik ons meer

TOGETHER

we achieve more

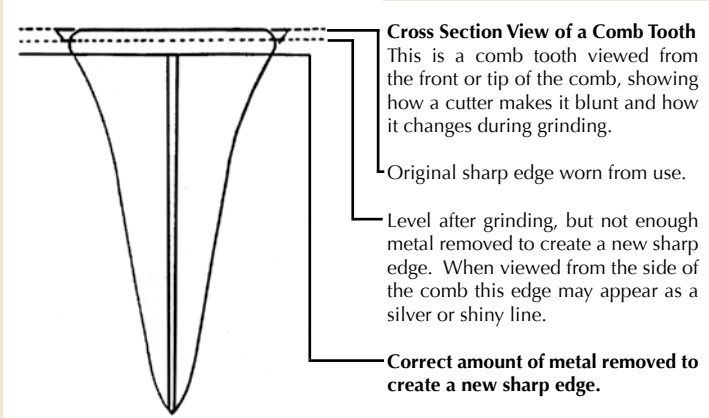


NB. There is a big difference in how quickly your gear comes up on new and worn emery paper.

11. Be careful never to overheat your

Grinding Combs

gear when grinding. (Overheating is indicated by discoloration of gear). Overheating results in a softening of the cutting edge,



and reduces the cutting life. If a comb or cutter requires an excessive amount of grinding, give it a break to cool then grind again.

Combs: The whole surface of the comb must be ground, paying particular attention to the edges of the teeth. Dull patches, silver or shiny lines on the cutting edges may indi-

cate a blunt comb. To get the best possible view of the cutting edges, combs should be checked by looking from the side in good light (see Figure 10). **If in doubt, grind again.**

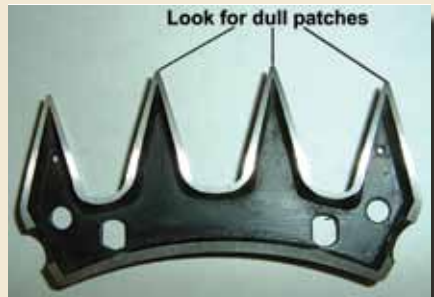
Grinding Cutters

The whole surface of the cutter should be ground, paying particular attention to the tips. Dull patches,

Figure 10



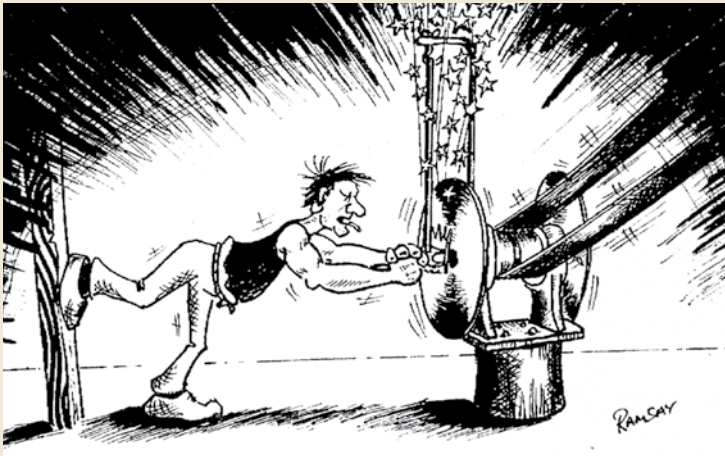
Figure 11



silver or shiny lines may indicate a blunt cutter (see Figure 11). **If in doubt, grind again.**

GRINDING HINTS

1. SAFETY: Ensure guards are fitted to the grinder and the area is free of obstacles.
2. SAFETY: Check the boss on the grinder shaft is tight.
3. SAFETY: Check the nuts are tight before starting the grinder.
4. Always use a flat washer between the nut and disc.
5. Ensure the grinder is positioned in an area with adequate lighting.
6. The back of the disc must be free of glue and grit where it fits the grinder. The same applies to the front where the washer fits.
7. Ensure combs and cutters are clean and dry before grinding.
8. Extending the drying time after removal from the clamp can lengthen emery paper life.
9. Clean dirty emery papers with a rubber stick or a wire brush. To revive dull emeries use a carborundum stone.
10. If the grinder is vibrating excessively, stop the grinder, check for glue stuck on the back of the discs. If clean, loosen one of the nuts and turn a disc one quarter of a turn, retighten and start the grinder. Keep moving the disc until you have found the smoothest running point, and then mark both the discs and bosses for future reference.



NOTE: Excessive pressure when grinding will overheat combs and cutters, which makes them distort and can remove the temper.

COMBS AND CUTTERS

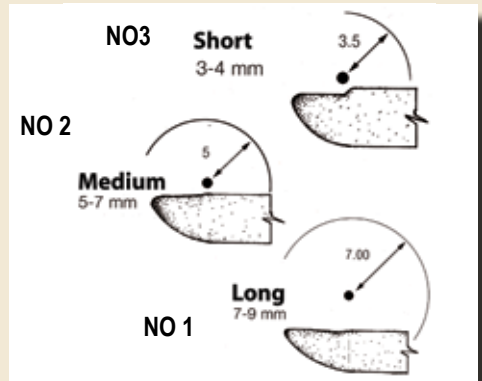
As has been stated, the comb and cutter used are the factor, which affects the shearing the most. Give shearers the wrong comb for the job on hand, and you will soon know all about it. Look after your combs and cutters. They are the biggest expense, once you have your initial outlay all set up. Caring for them is therefore the best way you can cut down on costs.

It is good practice to give individual shearers their own combs and cutters to use. If he has a selection of combs of different thickness, i.e. some new, some old, he will learn to use the correct comb for the type of shearing he is doing. This will not only benefit the shearer, but the sheep will suffer fewer cuts with less double cutting, to the benefit of the farmer. A shearer can give his own combs a particular identification mark on the back of the heel, by touching them on the edge of the grinder or on a grindstone. With cutters it is not as important to have his own, but if he does, he will naturally wash and maintain them better.

WHAT TYPE OF COMB TO SELECT

When selecting your combs, you must bear in mind the following factors:

When you want a comb for Merino or more difficult shearing sheep, or where penetration is a problem, you need a comb with a sharper point (i.e. No. 1 in diagram) and a longer bevel.



This allows for better penetrations and combing of the wool before it is cut. This is important with Merino's.

On crossbred sheep or where shearing is good, a more rounded point (No. 2) and a shorter bevel are more suitable.

Point No 3 is too rounded and blunt for most shearing. It may be used, however, on very strong crossbred wool.

Stages of a Comb's Life

A comb has various stages in its life, in which it is more suited to certain jobs. These are discussed below.

1. A New Comb

A new comb requires breaking in, and should be used on good-shearing sheep. Being new, it has thick teeth, so will not penetrate as well on tight and sticky shear-

ing sheep. Ideal for full 12 months woolled sheep.

2. A Half-worn Comb

The half-worn comb is a comb at its best for all-round shearing. However, as it grinds out its tips, it can be put aside and used for the particularly tough and sticky sheep. Here it will, due to its thinner teeth, give the best penetration and easiest shearing.

3. A Ground-out Comb

When a comb is ground out to the tips, i.e. the scallop is completely ground away, it is not necessarily finished. Such a comb may be used for difficult shearing, such as lambs and sticky sheep. However, such a comb will have to be done-up before it is used. It should never be used with the sharp points caused by the grinding, as it grinds all the way out to its points. If these points are not removed, they not only cause bad cutting, but will continually hook on the small skin folds and retard shearing greatly.

The comb is done-up by using a piece of fine emery paper. The sharp point is taken down, taking care not to damage the cutting edge or the shape and thinness of the points. The comb must then be polished on a buff or a piece of soft wood. Finally, check the comb by running the points into the palm of your hand. It should not feel sharp or rough. A comb, if done-up correctly in this manner, should go

for a few grinds before it will again require attention.

When a comb becomes too thin for shearing, it may still be used for crutching, although its points must still be done-up prior to use. When it becomes very thin its teeth will normally break off and that will be the end of it. (Refer to page 32 for details on dressing a comb)

COMB CARE

1. While shearers are busy shearing, they normally have a container with water in which they clean off their combs during shearing. It is a good idea when they change a cutter or comb, to put it into the water, so that the wool grease can soften and dissolve. This way, when he comes to wash his gear, it is a fairly simple matter. **Wash dirty gear preferably in warm water and a detergent.** A small brush is also useful. The shearer must make sure that the dirt comes out of the cutter teeth, where it tends to stick and may have to be picked out. Make sure all gear is clean, as dirty gear ruins the emery papers. Gear should be dried as it may rust if left wet, particularly if left overnight.
2. It is not advisable to allow combs to lie in water unwashed overnight, as they become black and discoloured. Such combs will pack more easily with wool grease and will not penetrate and run as well as clean, shiny, smooth combs.

3. When shearing is over, clean and grind all your gear and then oil or spray it with a rust preventative. Store in a dry clean place. Do not just put it away, as it will rust. Such rusty gear will also pack more easily with grease, and a rusty comb's penetration and running is greatly reduced.
4. Check your comb points regularly to see that they are not sharp or rough, and that they run smoothly over the palm of your hand. A polished, smooth comb will run through the wool fibres much easier; any roughness catches the wool fibres and gives the wool grease something to stick to.
5. A broken tooth does not mean a comb is useless. Such a tooth can be reshaped and the comb used as normal. When the tooth is reshaped, its tip must look exactly the same as those of the other teeth of the comb.

CUTTERS

When you buy a new set of cutters, check that their backs are level. If any are found that are not, or if they are uneven around the pinholes, they can be rectified by holding them firmly with your fingers and grinding them back on to the emery until corrected.

The same general care applies to cutters as to combs. Wash them well and do not allow them to rust. Also, do not overheat them when grind-



ing, as the tips always heat first and will not hold a cutting edge as well if this happens. It is essential that you use your batch of cutters evenly and that all get the same amount of usage and grinding. This is so that they wear down evenly and no variations of lengths occur. If cutters of varying length are used on the same comb, they run on different planes when changed, resulting in bad cutting, and will also change your lead setting.

A foolproof way of using cutters in sequence and thus making sure that



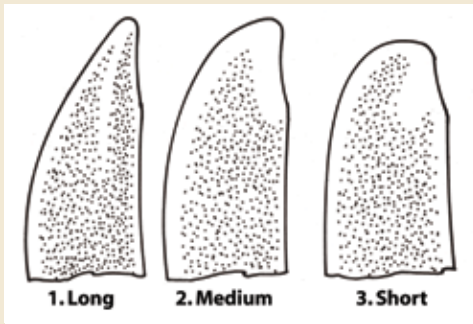
they wear down evenly is to have them on a piece of wire as shown in the picture. Cutters for use are taken off the one end and ground cutters replaced on the other, so all get equal wear. The wire is also a very convenient way of transporting cutters and for hanging them within easy reach of the shearer. If cutters are ground thin, be careful that the fork yoke pins do not run on the comb's teeth. Once cutters get to the stage that pins touch or nearly touch, do not use them, but get a new set and start again. If cutters are used and treated in this way, you can get the maximum amount of use out of a set, and if they are ground correctly and kept free of rust and dirt, they should never give any trouble at all.

DRESSING COMBS

Basic Rules:

1. Many of today's combs require very little dressing. Carefully consider the type of sheep to be shorn and the time of year before selecting the most suitable combs. Refer to the sections on bevels and bends.
2. You must learn to look at combs correctly to decide which teeth need dressing. It is unlikely that the teeth will be identical.
3. Finally take your time, do not overdo it and always finish the job off with a good polish prior to grinding. The finished product must look smooth and feel smooth.

Types of bevel



1. Bright Point: - is mainly used for
 - (a) Fine woolled sheep
 - (b) Sticky or early shearing
2. Medium Point: - has the greatest use in the main season. Used on plain-bodied type sheep.

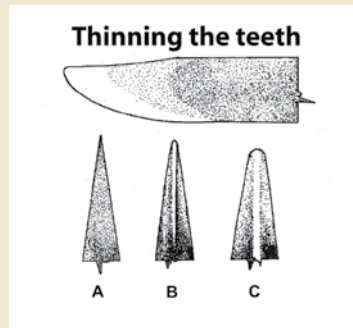
3. Rounded Point:

- (a) mainly used for full strong-woolled sheep in main season.
- (b) Crossbred shearing, when shearing is at its best.

Thinning the Teeth

A good fine point means better combing. The best method of thinning the teeth is with a fine-wedged slip stone or a piece of fine emery paper.

Start from the back of the tooth and work around to the point, taking care not to alter the point which has just been formed or go too far and damage the cutting edge of the comb.

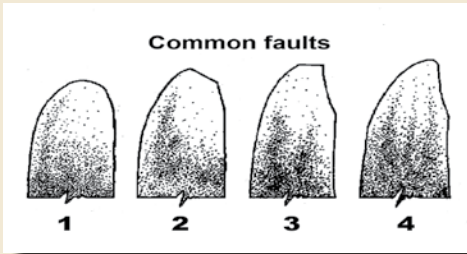


- c. *If the point has not been thinned, it will ride off the skin causing second cuts.*
- b. *The comb best suited is where the tips have a fine white line around the end of the tooth.*
 - a. *Over thinning will cause skin cuts.*

Dressing a New or Thin Comb

Always dress and finish a comb in natural light, not artificial light.

To shape or dress the teeth use a piece of fine emery, working from the back of the comb, over to the cutting face, aiming at a high rounded point. This must be done carefully to avoid three of the major faults.



1. Too round

Will not enter the wool properly

Tends to ride out of the wool.

2. Dropped point

With a tooth of this shape, skin cuts will occur.

3. Squared off point

Will not enter, skin cuts will occur

4. Correct Shape

The most important part of dressing a comb is the finish. All the teeth must be dressed to the same shape.

Side scalloping combs

The art of side scalloping combs to optimise their combing potential is a skill learnt at an advanced stage in

comb experting. If you want to learn this art sooner then do so under the direction of an experienced comb experter.

Practice on combs that you have broken. This way you will develop the eye for detail required to perform this procedure effectively.

There are many benefits to side scalloping. It:

- Improves tooth entry into wool
- Enables comb to be used from new
- Increases comb choice for skin conditions
- Promotes comb running potential
- Increases the life of comb
- Reduces the energy demand from shearer
- Reduces strains to shoulders, elbows and wrists

The risks are few but often irreparable:

- Irreparable damage to the comb's cutting edges
- Destroy safe comb entry by running past the comb point

Fully blown side scalloping is the removal of metal from behind the point of the comb to in front of the cutter tip. This is done by hand with 1200grit wet/dry paper protecting the cutting edge with your thumbnail. Note that this is time consuming and often doesn't remove the metal required especially when it comes to top and bottom guide teeth on your comb.



Using a customised bright boy is a very effective method of side scalloping but you must eliminate the risks previously identified to produce the desired result. A small circumference bright boy on your comb experting kit is recommended and you will require more than the width of your comb between the bright boy wheel and the motor.

This enables you to present the comb at the appropriate angle. A good tip in side scalloping your comb is to do it before you grind it while the cutter wear marks are still observable, this will give you the clear guideline as to how far up the tooth you can safely side scallop.

There are two methods of side scalloping

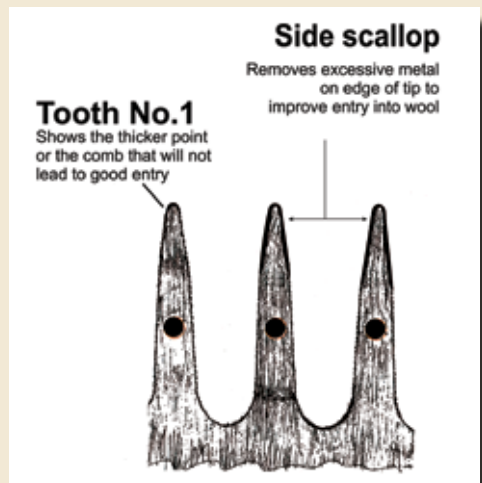
- Cutting surface up as comb is presented to the bright boy.
- Comb makers name up as comb presented to the bright boy

Both side-scalloping procedures require extreme care so the tooth edge is not damaged where the cutter runs. Just as importantly, the bright boy mustn't run out past the

point of the comb and produce a tooth profile that is knife sharp.

With excellent lighting on both sides of your bright boy proceed with care. It is recommended that you don't attempt to achieve the desired result in just one passing. Lightly run your comb over the bright boy and monitor the angles are correct, that you are neither starting too far up the tooth or running beyond the point of your comb. Once you have those essential measurements, proceed side scalloping with due care to the risks identified.

Starting from in front of where the cutter runs removing the metal through to just behind the comb point, repeat this process till you are satisfied with the result. **Remember when side scalloping that you can always come back and remove more metal, but you cannot put the metal back on your comb.**



Check your work regularly, both visually and by running your finger over the end of the tooth to ensure that point is safe. Ask for feedback from a more experienced observer and have them check over your work.

Finishing or Polishing

Polishing can be done by

- (a) Machine buffing
- (b) Stropping on a leather strop
- (c) Or stropping on a piece of soft wood or rubber tyre

Having completed this, check with a magnifying glass and then run the comb over the palm, running the point into the base of the thumb feeling for any rough or sharp points.



Winter combs

The winter comb is designed to leave a few millimeters of wool on the sheep to provide protection in cold weather.

As the winter comb is manufactured to high standard, only very minor adjustments to the bevels may be required. Most crossbred sheep can be easily shorn with a winter comb straight from the packet.

The winter comb is not just for use in colder climates - cold sheep are unprofitable anywhere and can die in a cold snap. It is now recommended for all shearing from late autumn to early spring but, if the weather outlook is poor, it can be used any time.

The advantages of the winter comb are:

- A general insurance against stock loss
- It can extend the shearing season.

The sheep grow more wool because they are using less energy to stay warm and their feed demands immediately post-shearing are not as great. Leaving two or three weeks wool growth is good animal husbandry.

Because there are only nine teeth on a winter comb, attention must be given to grinding. Excessive wear to the teeth of the comb requires a special effort to totally remove all the metal on the worn edge. If your grinding is poor, you will be creating many problems such as poor cut, ex-

cessive hand piece wear through too much tension and overheating. Any down time through breakages will cost you!

The bevels should be shaped medium to long; the points should be bright as illustrated but smooth enough not to prick the skin. When scallops are ground out on winter combs their effectiveness and ability to minimise skin cuts is greatly reduced.

The skids or sledges on the bottom of the teeth are there for a reason; do not remove them, they not only help to leave more wool on but they also keep the tips away from the loose skin and wrinkles on Merinos and Half-breds. They allow good shearers to drive their hand pieces with confidence, well clear of obstacles, which would hamper a normal comb.

With the winter comb, more attention needs to be given to the safety aspects. Check that your spline drive will free itself in the event of an accident. Start the machine and ensure that you can disengage it while it is running by pulling the elbow and the hand piece apart. This should not require excessive pressure. **Make sure that the hand piece you are using has a tension nut retaining spring.**

Always use new or near new cutters. Thin cutters and / or not enough lead are the two main causes of lockup. With a thin cutter or the cutter set

too far forward, there is a risk that the cutter tooth will drop between the teeth of the comb when the tension is applied. (see fig.1)

A new cutter can be set well back so that the back corners of the cutter teeth are safely running on the plate of the comb (see fig.2). With its wide gullets between teeth, a winter comb can be dangerous. Therefore it is very important that all sheep have been pre-shear dagged. Dags can jamb the cutter and if a spline drive or safely clutch is not fitted, serious injury and expensive gear damage can result.

Choice of Hand Piece

Winter combs are generally harder on hand pieces. It's a good idea to use an older hand piece if one is available. If you start a new hand piece in the main shear, after crutching in the autumn, replace the tension pin, tension pin sleeve, top and bottom cups, the centre post, fork yokes and cogs. (ref. Hand piece maintenance section).

NOTE: Use new or near-new cutters on winter combs. The cutters will be broken in and ready for the main shear when it comes around again.

Technique

The shearing pattern with the winter comb remains the same.

When shearing, take care; look for the belly veins in pre-lamb ewes, the teats and the hamstrings. When coming down the last side, watch the

Figure 1



Figure 2



top of the front leg where it is easy to catch a vein.

There is more vibration in the hand-piece causing more wear, tear and maintenance costs to the shearer.

As the wool industry moves to survive into the future, such combs as the winter comb will be at the forefront of animal welfare.

TECHNIQUE FOR MACHINE SHEARING

Shearing is a science, but it doesn't take a scientist to master it.

Shearing is hard work ... work that calls for much more than physical strength and exuberance. Rather it demands balance, grace, rhythm, suppleness with eye, brain and hand in smart co-ordination.

Shearing also demands a stout heart and a strong mind to work day in, day out in often uncomfortable heat, with an aching back and high noise level.

The mark of an expert shearer is quickly identified in his mastery of six finer points.

1. Control of the sheep - get right down over the sheep and become part of it.
2. A positive hand - the shearing hand must be positive in its action, with control and finish.
3. A good wrist - the wrist of the shearing arm must be supple and flexible, able to work both ways,

turning to keep the bottom tooth of the comb on the sheep and bending forwards to finish every blow on the sheep.

4. Return action - fast back and near the sheep but watch that the hand-piece comes back only to the start of the blow; wasted inches are wasted effort.
5. Use the left hand with confidence to prepare the wool just in front of the hand piece. Try to control the sheep as much as possible with the legs.
6. Rhythm and timing are the keys to perfect co-ordination of mind and body essential for an expert shearer. Actions are smooth and the shearing of each section runs into one another so that the sheep is shorn in an even flow.

BELLY

Removing the belly wool is one of the most important parts of shearing, as it sets up the neck, long blow, and the last side. If not removed completely there will be more work on other areas .

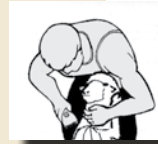
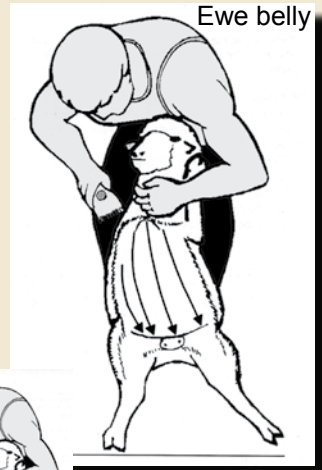
Objectives

To remove all brisket wool

To remove all belly wool flank to flank

Key Points

- Sheep's tail approximately 20cm forward and out from the down tube
- Sheep to lay on inside hip
- Outside foot forward of inside foot
- Sheep's inside foreleg behind your inside leg
- If necessary shear outside front hock first
- Use forearm to hold outside front leg
- Start high on the brisket
- Enter with the comb flat on the skin
- Use free hand to manipulate skin
- Turn inside foot away from sheep to clear inside of brisket
- Always shear the pizzle from the side



CRUTCH

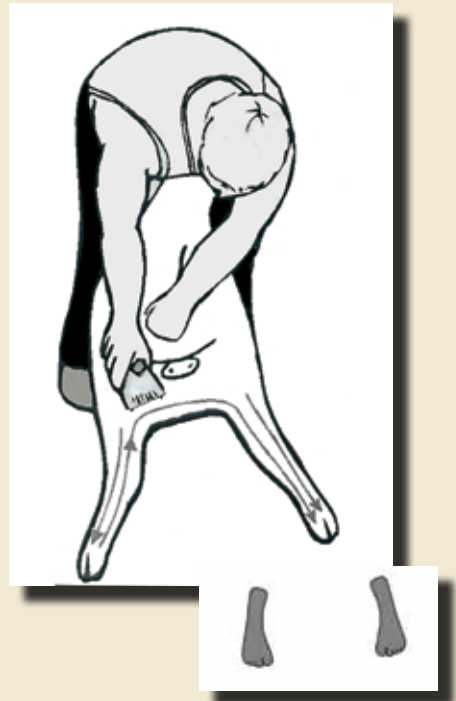
When removing wool from the crutch area take care near the teats, hamstrings and the top of the hocks.

Objectives

To remove all wool from the inside and top of the back legs and allow easy starting on the first back leg

Key Points

- Enter with the comb flat and pressure on the bottom tooth
- Inside foot forward of outside foot
- Use free hand to manipulate skin, cover teats and in the flank if necessary to straighten the back legs



FIRST BACK LEG

Ensure blows follow the leg line, keep the comb flat and clear well under the tail.

Objectives

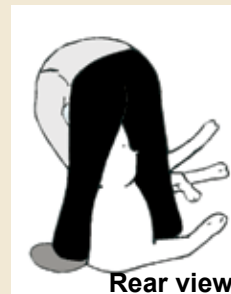
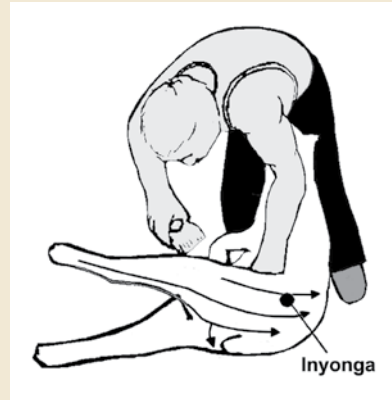
To clear wool from the flank area

To follow the leg line

To shear all wool from under the tail

Key Points

- Move outside foot close to sheep's shoulder
- Turn toes of outside foot away from sheep
- Turn heel of inside foot away from sheep
- Use inside knee in the brisket
- Enter at the leg joint and hock with a few teeth
- Use free hand in flank to stretch the skin
- Ensure blows follow leg line & turn away from tail
- Concentrate on keeping the comb flat especially near the hip area
- Let the brisket fall behind your inside leg
- Move inside foot back to rotate the sheep towards down tube
- Clear well under the tail



UNDERMINE

Correct foot position is vital to be able to shear wool easily from around the tail, up the back, and a blow each side of the backbone.

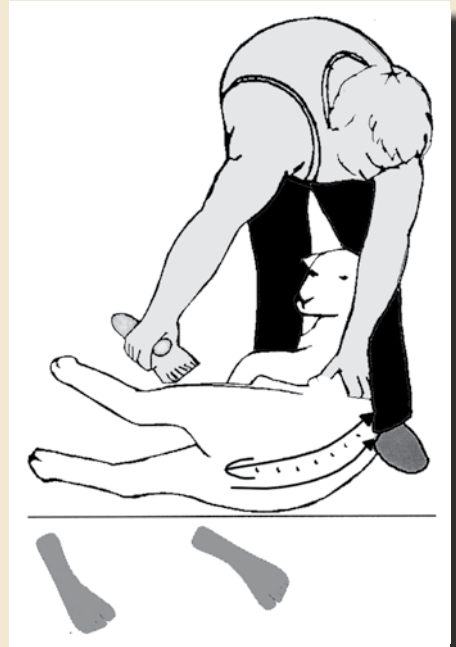
Objectives

To shear wool a blow each side of the backbone

To shear all wool from around the tail

Key Points

- Use freehand to manipulate the sheep and skin
- Move inside foot back to roll the sheep's back end towards you
- Keep toes of inside foot under sheep as much as possible
- Use inside knee to control sheep's head



TOPKNOT

The topknot will vary according to the type of sheep

Objectives

To shear the topknot and clear the wool forward of ears and /or horns

Key Points

- Use inside leg to control head
- Use free hand to manipulate wool and/or skin
- Ensure comb starts on the skin
- Aim 1st blow from outside of face to inside ear



NECK

The neck is one of the hardest parts of the sheep to master, especially if it has big wrinkles

Objectives

To shear the neck cleanly and efficiently

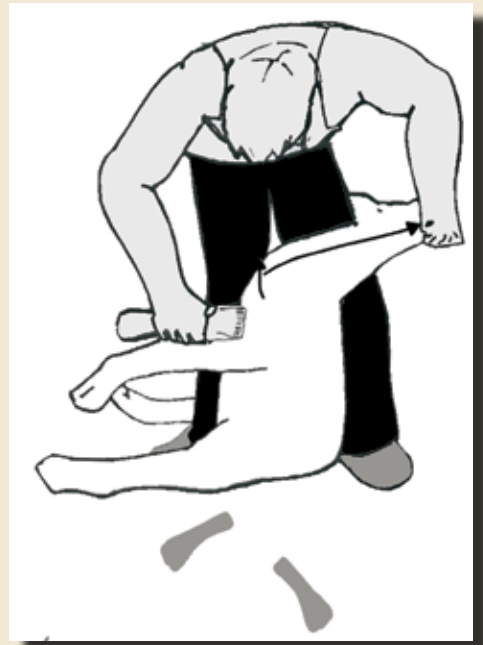
To remove wool from the side of the face

To remove all wool from the top of the head

To clear to the last side ear

Key Points

- Face straight up the board
- Balance sheep high with it's brisket above it's left teat for right handed shearers
- Outside foot forward of inside foot
- Keep outside knee in front of sheep's shoulder point
- Turn inside foot parallel with sheep's back legs
- Use free hand in brisket area to help comb entry
- Ensure combs starts on skin above the main wrinkle
- Lead with the top tooth and keep it on the skin
- Use free hand to manipulate skin
- After each blow shift inside foot back slightly



FIRST SHOULDER

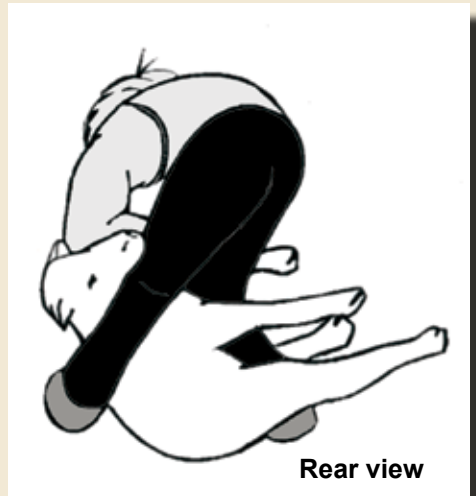
Removing a lot of wool from the first shoulder, will help eliminate skin cuts on the long blow and make easier shearing on the back of the neck.

Objectives

To prepare the shoulder and front leg for the long blow

Key Points

- Turn sheep towards down tube
- Clear wool behind sheep's ears including last side ear
- Release sheep's outside shoulder from your outside leg
- Roll sheep onto it's backbone
- Hold sheep's inside front leg flat, straight out and close to it's body
- Bend your back leg to keep inside knee in contact near the outside of the sheep's brisket
- Take care near the leg joint



LONG BLOW

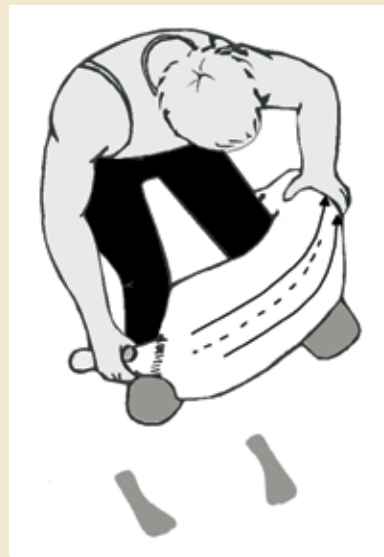
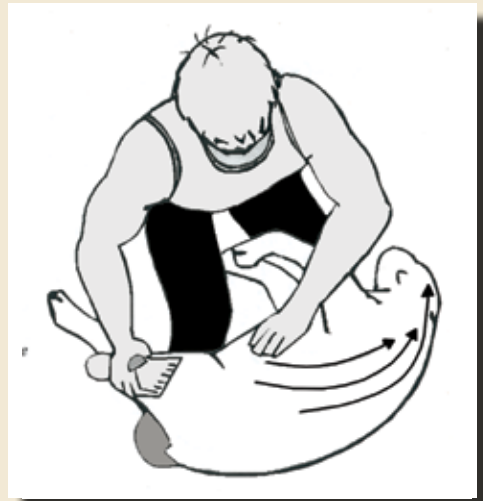
The long blow is one of the easiest parts of the sheep to shear, but hard to perfect

Objectives

To shear to the backbone and at least one blow over

Key Points

- Start blows full and aim down slightly
- Lay sheep on front foot
- Keep front foot under brisket, and contain sheep's both front legs
- Step over when comfortable and a blow to the head is finished
- Keep back foot forward of the tail and near the inside hip
- Keep sheep's head down until near backbone
- When blows are near the sheep's backbone transfer more weight onto your back foot
- Keep sheep's head high and near outside knee when shearing over backbone



FACE AND LAST SHOULDER

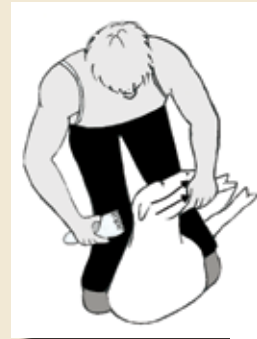
The side of the face and last shoulder will be easier to do if the pattern on previous parts of the sheep has been followed.

Objectives

To shear the face, last shoulder and front leg

Key Points

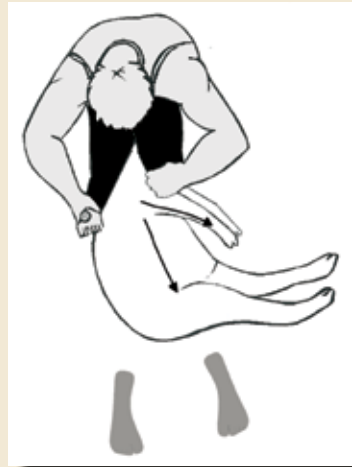
- Roll sheep towards down tube and onto it's outside hip
- Keep your inside foot behind the sheep's shoulder
- Pull the sheep's head high into your crutch and hold it with your legs on the first blow to the brisket
- Release sheep's outside front leg during the first blow to brisket
- Hold sheep's front leg flat and close to it's body
- Move your outside foot behind sheep's hip as soon as it feels comfortable
- Use free hand on shoulder to straighten front leg



CLEARING UNDER LAST FRONT LEG

Key Points

- Use free hand on shoulder to straighten front leg
- Use fingers to manipulate skin and wool from under front leg
- Turn hand piece under front leg using only a few teeth
- Keep first blow to flank flat and full



THE FLANK AND LAST LEG

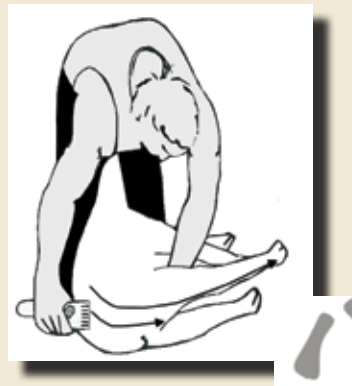
The flank and the last leg should now be easy to finish

Objectives

To shear this section quickly, cleanly, and easily without the head dropping to the floor

Key Points

- Start blows full
- Keep sheep's back leg in opposite direction to belly starting position
- Keep sheep upright
- Keep toes under sheep as much as possible
- Shuffle feet back slightly only as needed
- Keep legs straight
- Use only as much pressure as is needed with your legs and hand
- Take care near leg joints and hamstrings
- Keep heels close together to keep sheep's head off floor



Crutching

A large amount of work in the woolshed is crutching and dagging.

Pre-Lamb

Remove a full or half belly then proceed to the full crutch

Full Belly

The full belly is recommended with long woolled sheep. This helps the fleece dry quickly, keeping the wool a better colour. It also gives the option of leaving very short belly wool on in the case of early main shear.



Keep the comb on the skin up to the base of the teats. Don't flick the comb off the skin.

It is important that the whole crutch is properly cleaned.

Remember to protect the teats with the fingers of your left hand at all times.

Fan Crutch







Special care must be taken to avoid cutting hamstrings. Use your left hand to maintain pressure in the flank to keep the sheep's legs straight until both hamstrings have been cleaned.

The back end must be even on both sides without an overhang of wool, over the tail. Excess fleece wool should not be removed. A tidy finish is essential.



WOL & BOKHAAR DIENSTE

SLEUTEL:

-  Wol Beempte - Oos
-  Wol Beempte - Wes
-  Wol Beempte - Sentraal
-  Skeerdiensbeemptes
-  Wol & Bokhaar Pakhuis
-  Lesotho
-  Oos-Kaap



WOL & BOKHAAR DIENSTE

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5. MACHINE SHEARING PROBLEMS

SHEARING PROBLEM STARTING POSITION	CAUSE	REMEDY
Sheep rolls out to one side	Sheep not resting properly between shearer's legs	Part legs to hold sheep
Sheep restless	Sitting on its tail Too upright	Put on inside hip Step back slightly
Skin cut on belly	Outside hand not working Not enough lead on comb	Outside hand must stretch skin upwards Increase lead
CRUTCH	Outside hand not working Hand Piece flicking out	Cover teats with fingers Finish blow on skin. Don't flick out
FIRST HIND LEG	Outside hand not working First blow travelling too far up flank. Outside hand not stretching skin.	Press leg muscle with outside hand Shear firm part of leg only
Difficulty in reaching over tail	Shearer's legs & feet not working correctly.	Roll on balls of feet & toes inwards. Allow brisket to pass between shearer's legs
Shearer's legs & feet not working correctly.	Shearer's legs & feet not working correctly.	Let sheep lie flatter on its flank
Sheep escapes through shearer's legs	Shearer's legs not working correctly	As brisket passes through shearer's legs, close knees to stop sheep's head from passing through but keep feet well apart.

<p>SHEARING PROBLEM MOVING FORWARD TO NECK Sheep escapes through shearer's legs Sheep escapes forwards</p>	<p>CAUSE</p> <p>Sheep's head passing through shearer's legs. Shearer stepped forward with inside foot first Shearer's outside foot incorrectly placed Shearer's inside leg not working correctly</p>	<p>REMEDY</p> <p>Keep knees closer Step well forward, outside foot first, wrapping outside leg firmly round sheep's backbone Tuck outside foot well in under sheep's outside hind leg. Inside leg should be between sheep's hind & front legs</p>
<p>SHEARING THE NECK Skin cut on sheep's throat</p> <p>Sheep restless</p>	<p>Outside hand not working correctly. Blows taken straight up throat Outside hand over sheep's nose</p>	<p>Hold sheep's head round shearer's knee with outside hand Take blows up each side of throat; turn head with outside hand Hold sheep under jaw with outside hand. Step out with outside foot to relax sheep.</p>
<p>SHEARING THE FIRST SHOULDER Sheep escapes</p>	<p>Shearer relaxes knee hold while moving towards machine Outside arm not working correctly Sheep's outside foreleg not held firmly</p>	<p>Keep firm knee hold; shuffle inside foot backwards against sheep's leg to turn sheep to machine Hold sheep's head up with outside elbow Take a firm hold of outside foreleg & twist inwards.</p>
<p>LONG BLOWS Sheep rolls away & escapes Skin cuts on long blow Sheep escapes at last longblow</p>	<p>Sheep lying too far over away from shearer Blows traveling in wrong direction Shearer's outside foot under sheep's neck</p>	<p>Move inside foot back slightly to let sheep lie on side of spin towards shearer Let sheep down flatter on its back, with shearer's inside knee resting lightly on sheep's belly Place outside foot under sheep's shoulder</p>

<p>SHEARING PROBLEM Sheep escapes at last longblow</p> <p>Difficulty in shearing last blow over spine</p>	<p>CAUSE Sheep's feet outside shearer's outside leg. Shearing too far over spine Blow traveling in wrong direction</p> <p>Outside foot not under shoulder</p> <p>Head escapes</p> <p>Outside hand not working correctly</p> <p>Head not between shearer's legs</p>	<p>REMEDY Keep all sheep's legs between shearer's legs Take one blow only over spine Keep blows parallel to spine</p>
<p>LAST CHEEK AND SHOULDER Sheep escapes when coming off longblow</p> <p>Front leg cut or tassel left</p> <p>Sheep struggles</p>	<p>Step forward with inside foot & tip sheep towards inside leg with outside foot. Keep fingers of outside hand under sheep's jaw Press on shoulder with palm of outside hand to straighten leg. Keep sheep's head between shearer's knees with sheep resting on its outside hind hip. Shearer's knees should be bent forward</p>	<p>Step forward with inside foot & tip sheep towards inside leg with outside foot. Keep fingers of outside hand under sheep's jaw Press on shoulder with palm of outside hand to straighten leg. Keep sheep's head between shearer's knees with sheep resting on its outside hind hip. Shearer's knees should be bent forward</p>
<p>LAST SIDE Sheep struggles</p> <p>Skin cut</p> <p>Sheep escapes</p> <p>Unshorn wool on under side of sheep</p> <p>GENERAL Sheep cut here & there</p> <p>Sheep cut regularly in same place</p>	<p>Sheep lying too much on back or belly Shearing around sheep Outside hand not working correctly Shearer's feet not working correctly Not shorn correctly on first leg</p> <p>Points of comb too sharp Not enough lead on comb Sheep out of position Shearing in wrong direction Outside hand not working correctly Blow travels too far</p>	<p>Shuffle sideways until sheep is balanced (not leaning to either side) Shear down towards back leg Press muscle of back leg with outside hand Keep heels together</p> <p>Take more blows over tail when shearing first leg</p> <p>Round points a little more Increase lead. (move comb forward) Check position</p> <p>Check position Stretch skin with outside hand Slow down and check</p>

SHEARING PROBLEM	CAUSE	REMEDY
Pin pricks along hidden edge of blow Too much wool left on sheep	Throw not properly set Cutter blunt Too much lead Comb points too round Comb too flat on skin	Adjust sideways until cutter does not travel over hidden edge of comb Change Reduce Lead Replace Comb Raise back of hand piece so that only points of comb touch the skin Roll the hand piece so that only the bottom tooth of comb touch skin Throw a bucket of cold water over shorn part of sheep
Second cutting of fleece	Comb too flat on skin	
Sheep passes out	Stress or stomach too full	
HAND PIECE		
Not driving	No tension on belt Inner cable broken Drive pin broken Wool in short shaft No oil	Tighten or replace Replace Replace Remove shaft, clean and oil Lubricate
Heats at back	Rust in short shaft	Remove shaft, clean and oil
Heats at front	Cutter blunt Too much tension	Change cutter and/or comb Stop shearing, remove hand piece and check tension
Vibrates	Worn tension pin and cups Maladjusted fulcrum post	Replace Have checked by expert
Balls of wool under cutter	Too little tension	Replace cutter and check tension
Hand piece difficult to remove	Cable bent	Straighten cable; stand further away from machine
	Drive pin worn	Replace

A Guide to Blade Shearing

Shearing with blades has many advantages for both the shearer and the farmer.

The farmer has the sheep shorn with a good cover of uncombed wool remaining on the pelt to protect the sheep from all but the most severe storms. The wool cover left on the sheep, especially in the winter, will save the farmer a lot of precious feed as the sheep will have enough cover to retain most of their body heat. Ewes pre-lamb will lactate better because they don't have to build up body fat to protect themselves against the cold.

The blade shearer shears many different breeds of sheep and that requires different shear settings, edge and points. For Crossbred sheep, the edge may be coarser than for finer wool and the points a bit heavier.

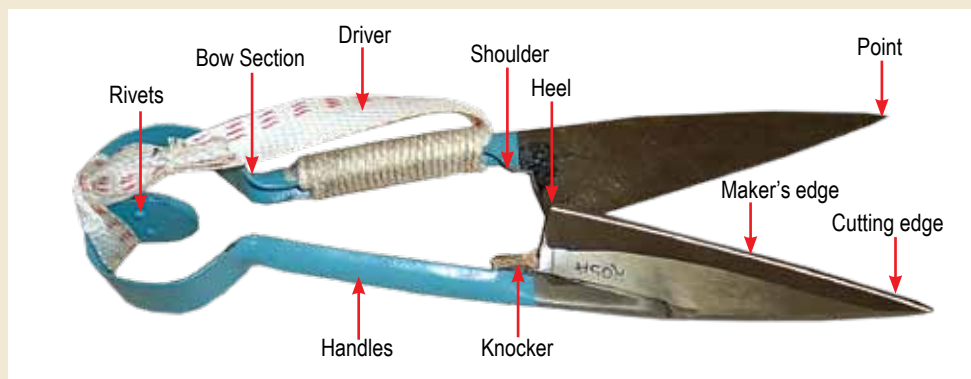
The points of the blades are crucial to the proper shearing of any sheep

- the bottom has to be fine enough to enter the wool, but it must never get so sharp as to dig into the pelt should it make contact - it must slide over the pelt.

The top blade must always be rounded off so it will not scratch or cut as this is a major cause of shearer injury. Second cuts are a problem with blades, the same as machines but by starting and finishing blows correctly most second cuts can be eliminated.

The Merino sheep needs a slightly different technique. By shearing up under the neck wool correctly and using the left hand to smooth out loose skin and wrinkles around the body, a very high standard of shearing can be achieved. It is difficult to get an even finish on the strong woolled Crossbred sheep if the wrong technique is used. The shearer must use fingers more than the shoulder when closing the shears.

BLADE SHEARING TERMINOLOGY



PREPARATION OF BLADE SHEARING EQUIPMENT

1. Straighten Blades

- Look along your blades cutting edge from the point to the heel of the blade. The cutting edge should be straight. If the blade has an inwards curve the shears will not stay sharp, if it has an outwards curve the shears will buckle and not cut wool.
- To straighten the blade you need a block of wood with a groove cut into it, insert blade into the groove and bend the blade this or that way to get it straight.



2. Pullback Shears

The main reason for pulling back shears is to increase the amount of wool the shearer can cut with each blow and also to make the shears fit more comfortable in the shearer's hand. The shears are pulled back according to the individual's hand size.

- There are two main methods of pulling back your shears:



- Using a pullback is the safest and easiest method. Blades are pulled straight.
- Secondly if you do not have access to a pull-back place your shears in a vice, cover the blade with a thick cloth and pull the blade back.



Do not pull back too far. When closed the tips should not be more than 30mm apart. The shears must be pulled where the blades and handle

meet. When finished, the heels of the blades should meet evenly.



- File the two spikes so that they are shaped to impale a piece of 6mm leather.



- Place 6mm leather knocker onto the spikes and press knocker into place with a vice.

3. Insert Knocker

The purpose of the knocker is to serve as a shock absorber and a silencer.

Identify the blade with the best steel, insert this blade into the vice and clamp it tight.

- Cut the shoulder with your hack-saw.



- Using a chisel and hammer, break the metal on the shoulder out, leaving two spikes.



Once the knocker is in place trim off excess leather. If the knocker is not fitted correctly it can cause the shears to buckle.



4. Adjustment

When the knocker is in place the blades will not fully close at the points. Correct this by cutting and filing the shoulder of the opposite blade until the points almost meet, leaving \pm 4-5mm gap.



5. Setting

The main reason that the shears need setting is so that they will stay sharper longer and stop them from buckling.

These are some basic things to do when setting your shears:

- Place the shears on the floor so they are sitting upright on the bow and back of the blade.
- Stand with your feet on both side of the shears and look down on the points of the blade, this way

you can see how much the blades are cutting into each other. The more the blades cut into each other the faster the shears will go blunt.

Photo 1

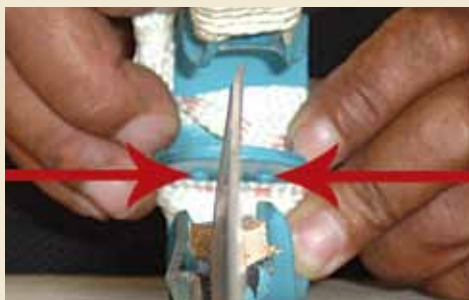


Photo 2



Photo 1 shows how much the blades are cutting into each other. Photo 2 after setting the shears

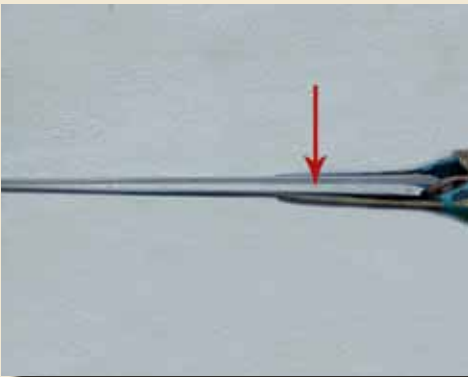
- When setting the shears look down the cutting edge to the bows, your sight line from the cutting edge should be in the middle of the rivets.



- To adjust this line put a block of wood with a groove cut into it in your vice, insert the blade into the groove, with your shifting spanner on the rear of the handle turn until you get your sight line in the centre of the rivet, then do the next blade.



- When the shears are closed check the gap between the cutting edge and the back of the other blade, this gap should not exceed 5mm.



- If there is not sufficient gap and the blade touches, then the shears will buckle. If the gap is too wide

then the shears will not hold a sharp edge.

6. Attaching Driver

These are the main reasons why we need a driver on our shears;

- It stops the shearer's hand from slipping forward into the blades
- It gives the shearer more control over the shears.
- It stops the shears from being kicked out of the shearer's hand.

A driver can be fitted using a 35cm long strip of leather or lampwick. The driver can be bound to the handle by either cotton twine or insulation tape, depending on the shearer's preference. When putting the driver on, make sure that the twine or tape is smooth and tight.



Make sure that the twine is smooth and tight



Attaching driver completed

7. Grinding

This is done on a round carborundum grindstone using the batt as illustrated, working across grindstone so that it wears evenly. The batt is held against the centre-pole, which is set so that the correct bevel is ground on the blade.



The bottom half of the grindstone is enclosed in an old rubber tyre filled with water when operating and emptied after use. Turn the grindstone



handle away from the person holding the batt at a steady, even pace. The maker's edge (the edge left on by the manufacturer on a new blade) should be almost ground off. Do

not OVERGRIND. The finished bevel should be as flat and level as possible along the full edge of the blade, approximately 4mm wide. After grinding, wash and dry shears thoroughly. **DO NOT CLOSE HAND-SHEARS UNTIL AFTER OILSTONE HAS BEEN USED.**

Traditional sandstone grindstones have now been largely replaced by electric bench grinders. You can use a 150mm bench grinder with a white stone to grind your shears. However, care must be taken not to overheat the blades.



8. Sharpening

Certain types of fine oilstone are recommended for sharpening. Use a long sharpening peg with at least 200mm of clear space around it. The sharpening peg must have a groove cut into it. Hold the blades open at chest height on a 90 degree angle as illustrated below. Keep the blade steady and the angle constant. The stone is applied at a 65 degree angle to the blade and lightly rubbed with



a smooth circular motion towards the operator. When there is a thin even line along the cutting edge, stoning is complete except for removing any feather edge which may be on the inside of the cutting edge. Lay the stone flat across the inside of the blade



and stroke gently from back to tip of blade once or twice. Now spread the shears open slightly and close them carefully without the two cutting edges touching. Bring the blades together and allow them to spring open naturally. Repeat two or three times. This process (called "backing off") ensures that no burred edge remains. To test if blades are sharp, place a staple of wool between them and cut. If the wool runs towards the tips, the blades are still blunt and more stoning is required.

9. Points

It is essential to round off the point with an oilstone so you can drag your



finger (very carefully) across it without scratching or cutting yourself. The bottom of the blade should be bevelled up from the bottom side and lightly rounded off at the tip.

10. Spring Tension

If the shears open too far they can be closed by placing the bows of the fully closed shears on the floor inserting a broom handle in the bows and pressing down. Turn the shears over and repeat, ensure bows are centered in the middle of handles when closed. The blades should open so that the heels overlap approximately 12 mm.

If shears are too strong to close, it can be weakened by using the same technique.



BLADE SHEARING PROBLEMS AND SOLUTIONS

Before you start:

1. Check the point of the bottom blade for smooth entry into wool.
2. Test the point on your hand - if it catches the skin, turn it over with an oilstone.

PROBLEM	CAUSE	SOLUTION
Shears not cutting	1. Blunt	Sharpen
	2. Gap in blade	Rub across blade from outside and back off
	3. Kissing (no gap between shears when closed)	Reset shears – turn blades out
Edge of blade wears off too soon	1. Too much cross-cutting	Straighten blades (reset)
	2. Not sharpened enough	Sharpen more thoroughly
	3. Too short bevel	Grind wider bevel
Problems with entry into wool	1. Point of bottom blade too blunt	Sharpen point
	2. Too much lanolin on blades	Insert into waterpot

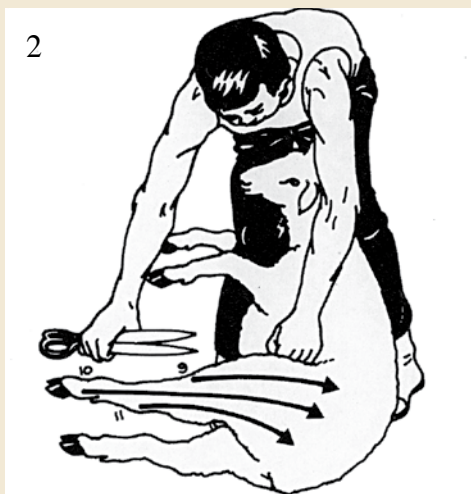
IMPORTANT:

- Make sure that your grindstone is always level and running true.
- To remove hollow patches on an oilstone, rub it on emery paper stretched out on a flat surface, or rub on a flat concrete floor
- Traditional square stone: Same treatment as oilstone.

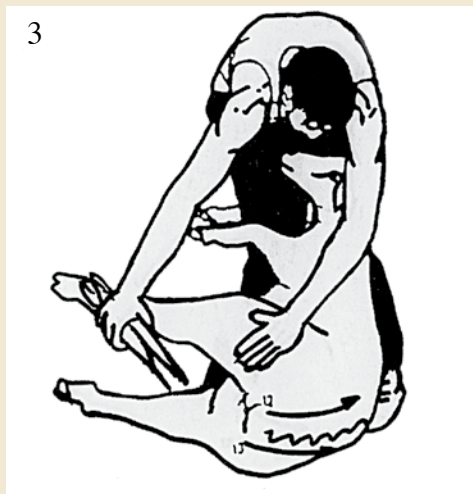
Technique for blade shearing



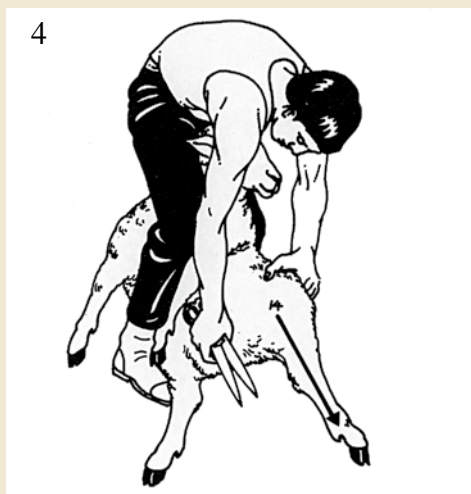
Hold both front legs up under the left arm. The shearer pulls his legs back tight against the sheep to stretch the belly.



Inside knee in front of the brisket.



Inside foot moves back when clearing over the tail. Outside hand stretch skin. NOTE: Full blow over the backbone.

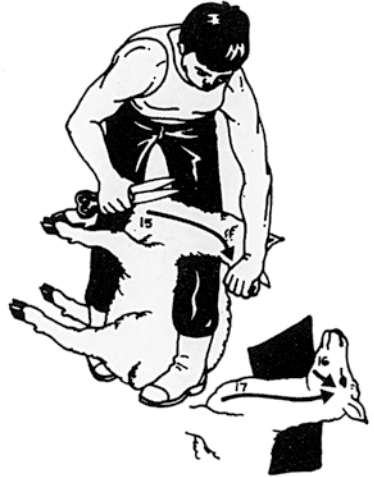


Remove all the trimmings inside the leg.

5



6



Blow 15 - roll the head starting on the top side of the brisket. Finishing square under the jaw.

7



Clear up behind the ears and top knot with the sheep's head below the shearer's knee.

8



Shear into the first shoulder, keeping points of shears down onto the skin.

9



Shear around the first side moving outside foot away from the sheep to let the sheep lie down, for blow 26 to commence the long blow.

10



Put blow 27 in as the sheep drops down. Step over with the inside foot, as blow finishes.

11



Complete a full blow over the back bone. As blow 28 finishes step forward with the inside foot, turning toe in. Roll sheep towards inside foot with outside foot and outside hand.

12



The last cheek is cleared before releasing sheep's inside front leg.

13



Step outside with the outside foot when blow 37 is completed.

14



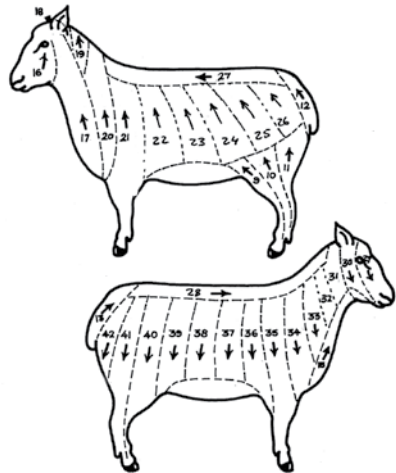
The sheep's head is brought forward of shearer's legs.

A guide to pattern shearing

15



Grip the loose skin in the flank and roll the fist on the firm part of the leg to keep it straight.



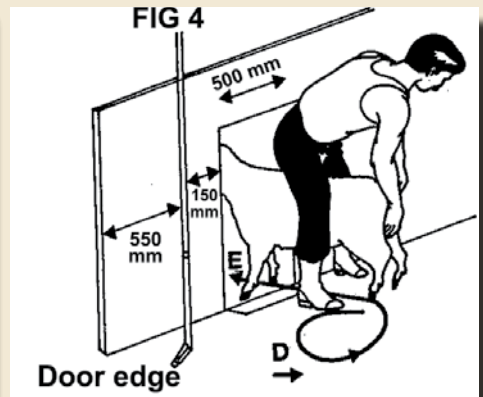
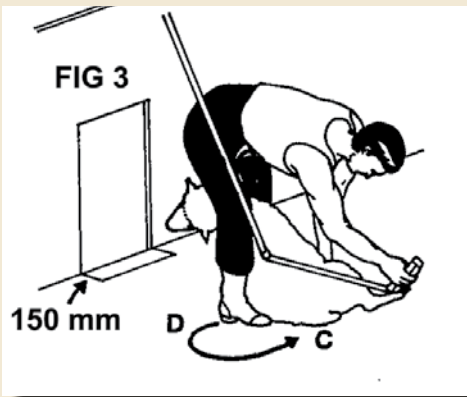
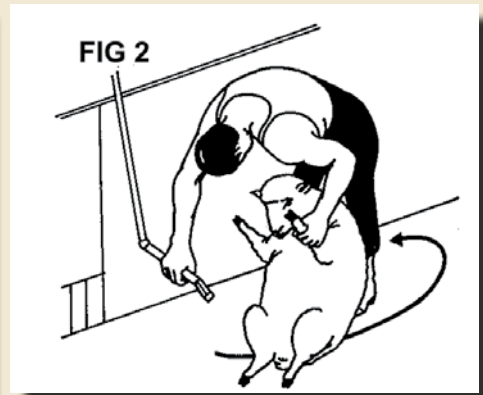
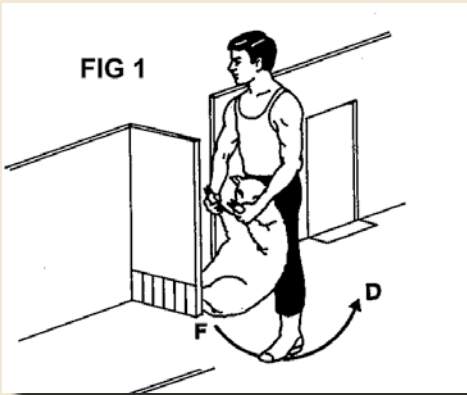
Shearing sheds



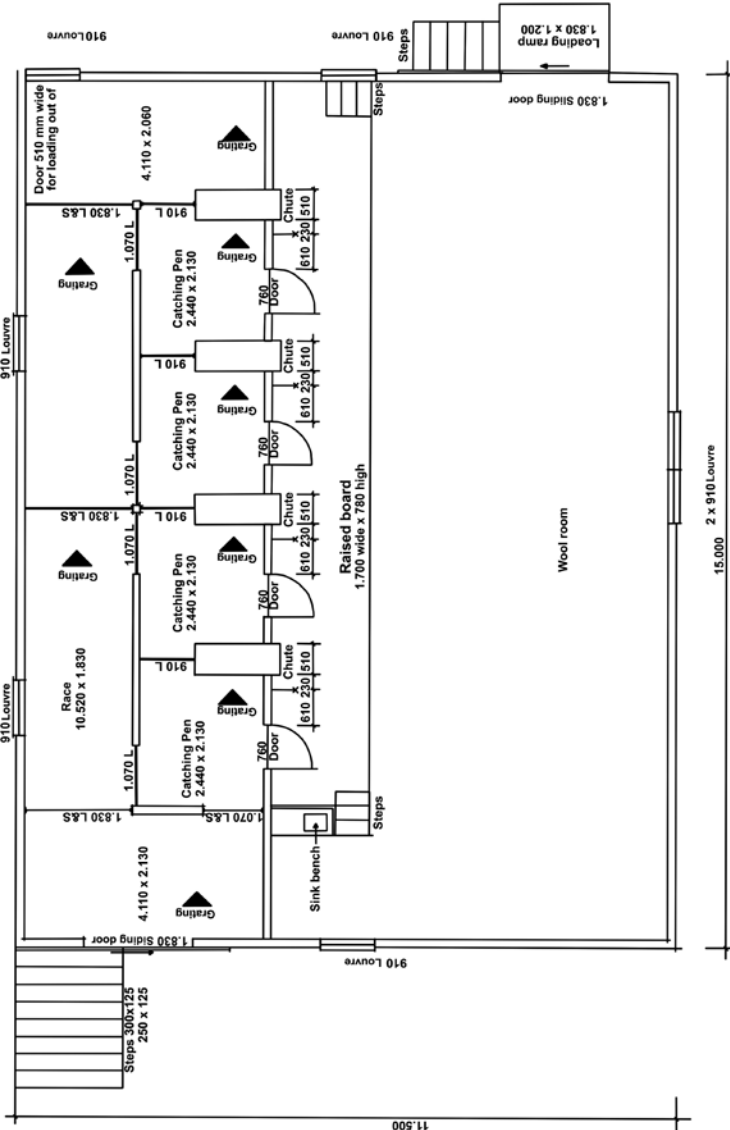
- In modern woolsheds there are basically two designs, the first being the raised board chute type. With this system the shearer catches the sheep, and after shearing it is released down the chute under the grating or slats and stands in a pen outside the woolshed. This system is an excellent one as it limits the area of slatted floor to the bare minimum. It is particularly good from the woolhandling point of view in that it makes for easy sorting, particularly of mohair and 6 to 8 months wool where the fleeces do not hold together.
- The second system is that of the return race. The return race is very satisfactory. It has a raised board or (in conventional woolshed alterations) the shearing board is at ground level. However, to accommodate enough shorn sheep in the return race, an increased area of slatted floor is needed. The return race system is particularly good when making alterations to existing woolsheds. In that farmers required to drench or inoculate their stock can do so in the return race while the shearing is in progress. The woolhandling is the same as in the conventional South African woolshed. The shearers have the sheep close to them and this eliminates a lot of wasted time catching from the communal kraal. Both systems have proved themselves very popular overseas, and it is up to the individual farmer to decide what best meets his requirements.
- In both the return race and chute systems the measurements the following page, should be observed when planning the frontage of your shearing board.

- A gap 150 mm above the floor should be left and covered with a dull coloured canvas or plastic. This gap does not obstruct the sheep's feet when it is being pulled out and the door closes quickly.
- The down tube should be at least 400mm out from the wall and just clear of, or touching the floor. This ensures minimum elbow rubbing against the wall. Follow the manufacturer's instructions.

The shearing arch requires about 450 mm from the first movement to the final blow. The sheep's head should then be pointing down the chute (fig 4) or return race.



4 Stand chute woolshed
capacity top floor - 160

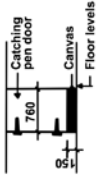
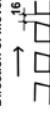


Gate legend

L & S Lift & Swing gate

L Lift

Direction of movement



Height from ground level to wool room floor level - 1,230 optional

2-910mm louvres to be placed in apex of roof opposite each other. These louvres are not shown on the plan optional

Height of board wall to be 1,220 from board level

Height of partitions 860mm above grating stud height 2,700 in wool room

Roof preferably sarked with 12mm treated pine or silver paper on wirenetting

Approx 4 sheets of material to be used in walls for lighting & to be placed in position when shed position is decided

Pen divisions shown 150mm wide but can be less depending on materials used

4 Stand chute woolshed



Biega

Hygiene in the shearing shed

1. General Principals

- Dead animals should not be skinned in the shearing shed.
- Sick animals should not be housed in the shearing shed or catching pens.
- Skins and pelts should not be treated, dried and/or stored in the shearing shed.
- After completion of shearing all wool must be classed and packed and removed from shearing shed, all shearing equipment must be cleaned.

2. Disinfecting of Shearing Shed

- Before shearing commences, the entire shearing shed must be cleaned thoroughly and disinfected.
- Disinfecting must be done within a week or 14 days prior to shearing.
- All wool and other perishable products must be removed from shearing shed.
- The whole inside of the shed must be treated with a 3-5% formalin solution. Alternatively other products i.e. F10 or Virikons S can be used. **(Read instructions carefully)**
- Doors and windows must be closed for \pm 24 hours where after it should be opened for fumes

to escape. If disinfection is done shortly prior to shearing **the shed must be rinsed with water to get rid of fumes that will irritate the shearers.**

3. Shears and Waterpots

A little disinfectant in buckets for hand and for machine shearers to disinfect the equipment, will help to stop the spread of disease from one animal to the next. This water must be replaced on a daily basis.

4. Adequate washing facilities for the shearers, are vitally important. Shearers to commence shearing with clean trousers and, if possible, change regularly (daily).

5. Shearers should be requested to inform the foreman / farmer of any diseased animals.

6. Disinfect shearing wounds using a healing oil or antiseptic recommended for animal use.

7. It is important to minimize the amount of dust in and around the shearing shed and yards. This is not only important for disease control, but also to prevent contamination of wool and the shortening of the life of the shearing equipment.

8. Commence with the shearing of young sheep first progressing to older sheep.

Fitness and Health

Working in a wool shed is hard physical work and you need to be fit and healthy. If you are, you stay on top of the job and you also think and plan better.

- Always locate the nearest telephone and First Aid Kit when starting work in a new shed.
- Hepatitis B, and the AIDS virus are carried by blood. If you cut yourself, use your own towel to control excess bleeding. Find a pressure point to control excess bleeding. Remember to avoid contact with another person's blood.
- Hepatitis A is carried by sweat and saliva. Use your own drinking mug, and don't share food or smokes.
- Be sensible, keep yourself clean and maintain good personal hygiene standards.
- Take particular care to keep eating areas clean. Good, clean drinking and washing water is a must.
- Keep farm chemicals away from the eating area. All chemicals should be clearly labelled.
- Replace fluid loss with water. Drink fluids often.

FITNESS

Top shearers are people who have trained their bodies to do exceptional things.

To maintain the level of performance needed to earn a good income and enjoy shearing, it is important to be physically fit and to build up strength in the groups of muscles required for the work.

The exercises illustrated here have been specially selected for that purpose. During the off-season they will help build strength and maintain flexibility. When you are working they will make you a better, faster shearer.

Find a regular time of the day when you can spend 15-20 minutes to exercise.

During exercise concentrate on your breathing and the muscles being used. Work slowly. Your exercise programme should be a combined mental and physical work-out.

Some exercises are particularly important. No. 4 in the warm up section, and No. 10 in the fitness section, the extension exercises, in which you arch your back, are recommended by physiotherapists to relieve most common back pain and to correct damage caused by prolonged bending.

NOTE: You should do the No. 4 exercise on your feet during the run. Arch your back as part of your routine during every cutter change or between sheep - preferably before your back begins to hurt.

The hamstring exercise, No. 14 practiced regularly for two or three

weeks, should lengthen the muscles at the back of the thighs sufficiently to enable you to comfortably match the illustration.

Exercise Nos. 7 and 8 are good insurance against a blown up wrist which can immobilize the best of shearers and shedhands.

Build up your level of exercise and your shearing tallies steadily. Don't overdo them at first; build up the repetition and pressure gradually. If you have had serious back problems, exercise is even more important but you should get medical advice about it.

If you exercise diligently, you'll feel the difference in a week and see the difference in a month.

WARM-UP

No self-respecting athlete would fail to warm up and neither should a shearer.

Before starting in the morning (or if you have become cold during the break) use the following warm up routine.



Jog on the spot, for 1-2 minutes, gently at first, loosening up the wrists. Get arms and shoulders moving and finish the warm up with a more vigorous running action.

STRETCHING EXERCISES

1. Squat

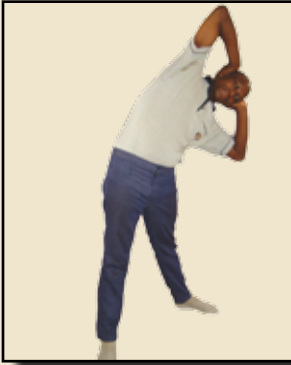
With feet shoulder width apart, squat with heels flat on floor, thighs parallel to floor, arms extended forward and back straight. Hold this position for ten seconds then gently rock sideways to the left until you can lift the right heel off the floor and vice-versa.



Repeat three times thinking about your straight back and how you will endeavour to keep it straight as much as possible during shearing and especially while catching and dragging sheep.

2. Trunk

Move to left side and hold, then the right side.



3. Hamstrings

Keep hands above head and lean forward with back and legs straight to stretch hamstrings. Gently move from side to side getting your chin as close as possible to each knee.



4. Working Extension

Straighten up, place thumbs just above hips and rock gently backwards into the extension position.

You should now be ready to start work. Not too quickly at first. Use the first few sheep to remind yourself of pattern footwork and timing.

FITNESS EXERCISES



1. Chest and Arms

For this and other standing exercises, have feet shoulder-width apart and hands by sides.

Raise the arms sideways, roll the



wrists palm upwards and clench the fists. Bend the arms fully, rising the elbows high. Hold to the count of five, then reverse slowly to starting position. Breathe in on the upward movement, hold the breath, out on the return. Repeat twice.

2. Shoulders and Back

With both arms down in front of you, clasp the first two fingers of the left hand with the right hand. Pulling apart, slowly raise the arms above your head, breathing in. Hold to the count of five, then slowly return breathing out. Rest and repeat twice.



3. Shoulder and Chest

With arms down in front of you engage hands to push together once again raising fully, breathing in as you go up, hold, then breathe out slowly as the arms come down maintaining that inwards pressure.



4. Girdle and Chest

With both arms extended down in front of you, place the right palm on top of the left fist. Slowly lift the straight left arm to head height against the downward pressure of the right hand, breathing in. Hold, then return slowly, the right hand maintaining the pressure, breathing out. Rest and repeat twice, using alternate arms.



5. Shoulders

Clasp two fingers of the left hand with the right as high up the back as pos-

sible. Pulling apart, extend the arms fully downward. Hold, pulling the shoulders back and trying to get the shoulder blades to touch. Rest and repeat twice.



6. Neck

Clasp hands behind fully lowered head. Slowly raise the head against the pressure of the arms, breathing in. Hold, then slowly return, breathing out. Rest and repeat twice.



7. Wrists

Clasp thumbs firmly with fingers and roll wrists downwards towards the floor.



8. Wrists

Kneeling on right knee, place the left forearm on the left thigh with the wrist hanging over the knee. Place the right palm over the knuckles of the left hand, then straighten the left wrist against the pressure of the other hand. Hold, then lower while still under pressure. Rest and repeat 10 times with alternate wrists.



9. Cardiovascular

(Press ups)

Lying face down, place hands under the shoulders and slowly press up, breathing in and keeping back perfectly straight. Hold, then return slowly, breathing out. Repeat 10 times. Rest.



10. Resting Extension

Lying face down with hands under shoulders, extend the arms slowly keeping the hips on the floor, breathing in. Raise head to look as far backwards as possible. Return, breathing out. Rest and repeat 10 times.



11. Stomach

Lie on back with feet flat on floor, knees bent. Raise the upper body so that the hands are positioned 150 mm above the knees. Hold for 10 seconds, then return slowly breathing in. rest and repeat four times.



12. Hip Roll

Lie on back with feet flat on the floor. Raise both knees, then lower them to the right side, keeping the shoulders flat on the floor. Hold, return and lower to left side. Repeat twice.



13. Diaphragm

Lying on the back with feet flat on the floor, breathe out fully, then make a

strong inhaling movement without taking in any air. Rest, then repeat four times.

14. Hamstrings (Essential Maintenance)

Lying on back, raise the right knee. Pull the knee back onto the chest with one hand, then relax slightly. Hold your toes with the other hand and straighten the leg pulling the toe down. Hold for at least 10 secs, rest and repeat three times with alternate legs.



15. Working Extension (For Injury Prevention)

Standing straight, place thumbs just above hips and gently bend backwards as far as possible. Rock.



BACK CARE

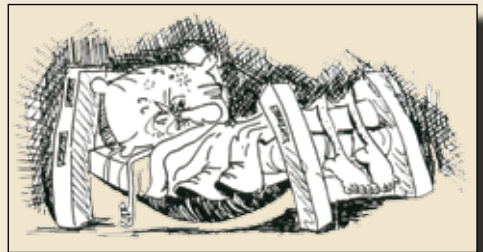
Being physically fit, flexible and strong is the first priority. However, the following points also play a major part in injury prevention.

Avoid Chills

It is very important to keep yourself warm, particularly in cold and draughty workplaces. Use a woolen singlet if possible and for extra protection wear a "backwarmer" custom-made for the job. **Put on a jersey at brakes before you get cold.**

Sit sensibly during brakes. If you lean against a bale with your legs flat on the floor you are maintaining the shearing posture and not giving any relief to the discs in your back.

Sleep on a firm mattress. The mattress may be better on the floor than on a poor bedbase.



Lumbar Supports

Make sure that your carseat and favourite armchair provide good lumbar support. A cushion can be placed in the small of the back just above the belt line. In your car even a towel or pair of clean trousers rolled up can serve the same purpose.

NOTE: if any exercise causes acute pain for an extended period of time, seek medical advice.

BACK SUPPORT

Only a limit of amount of shearers in South Africa are using back supports. There are various makes and models that share the common goal of providing support for the upper body while bending.

For shearers who have occasional short term or ongoing back problems these devices can be invaluable.

Installation and Positioning

The top of the sling should be suspended at forehead height and

300mm directly out from the down-tube. Be sure to wear the sling high across the chest.

While in many sheds the shearer may have to use a chain or rope to support the sling, a solid mounting is preferable.

Professional shearers may choose to use the sling intermittently or full time.

Once an efficient technique of positioning the sling is mastered, any slight loss of time will be made up by the ability to maintain a regular workrate in comparative comfort.

Wool Contamination

To prevent wool contamination the following points must be taken into consideration

- Keep handling yards clean and dust free.
- Do not store dry skins in the shearing shed.
- Do not house sick animals in the shearing shed.
- Keep wool-shed clean and tidy at all times.
- Start with the shearing of pure-bred woolled sheep first and end with the shearing of other woolled sheep.
- Remove all brands before shearing.
- Remove Burrs from wool before shearing.
- Remove all bags from the shearing area.
- Remove all baling twine from the shearing shed and handling yards.
- Keep dogs out of the shed while shearing.
- Shearers must not sleep in the shearing shed.
- Use plastic/perspex sweepers to sweep shed rather than brooms.
- Shearers to identify black or coloured fibres on sheep.

Examples of preventing contamination



Covering wool bins at night and during the year is a good practice to prevent any contamination

Examples of wool contamination



Cross-breeding cause wool contamination. Shear cross-breds seperately.

Examples of wool contamination



Remove all bags from shearing area. Brushes and brooms can loose their bristles causing wool contamination.



Although baling twine is very useful, it is one of the biggest contaminating factors.



Training successes

As a result of the shearer training program since 1981 South Africa can boast with two World Champion Blade shearers.



Elliot Ntsombo - World Champion 1996, 2003, 2005 and 2010



Zweliwile Hans - World Champion 1998, 2000, 2008 and 2012