



HOW TO ADJUST PITCH
REED MANIPULATION
BLOWING IN NEW REEDS



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This document is aimed at pipers using the Campbell Tunable Chanter. However, this document covers a great deal of detail on the reed. **Always be sure to check the basic settings on your chanter first. Refer to the Campbell Tunable Chanter Instructions before manipulating your reed.**

Many thanks go out to Ross Bates of Newport, Australia for much of the research included in this document

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***** Look at the Campbell Tunable Chanter Instructions first before manipulating your reed. *****

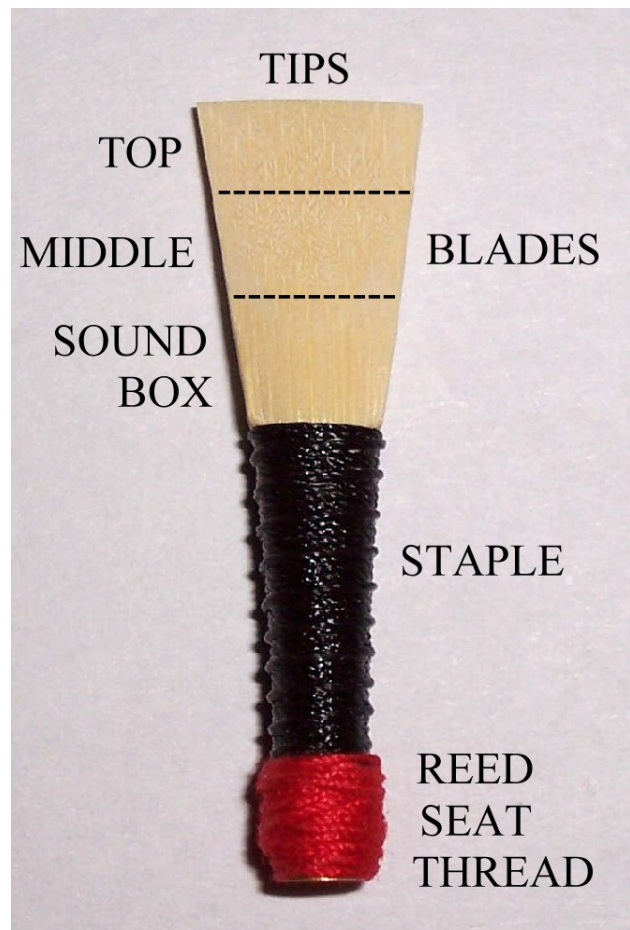
GETTING STARTED

Because of the many variables that pipers need to deal with, we often look for the best option to keep our instrument tuned. The most common tuning methods are listed below and discussed in full detail further along in these instructions.

1. **Threaded Reed Seat** – Ensure that your chanter reed is secure in the reed seat. You can use the threads to adjust your reed by twisting your reed to sink or lift your reed as necessary.
2. **Tuning Dial** – Your tuning dial will allow you to make quick general adjustments to your overall balance. Be sure to note that the top hand notes change faster than the bottom hand notes.
3. **Tape** – Each reed is different, so tape should be used to adjust individual notes that do not balance well. Don't believe in the myth that every note taped equates to having a poor quality chanter or reed. It is a practical method of creating a truly accurate scale and not one that is just near enough. For the best results, use proper tuning tape that is available at any pipe band supplier.
4. **Undercutting** – This is a last choice option as it cannot be reversed. Use this only when a note hole is persistently flat with all other options exhausted. Be sure to remove only a small amount of material at a time and test regularly.

KNOW YOUR REED

These instructions will only help if you understand the different parts of the chanter reed. Be sure to reference this image when making adjustments.



BLOWING IN NEW REEDS

For the uninitiated, the term "blowing-in" refers to the practice of giving new reeds a chance to settle to their natural strength with minimal adjustment to the reed itself. In a reed's early stages, this is necessary due to the fact that new cane will generally weaken with regular playing, making the reed easier over time. As a general rule, a reed that is immediately comfortable will have a limited lifespan. It is normal for cane to dry out to some degree during transit, so breathe some moist air through the reed for 10 seconds or so before trying.

If you have a number of reeds to choose from, try to select one slightly above your normal strength. As stated, new reeds will generally become easier with regular playing. How regular will depend on the cane, but as a guide, 30 minutes a day for one week should be enough to bring the reed to a comfortable strength.

Don't rely exclusively on the blowing-in process. If a reed is still too firm after a week or so, you may need to coax it to your required strength. This will involve pinching and or thinning the blades of the reed. These techniques are detailed in Adjustments.

After a short rest, some new reeds will go flat quickly. This is a symptom of new cane absorbing moisture which causes the mouth of the reed to open up, hence lowering the pitch. In this case, it may be necessary to give the reed the occasional light pinch around the shoulder of the sound box. Once the reed has eventually settled, this should not be necessary.

If you find that a new reed is hard to the point of being unplayable, or a reed's strength is suitable but there are other issues relating to pitch or balance, the Adjustment section should help.

MAINTAINING YOUR REED

These points apply to any reed, old or new.

- Avoid exposing the reed to extreme conditions - too wet, too dry, too hot.
- Don't lick the reed.
- Take care not to damage the corners of the reed when handling.
- To maximize the life of a reed, consider the use of a reed protector. This will enable you to remove the chanter and reed from the bag after playing, which will in turn prevent the reed from absorbing excessive moisture from the bag. If there is moisture surrounding the reed seat after playing, wipe it away and allow the reed to briefly air before putting the protector on.
- If mould becomes a problem, then you are not drying enough, or you may need to place a small hole (about 1 mm) in the protector to allow some evaporation. This can be covered during hotter months if the reed becomes too dry.

REED ISSUES | ADJUSTMENTS & MANIPULATION

By no means are these suggestions the be-all-end-all adjustments. There are many ways to manipulate reeds, but these points should help you get your instrument close to the desired sound. There are really only 4 basic things that can be done directly to a reed: Reduce the opening, enlarge the opening, thin the blades or shorten.

REED IS TOO HARD?

This advice relates to new reeds that are strong to the point of being unplayable. The following will help you to adjust such reeds to a manageable strength. It will also assist with those reeds that refuse to weaken irrespective of how much they have been played.

There are two basic methods of easing a reed:

- Reducing the opening of the mouth (the distance between the blades).
- Thinning the blades.

Usually a combination of the two will achieve the best result. If you rely solely on one method, you may compromise the quality and lifespan of the reed. For example, if you make the reeds opening too small, you could reduce the reeds vibrancy and make it too sharp. If the blades are over-thinned, you could be left with a reed that is unstable. It is important to understand these points before you proceed.

Before deciding which method to start with, you need to ascertain if the reed is at the correct pitch. If the reed is flat and hard, reducing the opening will help to solve both problems by lifting the pitch and easing the reed.

However, if the reed is correctly pitched, but is still too hard, reducing could make it too sharp. In this case, the better option would be to thin the blades.

Reduce the Opening

- Holding the reed between your index finger and thumb, lightly pinch the reed across the shoulder of the sound box for a few seconds. If the sound box is pinched too close to the tie-on thread, it is possible to partially collapse the end of the staple (very unlikely but best to avoid the risk) and any pressure near the top will have little effect. Only squeeze to the point where the tips of the opening just meet and no further. If it is still too hard, try again, holding the blades closed for a little longer.
- After you finish playing, the reed will most likely regain some of its original strength. Before each time you play, you may need to pinch the reed in ever decreasing amounts until it is eventually playable.
- While doing this, it is important to monitor the pitch and vibrancy of the reed. A natural by-product of reducing the opening is that the pitch will go up. If the reed is still too hard and yet the pitch is now too high, or the reed is starting to lose vibrancy and volume, thinning the blades would now be the better option.

Thin the Blades

- Thinning blades can be done with either a sharp knife or fine sandpaper. The key word here is moderation as once cane is removed, it obviously can't be replaced. The aim is to remove the smallest possible amount of cane and then test. Repeat this process until the reed is at the required strength. It is important not to drastically alter the side-on profile of the reed.
- Begin by thinning the top area of the blades just short of the tips. If the reed is still too hard, you may need to further thin 2 to 3 mm either side of the middle and top area. Try to avoid over-thinning the centre of the middle area as this may cause instability on F and encourage a crow on High A.
- Thinning the sound box should only be done as a last resort for reeds that are extremely hard.
- It is important not to over-thin any particular point of the blades. As you proceed, regularly check that they are evenly matched for strength by lightly pinching the reed towards the middle and look for areas that resist more than others. If this happens and the reed is still too hard - focus your attention on these areas of the blades.
- If you use a knife, use a sharp hobby knife, lightly scraping along the grain in the area described.
- If you use sandpaper, only use a very fine grade. One technique is to wrap sandpaper around your index finger and sand each blade across the grain. With this method, it's easier to avoid damaging the tips. Another other option is to use a fine emery board. A circular motion is probably the easiest and most efficient.

REED IS TOO EASY?

Enlarge the Opening

- Doing this will increase the reed's strength and lower the pitch. Wet your fingers with tap water and apply some moisture to the sound box. Squeeze the reed at its sides around the sound box area. This might extend the life of an older reed.
- For a more permanent result, take a reed mandrel and gently force it into the staple from the reed seat binding end. This should open up the compressed end of the staple and therefore increase the distance between the two blades. Excessive distortion of the staple may alter the balance of your chanters scale so try this in small stages.

Shorten the Reed

- A last resort technique that should only be used if all else fails. Shortening a reed will increase its strength with the significant side-effect of lifting its pitch - be aware of this before proceeding. While there is an amount of risk involved, shortening an old or problematic reed is often successful and is a skill well worth mastering.
- Holding the reed at the sound box, with the middle and top areas resting on a hard flat surface, cut a small amount of cane (.25 mm to .5 mm) from the tips using a sharp hobby knife. Depending on how far you have gone, you may need to thin the blades right to tips in order to compensate for the increase in strength - just don't end up back where you started. You may also find that the top notes are tight and restricted - again, thin the blades right to the tips. Also check that the interior of the tips are clean and free from stray cane fibres resulting from the cut.

PITCH IS TOO LOW

- Remedy by pushing the reed further into the reed seat. Don't go too far as this may cause instability on F and possibly a crow on High A. Be aware that sinking the reed will also sharpen the higher notes more than it will the lower notes. In either direction, the higher notes will be more affected than the lower notes when a reed is repositioned.
- If the reed is too hard, reducing the opening will help both issues.
- If the pitch is still too low, shortening the reed is the only other option.

PITCH IS TOO HIGH

- Reposition the reed higher in the reed seat. This will also flatten the higher notes more than it will the lower notes.
- The reed may be too dry - check your moisture control system.
- If the reed is too easy, enlarge the opening.

SCALE HAS SHARP HIGH NOTES & FLAT LOW NOTES

- Lifting the reed will help to restore balance, however this will lower your overall pitch.
- If the reed is too hard - try thinning the blades. Concentrate on thinning the middle to top area and also towards the sides of each blade. Ensure that the blades have the same amount of give and that the reed is vibrating efficiently.
- Slightly thinning the sound box will also help to free up the top hand, but going too far here will compromise stability.
- Enlarge the opening and if necessary thin the blades to compensate.

SCALE HAS FLAT HIGH NOTES & SHARP LOW NOTES

- Sink the reed; however this will raise your overall pitch.

SHARP HIGH G

- If the reed is too hard, thin the center of the top section just short of the tips.
- If this fails, slightly thin the sound-box area or round off the shoulders.
- Ensure that both blades are matched for strength and that the reed is vibrating freely.
- If you can afford to strengthen the reed and lower the overall pitch, open the reed's mouth with a mandrel.

CROW ON HIGH A

- High A crow is usually caused by under-blowing the reed. It is quite common in lower grade bands for pipers to blow a reed so that it just vibrates and no more. Increasing air pressure will help to clear the High A, but make sure the reed is firm enough to avoid the chance of skirling on Low A or Low G.
- This is also caused by the reed sitting too far into the reed seat, however be aware that some makes of chanters will actually crow more with the reed sitting too high.
- Check that your reed is not receiving too much moisture. If necessary, adjust your bag set-up to compensate.

- Sanding the tips of the reed may also help. The simplest method is to sand the outside edge of the tips at 45 degrees on extremely fine sandpaper - 800 grit to be safe.
- Another method, for extreme cases, is to actually sand directly across the end grain of the tips at 90 degrees. This is a more refined method of shortening a reed, but in very small amounts so the pitch is not that greatly affected. The initial step is to place very fine sandpaper on a flat surface. Then, pinching the blades together at the top area, between forefinger and thumb, pull the reed across the sandpaper for about 2cm. Test the reed and if necessary, repeat the process until the High A is clear. An important step is to check that the outside and particularly the inside of the tips are clean. If necessary, remove any stray cane fibers with the corner of some fine sandpaper.
- It should be noted that some chanters are more susceptible to High A crow than others.

DOUBLE-TONING OR UNSTABLE F

Double Toning F or C

If you run into this phenomenon, it is likely that your reed has been pushed too far into the reed seat to allow you to reach a higher pitch than the reed will allow. Usually it's because the reed is new and not vibrant enough to pitch up to the range you are trying to achieve. By forcing the reed too deep into the reed seat, the hemp on the base of the reed has been compressed too much. Simply turn the reed counter clockwise ever so slightly so that it threads upwards and slightly releases from the reed seat. Give the reed some additional time to break-in or warm-up. With more playing time in your pipes, your chanter reed will begin to pitch higher.

Another way to get past this double toning F or C is to cut a very small slice off the top of the chanter reed. I would suggest that you leave this to more experienced pipers if you are not familiar with the process. You can find a number of informative videos on YouTube should you want to see how it's done.

- Often caused by the reed sitting too far into the reed seat - lift the reed.
- Also caused by the reed's opening being too large, often from exposure to excessive moisture.
- If you can afford to ease the reed and lift the pitch - reduce the reed's opening.
- Another possible cause is that the reed is too long for the chanter. If you can afford to lift your pitch - try shortening the reed.

FLAT F & OR C

- Usually caused by the reed being sunk too deep in the reed seat.
- It can also be caused by the reed's opening being too large.
- Similar to an unstable F, shortening the reed will also help.

REED SOUNDS DULL

- Before trying anything - inspect the inside of the blades by looking down from the opening. Check for any foreign matter or stray cane fibers. Loose cane fibers shouldn't be there in a new reed, but if the tips have been sanded or cut, it's possible they were not cleaned up thoroughly.
- If the reed is too easy and you can afford to lower the pitch - open up the mouth of the reed.
- If the reed is too easy and you can afford to raise the pitch - shorten the reed.
- If the reed is hard and dull then the tips may be too thick. Try thinning the top area right to the edge of the tips - ensuring the blades are still of equal strength. Thinning this area takes a lot of care - check often to ensure you don't make the tips too thin - particularly the corners. Use a fine black emery board in a circular motion for this area.
- Excessively dry reeds can sound dull - check your moisture control system.
- If none of the above helps - try refreshing the inside of each blade. This is useful for older reeds. With a pipe cleaner dipped in methylated spirits, pull the cleaner through the reed from the reed seat end, moving side to side. Another method is to use the corner of very fine (at least 800 grit) wet and dry sandpaper. Insert it into the opening just short of the corners - then, lightly pinch the top part of the blades together and pull the sandpaper out. Repeat for the inside of the other blade. The aim is to remove the smallest amount of cane just to clean up the surface of the reed interior.

"SKIRLING"

- Usually caused by over-blowing a reed that is too easy. If finger work is not the issue, then opening up the reed with a mandrel is usually the best remedy.
- Also be caused by not covering the High A and High G holes accurately when finishing a grace note or melody note on either of those holes.
- Another common error is for the High A thumb to strike the chanter after the other top hand fingers when changing from High A to Low A, or High A to Low G. In this situation your chances of skirling are greatly increased, particularly if you are playing an easy reed. The top hand fingers and thumb should strike the chanter at the same time when changing on these notes.

Gargling Low A & G

This non-musical sound is caused by playing a reed that is too weak for your blowing. You have pushed it beyond its point of stability. It is time to either replace the reed with a new one.

- Caused by over-blowing a reed that is too easy.

REED IS UNSTABLE (SENSITIVE TO CLIMATE OR BLOWING)

- Usually caused by the reed being too easy - it may well be at the end of its life.
- Also caused by too much cane being removed from the sound box or middle zone. Try shortening the reed to compensate.
- Lifting the reed will help to a minor degree with blowing issues, but of course will lower your overall pitch.

EFFECTS CAUSED BY ADJUSTMENTS OR CONDITIONS

REDUCE THE REED'S OPENING

- Make the reed easier.
- Raise the overall pitch, in particular C and F.
- Help to stabilize a double-toning or unsteady F.

ENLARGE THE REED'S OPENING

- Make the reed harder.
- Lower the overall pitch, in particular C and F.

SINKING THE REED

- Raise the overall pitch, in particular the higher notes.
- Possibly cause the High A to take on a crow.
- Possibly cause a double-toning or unsteady F.
- Generally make the top notes unsteady if the reed is pushed in too far.

LIFTING THE REED

- Lower the overall pitch, in particular the top notes.
- Help to clear up a crowing High A.
- Help to stabilize a double-toning or unsteady F and the top notes in general.

THINNING THE BLADES

- Make the reed easier.
- Lower the pitch of the top notes relative to the lower notes.
- Possibly brighten tone.

OVER-THINNING THE BLADES

- Cause the reed's pitch to be overly sensitive to blowing and temperature variation.
- Make the F unstable and possibly double-tone.
- Possibly cause a crow on High A.

SHORTENING THE REED

- Make the reed harder.
- Raise the pitch.
- Stabilize a double-toning or unsteady F.

SANDING ACROSS THE TIPS

- Help to clear a crow on High A.

TOO MUCH MOISTURE

- Cause the reed to open up.
- Lower the overall pitch, in particular the notes C and F.
- Possibly cause a double-toning or unstable F.

NOT ENOUGH MOISTURE

- Cause the reed to close up.
- Raise the overall pitch, in particular C and F.
- Cause the sound quality to become thin and dull.