

The Four Questions: 4 Easy Steps to an Easy Bagpipe

Introduction:

Dear Reader,

At the time this document was curated, Dojo University is coming up on its 6-year anniversary, and we have almost 3000 educational articles, videos, classes, podcasts, etc. on our learning site. I can't believe how far we've come!

You're here to help you achieve an easy, playable bagpipe and, I'm happy to say, we now officially have *endless* content on our website to help you with this very concept!

Rather than writing something new in our PDF guide, I thought I would put together a *refined set* of articles that we've released over the years on the website that clearly illustrate the art of setting up a perfectly efficient (a.k.a. "easy") set of bagpipes for you to play!

Some of this is written by me - Andrew Douglas - the creator of Dojo University, but other articles herein have been contributed by students - they did such a good job writing about the concepts that they were published on our website, and are now being published in our PDF Document....

So let's not blabber on too much here - let's dive in.

Enjoy this guide!

Andrew Douglas, July 2017

Introduction to the "4 Questions"

The Problem:

When we are new to the bagpipes (and sometimes even when we're not!), there are a million variables to consider when we attempt to get our pipes going:

- Watch out for crossing noises
- Get good gracenotes
- Don't make note mistakes.
- Play clean embellishments.
- Express beautifully!
- Keep the tempo steady.
- Blow steady.
- Don't surge in my blowing.
- Get tuned up.
- Stay in tune.
- Don't over blow the reed.
- Don't let the reed choke
- and the list goes on and on.



To have any hope of gaining ground on these items, and actually improving, you're going to need a game plan. There's just too many things that we need to worry about when playing... how do we keep it all straight?

Well, the first step is a well-functioning bagpipe. How can you play any tunes, focus on your tonal quality, or tune yourself if your instrument isn't working properly (or, if it's just too hard)? This problem caused me to sit back and think to myself... "Ok, my bagpipe is comfortable to play; What exactly do I do to make this happen?" The resulting answer became what we now call "The Four Questions" at the Dojo. It's a system to literally guarantee your instrument is set up perfectly before you get into playing or practicing anything on the pipes.

If I ask myself these 4 questions every single time I play, I know without any doubt that bagpipe maintenance problems are not going to interfere with my playing.

Question 1: Is my bag airtight?

Question 1 seems obvious, sure.

But, the one time you overlook this detail, your practice session will be a MESS! You won't be able to get a steady sound, you certainly won't be able to get yourself in tune, and you'll be so winded that none of your tunes will come out musically either.

So, make sure you ask this question every time you get your pipes out of the box: **Is my bag airtight?**

And, if you're not 110% sure that the answer is "Yes, my bag holds air as well as an NBA regulation basketball" - Do something about it!

Pop some corks in your stocks, blow the bag up, make sure that baby is tight! If it's leaking even a tiny iota of air, hide bag players should season their bag. Synthetic bag players (if you're leaking air) need a new bag post haste!

Question 2: Are all of my joints airtight?

Next up, I make sure that all of the joints (where the drones/chanter/blowstick connect to the bag) are 100% snug.

I physically test each joint before I even lift my pipes out of the case to test this (yep, every single time I play). The hemp on these joints tends to swell and contract (without notice) all the time, due to the huge moisture fluctuations that occur during day-to-day bagpiping. That's why this step is so important - if the joint is loose, you're going to LEAK AIR!

So, ask yourself this question every time you play. Test the joints to make sure.

Question 3: Are all of my reed-seats airtight?

Where the reed meets the bagpipe - this is an oft-overlooked detail that can leak a lot of air.

Think about it: If the reed is wiggling around in the reed-seat, that means there's gaps there where air could leak through.

And, if you were air, where would you pass through? A tiny reed-opening, or a gap in the reed seat? That's right. You'd take the path of least resistance.

So, every time you take your chanter or drones in/out, test that they are 100% snug, and there's no way air could sneak around the reed instead of through it.

You guessed it - do that every time you play.

Question 4: Are my drone reeds calibrated? (i.e. - are they taking the perfect amount of air)

This last question is extremely important. If your drone reeds are taking too much air, you're going to have trouble blowing steady, tuning yourself, staying in tune, and maintaining stamina.

How do you know if your reeds are taking the perfect amount of air? Well, that's where calibration comes in, and that's a whole other topic in itself. Let's just say for now that it's a technique that we use to set each drone reed to take the perfect amount of air.

(Curator's Note: We talk in depth on this topic later in this PDF Guide, don't worry!)

The result of properly executing the 4 questions? A perfectly efficient bagpipe that should be easy to play.

Part 1: John's Articles

I first met John Holcombe at Piping Hot Summer Drummer, an amazing piping school put on by Jack Lee in the high mountains of British Columbia. John and I have been friends since then, and not only has he been one of our most loyal customers for years, but he also has writing skills far more refined than mine, and put together a great article that reiterates the 4 questions with great clarity. Let's now look at an excerpt of his article; "Why are my pipes hard to play?"

"Why Are My Pipes Hard to Play?"

By John Holcombe

Bagpipes may seem difficult to play for several reasons. Let's list them in a logical order, and address each with suggested solutions.

- Bag is not airtight (including the blowstick valve)
- Joints are not airtight
- Reed seats are leaking air
- Drone reeds are not calibrated
- Chanter reed is too difficult for your level of playing

The bag is not airtight (Editor's Note: This is "Question 1")
The bagpipe bag must be 100% airtight. Airtightness should be checked periodically, at least once every few playing sessions, and anytime that something changes relative to the ease of

playing the pipes. Check the airtightness by corking off the chanter stock and each of the three drone stocks. Blow enough air into the bag until you can't add any more air. Wait for at least 30 seconds, and again try to blow air into the bag. If you can manage to blow only a small puff of air or less, and no more, the bag is sufficiently airtight. If, however, you can blow a noticeable amount of air into the bag, or if the bag is noticeably less rigid, then the bag is leaking air. If the bag is hide or sheepskin, consider re-seasoning the bag if no other cause of air leaking can be found. If the bag has grommets for the stocks, assure that the seal around the grommets is airtight. Listen at the end of the blowstick for any escaping air from a full bag. A leaking valve can sometimes be manipulated a bit to make it airtight, but it may be worthwhile to buy a new valve. An extra blowstick flapper valve should be part of every piper's maintenance kit, along with waxed hemp, extra reeds, etc.

Joints are not airtight (Editor's Note: This is "Question 2")

The chanter and the drones should fit very snugly into their respective stocks. Never should a drone turn in its stock while tuning the drone! Use waxed hemp on the drone to assure a good, airtight seal with the stock. It should take a firm twist of the drone to remove it (carefully!) from the stock. The chanter should also fit snugly in its stock, too, and should always be removed after playing to allow moisture that has accumulated in the hemp to escape between sessions of playing.

Reed seats are leaking air (Editor's Note: This is "Question 3")

This source of air leak is often overlooked or neglected. The drones should fit firmly into their reed seats for two key reasons: The first is that a drone reed that has fallen into the bag will likely ruin your day, especially if it happens in a band situation! The second is that a drone reed that is loose in its seat will lose more air than you think. If all three drone reeds are even a bit loose, those air losses quickly add up. Every time you put your pipes together, check how firmly the reeds are in place.

Drone reeds are not calibrated (Editor's Note: This is "Question 4")

Drone reeds must be calibrated to the strength of the chanter reed so that they take as little air as possible, while maintaining rich harmonics. Any more air than that is wasted. Each chanter reed is different, and calibrating the drone reeds should be done any time a chanter reed is changed, or one's physical location changes, especially in altitude. For example, it is a bit harder to blow the pipes in the mountains than it is on a beach. Calibrated drone reeds are most efficient to play, so all the air that goes through the reed is used to vibrate the reed. There is no "lost" or "wasted" air. A drone reed that has its tongue too open is grossly inefficient. If all three reeds are too wide open, it is very much like having small hole in your bag! (*Editor's Note: More on calibration later in this guide!*)

Chanter reed is too difficult for your level of playing

If all of the preceding issues have been eliminated, and the bagpipe is still too difficult, then the chanter reed might be too strong for you. Drone reeds that are calibrated to that reed are too open (see above). In general, one should be able to play at least one line of a tune while mouth blowing a reed in the pipe chanter. Also, on the pipes one should be able to blow at the chanter reed's sweet spot continuously. If this isn't possible, or your face turns firehouse red at the exertion, the reed is too hard for you. Consider having an expert piper, someone whom you trust to know what they're doing, manipulate the reed to make it a bit easier for you. Or buy a slightly easier reed. Over time, you will be able to advance to stronger reeds.

Editor: The next article I'm including is also by John, and goes in depth on the issue of Drone Reed Calibration. Quite honestly, he succinctly does a much better job than I have ever done to write the steps of this clearly. Enjoy!

Drone Reed Calibration—Wow, What a Difference!

By John Holcombe

Have you ever felt that you were struggling with your pipes, or that they were too hard to blow, or that you just couldn't blow enough air into the bag to maintain the correct pressure? Can

you play for no more than 10-15 minutes, even with an "easy" chanter reed? Have you answered "yes" to any of these questions?

If you have answered "yes" to any of these questions, the solution may lie with your drone reeds that are wasting way too much air. Fixing that problem requires "drone reed calibration", which when done properly produces a bagpipe that is a true joy to play.

Drone reeds need to be adjusted so that they are most efficient, meaning that they take just enough air to produce a great sound, but not a bit more. Any air that goes through a drone reed but is not used to produce sound represents wasted air and wasted effort.

If the reed tongue is too open (too far above the body of the reed), excess air that is not used to vibrate the tongue escapes into the atmosphere, its energy wasted. Such a reed that is too open is like having a hole in your pipebag. Thus, an un-calibrated drone reed takes too much air and needs to be adjusted, even though the manufacturer may claim that the reed is "ready to play". The wasted air, like a hole in the bag, leads the piper to exert far more energy into blowing than should be required, resulting in unsteady blowing and early fatigue, among other unwanted effects. Therefore, it should be easy to understand why drone reed calibration is the last of the critical "four questions" we should all think through every time we take out our pipes: 1) Is my bag airtight? 2) Are my joints airtight? 3) Are my reed seats airtight? 4) Are my reeds optimally calibrated?

Calibrating drone reeds results in vastly improved ease of blowing because all of the air put into the bag now goes to the chanter reed and to each of the drone reeds, with none

being wasted. Playing for a much longer time becomes easier, even with a harder reed, and more time can be spent concentrating on fingerwork fundamentals and blowing with better tonal quality.

Tuning the drones also gets easier and more precise, due to the fact that well-calibrated drone reeds are less susceptible to pitch changes.

Calibrating your drone reeds is straightforward and carried out only after one has determined the chanter reed's "sweet spot". There are several Dojo University classes where the sweet spot is discussed, so we won't go into it here in this article.

However, after you've found your chanter reed's sweet spot, and marked that point on the manometer, the goal then becomes to have each of the three drone reeds CUT OFF at a predefined point just above the sweet spot. Exactly where this cutoff point should be depends to a large degree on the ability to blow steadily. Determine your own cutoff point by playing a simple tune with the manometer attached. Notice the point of maximum pressure (water level) deviation, and place a rubber band at that spot on the tubing. We want the drones to shut off at that point, at least in the beginning. The extra distance above the sweet spot to your cutoff point allows for some unsteady blowing at first, but that position will come down as blowing steadiness at the sweet spot improves.

After the cutoff spot is identified, the chanter may be removed and a cork placed in the chanter stock. Now, to calibrate the middle tenor drone reed, insert the manometer tubing into the top of the outside drone. Make sure it's snug. Strike in the bass and middle tenor, and increase the air pressure inside the bag by blowing and squeezing, all the while

watching the water level. If the middle drone is still sounding at a pressure above the predefined point, the reed is too open and inefficient and must be adjusted. Take out the middle drone from its stock, and "shorten" the reed's tongue a tiny amount. Shortening the tongue moves it closer to the reed body and closes the opening ever so slightly. Put the drone back in the stock, and repeat this process. Even very minor adjustments of the bridle can make a big difference, but through multiple tries, you will eventually get the middle tenor to stop exactly where you want it to stop, at the cutoff point.

After you've calibrated the middle tenor drone reed, the manometer is no longer needed. Now adjust the reeds of the bass and outside tenor so that they both stop precisely at the same time as the middle drone reed. Patience and a lot of trial and error are key in this process, but you will see untold dividends as a result. Once calibrated, the drones should remain relatively stable until a new reed is put into the chanter, at which point the reeds should be again calibrated. As blowing becomes steadier over a few weeks of practice with the manometer, it's a good idea to recheck the point of maximum deviation of our blowing. It is likely that the drone reed tongues may be even further closed down a bit so that they take even less air.

There are only benefits to calibrated drone reeds, but one difference may surprise you. Many of us have been struggling and blowing way harder than necessary for such a long time that there is an enormous tendency to continue to blow with the same vigor (and red-faced frustration) AFTER the drone reeds have been calibrated. But that exertion is no longer needed. In fact, overblowing will now shut off the reeds earlier than you've possibly ever experienced. Resist the urge

to open up your drone reeds when you experience cutoffs from overblowing. Get used to your more efficient and airtight pipebag with its newly calibrated drone reeds. Most of us will be thrilled to have a bagpipe that has never been easier to play, and with a much improved tonal quality.

Part 2: Mark's Take!

If I'm being honest, I don't know Mark that well personally, but a while ago I asked if some students were interested in writing for the Dojo U site, to contribute to our free-content-base. Mark was happy to volunteer, and, quite basically - he's done a great job.

Mark Olson is a software engineer in Omaha, NE. Over the years, he has played numerous musical instruments including the bagpipes, guitar, piano, flute, and saxophone. As a young man, Mark competed as a solo piper. Due to the demands of raising a family, Mark had to forgo his musical pursuits. While he regrets the fact he gave up the bagpipes, he is proud of the fact that both of his sons have grown to be fine young men. With the nest now empty, he has picked up the pipes once again. If he gets his chops, and his groove, back, he plans to compete again as a solo piper!

Here's two articles taken from a much longer series, where Mark dives into virtuous depth as to how to produce a beautifully efficient bagpipe.:

The Thirteen Steps, Part I

I was first introduced to Dojo University several years ago.

I saw an advertisement on Facebook from the Dojo that promoted a set of videos on calibrating drone reeds. I was drawn into the video series. Andrew outlined a logical set of steps to follow in order to calibrate your drone reeds.

The steps for calibrating drone reeds are part of a larger process that Andrew has outlined in the video, "[13 Steps to Great Bagpipe Sound.](#)"

I am, by trade, a software engineer. Engineering a piece of software, such as an app, is akin to writing a novel. One breaks the app down into smaller tasks and then one writes the code for each smaller task before building all the pieces into an app. To build the smaller tasks, one has to solve lots of little problems. For example, a certificate would have to validate against a chain of trust before you could implement encryption.

"Thank you for boring me to tears," I can hear you saying under your breath, "what's your point?"

In piping, we need to solve lots of little problems in order to build a great bagpipe sound. We need to solve these little problems every time we pick the pipes up from our cases.

"OK, I see what you're saying," you might be saying to yourself right now, "what are the little problems."

Andrew broke the problem of great bagpipe sound into thirteen little problems. Thirteen steps, actually:

Step 1: Ask the question "is my bag airtight?"

Step 2: Ask the question "are my joints airtight?"

Step 3: Ask the question "are my reed seats airtight?"

Step 4: Ask the question “are my drone reeds properly calibrated?”

Step 5: Find your chanter reed’s sweet spot.

Step 6: Physical blowing mastery.

Step 7: Mental blowing mastery.

Step 8: Bagpipe acclimatization.

Step 9: Balance the chanter using the “graduated tuning effect.”

Step 10: Tune one drone to low A using the “blow trick.”

Step 11: Tune the other drones to the first drone:

Step 12: Repeat steps 10 and 11 as the chanter changes in pitch over time.

Step 13: If needed, fine-tune the chanter notes (using the blow trick again)

If we break these steps into categories, steps one through four, having an airtight bag, joints, and reeds, as well as calibrating drone reeds would be maintenance tasks. Steps five through nine, sweet spot, physical and mental blowing mastery would be physical skills and applying those skills to finding the right pressure for your chanter reed. Steps nine through thirteen would be the process of actually tuning the bagpipe.

Each step presents a little problem. If we solve the little problem in each step, we can progress to the next step. If we solve all of the little problems, we will have an instrument that sounds great.

“Ok,” your are hopefully saying, “press on.”

I will. In the next post I will talk about steps one through four and highlight the logic and Andrew presents to solve these

little problems. I’ll also show you that you can teach an old dog new tricks.

13 Steps, Part 2

The foundations of great bagpipe sound can be summarized in the video, "13 Steps to Great Bagpipe Sound." In Part II, we'll drill into the first of the 13 steps.

The first four of the thirteen steps could be considered maintenance tasks. However one chooses to characterize them, they are the fundamentals of great bagpipe sound:

Step 1: Ask the question “is my bag airtight?”

Step 2: Ask the question “are my joints airtight?”

Step 3: Ask the question “are my reed seats airtight?”

Step 4: Ask the question “are my drone reeds properly calibrated?”

Step 1: Ask the question “is my bag airtight?”

When you ask yourself this question, there is some good news. As Andrew notes in the video, “if you have been playing regularly and have seasoned regularly, you should be good to go.” However, it is always good to ask the question.

As an old dog, I learned something new from watching Andrew’s video.

“You are an old dog, then?” You are asking yourself.

I am, and I learned a new trick. To check for an airtight bag, remove your drones and chanter. Cork the stocks. Make sure those corks are solidly seated in the stocks. Inflate the bag until it can accept no more air, and then set the bag on the ground.

Place your knee on the bag and bounce on it for thirty seconds. Watch Andrew's video, [Thirteen Steps to a Great Bagpipe Sound](#), for a demonstration of this technique. If you can't blow any more air into the bag after this, your bag is airtight.



Andrew notes in other videos that this technique is also great for seasoning your bag. When checking your bag for airtightness, you will exert far more pressure on the bag by bouncing on it than you will with your arm when you play. It is a good test.

So the smaller problem in Step 1 is to make sure your bag is airtight.

If your bag is not airtight, do something about it. You will find lots of good advice on this topic here at Dojo U. Finding a leak can, sometimes, be complicated. Break it down into simpler tasks. Check the tie-in for each stock, check the

seams, and check the bag. Be thorough and methodical. Find the leak and fix it. The solution may be something as simple as applying a little more seasoning.

Step 2: Ask the question “are my joints airtight?”

Twist check your joints when you pick the pipes up out of the case. It should take a little bit of muscle to get them out of the stocks, but not too much. If the joints can be removed easily, apply a little more hemp until the twist check requires a little bit of muscle.

Step 3: Ask the question “are my reed seats airtight?”

Make sure the reeds are seated snugly. Here's another new trick that you can use.

“You're carrying the old dog analogy a little too far,” I can hear you swearing under your breath.

All right, enough with the old dog stuff. Seat the reed in the reed seat, grasp the reed by the tuning screw or the end of the reed and hold the drone upside down. Give the reed a little shake. The drone should remain connected at the seat.

“Shouldn't you do this so that you don't damage your drones?” You might be asking.

Here is a good place to perform this test. Notice the comfy sofa and soft pillows.



This would not be a good place to perform this test:



If the reed is not seated properly, you don't want your drone to drop very far. If it does, you want it to have a soft landing so that it isn't damaged.

So the smaller problem for step two is to make sure your reeds airtight.

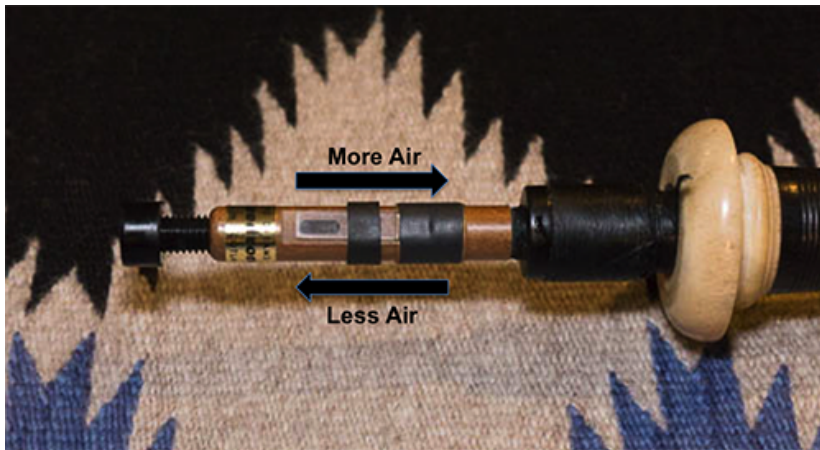
To solve the problem, rehem the reed and make sure it is seated firmly. Then test again.

Step 4: Ask the question "are my drone reeds properly calibrated?"

Your drone reeds should all be perfectly calibrated to the strength of your chanter reed. If you blow past the sweet spot

and your reed starts to squeak, the drones should all shut off. They should all shut off at the same time. If they don't, calibrate your reeds. If they don't shut off, they are taking too much air, close the reed down by moving the bridge toward the tuning nut. If they are shutting off too soon, move the bridge toward the hemped end.

The smaller problem in Step 4 is to calibrate your reeds against your chanter reed. This sounds simple, and it is, with practice. Those first few attempts to calibrate a short-tongued, synthetic reed can be difficult. Take your time, move the bridge just a little bit each time and then retest. It becomes easier with practice.



Part 3: An Old-School Article

I wrote this article for the Voice Magazine in 2011. This predated the unveiling of the ingenious "4 Questions" (a bit of sarcasm here, but if you've made it this far it's about time you witnessed my tasteless sense of humor), but I feel like it's great information and really speaks to the theme of this guide - the idea of a beautiful, easy, hypnotic sound that the bagpipes are capable of creating. I Hope you enjoy!

The Perfect Constant

Drone reeds are either the cause or the solution to the problem of creating a great sound out of three instruments (two tenors and a bass) simultaneously. That sounds like a tall order, and, frankly, it is. But, with some knowledge and strategy, anyone can produce at least a foundation for a great sound.

The Perfect Constant

In this crazy modern age of piping, I have found that few pipers, even at the highest levels, ever pause to consider what we are trying to do with a set of drones. To me, it's not about the reeds, the blowing, the squeezing, or even the set of drones that you play. These are all factors that play a role in the quality of a drone sound, but they do not constitute the bottom-line concept of "drones."

Drones are a backdrop for the pipe music that comes out of the chanter. They play the note "A," in several octaves,

as well as a shocking number of more subtle "harmonics" that play at various frequencies. The reason we don't usually have cause to point them out is because they fuse seamlessly into the drone sound. And, this is especially true when the sound is well constructed and tuned.

A great drone sound is the perfect constant. It is a rich combination of the bass and two tenors, and all of the harmonics that layer underneath. Whenever there is a waver in the tone, or the tuning is even a split hair out, the constant disappears, and thus so does the whole point of the concept of "drones."

Your goal is to create this perfect constant for the chanter to play over top of.

Steady Blowing, Good Tuning, and a Good (rich, harmonious) sounding set of reeds are all ingredients for the perfect constant. Your goal, with the help of this article, is to put all of that together!

Let's start with some of the basics.

Drone Reed Basics

Upcoming are the parts of a drone reed - but first, let's talk about the difference between bass and tenor reeds.

Differences Between Bass and Tenor Reeds

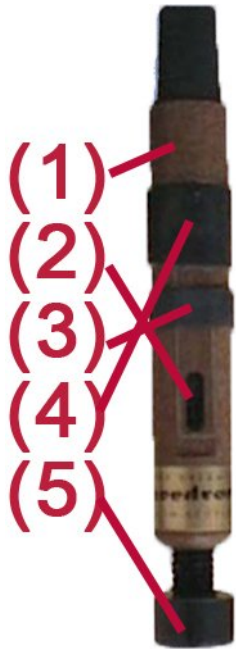


As far as the average Joe is concerned, the only difference between tenor reeds and bass reeds is their size and shape. Bass reeds are a bit longer, with a bigger/longer tongue and body. This is because it will create a tone (with the help of the double-sized Bass Drone itself) that is a full octave below that of the tenors.

Other than these differences, you will find bass and tenors to be extremely similar, if not identical, in design.

While different makes of reeds are different in a variety of ways, they all have the same basic parts.

Basic Drone Reed Parts



(1) Body

The "body" of the reed is the basic cylinder that the other parts connect to. It has a hollow inside, where the vibrations of the reed will resonate a bit before heading up into the drone.

(2) Tongue

The tongue is the part of the reed that vibrates against the body to produce a musical tone. Sometimes it is connected to the body directly, but in most cases nowadays it is separate, and is held to the body with a bridal, or bridals.

(3) Bridal

The Bridal is a Band (usually rubber) that wraps around the tongue and body of the reed, and is used to adjust the "openness" or strength of the reed. Adjustments will also alter the pitch, because the inherent length of the tongue will change.

(4) Sub Bridal

Sometimes there is a secondary bridal that sort of "anchors" the tongue of the reed. This will be "above" (ie closer to the drone itself) the primary bridal. You won't be adjusting this often, if ever.

(5) Nose-cone/Screw

In the synthetic age, most synthetic reeds come with an adjustable end, in the form of a screw or a nose cone. These are used to tweak the tuning of the reed, which in turn affects where the drone tunes on the drone's slide itself.

As a quick example, the more a screw is turned in a reed, the shorter the inside of the body becomes, and therefore its overall pitch will be sharper. At this point, you know the drone itself will tune a bit higher on the slide (i.e. flatter), because the reed itself is producing a higher pitch.

Did you get that? If not, contact me any time, and I'll explain it further to you.

How to basically set up and fiddle with your drone reeds

Make sure the base of the reed is seated firmly in the reed seat.

A tight seal is important. If the reed isn't seated firmly in the reed seat, air will find its way around the reed, instead of all of it going through the reed itself. Not only will this cause your bagpipe to leak, but also it will detract from the quality of sound you could have otherwise produced.

Use waxed hemp, and wrap that baby up tight!

Create a Life-Line

Unlike your chanter reed, which sits on top of the reed seat, your drone reeds are suspended from the bottom of your drone-seats. Therefore, if they come loose, they'll fall in!

To avoid this, you can build in a "lifeline" for your reed during the hemping process.

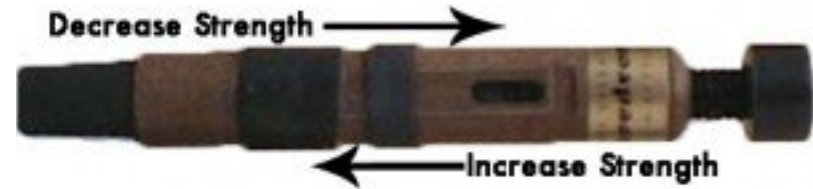
A lifeline is a tail of hemp that is designed to become pinned in between your drone and the stock, so that if your reed does come loose, it will dangle instead of falling into the bag.



Adjustment of the Bridal

As explained above, your bridal can (and needs to be) adjusted to the overall strength of your bagpipe. To do this, you'll make tiny adjustments up (towards the drone) or down (towards the bag). Upwards will increase the strength of the reed; downwards will decrease it. Careful here - a little adjustment goes a long way!

For more advanced strategy on reed bridal adjustment, keep reading. We go into way more depth in the Calibration section of the article.



Adjustment of the screw

Sometimes the drone is tuning in the wrong spot on the tuning slide. For instance, sometimes a tenor is tuning up so high that it is barely able to stay on! Or, maybe the bass is tuning so high that it won't start properly. Some folks even strive for an "optimal" position on the tuning pin to achieve the ultimate harmonic blend!

The tuning pin is good here to make adjustments of that sort. Shortening the inner chamber of the reed makes it sharper, thus the drone will tune higher on the pin. Lengthening the inner chamber of the reed makes it flatter, thus the drone will tune lower on the pin.

Types of Reeds

There are a million different brands of drone reeds out there. Very briefly though, I'll talk about the two main types.

Synthetic Reeds

Synthetic Reeds are by far the dominant type of drone reed today in the world. They are made from various synthetic materials like plastic, carbon fiber, composites, etc. Because



they are engineered exactly, they are very reliable in terms of steadiness.

The main draw back with most synthetic reeds is that they handle the onset of moisture very poorly. Unlike the organic cane reed, there is nowhere for moisture to go when it starts to hit the reed, so it gathers on and around the tongue. This causes tuning

problems, and this happens a lot sooner that most pipers like to admit.

Cane Reeds



Cane reeds are still out there, but I think that this point it would be fair to say that this is a dying art. Cane reeds have a beautiful, natural, harmonic sound that has a depth that no synthetic reed can parallel (no matter what they say on the box).

At the time this is written (2011), Field Marshal Montgomery is still at the top

of the pipe band world playing cane reeds almost exclusively (at least, that is the widely accepted "word").

Cane reeds require a delicate balance of moisture to achieve the best, most stable sound. You have to really "know your bagpipe" to make these work. However, it can be done, and I would stress that when this challenge is overcome, cane still produces a sublime sound.

Oh, yeah - I almost forgot! Cane reeds are also extremely affordable. You can typically buy 5 cane sets for the price of 1 synthetic set.

Calibration: The Secret to a Great Drone Sound

Alright, this is the most important part of this article. I believe that, with perhaps 1 or 2 exceptions, any set of drone reeds, when well calibrated, can sound great.

Calibration is the art of setting up your reeds to take the perfect, most efficient amount of air so that they work together to produce a stable sound. The bottom line is: It's all about matching, as precisely as possible, your drone reed strength to suit the strength of your chanter reed.

This idea is essential. Many times, we see students come in with reeds that are all taking different amounts of air, and all taking too much air relative to the strength of their reed. The result is a really loud, unsteady, un-tunable drone sound!

Calibration is the final step in the maintenance process. You'll also learn that good maintenance is at the base of the bagpipe tree of sound. Therefore, achieving good tone and tuning is IMPOSSIBLE without a well-set-up bagpipe, with well-calibrated drone reeds.



To achieve the most efficient (and resultantly most "solid") set-up, the drone reeds need to be matched perfectly to the strength of the chanter. Why? Here are two big reasons:

One: A chanter that is too easy relative to the drones means by definition an inefficient bagpipe.

This one's easy - if the drones are more open than they need to be, that means you're using more air, more moisture, and more energy than you need to operate your bagpipe.

Two: Drones that are too "open" will be less steady, thus will be harder to tune.

The more open a drone reed is, the more they will change with changes in pressure. Therefore, they'll be harder to "lock" in with each other if they are more open than they need to be.

How to Calibrate

So, that was a quick explanation of why you need to calibrate. Now, let's get to how to do it. Here's how we suggest you calibrate your drone reeds.

Step 1

First, cork off your bass and a tenor. Play Low A on your chanter with one drone going. Your drone reed should shut off when you blow too hard on your chanter. Gradually increase your blowing pressure until you know you're blowing too hard. Does the reed shut off? It should.

Here's why: If your drone reed shuts off when you blow too hard on your chanter, you know it's taking the minimum

amount of air necessary when you're blowing normally. This is essential in trying to achieve an efficient bagpipe!

If your drone doesn't shut off, adjust the bridle on the drone reed down, towards the end of the tongue. Most synthetic reeds will only need the slightest adjustment (too much and the reed won't sound at all). If, by chance, your reed is shutting off too soon, adjust the bridle away from the tip of the tongue.

Note: if you aren't sure how to do this, be sure to have a teacher show you a couple of times. Reeds are expensive, so you need to be careful not to damage them in the process of adjusting the bridals. It's not hard, but it's worth being shown a time or two.

Step 2

Ok, now that the first reed is calibrated, our objective is going to be to calibrate the other two drone reeds to the same strength of the first.

I would cork off the chanter, and then open up a second drone. Now, we'll gradually increase the pressure in the bag, in hopes that the two drones will shut off at exactly the same pressure.

Do they? If the "new" (recently opened) drone shuts off later than the first, you'll need to close it down a bit, by moving the bridle towards the tip of the tongue. If it shuts off too early, move the bridle away from the tip of the tongue. When they shut off at exactly the same pressure, then move on to the third drone and perform the same task.

The reason we want them to shut off at the same time is this: Obviously, the principle from above still applies - if all the drone reeds shut off when you blow too hard, that means

when you blow normally, the reeds are taking the minimum amount of air. Now, we add in the extra step - if the drone reeds are all taking the SAME amount of air, that means they will all react the SAME to changes in blowing. They'll be steadier, stay in tune, and take on the same amount of moisture. Try it! It really works!

After this process, your pipes are guaranteed to be as efficient as possible. Cover your bases with good maintenance as well, and you'll have a bagpipe as stable and efficient as the pros!

The Endless Battle with Moisture

Keep moisture off the reeds!

This is especially important with most synthetic reeds. Condensation on the tongue makes the reeds vibrate unpredictably. Whenever a droplet moves on the tongue, your drones will go out of tune.

This is an extremely in-depth topic, but consider a few simple strategies:

- Make sure your bag is seasoned properly. Seasoning helps subdue moisture issues in the bag
- If you play a moisture-control system like a canister bag, make sure the "rocks" are dry.
- About ten minutes before a performance, check the reeds for condensation. If there's a lot, wipe it off, then minimize the amount of air you put through them before you have to perform.
- Avoid cold environments. Even a few moments in a cold space could cause moisture in your bag to condense!!! On the same note, be aware that the colder

the environment, the more moisture you'll have forming on your drone reeds.

The Perfect Constant - Mission Accomplished?

I hope that this article has helped you to achieve your perfect constant.

I think one of the great ironies of this topic is this: the closer you come to your perfect constant, the more discerning your ear becomes. Eventually, you realize that perfection is really going to be hard to achieve (if it can ever be achieved).

I have experienced the perfect constant for a few brief moments in my own career, and I have heard it in others several times as well. It seems perfect at the time, but it's not. It's simply a moment where you realize another whole degree of tuning quality and bagpipe steadiness is possible. Then, knowing that, you set out to get that for yourself - and it's a long, yet amazing, journey.

At the Piper's Dojo, we work hard to try to get people to see how bagpiping is more than just a hobby - it's a way to improve our Selves, and a way of life. I believe that the lesson that is uncovered in searching for the perfectly calibrated set of drone reeds exposes the truth in our Core Philosophy. Just like life, we must methodically strive for perfection, knowing it's unlikely (if not impossible) to ever achieve it.

The End!

Thank you so much for checkout our our 4 Steps to an Easy Bagpipe Guide - I hope you've learned a lot, and will implement even more!

Take care, and happy piping!

Andrew Douglas, July 2017