

The Basic Principles of Drone Tuning

By Jim McGillivray

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Tuning the drones on a bagpipe is regarded by many as being a very mysterious operation. Hence, far too many pipers do not give themselves credit for being able to do it. They either don't bother trying to tune their drones at all, or they let their pipe-major do it at band practice ("because he has a good ear") and hope that their pipes will stay in tune by themselves for the rest of the week (two weeks if they can't make it to the next practice). It is not surprising then that the general public often likens the sound of a bagpipe to that of several cats dying painfully. This description is all too often true.

Surprisingly though, while the quality of sound obtained from the pipe may depend upon one's "ear", drone-tuning itself is a mechanical and rational procedure requiring almost no musical ability whatsoever. If the drones won't come into tune, invariably this indicates a problem with the reeds, not with the person tuning them. In fact, an inability to tune the drones is most often what signals that the reeds aren't functioning properly.

The rules for drone tuning are straightforward and sensible. The keys to success are practice and a commitment to doing yourself and the piping community a favour by simply never performing on an instrument, which is not in tune.

Tuning one drone at a time

Begin by striking up your bagpipe and shutting off the bass and middle tenor. Play low A and listen. Is the drone in tune or not? If not, continue to listen while you ease your blowing off very slightly. As you slowly let pressure off, the pitch of your chanter will flatten. If the drone seems to come into tune as the chanter flattens, it follows that the drone itself must be flat. To sharpen it, blow a clear high A, pull the drone top down, and try the test again.

If easing off does not bring the drone into tune, blow normally for a moment until you are settled and then overblow slightly. This sharpens the pitch of the chanter. If the drone seems to come into tune as the chanter sharpens, then the drone must be too sharp for the chanter. To flatten it, blow a clear high A, pull the drone top up and test again.

If neither underblowing nor overblowing seems to make a difference, then the drone is probably too far out of tune for this method to be useful. In this case, you must listen to its pitch in comparison with low A, guess which way the drone should be moved and move it about three-quarters of an inch in that direction. While the pressure-variance technique is helpful once the drone is within half an inch of being tuned, you must be able to get it in the ball park by ear. If you cannot do at least this, perhaps you should consider seeking some instruction from a qualified source.

Once you have one drone in tune with your chanter, the most important part of the process is finished. You will now tune the bass to the outside tenor, then tune the middle tenor with all three drones going.

Blow a clear high A, try to disregard your chanter, and concentrate on the sound of the drones. Beginning with the bass, move the drone so that you can hear it starting to come into tune. Even when you think it is in tune, continue moving it. Once you hear it beginning to go out of tune move it back the other way until it again comes into tune and begins to go out. This establishes the upper and lower boundaries of your tuning range. Continue to experiment within this small range until you are satisfied that you have found the middle point at which the drone seems least out of tune. Do the same with the middle tenor.

It may help as you do this to be aware of the volume of your drones: drones which are in tune give the illusion of being quieter than those which are not (in fact, the opposite is probably true). This can be used as a rough guide in your tuning. It may also help to listen for the sound of the pulsating "beats" which occur between the tenor drones as the middle tenor is brought into tune with the outside one. As these two drones come closer together in pitch, the beats become longer in duration (from a quick "wow-wow-wow-wow" sound, to a slower "woooow-woooow-woooow") until finally the beats disappear into the continuous hum which indicates that the tenors are in tune.

Frequently, pipers have more difficulty tuning one drone to another than to the chanter, especially bass to tenor. A good way to overcome this is to practise tuning the drones with the chanter eliminated completely. Tune the outside tenor to the chanter to obtain the correct pitch for the drones. Then stop, remove the chanter and cork up the stock. Now just work on tuning the drones together. Get used to the sound of the drones and to the quality of the sound they exhibit when they are in tune and out of tune. After twenty minutes you will be surprised at how clearly you can hear your drones even after the chanter is replaced. Very simply, you have trained your ear to hear the drone sound better.

Tuning two drones at once

Tuning two drones to the chanter simultaneously requires above all an ability to tune those two drones accurately to each other. Aside from this, the rules are the same as for tuning one drone.

Reach up and shut off your middle tenor (or the outside one). Settle yourself for a moment, blow high A, disregard your chanter completely, and tune the bass to the remaining tenor. Once these two drones are tuned together, consider them to be one drone and perform the pressure-variance test described above. This will tell you the direction in which the two drones (as a unit) should be moved. Once you have decided this, blow high A, disregard the chanter again, move the tenor in the desired direction, and follow it with the bass. When you have these two drones in tune together, test them with the chanter once more. As soon as you are satisfied that the bass and tenor are in tune with each other and with the chanter, turn on the middle tenor, give it several seconds to steady itself, blow high A, and pull this last drone into tune with the others.

Three at a time

As before, the greatest help to tuning three drones at once is an ability to bring the drones into tune with each other in spite of the sound of the chanter. Steadiness of blowing will also be an asset here, particularly when you are reaching up to adjust the slides.

After striking up and settling yourself, blow a clear high A, disregard the chanter and the bass as much as possible, and try to tune the middle tenor to the outside one. With the bass bellowing away in your ear, this may be a new adventure in confusion, but be patient with yourself. When the middle tenor is as close to being in tune as you can get it, bring

the bass into tune with the tenors. Once the bass is more in tune, you may find that you can go back to the middle tenor and get it even closer. Repeat the process as often as is necessary to being the drones in tune with each other.

With the three drones now tuned together, pretend that they are one drone and test them with the chanter. Having decided which way they should go, blow high A. Disregard the chanter and move the outside tenor in the desired direction. Tune the middle one to it, then tune the bass to the tenors. Test again. Repeat this entire process as often as is necessary to tune your instrument.

If you are not achieving much success, there could be two causes. First, and most likely, the reeds themselves may be unsteady. You can be certain that if one of your drones is even slightly unstable your bagpipe will frustrate you completely as you try tuning three drones at once. Several methods may be used to determine the reason for the unsteadiness, but these are best left to a future discussion. Secondly, if you are certain that your pipes are steady, you are probably just not hearing the sound of the drones very well. Again, the importance of practising tuning the three drones together while the chanter stock is corked cannot be overstressed.

Some hints

1. The true test of one's ability to tune three drones at a time is in pulling the pipes straight from the box and tuning them without ever shutting off a drone. However, if you are still just learning the ropes you are wiser to begin by tuning two or even just one until the pipe is settled and is holding its tone. Then you can experiment.
2. It is important to remember that your chanter reed is often in a state of flux. During the first few minutes of playing, or each time you begin again after a break, this reed will sharpen up substantially. The drones will require frequent tuning during this crucial 15 or 20 minutes as they pursue the rapidly changing pitch of the chanter reed. This is a natural reaction of the cane to moisture and vibration, so don't expect your pipes to stay tuned for very long until the chanter reed has stabilized. In terms of reed steadiness, it is advisable never to take the first quarter-hour of your practice time too seriously.
3. In addition, you will have trouble tuning your drones if the individual notes of the chanter are not in tune relative to each other. This can be a major problem, and as such is best left to a separate discussion.
4. Any time you physically handle a drone reed to adjust the bridle or manipulate the tongue, that reed will perform very unsteadily for ten minutes or so. During this time you will find that the drones will not stay in tune for more than a couple of minutes. Be patient until the reed settles.
5. The concept of easing off or overblowing the chanter reed to determine which way the drones should be moved is a useful one; however, these efforts must be imperceptible to your listeners. No one wants to hear a piper doing an impression of a warped record, so once you have acquired the proper tuning techniques try to employ them in a manner as inoffensive as possible to anyone listening, including yourself.

6. The use of teflon tape on tuning slides is becoming popular because of the self-threading properties of this material. Purchase a roll at a hardware store, apply a couple of layers over the hemp, then "screw" the drone top on, slowly pulling it down as you turn it counter-clockwise. The tape will now be invisibly threaded so that turning it counter-clockwise causes it to move down, and turning it in a clockwise direction moves it up. Rethreading is accomplished over the same tape simply by pulling the drone top off and screwing it on again. Experiment so that you can move the three drones up and down the same distance by turning them the same amount to the right or left. Such a convenience is a tremendous boon to tuning two or three drones at once.
7. Finally, your ability to tune drones will improve if you expose your ear to well-tuned bagpipes. If you have limited access to live playing, there are many recordings available by top players performing on superb pipes. Train your ear as you would your fingers, with practice and repetition. Nothing will inspire you more than a vibrant, well-tuned instrument. A poor sound stifles any music you try to produce; a good sound enhances it ten-fold.

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