Tuning the Pipe Band Midsection

© by Tyler Fry, 78th Fraser Highlanders Pipe Band

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Functional Tuning in the Pipe Band Midsection: Three Steps Closer to Bridging the Gap

Prior to getting started, I would first like to thank the Royal New Zealand Pipe Band Association for the honour of being asked to contribute the following segment. I commend the organization and its membership for drawing an interest in what I consider an invaluable aspect of the pipe band ensemble: the midsection.[1] Interest in this field is far overdue, and with liberal progressive movements never being more predominant in the field, we are able to see the expanding function and importance of the midsection within the pipe band ensemble. The following article hopes to increase reader awareness as to how important the midsection is in the development of a band's ensemble in relation to movements.

I have been asked to discuss the aspect of tuning within the pipe band midsection. Prior to moving forward, we must first understand (as we know with our three droned friends at the front of the band) that in music tuning is simply a given. In other words, a player would not even attempt to show up to a band or orchestra unless his instrument is in tune with itself. The problem has been that historically, the midsection did not have the same function as it does today, and often tuning within the section was paradoxically simply a 'function of the little function'.

If we look at the role of the midsection historically as the primary timekeeper, we know that time is the foundation behind all rhythmic structures and variations found in the melody and the snare drum accompaniment. In a sense, the playing of time by the midsection was one means of 'bridging' the two sections together, by providing a solid rhythmic support (or foundation) to everything else overlying it. In today's pipe band ensemble this aspect of 'bridging' has taken on an additional dimension not only through the playing of a solid foundation of time, but through the playing of rhythmic structures that ideally highlight key areas within both the melody and snare drum accompaniment. In fact, the integration of the visual component (of flourishes) within the ensemble should ideally take on the same function by creating a visual representation of the melody and snare drum accompaniment.

This function of adding 'rhythmic colour' to the ensemble is now done through the use of more than just the traditional bass and tenor voices – possibly through the addition of further voices including

[1] Or 'bass section' if you will – I prefer to include all members of the section using the latter term.

baritone, alto, and soprano drums. Prior to performing any aspect of 'rhythmic accentuation' it is essential to understand how to tune our instruments to allow the latter roles of the midsection to bring the gap that much closer together.

As previously mentioned, tuning should be a given – I am personally as anal about having my drum in tune with itself and the rest of the ensemble, as a bagpiper is in relation to his section! The wonderful thing is that it is not rocket science – anyone is fully capable of tuning his or her drum in relation to the bagpipe, assuming that the proper resources are in place in order to achieve it. The following article intends to provide the introductory processes associated with getting the midsection 'in tune with itself' and then 'in tune with the entire ensemble' so that the rhythmic (and visual) colour provided by the midsection can be effective in the context of today's pipe band.

OK … now where do we begin?

Let's begin by understanding that bass and tenor drums can be tuned in relation to the bagpipe. We are actually able to achieve absolute pitches from our instruments by having them in tune with themselves. But what does that mean?

I am indebted to the scientific studies performed by Greg Bassani of the Australian Pipe Band College (1990) who has provided objective evidence that bass and tenor drums are capable of producing identifiable notes. I will use the latter study as factual support to the methodology we use in the 78th Frasers. Tuning bass and tenor drums to clear, identifiable pitches (or notes) allows us to tune harmonically to the bagpipe using various diameters of drums, and therefore provides greater depth to the pipe band ensemble.

Historically, pipe band bass and tenor drums were tuned simply as means of adding *colour* to the overall ensemble; to tune for colour is to *tune to no particular pitch, note or frequency*. Conversely, when something is tuned in relationship to something else it is being tuned for *function*. Within a pipe band, *functional* tuning makes the most sense by allowing the drums to blend in relation to the bagpipe. Generally, when an object is in tune with everything else around it, it will be most beneficial to the depth of ensemble and therefore provide one step closer to bridging the gap between sections. Imagine having the midsection highlight a rhythmic pattern in the snare drumming while using voicing arrangements that create harmonics overtop of the melody – now that's ensemble!

Drums in tune with themselves … what do you mean by that?

In order for the drums to produce an identifiable note, the drums must first be in tune with themselves – or more simply have both heads of equal tension. This means that each *zone* (or the area where each bolt is tightened) is tuned the same. When each tuning rod on both top and bottom drumheads is the same tension, the fundamental pitch or note of the drum becomes the strongest and therefore definable by any chromatic tuner and the human ear. Tuning each zone by ear can be a tedious task; therefore, a *Timpanic Measuring Device* (TMD) is highly recommended. The device can be easily purchased from a local drum or music shop. Brands include *Hosbilt* TMD* (CA), *Tama* Tension Watch** (US) and *Drum Dial** (UK). The latter devices are not only an accurate representation of the tension each zone, but they are also many times more efficient than the traditional 'tap' and 'listen' method – assuming that there is not anything obstructing the level of deflection under the head (such as strips felt/dampening, or uneven bearing edges). Be wary of devices that measure the torque in each zone – any unmatched lubricity in each of the threaded counterparts (or lugs) and head fibers will also provide an inaccurate representation of the tension in each zone.

A TMD can readily match these zones of tension identically by measuring the drumhead deflection in each zone. The number read by the device means absolutely nothing – it is simply a measure of the tension in each region of the drum. The goal is simply to have them all the same.

Once this is done on both heads, the drum is then in tune with itself and at this stage, it will create a definable pitch when struck. Almost any chromathic electronic tuner can read this pitch – I personally recommend the Korg* DT-3 as an affordable device that readily does the trick. If the tuner cannot pick up the note (in other words, numerous random or inconsistent notes appear on the screen of the tuner), chances are there is more than one note being created at the same time from the drum. Your drum is therefore not in tune with itself. It will then be necessary to re-check each *zone* for equal tension.

OK … our drum is now in tune with itself and therefore producing a note of some kind … now how do we get it in tune with the other drum voices … or more importantly … the bagpipe?

First we must examine what key the bagpipe is in. At one time an 'A' on the bagpipe was an 'A' in concert pitch, or in layman's terms – the note you would hit on a piano; however, that is clearly not the case today. An 'A' on the bagpipe today is now closer to a 'Bb' instrument (a note halfway to the note of 'B'). This therefore makes it almost impossible to define the bagpipe within any particular key – it is not a concert instrument like the piano, but it also isn't a perfect 'Bb' instrument like the trumpet.

To simplify the content of this article as much as possible, let's assume that the bagpipe is a perfect 'Bb' instrument – this makes our role as functional tuners in the midsection initially that much easier. A 'Bb' on the piano we will assume matches the 'A' on the bagpipe

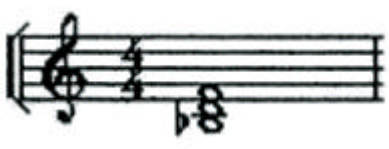
Figure 1.1: Bagpipe to Concert Pitch Conversion Table

Note on Bagpipe	Note in Concert Pitch (ie. Piano)
High A	Bb
C	D
E	F
Low A	Bb
Bass Drone Tenor Drone	Bb Bb (octave above)

When bagpipe tunes are said to be in a 'major' key, then they are usually based harmonically on the chord of A, C and E in bagpipe pitch. Since a large majority of the pipe band music is written in this key, it makes sense to use these three notes when tuning the tenor drums in relation to the bagpipe. We will use the latter three notes as the foundation behind our tuning process. They relate in concert pitch to 'Bb', 'D' and 'F' in concert pitch, which will be important to know later. These notes can also be classified as the root, 3rd and 5th respectively.

Using basic musical knowledge, we know that these notes when played both on their own, or together, sound wonderful. Anyone who knows the musical theme to Star Wars can appreciate the strong relationship between these notes – particularly the strong relationship between the root (Bb) and the 5th (F) in the first bar of the composition. We can already imagine the impact of having not only strong harmonics (notes that work well together) within the midsection, but harmonics that also relate to the bagpipe. We can therefore already envision the 'gap' between sections already becoming smaller!

Figure 1.2: A Bb Chord (Bb, D ,F)



To explain this concept more simplistically, let's define the midsection drums using the following classes, with the bass drum being the lowest and the soprano drum being the highest voice respectively.

Figure 1.3:

Voice of Drum in Midsection	Note (Concert Pitch)
Bass Drum (28" or 26")	Bb (octave below bass drone)
Baritone Drum (18")	Bb (octave of bass drone)
Tenor Drum (18" or 16")	D (3rd of the chord of the bass drone)
Alto Drum (16" or 15")	F (5th of the chord of the bass drone)
Soprano Drum (16" or 15")	Bb (octave above the bass drone, octave of the tenor drone)

A standard 28" bass drum is most easily tuned to the Bb (which just happens to be the octave below the bass drone contrary to popular belief). Historically we have heard the pitch of the bass drum being tuned lower than this frequency – possibly to the G or F below (remember, historically tuning was a 'function of little function'). As a result, this recommended note may initially seem high to the human ear by traditional standards.

The functional tuning of the baritone, tenor, and alto drums in concert pitch are 'Bb', 'D, and 'F' respectively, in the same octave as the bass drone. Figure 1.3 provides a list of the voice of the drum and the recommended shell diameter for each of the latter pitches. If you are looking for a soprano voice in the mid-section, it is recommended that you tune to the 'Bb' in the octave above the baritone drum (or the actual octave of the tenor drone). If you have a sound musical background you may question why the 7th ('G') of the chord is not used instead. In my experience, the 7th often sounds unfinished within the chord and does not work well with the scale of the bagpipe, and is therefore not recommended for our purpose.

OK … my drum is now in tune with itself … now what?

Now that you know what note the drum is tuned to, it is only a matter of equally decreasing or increasing the tension in each zone to change the pitch until the required note is obtained (a TMD is no longer required since all zones are already at an equal tension). By using a chromatic tuner and striking the drum in a location free of extraneous noise, you will be able to acquire a reading that will determine how close you are to achieving your desired note. I recommend a publication of the Australian Pipe Band College, which offers a series of helpful guidelines to follow when using a tuner on bass and tenor drums. I continually check my tuning as my band practices, and prior to marching on the field when I hear the pitch of the bagpipe rising.

A word of caution – black heads look wonderful but are deadly if you are trying to keep your drum in tune with the ensemble. Black attracts the sun, which causes the heads to change rapidly and drastically – I know from my own experience in our 'northern climate'. I can only imagine the difficulty experienced in your New Zealand sun during the summer competition season.

Well, we have just touched on the topic of tuning in the pipe band midsection. Please remember that the methods I have outlined for you in this article are solely a guide – there are many different styles of tuning that have wonderful value in today's pipe band. What is important is that there is a 'method to our madness'. For me, 'reason' is key – if you cannot explain or duplicate what you do each time, then I question the real function behind your process.

Happy tuning!