

Tuning

Tuning is a mechanical and rational procedure. The guidelines for tuning are straightforward and sensible. It's a skill every piper needs to know and every piper can learn.

To understand the process, we have to first understand sound. **Sound** is generally known as vibrational transmission of mechanical energy that propagates through matter as a wave and is perceived as hearing. Hearing is performed primarily by the auditory system: vibrations are detected by the ear and transduced into nerve impulses that are perceived by the brain. Sound is further characterized by the generic properties of waves, which are frequency, wavelength, period, amplitude, speed, and direction.

So, sound is a wave. It is defined as the number of cycles, or periods, per unit time (frequency). The unit of frequency is hertz (Hz), named after the German physicist Heinrich Hertz. For example, 1 Hz means that an event repeats once per second, 2 Hz is twice per second, and so on. Each note produces a frequency measured in Hz. For example, the concert "A" is measured at 440 Hz. That means that a concert "A" produces 440 cycles per second. What you "hear" is the brain's interpretation of the hertz (and sometimes it hurts).

The highland bagpipe scale, however, doesn't match a concert scale. The "A" isn't "set" to 440. The "A" on a bagpipe can range from 470 to 480 Hz depending on the reed, the weather, and the musician. As a band, we set our pipes so they all match as closely as possible. That's why we use a tuner and one person is primarily responsible for tuning the band. What they are listening for is whether or not you are sharp or flat as compared to the designated "tuned" pipe – usually the person doing the tuning. Eventually, you will be assigned a "band chanter." Do not adjust the reed in the band chanter; consider it band property.

How to tune your drones to the chanter...

What you hear when you tune the drones is often described as a "Wa-Wa." It is produced by sound waves opposing one another. The closer the sound waves come to one another the slower the Wa-Wa. It disappears entirely when the drones are in tune with one another and the chanter.

To begin, strike in and tap off your bass and middle tenor drone. Remember to blow steady. Play a low "A." Listen for the Wa-Wa of the drone. SLOWLY move the top of the outside tenor drone up or down listening to hear if the speed of the Wa-Wa increases or decreases. If it increases, slowly adjust in the opposite direction. Continue to adjust the drone until the Wa-Wa stops. Play a scale to see if the drone is still in tune. If not, the chanter may be out of tune.

Once you feel you have the outside tenor in tune with the chanter, the rest is easy. Most instructors will recommend you tune the bass drone to the outer tenor first and then bring in the middle tenor using the same technique previously described; listening for the Wa-Wa and adjusting the bass to match the outside tenor drone and then bringing in the middle tenor to match the outside tenor and bass. The goal is for the three tenors to sound as one – no Wa-Wa.

Tuning is a continuous learning process. It is one of the characteristics judges listen for in solo and band competition. It is skill that anyone can learn and constantly refine. Work with your instructor to check your tuning to make regular progress and ask for help tuning for competitions.