What key does the bagpipe play in?

The scale of the Great Highland Bagpipe with all nine notes at a glance

I hear this question again and again, from customers as well as from other pipers. In short: the Great Highland Bagpipe is written in A, but today it sounds about a semitone higher, roughly like B♭.

1. Written in A

Bagpipe music is written without a key signature. The chanter has nine notes: low G, low A, B, C, D, E, F, high G and high A. C and F are always played a semitone higher, as C♯ and F♯, without this being shown in the music. All others sound as written, including high G and low G.

Because the G stays a G and is not a G♯, the scale is not a pure A major scale but roughly Mixolydian: A major with a flattened seventh. Tunes are therefore in A Mixolydian or in D major. The drones sound the keynote A throughout.

2. Tuned higher than written

Today the bagpipe's A lies at about 470 to 480 Hz. That is slightly above B♭ in standard tuning (466 Hz) and well above the usual A of 440 Hz. In the past the bagpipe was still close to 440 Hz: Ewan Macpherson cites 441 Hz for a chanter from 1885 and an average of 459 Hz for several chanters in the mid-1950s. Since then the pitch has risen steadily. My own low A is around 470 Hz.

So the whole bagpipe sounds about a semitone higher than written, and this applies to all notes equally, not just to C and F. It therefore only fits together with piano or organ if the instruments are tuned to each other beforehand. This matters especially at weddings and funerals in church.

3. What “just intonation” means

The bagpipe is not tuned like a piano but in just intonation: every note stands in a fixed numerical ratio to low A. This ratio tells you how much faster a note vibrates than low A.

Every note is a vibration, and the number of hertz states how many times it vibrates per second. A low A at 470 Hz vibrates 470 times per second. The ratio 2 : 1 for high A means: high A vibrates twice as fast, i.e. 2 × 470 = 940 times per second. Doubling always gives exactly the octave. That is why low A and high A sound the same, just one octave higher.

- E at 3 : 2 vibrates one and a half times as fast as low A: 470 × 1.5 = 705 Hz. This is the fifth.
- D at 4 : 3 vibrates a third faster: 470 × 4 ÷ 3 = 627 Hz. This is the fourth.
- B at 9 : 8 vibrates an eighth faster: 470 × 9 ÷ 8 = 529 Hz.

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This matters because of the drones, which sound A all the time. If a chanter note is in such a simple ratio to A, the vibrations fit together exactly and the note sounds calm and clean with the drones. If it is slightly off, the notes beat against each other and you hear a wavering. This is what you listen for when tuning by ear: the note is right when the beating against the drones disappears.

4. The notes of the bagpipe at a glance

Values after Ewan Macpherson, article on the scale of the Highland bagpipe in “New Zealand Pipeband”, Winter 1998. I have added the column “at 470 Hz” for my own low A.

Note	Ratio to low A	Cents above low A	at 466 Hz	at 475 Hz	at 470 Hz
High A	2 : 1	1200	932	950	940
High G (just)	16 : 9	996	828	844	836
F (sounds as F♯)	5 : 3	884	777	792	783
E	3 : 2	702	699	713	705
D	4 : 3	498	621	633	627
C (sounds as C♯)	5 : 4	386	583	594	588
B	9 : 8	204	524	534	529
Low A	1 : 1	0	466	475	470
Low G (harmonic)	7 : 8	−231	408	416	411

A cent is a hundredth of a semitone. 100 cents make a semitone, 1200 cents an octave. Chanters differ somewhat in the tuning of high G and low G. The table gives the just value for high G and the harmonic value for low G. Macpherson also points out that solo pipers today often tune high A 10 to 30 cents below the pure octave.

5. Thanks

My sincere thanks go to Ewan Macpherson, who worked out this table and published it in 1998. His careful work has helped many pipers understand how their instrument is tuned, and it is still one of the best sources on this question today.

Source: Ewan Macpherson, article on the scale of the Highland bagpipe, “New Zealand Pipeband”, Winter 1998, online at publish.uwo.ca/~emacphe3/pipes/acoustics/pipescale.html. Additionally: article “Great Highland bagpipe” in the English Wikipedia, as of October 2026.

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