

Micro Tunings For Special Keyboard Techniques

About Micro Tuning...

Micro tuning has been one of the most highly touted new features of the DX7 II. Much has been written about exotic scales, and historic tuning systems. However, rather than provide you with a collection of non-standard tunings, I've decided to show you a way to use the micro tuning parameters to enhance your playing within normal (i.e. 12 tone equal temperament) tuning systems.

	Coarse Tune	Fine Tune	Tuning Units
C3	C1	0	2986
C#3	C#1	0	3072
D3	D1	0	3157
D#3	D#1	0	3242
E3	E1	0	3328
F3	F1	0	3413
F#3	F#1	0	3498
G3	G1	0	3584
G#3	G#1	0	3669
A3	A1	0	3754
A#3	A#1	0	3840
B3	B1	0	3925
C4	C2	0	4010
C#4	C#2	0	4096
D4	D2	0	4181
D#4	D#2	0	4266
E4	E2	0	4352
F4	F2	0	4437
F#4	F#2	0	4522
G4	G2	0	4608
G#4	G#2	0	4693
A4	A2	0	4778
A#4	A#2	0	4864
B4	B2	0	4949
C5	C3	0	5034
C#5	C#3	0	5120
D5	D3	0	5205
D#5	D#3	0	5290
E5	E3	0	5376
F5	F3	0	5461
F#5	F#3	0	5546
G5	G3	0	5632
G#5	G#3	0	5717
A5	A3	0	5802
A#5	A#3	0	5888
B5	B3	0	5973
C6	C4	0	6058

	Coarse Tune	Fine Tune	Tuning Units
C1	C2	0	4010
C#1	C#2	0	4096
D1	D2	0	4181
D#1	D#2	0	4266
E1	E2	0	4352
F1	F2	0	4437
F#1	F#2	0	4522
G1	G2	0	4608
G#1	G#2	0	4693
A1	A2	0	4778
A#1	A#2	0	4864
B1	B2	0	4949
C2	C3	+1	5035
C#2	C#3	0	5120
D2	D3	0	5205
D#2	D#3	+1	5291
E2	E3	0	5376
F2	F3	0	5461
F#2	F#3	+1	5547
G2	G3	0	5632
G#2	G#3	0	5717
A2	A3	+1	5803
A#2	A#3	0	5888
B2	B3	+1	5974
C3	C2	0	4010
C#3	C#2	0	4096
D3	D2	0	4181
D#3	D#2	0	4266
E3	E2	0	4352
F3	F2	0	4437
F#3	F#2	0	4522
G3	G2	0	4608
G#3	G#2	0	4693
A3	A2	0	4778
A#3	A#2	0	4864
B3	B2	0	4949
C4	C3	0	5034

Figure 10: Here are two unison tunings set up as micro tune scales. For the examples in this book, only the keys that have been retuned will be shown. The keys not shown in the charts are tuned to their standard pitches.

You'll find that you can retune the keyboard to many musically useful tunings without ever leaving the realm of equal temperament. There are two basic techniques I want to share with you—unison, and diatonic harmony tunings. Unison tunings will let you play the techniques from the previous section without having to use the split mode. This will let you take advantage of the DX7 II's dual mode for layered sounds and stereo effects. Diatonic harmony tunings make it possible for you to play perfectly harmonized double leads in whatever key you want (and more). The tunings will be shown in charts like *Figure 10*:

The keys along the left edge of the chart correspond to the keys on your DX7 II. They are numbered with the same system—key C3 on the chart equals the key labelled "C3" on your keyboard. To the right of each key in the chart is a box showing the coarse and fine tuning parameter values, as well as the tuning unit value for the key. These correspond to the parameters shown in the DX7 II's "MESSAGES/DATA" display. To setup the various examples, you will only need to adjust the "coarse" tuning parameters for the keys in the chart. Since all of the tunings I'll be showing you are variations of the standard equal tempered scale, you won't have to make any changes to the "fine" parameters.

Transpose and Micro Tune Editing

Normally, DX7 II voices are tuned so that key numbers and pitch numbers are the same. In other words, the *key* C3 will play the *pitch* C3. This relationship can be changed with the voice's *transpose* parameter (**Button 7**). To shift a voice down one octave, the parameter is set to "C2." Now, key C3 plays pitch C2. Shifting the voice up an octave would require setting the transpose value to "C4." Key C3 would play pitch C4. You could also shift by some other interval besides an octave. To shift the voice up a tenth the transpose value is set to E4. Now, key C3 plays pitch E4.

Remember that when you are setting up micro tune scales, the display values are for pitches not keys. If you use the tunings given below with a transposed voice, the split point will not be at key C3, but at the key that plays the pitch C3. If you want to keep the split at the same key as other non-transposed voices, you'll have to alter the tuning accordingly.

For example, I love to use the factory presets 22 Clavistuff and 31 Wirestrung together with unison tuning. Both of these voices are transposed to C2. This shifts the split point to key C4. To keep the split at key C3, I shift the entire micro tune scale down an octave (*Figure 11*).

Unison Tuning with Micro Tuning

Earlier, I showed you how to setup unison tunings from the split mode using the split point and note shift parameters. You can also setup unison tunings as a micro tune scale. Although the performance techniques used for either method are exactly the same, there is a big difference in the types of sounds you can play. Here's why.

If you use the split mode to setup a unison tuning, you must assign the same FM voice to each side of the split. This limits you to single voice sounds for unison tuning parts. Many of the DX7 II's layered (dual mode) sounds will work particularly well when you play them with unison tuning techniques, but you'd need two DX7 IIs to create the layering effect in the split mode. Split mode unison tunings also put some limitations on panning effects as well. If the **Pan Button** is lit, the left hand part will appear on the left side of your stereo mix, and the right hand part will appear on the right side. This can be a useful panning configuration for certain sounds, but it will also work against others. (For example, the illusion of an acoustic guitar will be weakened if down strokes are heard on one side and up strokes on the other.)

	Coarse Tune	Fine Tune	Tuning Units
C0	C2	0	4010
C*0	C*2	0	4096
D0	D2	0	4181
D*0	D*2	0	4266
E0	E2	0	4352
F0	F2	0	4437
F*0	F*2	0	4522
G0	G2	0	4608
G*0	G*2	0	4693
A0	A2	0	4778
A*0	A*2	0	4864
B0	B2	0	4949
C1	C3	0	5034
C*1	C*3	0	5120
D1	D3	0	5205
D*1	D*3	0	5290
E1	E3	0	5376
F1	F3	0	5461
F*1	F*3	0	5546
G1	G3	0	5632
G*1	G*3	0	5717
A1	A3	0	5802
A*1	A*3	0	5888
B1	B3	0	5973
C2	C2	0	4010
C*2	C*2	0	4096
D2	D2	0	4181
D*2	D*2	0	4266
E2	E2	0	4352
F2	F2	0	4437
F*2	F*2	0	4522
G2	G2	0	4608
G*2	G*2	0	4693
A2	A2	0	4778
A*2	A*2	0	4864
B2	B2	0	4949
C3	C3	0	5034

Figure 11: This is how to set up a split at pitch C3 for voices that have been transposed to C2.

**Performances for Unison
Tuning with Micro Tune Scale
Examples**

Go back and try the examples from *Unison Tuning with the Split Mode* again with these performances:

- 1: Acoustic Gtr C3 Split, 2: Acoustic Duo Split, 3: 12 String C3 Split, 7: Verb Fanfare Split, 9: String/Verb Split, 10: Fiddle Split, 17: Roundwound Chorus, 19: Another Strummer, 22: Cajun Squeeze Box, and 25: Jazz Tremolo Split

When you setup a unison tuning as a micro tune scale, you only need one voice to perform the part since the scale defines the split. This gives you the freedom to put the DX7 II in the dual mode and assign a second complimentary voice to the same micro tune scale. Now you can use layered sounds to play unison tuned parts. For panning effects, each voice will be split in the stereo mix, not in each hand. You can also use the *dual detune* parameter to create a stereo chorus effect (**Button 28**).

Setting Up Unison Tuned Scales

Here are the unison tunings we looked at before, but this time they are setup as micro tune scales. They split the keyboard at C3, and F2 (Figure 12). Be sure to go back to the musical examples and exercises in *Unison Tuning with the Split Mode* and try them out with this new approach!

	Coarse Tune	Fine Tune	Tuning Units
C1	C3	0	5034
C*1	C*3	0	5120
D1	D3	0	5205
D*1	D*3	0	5290
E1	E3	0	5376
F1	F3	0	5461
F*1	F*3	0	5546
G1	G3	0	5632
G*1	G*3	0	5717
A1	A3	0	5802
A*1	A*3	0	5888
B1	B3	0	5973
C2	C4	0	6058
C*2	C*4	0	6144
D2	D4	0	6229
D*2	D*4	0	6314
E2	E4	0	6400
F2	F4	0	6485
F*2	F*2	0	4522
G2	G2	0	4608
G*2	G*2	0	4693
A2	A2	0	4778
A*2	A*2	0	4864
B2	B2	0	4949
C3	C3	0	5034
C*3	C*3	0	5120
D3	D3	0	5205
D*3	D*3	0	5290
E3	E3	0	5376
F3	F3	0	5461
F*3	F*3	0	5546
G3	G3	0	5632
G*3	G*3	0	5717
A3	A3	0	5802
A*3	A*3	0	5888
B3	B3	0	5973
C4	C4	0	6058

	Coarse Tune	Fine Tune	Tuning Units
C1	C3	0	5034
C*1	C*3	0	5120
D1	D3	0	5205
D*1	D*3	0	5290
E1	E3	0	5376
F1	F3	0	5461
F*1	F*3	0	5546
G1	G3	0	5632
G*1	G*3	0	5717
A1	A3	0	5802
A*1	A*3	0	5888
B1	B3	0	5973
C2	C4	0	6058
C*2	C*4	0	6144
D2	D4	0	6229
D*2	D*4	0	6314
E2	E4	0	6400
F2	F4	0	6485
F*2	F*4	0	6570
G2	G4	0	6656
G*2	G*4	0	6741
A2	A4	0	6826
A*2	A*4	0	6912
B2	B4	0	6997
C3	C3	0	5034
C*3	C*3	0	5120
D3	D3	0	5205
D*3	D*3	0	5290
E3	E3	0	5376
F3	F3	0	5461
F*3	F*3	0	5546
G3	G3	0	5632
G*3	G*3	0	5717
A3	A3	0	5802
A*3	A*3	0	5888
B3	B3	0	5973
C4	C4	0	6058

Figure 12: Here are micro tune versions of C3 and F2 unison tunings. They'll let you play unison tuning parts in the DX7 II's dual mode.

Performances for Diatonic Harmonies with Micro Tune Scale Examples

The following performances are examples of diatonic harmonization in different modes. (The scales are exactly the same tunings as listed here in *Micro Tune Scales for Natural Modes* and *Micro Tune Scales for Synthetic Modes*):

11: C Dorian Strings, 12: C Lydian Strings, 21: Brass/Vibes Harmony (C Overtone), 24: Wind & Duke Harmony (C Phrygian)

	Coarse Tune	Fine Tune	Tuning Units
C3	E3	0	5376
C [♯] 3	E3	0	5461
D3	F3	0	5461
D [♯] 3	G3	0	5632
E3	G3	0	5632
F3	A3	0	5802
F [♯] 3	A3	0	5802
G3	B3	0	5973
G [♯] 3	C4	0	6058
A3	C4	0	6058
A [♯] 3	D4	0	6229
B3	D4	0	6229
C4	E4	0	6400

Figure 13: Diatonic harmony tuning for one octave in the key of C major.

About Diatonic Harmonies ...

Most synths provide a transpose function of some type that will allow you to tune two voices (or oscillators) to a fixed interval so you can play two notes from one key. It's a nice effect. You can play rapid melodic phrases since your playing single notes, but the tuning fattens up the sound by providing a harmony to each key. A serious limitation of this technique is, of course, that the harmony is exactly the same for each note played. You can only play so much tuned in perfect fifths or major thirds (etc.) before your notes clash with the chord changes, or the melody gets boring since your choice of supporting chords is limited by the fixed interval.

Consider the problem of playing melodies harmonized in thirds in a major key (Ionian mode). To harmonize a third above the first, fourth, and fifth degrees of the scale you must play major thirds. To harmonize above the second, third, sixth, and seventh degrees, you must play minor thirds. With a fixed transposition you could harmonize with one set of notes or the other, but not both. Wouldn't it be great if you could tell the DX7 II what key or mode you're playing in and have it play the correct harmony for whatever scale degree you play? Guess what? You can program your DX7 II to do just that!

Diatonic Harmonies with Micro Tune Scales

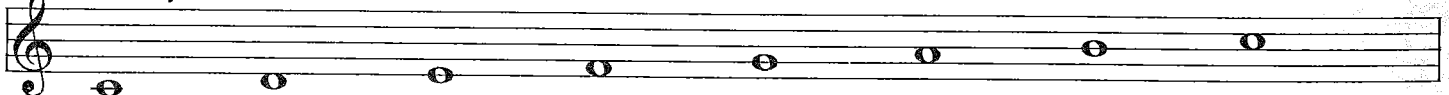
When the DX7 II is in the dual mode, you can turn the micro tuning parameter off for either voice A or voice B (**Button 29**). When micro tuning is set to "off," the voice will play the normal 12 tone equal tempered scale. If you turn micro tuning off for one voice (let's say voice A) and on for the other (voice B), you can easily create a micro tune scale that harmonizes each key with a diatonic pitch. (Diatonic means notes that are in the same key signature.) When you play a single key, you will hear two notes. Voice A will play the normal keyboard pitch. Voice B will play the harmony pitch. Since the harmonization will always be correct you can improvise freely. It's both a wonderful and useful musical effect. It works well with everything from blues-based double leads, to "classical" string parts, to big band woodwind soli. Also, since this technique utilizes the DX7 II's dual mode, your harmonized voices can have a completely different sounds. For example this let's you play, brass lines doubled with vibes harmonized in the same key a sixth below. (Try doing that with a standard keyboard!) You could even split the brass and vibes left and right in the stereo mix.

Here's an example of how you would harmonize one octave in the key of C in diatonic thirds (*Figure 13*).

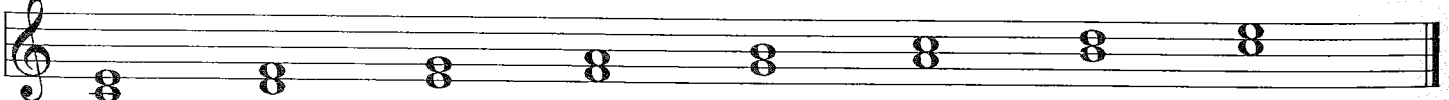
Example 38

Diatonic Harmony (3rds) Key of C

You Play This ...



You Hear This

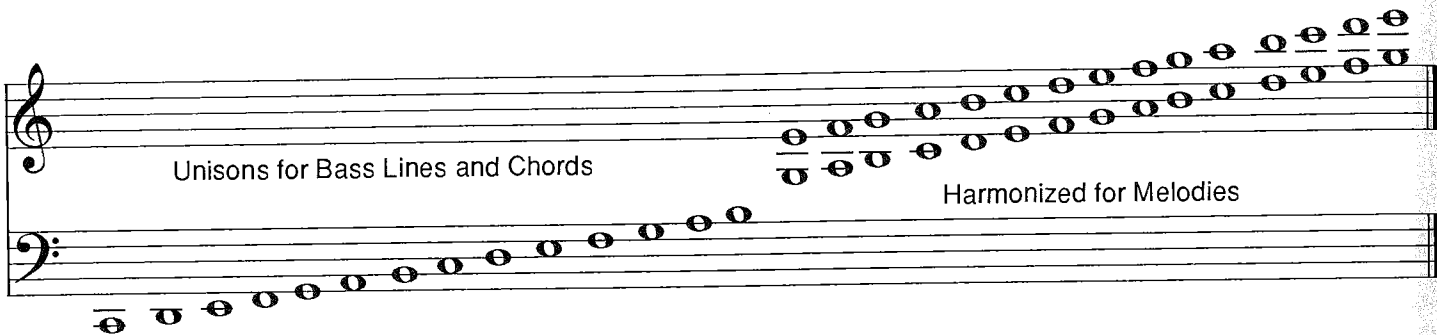


Voice A plays the written note. Voice B plays a third above in key of C

For each note you play you hear two (*Example 38*). The note corresponding to the key you've pushed, and another one a third above it. Depending on the note you play, you hear a major or minor third. Diatonic notes (the white keys in the key of C) are harmonized with other diatonic notes. Accidentals (the black keys in the key of C) can either be treated as altered tensions or passing tones. To treat them as altered tensions, harmonize them with diatonic notes. To treat them as passing tones, harmonize them with other accidentals.

You can transpose this one octave micro tuning over the entire keyboard so that every key you play sounds a diatonic harmony. However, I've found that I have more flexibility if I split the keyboard so that the lower half plays both voices in unison or octaves, and the upper half plays the harmony notes (*Figure 14*). I also like the key I'm playing to sound the harmony notes of the harmony, so I tune my diatonic harmony scales a sixth below rather than a third above. This tuning system gives me the freedom to play chords or bass lines with my left hand and harmonized melodies in my right (*Example 39*).

Example 39



	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C#3	F2	0	4437
D3	F2	0	4437
D#3	F#2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F#3	A#2	0	4864
G3	B2	0	4949
G#3	C3	0	5034

F5	A4	0	6826
F#5	A#4	0	6912
G5	B4	0	6997
G#5	C5	0	7082
A5	C5	0	7082
A#5	C#5	0	7168
B5	D5	0	7253
C6	E5	0	7424

Figure 14.

Playing Diatonic Harmonies

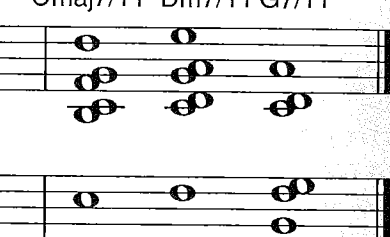
You are not limited to playing single notes with diatonic tunings. Be sure to experiment with two and three note chords as well as melodies. You can create many rich and unusual voicings with just two or three notes. Here are some guidelines to creating harmonies with the scales I've included at the end of this section.

- The scales I've given you are harmonized in sixths. When you play a scale tone, you will hear a second pitch a diatonic sixth below it.
- If you play diatonic thirds (C and E, etc.) you will hear a diatonic triad with the upper note doubled an octave below.
- If you play diatonic fifths or fourths (C and G, etc.) you will hear a diatonic 7th chords.
- Voicings containing scale tones 2, 4, or 7 will add upper tensions to a chord (11, 13, and 9 respectively).

Here's are some examples of the different types of voicings you can create (*Example 40*).

Example 40

You Play	You Hear	You Play	You Hear
	C Dm Em		Cmaj7 Dm7 G7
			
			

You Play	You Hear	You Play	You Hear
	Cmaj7/9 Dm7/9 G7/9		Cmaj7/11 Dm7/11 G7/11
			
			

The scales I've given you are by no means a complete or definitive collection of all of the possibilities. They're meant to be a jumping off point for you. Be sure to try different harmony intervals. There's no reason to keep them in 6ths. You could harmonize in thirds, or fourths, or tenths. You could change the harmony interval with each scale tone. Try different tunings of the accidentals too.

About Keys and Modes...

It won't take you long to realize just how powerful the ability to harmonize diatonically is. You'll also soon realize that there are many possible scales to tune to besides the C major scale. A major scale is a specific pattern of half steps and whole steps. If you start the pattern from any given pitch, you will create a major scale. It is possible to create seven related patterns from a major scale (*Example 41*). They are called natural modes. The patterns are created by making a new diatonic scale starting on each note in the major scale.

Example 41

1. Ionian (Major Scale)	2. Dorian	3. Phrygian
		

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4. Lydian 5. Mixolydian 6. Aeolian

7. Locrian

1. Ionian 2. Dorian 3. Phrygian

1 2 3 4 5 6 7 (1) 1 2 b3 4 5 6 7 (1) 1 b3 b3 4 5 b6 b7 (1)

4. Lydian 5. Mixolydian 6. Aeolian

1 2 3 #4 5 6 7 (1) 1 2 3 4 5 6 b7 (1) 1 2 b3 4 5 b6 b7 (1)

7. Locrian

1 b2 b3 4 b5 b6 b7 (1)

Modes are sometimes called "chord scales" since each mode harmonizes with a specific chord—major 7, minor seven, dominant 7, etc. Knowing the mode that goes with a particular chord can be a great help when you improvise. For example, suppose you'll be playing over an F7 chord. If you're familiar with modes, you'll know that you can play any series of notes from the F Mixolydian mode (same notes as in a B flat major scale) over the chord and they'll sound fine. If the chord was an F maj7#11 you could play any series of notes form the F Lydian mode (same notes as a C major scale). Here are the characteristic chords for each of the modes (*Example 42*).

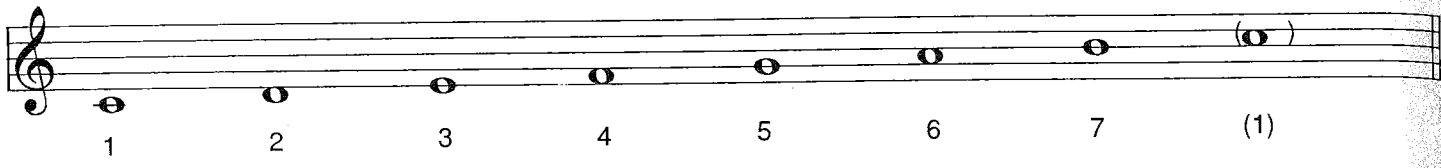
Example 42

1. Ionian (Maj7)
 2. Dorian (Min7)
 3. Phrygian (Min7 b9 b13)
 4. Lydian (Maj7 #11)
 5. Mixolydian (Dom7)
 6. Aeolian (Min7 b13)
 7. Locrian (Min7 b5 b9 b13)

Micro Tune Scales for the Natural Modes

On the following pages are the micro tunings for each of the seven natural modes. They are all built on C. The scale is in unison below C3 and harmonized a sixth below keys from C3 to C6. I've provided them so you can experiment improvising harmonized melodies over different modes and chords. With each tuning, I've listed the related modes and the chords that will harmonize with right hand melodies. I've also shown the diatonic notes for each mode as a guideline for you to construct chords or bass lines with your left hand.

C Ionian Micro Tune Scale



Cmaj7: C Ionian

Dm7: D Dorian

Em7b9/13: E Phrygian

Fmaj7#11: F Lydian

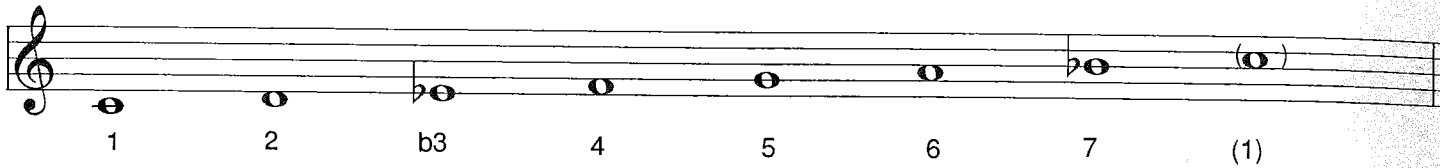
G7: G Mixolydian

Am7b13: A Aeolian

Bm7 b5 : B Locrian
b9
b13

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C*3	F2	0	4437
D3	F2	0	4437
D*3	F*2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F*3	A*2	0	4864
G3	B2	0	4949
G*3	C3	0	5034
A3	C3	0	5034
A*3	C*3	0	5120
B3	D3	0	5205
C4	E3	0	5376
C*4	F3	0	5461
D4	F3	0	5461
D*4	F*3	0	5546
E4	G3	0	5632
F4	A3	0	5802
F*4	A*3	0	5888
G4	B3	0	5973
G*4	C4	0	6058
A4	C4	0	6058
A*4	C*4	0	6144
B4	D4	0	6229
C5	E4	0	6400
C*5	F4	0	6485
D5	F4	0	6485
D*5	F*4	0	6570
E5	G4	0	6656
F5	A4	0	6826
F*5	A*4	0	6912
G5	B4	0	6997
G*5	C5	0	7082
A5	C5	0	7082
A*5	C*5	0	7168
B5	D5	0	7253
C6	E5	0	7424

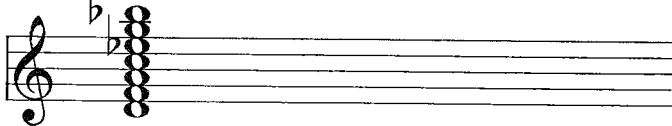
C Dorian Micro Tune Scale



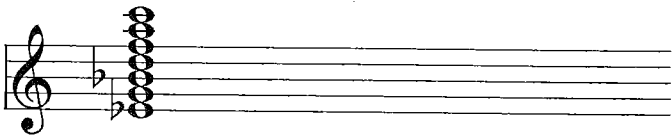
Cm7: C Dorian



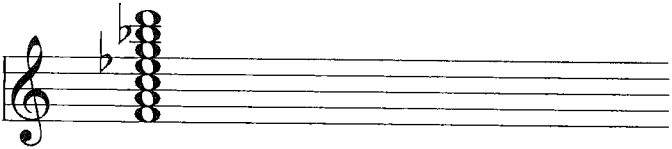
Dm7/b9/B13: D Phrygian



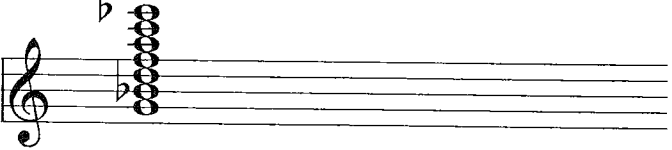
Ebmaj7#11: Eb Lydian



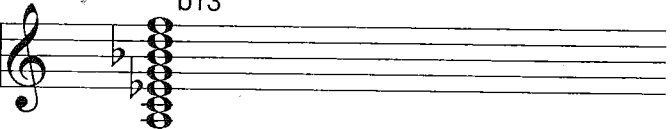
F7: F Mixolydian



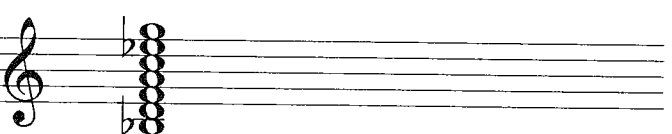
Gm7b13: G Aeolian



Am7b5: A Locrian
b9
b13



Bbmaj7: Bb Ionian



Coarse Fine Tuning Units

C3	D*2	0	4266
C*3	F2	0	4437
D3	F2	0	4437
D*3	G2	0	4608
E3	G2	0	4608
F3	A2	0	4778
F*3	A*2	0	4864
G3	A*2	0	4864
G*3	C3	0	5034
A3	C3	0	5034
A*3	D3	0	5205
B3	D3	0	5205
C4	D*3	0	5290
C*4	F3	0	5461
D4	F3	0	5461
D*4	G3	0	5632
E4	G3	0	5632
F4	A3	0	5802
F*4	A*3	0	5888
G4	A*3	0	5888
G*4	C4	0	6058
A4	C4	0	6058
A*4	D4	0	6229
B4	D4	0	6229
C5	D*4	0	6314
C*5	F4	0	6485
D5	F4	0	6485
D*5	G4	0	6656
E5	G4	0	6656
F5	A4	0	6826
F*5	A*4	0	6912
G5	A*4	0	6912
G*5	C5	0	7082
A5	C5	0	7082
A*5	D5	0	7253
B5	D5	0	7253
C6	D*5	0	7338

C Phrygian Micro Tune Scale

1 b3 b3 4 5 b6 b7 (1)

Cmaj7b9/b13: C Phrygian

Dbmaj7#11: Db Lydian

Eb7: Eb Mixolydian

Fm7b13: F Aeolian

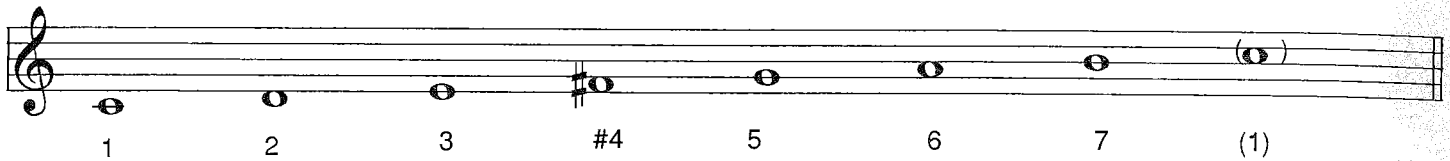
Gm7 b5 : G Locrian
b9
b13

Abmaj7: A Ionian

Bbm7: Bb Dorian

	Coarse Tune	Fine Tune	Tuning Units
C3	D*2	0	4266
C*3	F2	0	4437
D3	F2	0	4437
D*3	G2	0	4608
E3	G2	0	4608
F3	G*2	0	4693
F*3	A*2	0	4864
G3	A*2	0	4864
G*3	C3	0	5034
A3	C3	0	5034
A*3	C*3	0	5120
B3	D3	0	5205
C4	D*3	0	5290
C*4	F3	0	5461
D4	F3	0	5461
D*4	G3	0	5632
E4	G3	0	5632
F4	G*3	0	5717
F*4	A*3	0	5888
G4	A*3	0	5888
G*4	C4	0	6058
A4	C4	0	6058
A*4	C*4	0	6144
B4	D4	0	6229
C5	D*4	0	6314
C*5	F4	0	6485
D5	F4	0	6485
D*5	G4	0	6656
E5	G4	0	6656
F5	G*4	0	6741
F*5	A*4	0	6912
G5	A*4	0	6912
G*5	C5	0	7082
A5	C5	0	7082
A*5	C*5	0	7168
B5	D5	0	7253
C6	D*5	0	7338

C Lydian Micro Tune Scale



Cmaj7#11: C Lydian

D7: D Mixolydian

Em7b13: E Aeolian

F#7 b5 : F# Locrian
b9
b13

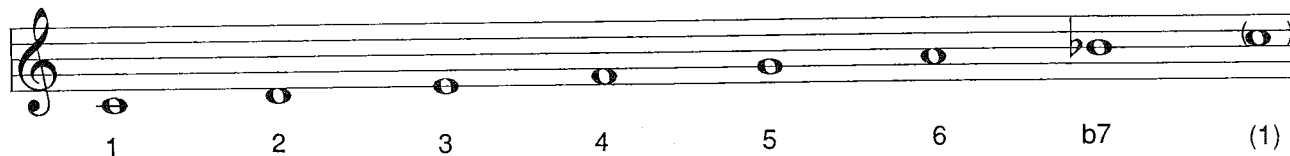
Gma7: G Ionian

Am7: A Dorian

Bm7b9/b13: B Phrygian

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C#3	F2	0	4437
D3	F#2	0	4522
D#3	F#2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F#3	A2	0	4778
G3	B2	0	4949
G#3	C3	0	5034
A3	C3	0	5034
A#3	C#3	0	5120
B3	D3	0	5205
<hr/>			
C4	E3	0	5376
C#4	F3	0	5461
D4	F#3	0	5546
D#4	F#3	0	5546
E4	G3	0	5632
F4	A3	0	5802
F#4	A3	0	5802
G4	B3	0	5973
G#4	C4	0	6058
A4	C4	0	6058
A#4	C#4	0	6144
B4	D4	0	6229
<hr/>			
C5	E4	0	6400
C#5	F4	0	6485
D5	F#4	0	6570
D#5	F#4	0	6570
E5	G4	0	6656
F5	A4	0	6826
F#5	A4	0	6826
G5	B4	0	6997
G#5	C5	0	7082
A5	C5	0	7082
A#5	C#5	0	7168
B5	D5	0	7253
C6	E5	0	7424

C Mixolydian Micro Tune Scale



C7: C Mixolydian

Dm7b13: D Aeolian

Em7 b5 : E Locrian
b9
b13

Fmaj7: F Ionian

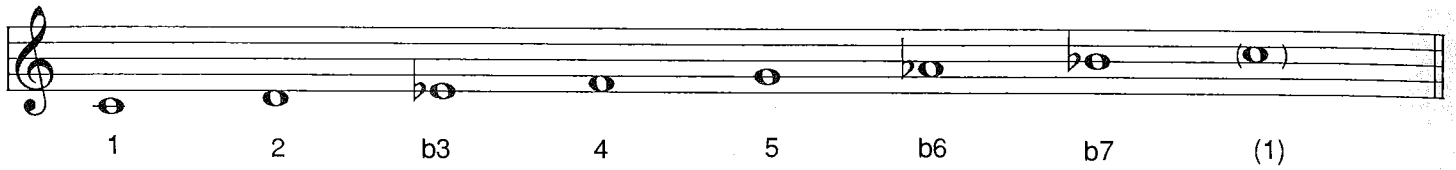
Gm7b9/b13: G Phrygian

Amaj7#11: A Lydian

Bb7: Bb Mixolydian

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C*3	F2	0	4437
D3	F2	0	4437
D*3	G2	0	4608
E3	G2	0	4608
F3	A2	0	4778
F*3	A*2	0	4864
G3	A*2	0	4864
G*3	C3	0	5034
A3	C3	0	5034
A*3	D3	0	5205
B3	D3	0	5205
C4	E3	0	5376
C*4	F3	0	5461
D4	F3	0	5461
D*4	G3	0	5632
E4	G3	0	5632
F4	A3	0	5802
F*4	A*3	0	5888
G4	A*3	0	5888
G*4	C4	0	6058
A4	C4	0	6058
A*4	D4	0	6229
B4	D4	0	6229
C5	E4	0	6400
C*5	F4	0	6485
D5	F4	0	6485
D*5	G4	0	6656
E5	G4	0	6656
F5	A4	0	6826
F*5	A*4	0	6912
G5	A*4	0	6912
G*5	C5	0	7082
A5	C5	0	7082
A*5	D5	0	7253
B5	D5	0	7253
C6	E5	0	7424

C Aeolian Micro Tune Scale



Cm7: C Aeolian

Dm7 b5 : D Locrian
b9
b13

Ebmaj7: Eb Ionian

Fm7: F Dorian

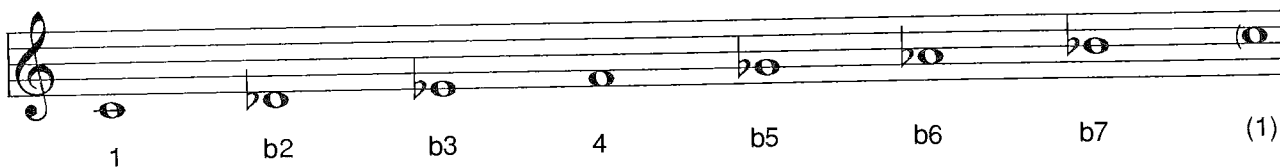
Gm7b9/b13: G Phrygian

Abmaj7: A Lydian

Bb7: Bb Mixolydian

	Coarse Tune	Fine Tune	Tuning Units
C3	D [♯] 2	0	4266
C[♯]3	F2	0	4437
D3	F2	0	4437
D[♯]3	G2	0	4608
E3	G2	0	4608
F3	G [♯] 2	0	4693
F[♯]3	A [♯] 2	0	4864
G3	A [♯] 2	0	4864
G[♯]3	C3	0	5034
A3	C3	0	5034
A[♯]3	D3	0	5205
B3	D3	0	5205
C4	D [♯] 3	0	5290
C[♯]4	F3	0	5461
D4	F3	0	5461
D[♯]4	G3	0	5632
E4	G3	0	5632
F4	G [♯] 3	0	5717
F[♯]4	A [♯] 3	0	5888
G4	A [♯] 3	0	5888
G[♯]4	C4	0	6058
A4	C4	0	6058
A[♯]4	D4	0	6229
B4	D4	0	6229
C5	D [♯] 4	0	6314
C[♯]5	F4	0	6485
D5	F4	0	6485
D[♯]5	G4	0	6656
E5	G4	0	6656
F5	G [♯] 4	0	6741
F[♯]5	A [♯] 4	0	6912
G5	A [♯] 4	0	6912
G[♯]5	C5	0	7082
A5	C5	0	7082
A[♯]5	D5	0	7253
B5	D5	0	7253
C6	D [♯] 5	0	7338

C Locrian Micro Tune Scale



Cm7 b5 : C Locrian
b9
b13

Dbmaj7: Db Ionian

Ebm7: Eb Dorian

Fm7b9/b13: F Phrygian

Gbmaj7#11: Gb Lydian

Ab7: Ab Mixolydian

Bbm7b13: Bb Aeolian

	Coarse Tune	Fine Tune	Tuning Units
C3	D*2	0	4266
C*3	F2	0	4437
D3	F2	0	4437
D*3	F*2	0	4522
E3	G2	0	4608
F3	G*2	0	4693
F*3	A*2	0	4864
G3	B2	0	4949
G*3	C3	0	5034
A3	C3	0	5034
A*3	C*3	0	5120
B3	D3	0	5205
<hr/>			
C4	D*3	0	5290
C*4	F3	0	5461
D4	F3	0	5461
D*4	F*3	0	5546
E4	G3	0	5632
F4	G*3	0	5717
F*4	A*3	0	5888
G4	B3	0	5973
G*4	C4	0	6058
A4	C4	0	6058
A*4	C*4	0	6144
B4	D4	0	6229
<hr/>			
C5	D*4	0	6314
C*5	F4	0	6485
D5	F4	0	6485
D*5	F*4	0	6570
E5	G4	0	6656
F5	G*4	0	6741
F*5	A*4	0	6912
G5	B4	0	6997
G*5	C5	0	7082
A5	C5	0	7082
A*5	C*5	0	7168
B5	D5	0	7253
C6	D*5	0	7338

Micro Tune Scales for the Synthetic Modes

There are several modes based on patterns not found in the major scale. The different types of scales formed by these patterns are called *synthetic modes*. I've provided you with tuning data for each of these synthetic modes along with the characteristic chords for the first step in the mode (*Example 43*). Unlike the natural modes, there are no formal names for the new modes that could be built on the successive steps of each synthetic mode.

Example 43

Example 43 displays 14 synthetic modes, each with a characteristic chord for the first step and a scale sequence. The modes are arranged in a grid:

- Dim7 Super Locrian:** Chord: Dim7. Scale: 1 b2 b3 b4 b5 b6 b7 (1)
- Min/Maj7 b9 b13 Neapolitan Minor:** Chord: Min/Maj7 b9 b13. Scale: 1 b2 b3 4 5 b6 7 (1)
- Min/Maj7b9 Neapolitan Major:** Chord: Min/Maj7b9. Scale: 1 b2 b3 4 5 6 7 (1)
- Dom7 b5 b9 Oriental:** Chord: Dom7 b5 b9. Scale: 1 b2 3 4 b5 6 b7 (1)
- Maj7 b9 b13 Double Harmonic:** Chord: Maj7 b9 b13. Scale: 1 b2 3 4 5 b6 7 (1)
- Aug/Maj7 b9 #11 #13 Enigmatic:** Chord: Aug/Maj7 b9 #11 #13. Scale: 1 b2 3 #4 #5 #6 7 (1)
- Min/Maj7 b13 Harmonic Minor:** Chord: Min/Maj7 b13. Scale: 1 2 b3 4 5 b6 7 (1)
- Min/Maj7 #11 b13 Hungarian Minor:** Chord: Min/Maj7 #11 b13. Scale: 1 2 b3 #4 5 b6 7 (1)
- Dom7 b5 b13 Major Locrian:** Chord: Dom7 b5 b13. Scale: 1 2 3 4 b5 b6 b7 (1)
- Dom7 #11 b13 Lydian Minor:** Chord: Dom7 #11 b13. Scale: 1 2 3 #4 5 b6 b7 (1)
- Dom7 #11 Overtone:** Chord: Dom7 #11. Scale: 1 2 3 #4 5 6 b7 (1)
- Aug/Maj7 #11 #13 Leading Whole Tone:** Chord: Aug/Maj7 #11 #13. Scale: 1 2 3 #4 #5 #6 7 (1)

MICRO TUNINGS FOR SPECIAL
KEYBOARD TECHNIQUES

The image shows four synthetic modes on a single staff in treble clef, each with a chord diagram above it and a scale sequence below it.

- Hungarian Major:** Chord: Dom7 #11 #9. Scale: 1 #2 3 #4 5 6 b7 (1).
- Symmetrical:** Chord: Dom7 #9 #11 b9. Scale: 1 b2 #2 3 #4 5 6 b7 (1).
- Pentatonic Major:** Chord: Maj add 9/13. Scale: 1 2 3 5 6 (1).
- Pentatonic Minor:** Chord: Min7 add 11. Scale: 1 b3 4 5 b7 (1).

Micro tunings for the sixteen synthetic modes begin on the following page. Unlike the natural modes, there are no formal chord names for the chords built on these synthetic modes, since they do not follow any natural scale pattern. Therefore, you will not see any chord names shown above them as you did on the natural modes.

C Super Locrian Micro Tune Scale

Super Locrian

1 b2 b3 b4 b5 b6 b7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	D [♯] 2	0	4266
C[♯]3	E2	0	4352
D3	F [♯] 2	0	4522
D[♯]3	F [♯] 2	0	4522
E3	G [♯] 2	0	4693
F3	A2	0	4778
F[♯]3	A [♯] 2	0	4864
G3	B2	0	4949
G[♯]3	C3	0	5034
A3	C [♯] 3	0	5120
A[♯]3	C [♯] 3	0	5120
B3	D [♯] 3	0	5290
C4	D [♯] 3	0	5290
C[♯]4	E3	0	5376
D4	F [♯] 3	0	5546
D[♯]4	F [♯] 3	0	5546
E4	G [♯] 3	0	5717
F4	A3	0	5802
F[♯]4	A [♯] 3	0	5888
G4	B3	0	5973
G[♯]4	C4	0	6058
A4	C [♯] 4	0	6144
A[♯]4	C [♯] 4	0	6144
B4	D [♯] 4	0	6314
C5	D [♯] 4	0	6314
C[♯]5	E4	0	6400
D5	F [♯] 4	0	6570
D[♯]5	F [♯] 4	0	6570
E5	G [♯] 4	0	6741
F5	A4	0	6826
F[♯]5	A [♯] 4	0	6912
G5	B4	0	6997
G[♯]5	C5	0	7082
A5	C [♯] 5	0	7168
A[♯]5	C [♯] 5	0	7168
B5	D [♯] 5	0	7338
C6	D [♯] 5	0	7338

C Neapolitan Minor Micro Tune Scale

Neapolitan Minor

1 b2 b3 4 5 b6 7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	D [♯] 2	0	4266
C[♯]3	F2	0	4437
D3	F [♯] 2	0	4522
D[♯]3	G2	0	4608
E3	G [♯] 2	0	4693
F3	G [♯] 2	0	4693
F[♯]3	A [♯] 2	0	4864
G3	B2	0	4949
G[♯]3	C3	0	5034
A3	C [♯] 3	0	5120
A[♯]3	D3	0	5205
B3	C [♯] 3	0	5120
C4	D [♯] 3	0	5290
C[♯]4	F3	0	5461
D4	F [♯] 3	0	5546
D[♯]4	G3	0	5632
E4	G [♯] 3	0	5717
F4	G [♯] 3	0	5717
F[♯]4	A [♯] 3	0	5888
G4	B3	0	5973
G[♯]4	C4	0	6058
A4	C [♯] 4	0	6144
A[♯]4	D4	0	6229
B4	C [♯] 4	0	6144
C5	D [♯] 4	0	6314
C[♯]5	F4	0	6485
D5	F [♯] 4	0	6570
D[♯]5	G4	0	6656
E5	G [♯] 4	0	6741
F5	G [♯] 4	0	6741
F[♯]5	A [♯] 4	0	6912
G5	B4	0	6997
G[♯]5	C5	0	7082
A5	C [♯] 5	0	7168
A[♯]5	D5	0	7253
B5	C [♯] 5	0	7168
C6	D [♯] 5	0	7338

C Neapolitan Major Micro Tune Scale

Neapolitan Major

1 b2 b3 4 5 6 7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	D*2	0	4266
C*3	F2	0	4437
D3	F*2	0	4522
D*3	G2	0	4608
E3	G*2	0	4693
F3	A2	0	4778
F*3	A*2	0	4864
G3	B2	0	4949
G*3	C3	0	5034
A3	C3	0	5034
A*3	D3	0	5205
B3	C*3	0	5120
<hr/>			
C4	D*3	0	5290
C*4	F3	0	5461
D4	F*3	0	5546
D*4	G3	0	5632
E4	G*3	0	5717
F4	A3	0	5802
F*4	A*3	0	5888
G4	B3	0	5973
G*4	C4	0	6058
A4	C4	0	6058
A*4	D4	0	6229
B4	C*4	0	6144
<hr/>			
C5	D*4	0	6314
C*5	F4	0	6485
D5	F*4	0	6570
D*5	G4	0	6656
E5	G*4	0	6741
F5	A4	0	6826
F*5	A*4	0	6912
G5	B4	0	6997
G*5	C5	0	7082
A5	C5	0	7082
A*5	D5	0	7253
B5	C*5	0	7168
C6	D*5	0	7338

C Oriental Micro Tune Scale

Oriental

1 b2 3 4 b5 6 b7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C#3	F2	0	4437
D3	F#2	0	4522
D#3	G2	0	4608
E3	G#2	0	4693
F3	A2	0	4778
F#3	A#2	0	4864
G3	B2	0	4949
G#3	A#2	0	4864
A3	C3	0	5034
A#3	C#3	0	5120
B3	D#3	0	5290
C4	E3	0	5376
C#4	F3	0	5461
D4	F#3	0	5546
D#4	G3	0	5632
E4	G#3	0	5717
F4	A3	0	5802
F#4	A#3	0	5888
G4	B3	0	5973
G#4	A#3	0	5888
A4	C4	0	6058
A#4	C#4	0	6144
B4	D#4	0	6314
C5	E4	0	6400
C#5	F4	0	6485
D5	F#4	0	6570
D#5	G4	0	6656
E5	G#4	0	6741
F5	A4	0	6826
F#5	A#4	0	6912
G5	B4	0	6997
G#5	A#4	0	6912
A5	C5	0	7082
A#5	C#5	0	7168
B5	D#5	0	7338
C6	E5	0	7424

C Double Harmonic Micro Tune Scale

Double Harmonic

1 b2 3 4 5 b6 7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C*3	F2	0	4437
D3	F*2	0	4522
D*3	G2	0	4608
E3	G2	0	4608
F3	G*2	0	4693
F*3	A*2	0	4864
G3	B2	0	4949
G*3	C3	0	5034
A3	C*3	0	5120
A*3	D3	0	5205
B3	C*3	0	5120
C4	E3	0	5376
C*4	F3	0	5461
D4	F*3	0	5546
D*4	G3	0	5632
E4	G3	0	5632
F4	G*3	0	5717
F*4	A*3	0	5888
G4	B3	0	5973
G*4	C4	0	6058
A4	C*4	0	6144
A*4	D4	0	6229
B4	C*4	0	6144
C5	E4	0	6400
C*5	F4	0	6485
D5	F*4	0	6570
D*5	G4	0	6656
E5	G4	0	6656
F5	G*4	0	6741
F*5	A*4	0	6912
G5	B4	0	6997
G*5	C5	0	7082
A5	C*5	0	7168
A*5	D5	0	7253
B5	C*5	0	7168
C6	E5	0	7424

C Enigmatic Micro Tune Scale

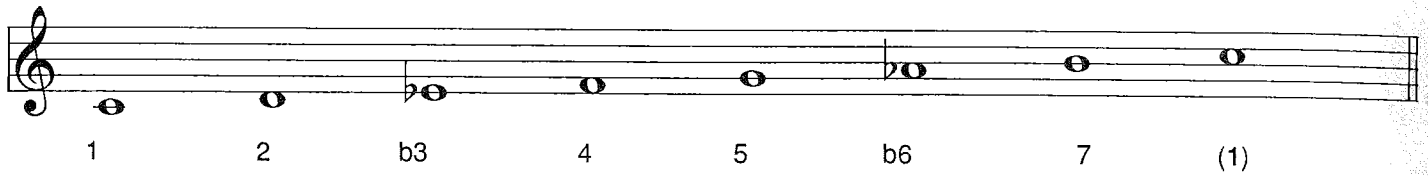
Enigmatic

1 b2 3 #4 #5 #6 7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C*3	F*2	0	4522
D3	F*2	0	4522
D*3	G2	0	4608
E3	G*2	0	4693
F3	A2	0	4778
F*3	A*2	0	4864
G3	B2	0	4949
G*3	B2	0	4949
A3	C*3	0	5120
A*3	C3	0	5034
B3	C*3	0	5120
C4	E3	0	5376
C*4	F*3	0	5546
D4	F*3	0	5546
D*4	G3	0	5632
E4	G*3	0	5717
F4	A3	0	5802
F*4	A*3	0	5888
G4	B3	0	5973
G*4	B3	0	5973
A4	C*4	0	6144
A*4	C4	0	6058
B4	C*4	0	6144
C5	E4	0	6400
C*5	F*4	0	6570
D5	F*4	0	6570
D*5	G4	0	6656
E5	G*4	0	6741
F5	A4	0	6826
F*5	A*4	0	6912
G5	B4	0	6997
G*5	B4	0	6997
A5	C*5	0	7168
A*5	C5	0	7082
B5	C*5	0	7168
C6	E5	0	7424

C Harmonic Minor Micro Tune Scale

Harmonic Minor



	Coarse Tune	Fine Tune	Tuning Units
C3	D*2	0	4266
C*3	F2	0	4437
D3	F2	0	4437
D*3	G2	0	4608
E3	G*2	0	4693
F3	G*2	0	4693
F*3	A*2	0	4864
G3	B2	0	4949
G*3	C3	0	5034
A3	C*3	0	5120
A*3	D3	0	5205
B3	D3	0	5205
C4	D*3	0	5290
C*4	F3	0	5461
D4	F3	0	5461
D*4	G3	0	5632
E4	G*3	0	5717
F4	G*3	0	5717
F*4	A*3	0	5888
G4	B3	0	5973
G*4	C4	0	6058
A4	C*4	0	6144
A*4	D4	0	6229
B4	D4	0	6229
C5	D*4	0	6314
C*5	F4	0	6485
D5	F4	0	6485
D*5	G4	0	6656
E5	G*4	0	6741
F5	G*4	0	6741
F*5	A*4	0	6912
G5	B4	0	6997
G*5	C5	0	7082
A5	C*5	0	7168
A*5	D5	0	7253
B5	D5	0	7253
C6	D*5	0	7338

C Hungarian Minor Micro Tune Scale

Hungarian Minor

1 2 b3 #4 5 b6 7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	D*2	0	4266
C*3	F2	0	4437
D3	F*2	0	4522
D*3	G2	0	4608
E3	G*2	0	4693
F3	A2	0	4778
F*3	A*2	0	4864
G3	B2	0	4949
G*3	C3	0	5034
A3	C*3	0	5120
A*3	D3	0	5205
B3	D3	0	5205
C4	D*3	0	5290
C*4	F3	0	5461
D4	F*3	0	5546
D*4	G3	0	5632
E4	G*3	0	5717
F4	A3	0	5802
F*4	A*3	0	5888
G4	B3	0	5973
G*4	C4	0	6058
A4	C*4	0	6144
A*4	D4	0	6229
B4	D4	0	6229
C5	D*4	0	6314
C*5	F4	0	6485
D5	F*4	0	6570
D*5	G4	0	6656
E5	G*4	0	6741
F5	A4	0	6826
F*5	A*4	0	6912
G5	B4	0	6997
G*5	C5	0	7082
A5	C*5	0	7168
A*5	D5	0	7253
B5	D5	0	7253
C6	D*5	0	7338

C Major Locrian Micro Tune Scale

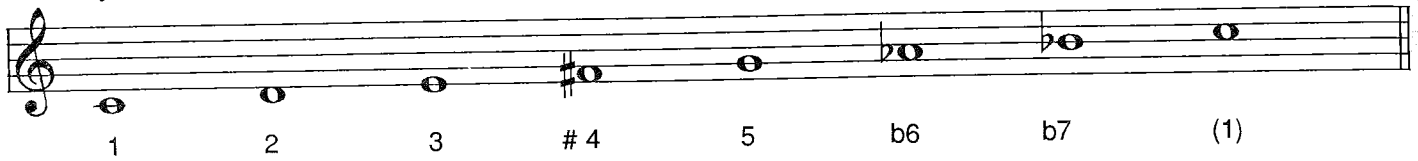
Major Locrian

1 2 3 4 b5 b6 b7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C^{*3}	F2	0	4437
D3	F2	0	4437
D^{*3}	G2	0	4608
E3	F ^{*2}	0	4522
F3	G ^{*2}	0	4693
F^{*3}	A ^{*2}	0	4864
G3	B2	0	4949
G^{*3}	C3	0	5034
A3	C ^{*3}	0	5120
A^{*3}	D3	0	5205
B3	D ^{*3}	0	5290
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C4	E3	0	5376
C^{*4}	F3	0	5461
D4	F3	0	5461
D^{*4}	G3	0	5632
E4	F ^{*3}	0	5546
F4	G ^{*3}	0	5717
F^{*4}	A ^{*3}	0	5888
G4	B3	0	5973
G^{*4}	C4	0	6058
A4	C ^{*4}	0	6144
A^{*4}	D4	0	6229
B4	D ^{*4}	0	6314
<hr/>			
C5	E4	0	6400
C^{*5}	F4	0	6485
D5	F4	0	6485
D^{*5}	G4	0	6656
E5	F ^{*4}	0	6570
F5	G ^{*4}	0	6741
F^{*5}	A ^{*4}	0	6912
G5	B4	0	6997
G^{*5}	C5	0	7082
A5	C ^{*5}	0	7168
A^{*5}	D5	0	7253
B5	D ^{*5}	0	7338
C6	E5	0	7424

C Lydian Minor Micro Tune Scale

Lydian Minor



Seven musical staves in treble clef, each showing the C Lydian Minor scale in a different position. The scales are: 1. C4-E4-F#4-G4-A4-B4-C5; 2. D4-E4-F#4-G4-A4-B4-C5; 3. E4-F#4-G4-A4-B4-C5; 4. F#4-G4-A4-B4-C5; 5. G4-A4-B4-C5; 6. A4-B4-C5; 7. B4-C5.

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C#3	F2	0	4437
D3	F#2	0	4522
D#3	F#2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F#3	G#2	0	4693
G3	A#2	0	4864
G#3	C3	0	5034
A3	C3	0	5034
A#3	D3	0	5205
B3	D3	0	5205
C4	E3	0	5376
C#4	F3	0	5461
D4	F#3	0	5546
D#4	F#3	0	5546
E4	G3	0	5632
F4	A3	0	5802
F#4	G#3	0	5717
G4	A#3	0	5888
G#4	C4	0	6058
A4	C4	0	6058
A#4	D4	0	6229
B4	D4	0	6229
C5	E4	0	6400
C#5	F4	0	6485
D5	F#4	0	6570
D#5	F#4	0	6570
E5	G4	0	6656
F5	A4	0	6826
F#5	G#4	0	6741
G5	A#4	0	6912
G#5	C5	0	7082
A5	C5	0	7082
A#5	D5	0	7253
B5	D5	0	7253
C6	E5	0	7424

C Overtone Micro Tune Scale

Overtone

1 2 3 #4 5 6 b7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C[♯]3	F2	0	4437
D3	F [♯] 2	0	4522
D[♯]3	F [♯] 2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F[♯]3	A2	0	4778
G3	A [♯] 2	0	4864
G[♯]3	C3	0	5034
A3	C3	0	5034
A[♯]3	D3	0	5205
B3	D3	0	5205
C4	E3	0	5376
C[♯]4	F3	0	5461
D4	F [♯] 3	0	5546
D[♯]4	F [♯] 3	0	5546
E4	G3	0	5632
F4	A3	0	5802
F[♯]4	A3	0	5802
G4	A [♯] 3	0	5888
G[♯]4	C4	0	6058
A4	C4	0	6058
A[♯]4	D4	0	6229
B4	D4	0	6229
C5	E4	0	6400
C[♯]5	F4	0	6485
D5	F [♯] 4	0	6570
D[♯]5	F [♯] 4	0	6570
E5	G4	0	6656
F5	A4	0	6826
F[♯]5	A4	0	6826
G5	A [♯] 4	0	6912
G[♯]5	C5	0	7082
A5	C5	0	7082
A[♯]5	D5	0	7253
B5	D5	0	7253
C6	E5	0	7424

C Leading Whole Tone Micro Tune Scale

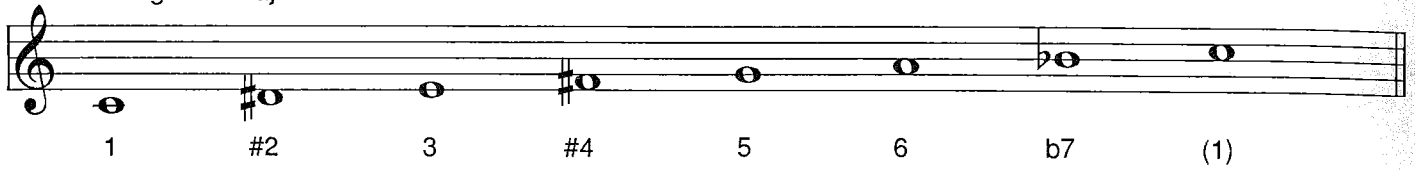
Leading Whole Tone



	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C*3	F2	0	4437
D3	F*2	0	4522
D*3	G2	0	4608
E3	G*2	0	4693
F3	A2	0	4778
F*3	A*2	0	4864
G3	B2	0	4949
G*3	B2	0	4949
A3	C*3	0	5120
A*3	C3	0	5034
B3	D3	0	5205
C4	E3	0	5376
C*4	F3	0	5461
D4	F*3	0	5546
D*4	G3	0	5632
E4	G*3	0	5717
F4	A3	0	5802
F*4	A*3	0	5888
G4	B3	0	5973
G*4	B3	0	5973
A4	C*4	0	6144
A*4	C4	0	6058
B4	D4	0	6229
C5	E4	0	6400
C*5	F4	0	6485
D5	F*4	0	6570
D*5	G4	0	6656
E5	G*4	0	6741
F5	A4	0	6826
F*5	A*4	0	6912
G5	B4	0	6997
G*5	B4	0	6997
A5	C*5	0	7168
A*5	C5	0	7082
B5	D5	0	7253
C6	E5	0	7424
C*6	C*6	0	8192
D6	D6	0	8277
D*6	D*6	0	8362
E6	E6	0	8448

C Hungarian Major Micro Tune Scale

Hungarian Major



	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C#3	F2	0	4437
D3	F#2	0	4522
D#3	F#2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F#3	A2	0	4778
G3	A#2	0	4864
G#3	C3	0	5034
A3	C3	0	5034
A#3	D#3	0	5290
B3	D#3	0	5290
C4	E3	0	5376
C#4	F3	0	5461
D4	F#3	0	5546
D#4	F#3	0	5546
E4	G3	0	5632
F4	A3	0	5802
F#4	A3	0	5802
G4	A#3	0	5888
G#4	C4	0	6058
A4	C4	0	6058
A#4	D#4	0	6314
B4	D#4	0	6314
C5	E4	0	6400
C#5	F4	0	6485
D5	F#4	0	6570
D#5	F#4	0	6570
E5	G4	0	6656
F5	A4	0	6826
F#5	A4	0	6826
G5	A#4	0	6912
G#5	C5	0	7082
A5	C5	0	7082
A#5	D#5	0	7338
B5	D#5	0	7338
C6	E5	0	7424

C Symmetrical Micro Tune Scale

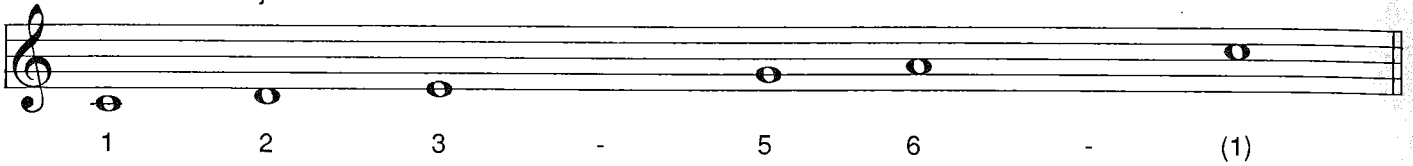
Symmetrical

1 b2 b3 3 #4 5 6 b7 (1)

	Coarse Tune	Fine Tune	Tuning Units
C3	D*2	0	4266
C#3	E2	0	4352
D3	F*2	0	4522
D#3	F*2	0	4522
E3	G2	0	4608
F3	A2	0	4778
F#3	A2	0	4778
G3	A*2	0	4864
G#3	C3	0	5034
A3	C3	0	5034
A#3	C*3	0	5120
B3	D*3	0	5290
C4	D*3	0	5290
C#4	E3	0	5376
D4	F*3	0	5546
D#4	F*3	0	5546
E4	G3	0	5632
F4	A3	0	5802
F#4	A3	0	5802
G4	A*3	0	5888
G#4	C4	0	6058
A4	C4	0	6058
A#4	C*4	0	6144
B4	D*4	0	6314
C5	D*4	0	6314
C#5	E4	0	6400
D5	F*4	0	6570
D#5	F*4	0	6570
E5	G4	0	6656
F5	A4	0	6826
F#5	A4	0	6826
G5	A*4	0	6912
G#5	C5	0	7082
A5	C5	0	7082
A#5	C*5	0	7168
B5	D*5	0	7338
C6	D*5	0	7338

C Pentatonic Major Micro Tune Scale

Pentatonic Major



	Coarse Tune	Fine Tune	Tuning Units
C3	E2	0	4352
C[♯]3	F2	0	4437
D3	G2	0	4608
D[♯]3	G2	0	4608
E3	A2	0	4778
F3	A2	0	4778
F[♯]3	A [♯] 2	0	4864
G3	C3	0	5034
G[♯]3	C3	0	5034
A3	D3	0	5205
A[♯]3	D3	0	5205
B3	D [♯] 3	0	5290
C4	E3	0	5376
C[♯]4	F3	0	5461
D4	G3	0	5632
D[♯]4	G3	0	5632
E4	A3	0	5802
F4	A3	0	5802
F[♯]4	A [♯] 3	0	5888
G4	C4	0	6058
G[♯]4	C4	0	6058
A4	D4	0	6229
A[♯]4	D4	0	6229
B4	D [♯] 4	0	6314
C5	E4	0	6400
C[♯]5	F4	0	6485
D5	G4	0	6656
D[♯]5	G4	0	6656
E5	A4	0	6826
F5	A4	0	6826
F[♯]5	A [♯] 4	0	6912
G5	C5	0	7082
G[♯]5	C5	0	7082
A5	D5	0	7253
A[♯]5	D5	0	7253
B5	D [♯] 5	0	7338
C6	E5	0	7424

C Pentatonic Minor Micro Tune Scale

Pentatonic Minor



	Coarse Tune	Fine Tune	Tuning Units
C3	F2	0	4437
C*3	F2	0	4437
D3	F2	0	4437
D*3	G2	0	4608
E3	G*2	0	4693
F3	A*2	0	4864
F*3	A*2	0	4864
G3	C3	0	5034
G*3	C3	0	5034
A3	C*3	0	5120
A*3	D*3	0	5290
B3	D*3	0	5290
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C4	F3	0	5461
C*4	F3	0	5461
D4	F3	0	5461
D*4	G3	0	5632
E4	G*3	0	5717
F4	A*3	0	5888
F*4	A*3	0	5888
G4	C4	0	6058
G*4	C4	0	6058
A4	C*4	0	6144
A*4	D*4	0	6314
B4	D*4	0	6314
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C5	F4	0	6485
C*5	F4	0	6485
D5	F4	0	6485
D*5	G4	0	6656
E5	G*4	0	6741
F5	A*4	0	6912
F*5	A*4	0	6912
G5	C5	0	7082
G*5	C5	0	7082
A5	C*5	0	7168
A*5	D*5	0	7338
B5	D*5	0	7338
C6	F5	0	7509