

# Pitch Bend Modes

## About The Pitch Bend Modes...

The pitch bend modes are accessed from the *edit mode* by pushing **Button 24**. There are four modes: *normal*, *high key*, *low key*, and *key on*. All use the pitch bend wheel to bend to a specific interval (set with the range parameter). The mode setting is stored with the voice (along with the step and range settings).

The modes differ not in how the wheel behaves, but in what specific notes will be bent as you play and move the wheel. I've found the different pitch bend modes to be quite useful for creating both imitative and innovative effects. Pedal steel, lead guitar, sitar, brass and string choir parts can each make use of one or more of the pitch bend modes. As you look over the examples below, keep in mind that the principles can be applied to any DX7 II sounds.

## Normal Mode

You are, of course, already familiar with this pitch bend mode (it's the default pitch bend mode on the DX7 II). When you move the wheel, all notes played will be bent. If the current voice has long release settings, or if you're using the sustain pedal, notes can be bent even after you take your finger from the keys. In this mode, as long as you can hear it, you can bend it. (*Example 57*)

### *Dual Bending with the Normal Mode*

Since the pitch bender settings are stored with each voice, you can have two sets of bend parameters active at once when you layer sounds (dual mode). I often set up two different bend ranges. Here are a few things to try out.

### *Preset Tuning Intervals*

Set one voice's pitch bend range for an octave (12) and the other's for a major third (4). Now you can use the pitch bender to shift tuning from unisons to major sixths. Experiment with bending two note chords. Bending a fifth with this tuning will produce a major seven chord. Bending a minor third will produce a sharp nine voicing. Of course, you can use this to preset any interval (within an octave). I like to use hammer-ons and spills with this bending set up.

### *Unison Bend Effects*

Set the pitch bend range for one voice to off (0) and the other's to a whole step (2). Accent melody notes with bend-to-unisons. Pull the pitch bender all the way flat before hitting a key, and return it to normal smoothly and quickly as you strike the key. This is a special bend articulation called a unison bend. It's the basis for many rock guitar solos and licks. Unison bend licks sound particularly good with a little distortion. Another way to use unison bends effectively is with chords. Try it with your favorite brass sounds.

### *Altering Chord Voicings*

Layer a voice tuned in fifths with a normal (unison) voice. Set the pitch bend range for the voice in fifths to off (0) and the other voice's pitch bend range to a whole step (2). Now, when you play thirds or sixths on the keyboard you'll hear seventh chords. Major thirds (minor sixths) will produce major seventh chords, and minor thirds (major sixths) will produce minor seventh chords. Play a series of thirds and use the pitch bender to articulate a bend and release for each one. (Bend sharp a whole step and return.) This will add a 9th and 11th to the minor seven voicings and a 9th and #11th to the major seventh voicings. Experiment with different tunings, voicings, and bend articulations.

#### Performances for Pitch Bender Mode Examples

Try the following performances to play the *high key* bending examples:

2: Acoustic Duo Split, 4: Jazz Pressure Flange, and 23: Jazz Tremolo Pedal

For the *low key* bending examples use performance 29: Feedback Gtr Split

For *key on* bending try performances:

6: Fanfare Key On/Pedal, 18: Bones Key On Pedal, 31: Heavy Feedback Split, and 32 Dual Sitar

All other performances are set for *normal mode* bending

Example 57

Voice A Range=12  
Voice B Range=4

Voice A  
Voice-B

Play ...

Voice A  
Voice B

Single Notes

You Play      You Hear      You Play      You Hear

Voice A tuned in fifths - Bend Range=0  
Voice B normal tuning- Bend Range=2

Unison Bend Chords

## Bending with the High Key Mode

Set the pitch bend mode to high key (**Button 24**). Play a chord and push the pitch bender all the way sharp. What do you hear? Instead of the entire chord bending sharp, only the highest key (the top note in the chord) bends. This ability to selectively bend a note against others in a voicing is characteristic of virtually all stringed instruments. It's also a commonly used orchestration technique. (One instrument in a section bends a note while others hold their pitch steady.) The DX7 II is one of a handful of synthesizers that can bend notes selectively.

In the high key mode, the pitch bender works normally when you are playing single notes. When you bend, while playing multiple notes, you'll hear the difference (only the top note bends). There are three basic approaches to using the high key mode that I've found to be quite expressive. (*Example 58*)

### ***Bending Melody Notes Over Held Tones***

This is a common technique used by guitarists and others. Thanks to the high key mode it sounds great on your DX7 II too. The basic idea is to play melody notes with bend articulations and vibrato over a held tone. The held tone is generally the root of a chord, or the fundamental note of a scale or mode. On a guitar this is often an open string that's allowed to ring. On the keyboard use your right thumb to hold the note. While holding it down, play a melody or lick with the other fingers of the right hand. Use your left hand on the pitch bender as you normally would. You can add pitch bends and vibrato to the melody notes, but the held note under your thumb stays "straight."

### ***Altering Chord Voicings with High Key Bends***

When you play and bend a chord in the normal mode, the entire chord changes pitch. Play a Csus4 and bend flat a half step, and you hear a Bsus4 chord. Since the high key mode lets you change only the top note of any chord, you can use it to alter the voicing of the chord. Play a Csus4 chord with the fourth on top. Pull the pitch bender flat a half step, and the Csus4 chord becomes a C Major triad. Play C Major with the third on top and bend sharp a half step to create a Csus4 chord. (Bending to, or away from, the third like this is a common pedal steel technique.) You are not limited to altering just the third, of course. You can bend whatever chord tone or tension is at the top of your voicing.

I've given you some example voicings below to get you started. Be sure to try different pitch bender articulations for the altered notes. Bends, bend and returns, ghost bends, and even spills all work well with altered notes. Also, once you've bent the note to its final pitch, try adding a little vibrato with the pitch bender.

### ***Hammer-Ons with High Key Bends***

Since the high key mode only bends the highest note held, what happens to the pitch of a bent note when you play a new note above it? Let's find out. Play a single note and bend up a whole step. While still holding that note, play another above it, without moving the pitch bender. Now play a new note above the others. Can you hear what's going on? Each time you play a higher note, the previous note slams back down to its original pitch. If you pull the pitch bender flat and play the same thing, the pitch slams up to its original pitch. The rapid pitch jumps when you play higher keys are very similar to hammer-ons played on stringed instruments. You can use this to add impossible-to-play grace notes to any glissando or pyramid voicing. As long as you voice the chord from the bottom up, a grace note will be added to each note in the voicing. Even very simple chords sound rich with this technique. The example below uses simple major triads. The grace notes added by the bend are 9, #11 and 13.

To play grace notes this way you play the bottom note of the voicing. Move the pitch bender to the desired interval and hold it there. Then add the remaining notes, one note at a time, from low notes to high notes. Be sure to try different bend intervals as well as different voicings.

Example 58

Bending Over Held Notes

Musical notation in 4/4 time. It shows a sequence of chords: C7, C7, C7, C7, and a final note with a 'Wheel Vibrato' symbol. Arrows indicate the bending of the upper notes of each chord.

In both examples, only the upper notes bend. The middle C stays straight.

Musical notation in 4/4 time, similar to the first example but with a different voicing for the C7 chords. It includes a 'Wheel Vibrato' symbol at the end.

Altered Voicings

Musical notation showing four different chord voicings on a guitar fretboard: Cmaj7 (add9), Cm7 (add 9), C7 (add 9), and Csus2. Fingerings are indicated by numbers 1-5 above the notes.

Add Nine

Resolve Sus Chords

Musical notation showing four different chord voicings: Csus4, C (add Maj7), and C (add7). Fingerings are indicated by numbers 1-5 above the notes.

Hammer-ons With Hi Key

You Play

You Hear

Musical notation comparing 'You Play' and 'You Hear'. The 'You Play' part shows a sequence of notes with hammer-ons. The 'You Hear' part shows the resulting sound with a sharp key signature change indicated by a sharp sign on the staff.

Play as Pyramid

Quick Shuffle

Musical notation for a 'Quick Shuffle' exercise, showing a sequence of notes with a 'Play As Pyramid' instruction.

Play As Pyramid

Musical notation for another 'Play As Pyramid' exercise, showing a sequence of notes with a 'Play As Pyramid' instruction.

Musical notation for a final 'Play As Pyramid' exercise, showing a sequence of notes with a 'Play As Pyramid' instruction.

## Bending with the Low Key Mode

Let's see what the low key mode is all about. Play a chord and push the pitch bender all the way sharp. What do you think will happen? As the name implies, the low key mode allows you to bend only the lowest note when two or more notes are held down. This is another way to selectively bend a note against others within a voicing. It behaves exactly like the high key mode, except that the bottom notes of chords are bent, not the top notes. The same three basic approaches work well with low key bending. (*Example 59*)

### ***Bending Melody Notes Under Held Tones***

This is another standard guitar, bass, and violin approach to bending. One string is bent against the others. You can apply the same principle as with high key bending. Hold down a note while playing and bending others against it. For low key bends, you'll find you need to use your little finger to play the held tones, so your other fingers are free to play melodies. (This might be difficult until you build up some strength in the pinky.) As with high key bending, try holding the root note of a chord, or fundamental note of a scale or mode. Play melodies that fit the chord or scale. Practice adding different kinds of bend articulations and vibrato with your left hand on the pitch bend wheel.

There is one articulation in particular you should check out—the unison bend. This is a standard Hendrix type guitar lick (if you have the distortion turned up), but it works equally well with less aggressive sounds also. To play a unison bend in the low key mode, play a major second on the keyboard. As soon as you strike the keys, move the pitch bender quickly and smoothly up a whole step. That's all there is to the basic lick! You can vary the bend articulation, of course. Try bend-and-returns, scoops, and dips. Be sure to try it with some distortion and your favorite power lead sounds. It's a great way to accent notes in a phrase or run. Unison bends also work well when played in a series. (Many rock tunes feature chromatic unison bend licks.) I've provided you with some exercises to get you comfortable playing unison bend melodies, as well as some other examples of bending under held tones.

### ***Altering Chord Voicings with Low Key Bends***

As you'd expect, you can use the low key mode to alter the bottom note of any chord voicing. Play a Gsus4 chord with the fifth on the bottom. Push the bender sharp a whole step and the Gsus4 chord becomes a C Major triad. Play any chord with the root on the bottom and bend up a whole step to add a ninth to it, or bend down a whole step to add a flat seven. Here are some examples to practice on. You will want to experiment not only with different voicings, but with various bend articulations as well.

### ***Pull-Offs with Low Key Bends***

If you play chords as glissandos or pyramids played from the highest note to the lowest, you can add grace notes with the low key mode. Play and hold the highest note in the chord. Move the pitch bender to the desired interval and keep it there. Now add the remaining notes from top to bottom. You will hear the pitch jump as each successive note is played. The sound is similar to the effect a guitar player gets by playing a pull-off.

Example 59

Bending under held tones

Wheel Vibrato

Bend-To-Unison  
Unison Bend

Quick Bend

For Bend-To-Unison play 2nd and bend sharp

Notated like this

Learn to play with these articulations

Quick Bend    Slide    Bend-Return    Spill    Scoop

Altered Voicings

C maj7add9    Cm7add9    C7add9

Add 9    C add maj7    C add7    Cm add7

Add 7    Gsus4    C

Pull-offs with low key

Play as Pyramid    Up    Normal    Down

You Play This    You Hear This

Set Bend Range To 5th (7)

## Exercise

### Bending with the Key On Mode

The key on bend mode is quite different from the high key and low key modes. Unlike high key and low key, you can bend as many notes as you want. How do you determine which ones are bent and which aren't? Easy. Any notes you're holding down when you move the pitch wheel will bend. Any notes that were previously played and still "ringing" won't bend. How do you get notes to ring? For most sounds, just step on the sustain pedal (FS1). Depending on the EG settings (**Button 9**) of the particular FM voice, notes will either hold indefinitely while the pedal is depressed, or they will fade out gradually (like a piano note). The EG settings for "L3" (sustain level) and "R3" (decay time) of FM carriers will determine how loud the sustained note is and how quickly it decays. Most of the string-type presets will sustain indefinitely, and most of the piano presets will eventually decay to silence when the sustain pedal is depressed. I've also given you some additional sounds to try out with key on bending techniques. (I'm partial to the sitar voice myself.)

Select any voice that decays or sustains when the pedal is held. Push the pedal down and play some notes. Take your hand from the keys. While the notes are still ringing, move the pitch bender up and down. If you've got the pitch bend mode set to key on, nothing happens. Release the pedal and hold down a chord. While you're still holding the chord, move the pitch bender again. This time the notes bend. Now, hold down the pedal and play a series of notes. Move the pitch bender while you're playing (keep the pedal down). Can you hear what's going on? Notes you're holding with your fingers get bent. If you let go of a note while the pitch bender is moved up or down from the normal position, the note slams back to its normal pitch when the key goes up. If you release keys while the pitch bender is centered, there is no pitch shift when the key goes up. Moving the pitch bender while no keys are held doesn't change the pitch of sustaining notes. (*Example 60*)

#### ***Playing Bend Articulations in the Key On Mode***

In this mode a bent note will return to its normal pitch when its key is released. At first it might seem that this puts a limit on the types of bending you can do. If you don't want to hear the pitch jump when you lift your fingers, you must return the pitch bender to its center position, as you would for a bend-and-return articulation. Even though this is true, you can still perform one way bends, ghost bends, and spills in the key on mode. For instance, to bend a note sharp a whole step and leave it there after the key is released, this is what you would do.

- Before you play the note, pull the pitch bender flat a whole step.
- Play the key for the note you want to bend to.
- Return the pitch bender to its normal position.
- Once the pitch bender is centered, you can release the note.
- To bend flat and hold, push the pitch bender sharp before you strike the key.
- Play the key for the note you want to bend to.
- Return the pitch bender to the center position.

This is a little different than the way we usually bend notes. (Normally we play the note and then push or pull the pitch bender. Then we keep the pitchbender displaced while we release the key.) However, it works just as well. This method certainly doesn't sound any different. It's just a matter of thinking differently about how to execute the bend.

### ***Bending Melody Notes Against Sustained Tones***

To bend notes against sustained tones just step on the sustain pedal and play away. To avoid pitches jumping when you release the keys remember the pitch bender must be in its normal spot when you release the keys. For bend-and-returns and scoops you can bend as you normally would. For one way bends, ghost bends, and spills, use the technique described above.

### ***Altering Chord Voicings with Key On Bends***

Since you can bend any note or notes that you want within a voicing, you'll find the key on bend mode a rich source of harmonic expression. There are many different ways to approach altering chords in this mode. You'll need to learn how to coordinate movements of your fingers on the keys with your foot on the pedal and left hand on the pitch bend wheel. It may seem a bit awkward at first, but stick with it. The results will be well worth it. I've outlined some of basic techniques below:

### ***Pyramid Bending***

Here is a very dramatic orchestration technique. Up until now, it's the kind of thing that you'd need many players or sequencer and tape tracks to do. However, with the key on mode it's a snap!

- Select a voice that continues to sound as long as your stepping on the sustain pedal (any string sound will work).
- Set the bend range for a fifth (7).
- Hold down the pedal and slowly build up a large chord one note at a time.

You can layer up to sixteen notes this way (eight if you're in the split mode). Let's build the chord again, but this time we'll add a bend to each note as its played. Here's how.

- Before you play the first note, pull the pitch bender all the way flat.
- Step on the pedal and play the note.
- Slowly return the pitch bender to its normal position.
- When the note is back to its original pitch release the key (keep your foot on the pedal).
- Now, push the pitch bender all the way sharp and play the next note.
- Slide this note back to its original pitch, then release the key.



- Continue on this way for each new note in the chord. Every new note will slide into its original pitch from a fifth above or below (depending on which way you move the pitch bender before you play the note).

Here's a variation that makes it sound even richer. Use the dual mode to assign the same sound you used above to both voice A and voice B. Edit both voices so that they are in the key on mode. Set voice A's range to a minor third (3) and voice B's to a fifth (7). Now play your pyramid voicings. When you first play a key, you'll hear both voices harmonized in thirds above or below the pitch of the key you play. As the pitch bender is returned to normal, the pitches will slowly slide to a unison at the pitch of the key you play. When you release the key, the unison will hold. Each new note in the pyramid will first sound as a harmony and then slide to unison as the pitch bender is returned to the normal position.

I've given you a couple of voicings to try out with pyramid bends, but remember, this technique will work with any chord. Be sure to experiment with different bend intervals and different sounds. Listen to the differences between pyramid bends with sustain and decay sounds, as well as the difference between the single and dual mode variations of the technique.

### ***Chord Tone Bending***

You can bend any note, or combination of notes, in any chord voicing with the key on mode. Simply play the chord and hold down the pedal. Take your fingers off any notes you don't want to bend, and bend away. To move on to the next chord in the tune, release the remaining keys and the pedal at the same time. If you use bend and return articulations, you won't hear any pitch jumps when you release the keys. If you use a one way bend of some kind, you may hear a slight pitch jump if you release keys while the pitch bender is displaced. To minimize this, edit the voice so that it has a very short release times (rate 4) for its FM carriers.

As with pyramid bending, you can use any kind of voicings and any bend intervals. The action of releasing some of the notes in a chord while holding others is not a common keyboard technique, so I've included some exercises to help you get a feel for it.

### ***Unison Bends with Key On***

If you liked the sound of the unison bend articulations we looked at earlier, then you'll love this. With the key on mode, not only can you bend two notes to unison, but you can also bend entire two-fisted chords to unison as well. The technique is simple. Select a voice that sustains. Set the pitch bend mode to key on and the range to a whole step (2). Play a single note. Step on the sustain pedal and release the key. At the same time, pull the pitch bender all the way flat. Play the same note again (keep your foot on the pedal), and quickly return the bender to its normal position. You'll hear the second note bend against the first note. That's all there is to it. Since you must play a double attack to get the effect, you'll find that you are somewhat limited in how quickly you can articulate a series of unison bends this way. So why use this technique at all? Use it when you want to bend chords to unison. Play the same lick, except this time, instead of a single note, play a triad, or a seventh chord — whatever. You can bend them just as easily. What's more, you can use the pedal to hold one or more tones to play the unison bend chord against.

Try the examples below. As always be sure to experiment with different sounds, voicings, and bend intervals.

Example 60

Bending against sustained tones  
Sitar

Musical notation for Sitar. The staff shows a sequence of notes with bends. A dashed line below the staff is labeled "Pedal".

Pyramid bending with key on

Musical notation for Pyramid bending with key on. The staff shows a C Major 7 6-9 chord. A dashed line below the staff is labeled "Pedal".

Bend Range=7. Move bender sharp or flat before each key is played

Pyramid Variation  
Voice A Bend Range=7  
Voice B Bend Range=3

Musical notation for Pyramid Variation. The staff shows two voices, A and B, with bend ranges of 7 and 3 respectively. The notation is divided into four sections: "You Play" (pull bender flat before hitting key), "You Hear" (Maj Third), "You Play" (push bender sharp before hitting key), and "You Hear" (minor Third).

Pyramid bend with diatonic thirds

Musical notation for Pyramid bend with diatonic thirds in E Dorian mode. The staff shows a sequence of notes with bends. A dashed line below the staff is labeled "Pedal".

EX 60 PART 1

PITCH BEND MODES

Altering Inner Voices Exercise

Cmaj7      C#maj7      Dmaj7      D#maj7

Red.

EMaj7      FMaj7      F#Maj7      GMaj7

Red. throughout

G#maj7      AMaj7      A#Maj7      BMaj7

Detailed description: This section contains three lines of musical notation in 4/4 time. The first line shows four measures of Cmaj7, C#maj7, Dmaj7, and D#maj7. The second line shows four measures of EMaj7, FMaj7, F#Maj7, and GMaj7. The third line shows four measures of G#maj7, AMaj7, A#Maj7, and BMaj7. Each measure contains a chord with a moving bass line and a moving inner voice line. A 'Red.' marking is present under the first measure of the first line, and 'Red. throughout' is written below the second line.

Altering Outer Voices

Cm(add9)      C#m (add9)      Dm (add9)      D#m (add9)

Red. as in "Altering Inner Voices" exercise.

Em (add9)      Fm (add9)      F#m (add9)      Gm (add9)

G#m (add9)      Am (add9)      A#m (add9)      Bm (add9)

Detailed description: This section contains three lines of musical notation in 4/4 time, each starting with a 'Red.' marking. The first line shows four measures of Cm(add9), C#m (add9), Dm (add9), and D#m (add9). The second line shows four measures of Em (add9), Fm (add9), F#m (add9), and Gm (add9). The third line shows four measures of G#m (add9), Am (add9), A#m (add9), and Bm (add9). Each measure contains a chord with a moving bass line and a moving outer voice line.