

THE ESSENTIAL GUIDE TO...

# Flanging



Get acquainted with one of the favourite audio effects of the 1960s and find out how it got its name

**H**aving covered the chorus effect back in **cm89**, this month we turn to look at its closest relative in the family of modulation effects – the flanger. Discovered in the early 1950s by Les Paul (who also invented the solid-body electric guitar),

the flanging effect was originally produced using two reel-to-reel tape decks playing two identical copies of the source material at the same time. The recording engineer would slow down one of the large rotating spools on the first machine by running his

finger along the edge (or flange), causing it to fall slightly behind the second deck by a couple of milliseconds. The process would then be repeated on the second deck until it had fallen behind the first and so on. The result of this rather tedious process was a rich, oscillating, swooshing sound, like that of a jet flying directly overhead. This distinctive effect would eventually be popularised by the likes of The Beatles and Jimi Hendrix.

Right, with the history lesson over, let's dive in and discover how you can put flanging to good use. **cm**

“THE RESULT OF THIS RATHER TEDIOUS PROCESS WAS A RICH, OSCILLATING SWOOSHING SOUND”

**JARGON BUSTER**

► LFO  
A Low Frequency Oscillator produces a control signal, which is used to change synth or effect parameters over time

DESTRUCTIVE INTERFERENCE  
A phenomena which causes waveforms of particular frequencies to cancel each other out

## THE ANATOMY OF A FLANGER



**DELAY**  
Sets the length of the basic delay stage of the flange effect

**INVERT FEEDBACK**  
Like the Invert Wet control, but only affects the signal, which is fed back to the effect input

**DRY/WET**  
These two controls can be used together to control the balance of processed and unprocessed signal

**RATE**  
Sets the rate of the Low Frequency Oscillator used to modulate the delay stage of the flanger plug-in

**SHAPE**  
Sets the waveform shape of the Low Frequency Oscillator. This can be set anywhere between a pure sine and sawtooth wave

**INVERT WET**  
Enables the wet signal to be inverted, which widens the stereo image but may cause mono compatibility problems

## WHAT IS IT?

As we've already described, the flanging effect is produced by mixing two identical copies of an audio signal, each delayed by just a few milliseconds. The movement in the effect is produced by smoothly varying the delay amount over time – usually controlled by a dedicated Low Frequency Oscillator, set to either a sine or sawtooth waveform.

Because the delay length used in a flanger is below the human ear's threshold of recognition, we still hear a flange-effected signal as one cohesive signal. However, the ear is sensitive to a by-product of the delay introduced – a number of evenly spaced notches taken out of the frequency spectrum (caused by a phenomena known as destructive interference, in case you were wondering!), which in turn produce the familiar swirly sound.

The flanging effect is often strengthened and enhanced by feeding the wet output signal back to the flanger's input, although care must be taken to avoid internal clipping caused by resonant peaks when using a lot of feedback – don't just rely on your plug-in's input meter.

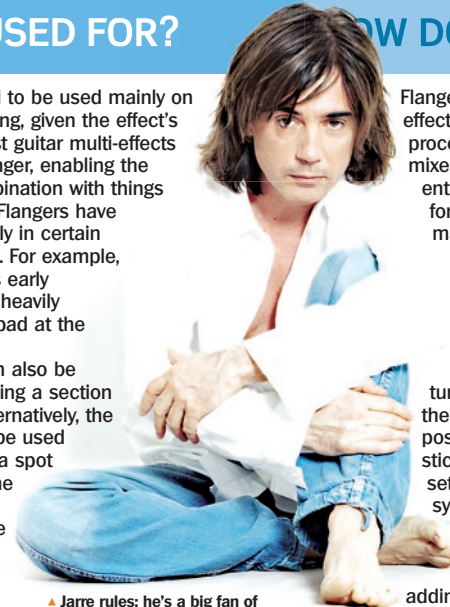
Although the original flanging technique was based in the analogue domain, digital flanging effect units and plug-ins are now commonplace. Despite not giving quite the same rich sound as the old analogue gear, digital flangers are generally considered to be good enough for most situations these days.

## WHAT'S IT USED FOR?

Originally, flangers tended to be used mainly on guitar parts – not surprising, given the effect's own pedigree. Today, most guitar multi-effects pedals have a built-in flanger, enabling the effect to be used in combination with things like distortion and delay. Flangers have also been used extensively in certain styles of electronic music. For example, one of Jean Michel Jarre's early trademark sounds was a heavily flanged or phased synth pad at the back of the mix.

A flanged drum fill can also be used very effectively to bring a section of a song to a climax. Alternatively, the process can temporarily be used across the entire mix, as a spot effect. When applied in the correct configuration, a stereo flanger can also be employed to add two-dimensional movement and depth to a part.

As usual, the best advice when familiarising yourself with a new type of effect is to experiment with it and find out how to integrate it into your own sound. However, the flanging effect is very distinctive and easily recognisable, so it's definitely best not to use it on everything – subtlety is the key!



▲ Jarre rules: he's a big fan of flanging, don't you know

## HOW DO I USE IT?

Flangers are normally used as insert effects, either in a single channel to process an individual track or in the mixer's master section to process the entire mix. Some flangers are suitable for use in a mixer send channel, but may require special configuration when used in this way – look out for a dedicated send button.

Some software studios only include a generic modulation effect, which can be set up as either a chorus or flanger unit. To turn such a unit into a flanger, set the delay parameter as low as possible (below 20ms at least) and stick to moderate feedback and LFO settings. If the LFO can be synchronised to the host tempo, try setting it to complete one cycle every 16 bars.

Like many other effects, adding a flanger often makes a part sound less direct, which may have the undesired result of pushing it further back in the mix. It's also important to remember that subtle flanging effects can sometimes be obtained by using a swept EQ or band-pass filter with a fairly high Q setting – in other words, you don't always have to reach for a dedicated flanger plug-in to get the desired effect.

### FIVE TO TRY...

**Blue Cat Flanger**  
software.bluecatonline.org

**Meta Flanger**  
www.waves.com

**Vintage Modulator**  
www.voxengo.com

**mdspFlanger**  
mdsp.smartelectronix.com

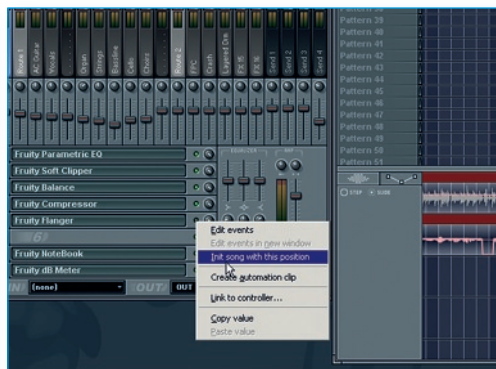
**Classic Flanger**  
www.kjaerhusaudio.com



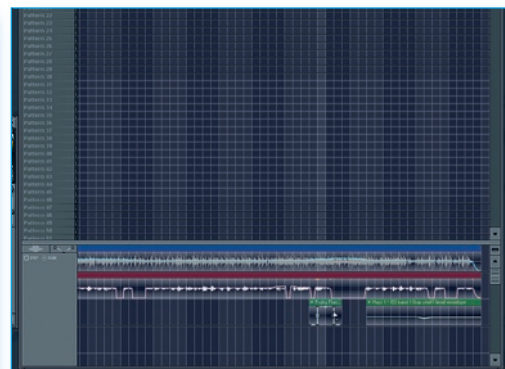
## STEP BY STEP Fruity flanging with FL Studio



**1** Open the FL Studio demo song (NewStuff.flp, in the Projects folder on the DVD), or your own if you prefer. Insert an instance of Fruity Flanger into slot 5 of the master mixer channel. Set the **Invert Feedback** and **Invert Wet** parameters to Off and reduce the master fader a bit. >>



**2** Click on the flanger's green mute button, then right-click on the button and select **Init song with this position**, so that the flanger is off during the song. Set the **Global Snap setting** to Bar and select bars 44-48 in the playlist (hold down Ctrl and drag across the bar numbers). >>



**3** Again, right click on the flanger mute button, but this time select **Create automation clip** to add a new clip to the bottom half of the playlist. Draw the curve shown to turn the flanger on from bar 45-47. Ctrl+click in the cycled area to switch off looping and listen to the results.

**NEXT MONTH:** Convolution reverb