The Rhythm method

EFFECTIVE DRUM PROGRAMMING

PART 1: If you're after a great rhythm section, these days it's very easy to whip a fabulous loop off a CD or nick a great groove from a MIDI file disk. But an inside knowledge of how and why drum patterns work can help make you a better musician and get your rhythm sections really working. NICHOLAS ROWLAND — well, he got rhythm...

BANG ON: THE EXAMPLES

It can only aid communication if everyone is talking a common language. For the purposes of this series, I've opted to present the drum pattern examples in terms of diamonds on grids, generated as screen dumps from within the drum page in Steinberg's *Cubase* sequencing software. This not only makes life easy for me, it's also a fairly tried and trusted method of drum notation. Firstly, you don't have to be able to read music to make sense of them; and secondly, they're easy to interpret for inputting into whatever drum machine, workstation or sequencer you use for generating your rhythm tracks.

The important point to note is that the colours are not there just to prettify the page. They indicate the dynamic levels/MIDI velocity values for each beat/instrument. For the sake of clarity, I've chosen to represent only three different volume/MIDI velocity levels within the patterns — basically soft, medium and loud. I could have had more, but then the grids would have started to look like an out-take from *Joseph and his Amazing Technicolor Dreamcoat*. Feel free to play around with these dynamics and introduce more sub-levels. The final point to mention is that all these rhythms were created using bog-standard sounds from a GM sound module, simply because that way I can ensure that I'm programming stuff that anyone can relate to.

This month's examples are designed to show what happens when you take a fairly straightforward bass and snare pattern, then play around with the top line of percussion — that is, the hi-hats, plus other high-frequency instruments such as ride cymbals and tambourines. The idea here is to encourage you to experiment with your own top lines, or to try different bass drum and snare patterns with these.

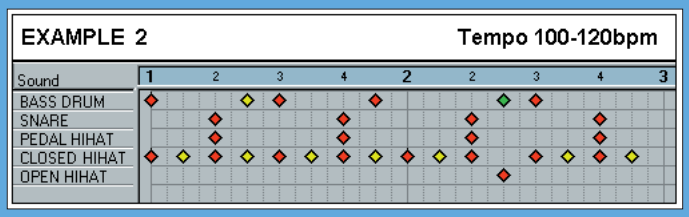
◆ = hard (MIDI velocity 120)
◆ = medium (MIDI velocity 100)
◆ = soft (MIDI velocity 80)

EXAMPLE 1

This is a very straightforward soft rock rhythm using 8th-note hi-hats. The important thing to note is that all the on-beats are accented, which helps give a little more movement to the rhythm than if all the hi-hats were played at equal volume. The open hi-hat sound is there to provide a lift at the end of the second bar and lead in to the first beat of the next. Although the suggested tempo is 100-120bpm (beats per minute) this can actually be slowed down to around 85-90bpm, where it will do very nicely for slow rock ballads. Incidentally, I usually program rhythms in 2-bar blocks, with the second bar offering a slight variation on the first. This is partly because it gives you bigger chunks to work with when building up entire songs; it also ensures that there's twice as much interest!

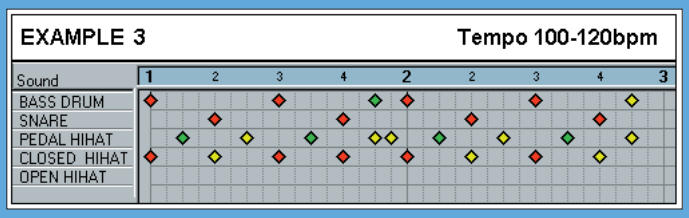
EXAMPLE 2

This one is actually Example 1, but the start point has been moved on by half a bar. However, this illustrates how you can use the editing functions of sequencers to quickly modify preset patterns, just by chopping and changing different sections and then reassembling them in different orders.



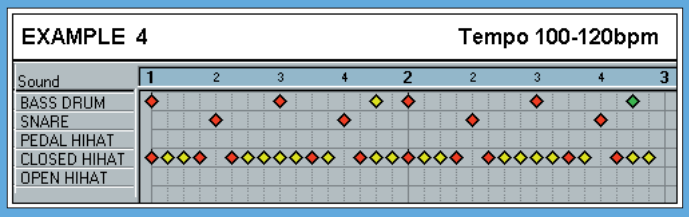
EXAMPLE 3

The open and closed hi-hat sounds on GM modules are usually never more than adequate. If you've got a module which offers a 'half open' hi-hat, you'll usually find that this makes a better sound than the fully open version. But even within the GM sound set there is third 'pedal hi-hat' sound which supposedly represents the sound made when the hi-hat cymbals are brought together by the drummer pressing his/her foot down on the hi-hat pedal. This sound can be quite useful in its own right, being somewhat thicker in tone and of slightly longer duration than the closed hi-hat. It can be employed fairly successfully as a substitute for an open hi-hat. Here it's being used to emphasise the off-beats of the rhythm, which helps even mid-tempo rhythms go with more of a swing.



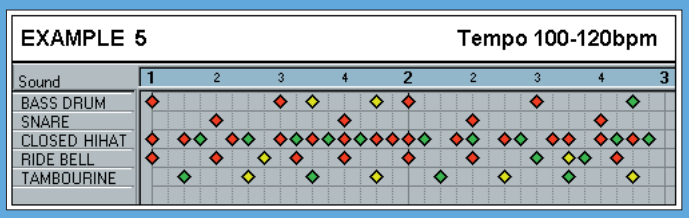
EXAMPLE 4

Here we have the 16th-note hi-hats beloved of the disco floor, but, thanks to crafty use of accent levels, we avoid the machine-gun effect which used to distinguish the mechanical beatbox rhythms of the early disco years. In this particular case the accenting could be changed around to fit more closely with the pulse of the composition as a whole.



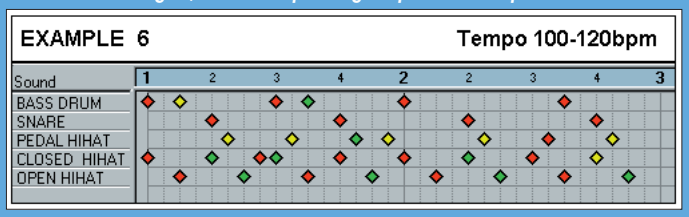
EXAMPLE 5

I've introduced a ride cymbal here to provide a counterpoint to the main hi-hat rhythm. Even though it's technically impossible to use them together from a real drummer's point of view, rides and hi-hats are sounds that work well together. The tambourine also gets an outing, again providing an uplift by emphasising the off-beats. For all these rhythms, the standard GM drum kit will work well. But try changing the kits around (most GM modules have at least three or four different types) and hear how the different sounds change the feel of the rhythms.



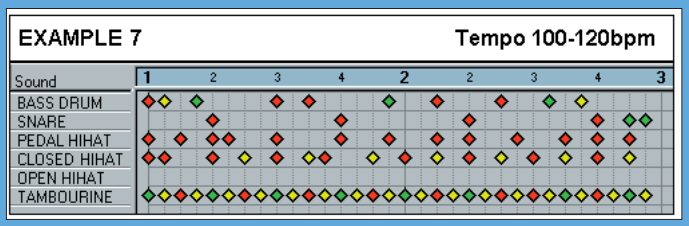
EXAMPLE 6

16th-note hi-hats again, but with a sprinkling of open hi-hats to provide the accents.



EXAMPLES 7 & 8

For this funk-style rock example, I've changed the bass and snare drum pattern to give a more syncopated feel, and brought in the tambourine to provide the straight 16th-note feel. The hi-hat sounds are used more as accents to support the tambourine rhythm.



EXAMPLES 9 & 10

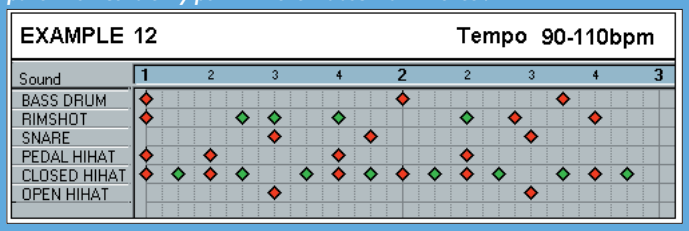
Now here's a useful trick. By applying a 16th-note triplet feel to patterns 7 and 8 (easily done in Cubase, using the over-quantise function) and slowing the rhythm down a bit, you can turn what was previously a fairly funky rock pattern into instant hip hop. Try the over-quantise technique on all your favourite rhythms and see what you end up with. If it's not obvious to you, the grid has changed from 16 sections to 24 (in other words, you need to set the quantisation of your drum machine/workstation/sequencer to give you 24 steps to the bar).

EXAMPLE 11

This is a simple, funk-based pattern which should be played at fairly slow tempos for best effect.

EXAMPLE 12

Although reggae is hardly a mainstream style these days, I've included this reggae pattern to illustrate my point in the text about half-time feel.



PART 2: The debate's been going on for as long as drum machines have been around: can they really sound human? NICHOLAS ROWLAND takes jazz drumming as his test case and tries to find out...

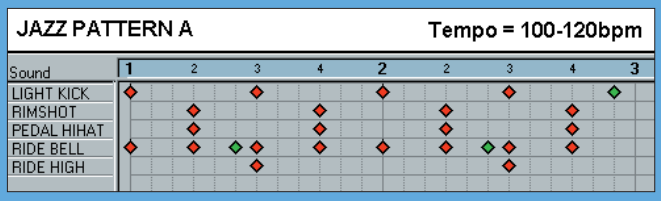
JAZZ AGE: THE EXAMPLES

Your starter for 10 is a cluster of four jazz patterns based around the archetypal jazz cymbal pattern. In rhythmic terms there's nothing to blow your socks off. What I'm more interested in here is illustrating some of the techniques explained in the main article. Before we get into that, though, some basic house rules: whereas rock and pop rhythms are based on even-length notes, jazz rhythms are divided into uneven sections based on combinations of quavers, dotted quavers and semi-quavers.

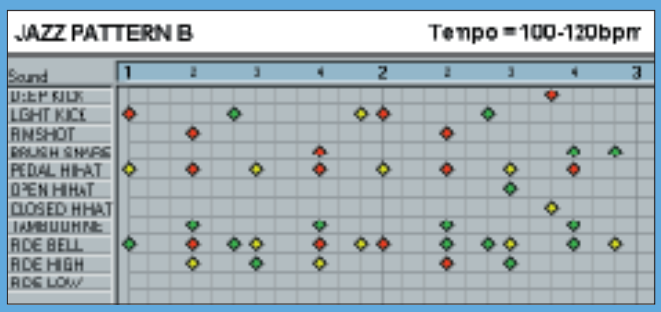
The archetypal jazz hi-hat/cymbal rhythm (you'll know it when you hear it, honest) is based on a quaver/dotted quaver/semi-quaver combination. However, this is played with a triplet feel, so in programming terms it's easiest to program in triplets. So the patterns this month were all created using a quantise value of 8th-note triplets (that is, 12 steps to the bar.) You'll see that a few examples actually use 16th-note triplets, but for the sake of making the grids easy to understand, I've kept the grids quantised at 12 steps to the bar.

Last month we had three dynamic levels, but this month I've used four. And instead of giving them absolute MIDI velocity values, I've suggested a range of dynamic levels to play with. Ideally, you would tweak each beat/instrument, so that no consecutive values are the same. Finally, while this month's examples are all based on jazz patterns, the general points covered in the main body of the text are equally applicable to any style of music where a human feel is required.

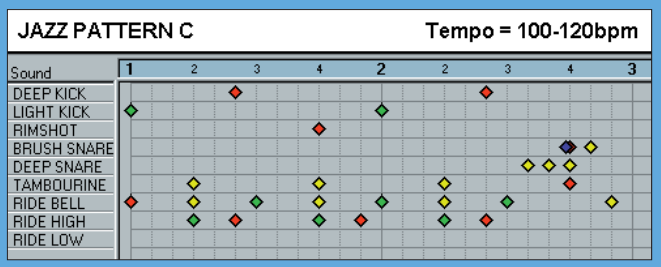
- ◆ = hard (MIDI velocity range 100-127)
- ◆ = medium (range 80-100)
- ◆ = soft (range 60-80)
- ◆ = ultra soft (less than 60)



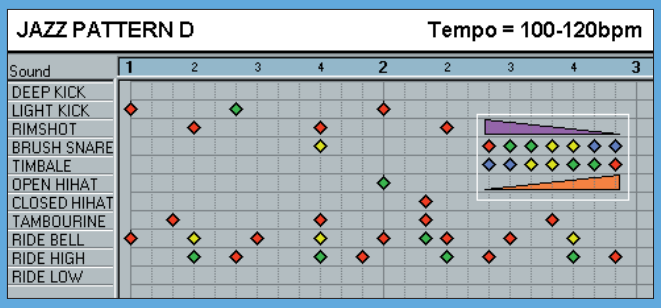
JAZZ PATTERN A — This is the archetypal (some might say cliché) jazz rhythm, played using the ride cymbal. Note, though, that even with a simple pattern such as this, we're using the ride and ride bell sounds to add a little extra interest to the rhythm.



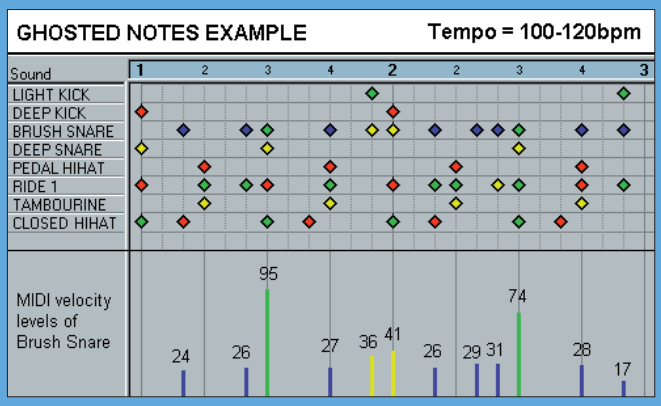
JAZZ PATTERN B — With more blobs on the grid you can see that this is a more intricate version of pattern A. Again we're mixing the ride bell and ride cymbals to give more interest at the top end. I've also doubled up the tambourine with the pedal hi-hat to add emphasis to the second and fourth beats in each bar.



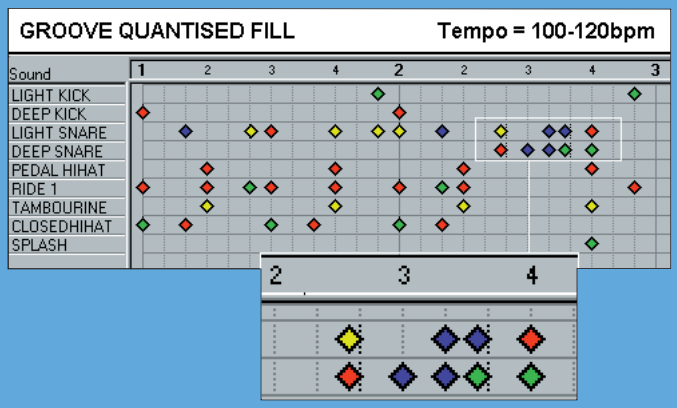
JAZZ PATTERN C — The snare fill towards the end of the second bar uses a mix of two snare sounds to simulate the changing timbre of an acoustic drum. The 'double diamond' (brush snare, fourth beat, second bar) is a flam, when two notes are played close together.



JAZZ PATTERN D — This example mixes sounds again — bringing in the metallic sounds of a timbale over the top of the brush snare during a short roll. The psychedelic wedges are supposed to indicate the fact that one gets louder and the other gets quieter — but I guess you'd probably worked that out for yourself. Timbale sounds are often quite strident, so you might have to play around with the relative volumes of the snare and timbale to get the most pleasing effect.



GHOSTED NOTES — If you watch a jazz drummer playing, you'll notice a lot of tapping away at the snare drum in between the main beats or accents. These are often known as ghost notes and, while you often can't hear them when a band is in full flight, they add a characteristic background wash to a recording or live performance. The purists out there might consider even taking all the attack off the ghosted sound and then feeding it through a short reverb back into the main drum mix. This also goes some way towards simulating the way that the snare will vibrate whenever other drums in an acoustic kit are struck.

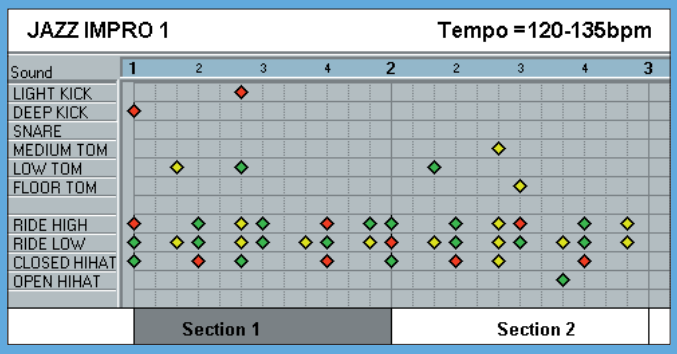


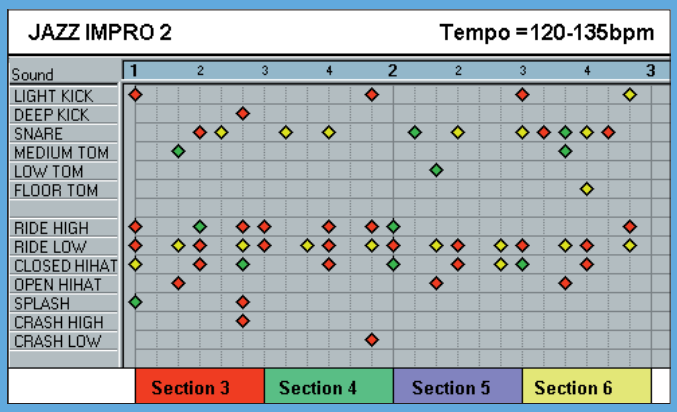
GROOVE-QUANTISED FILL

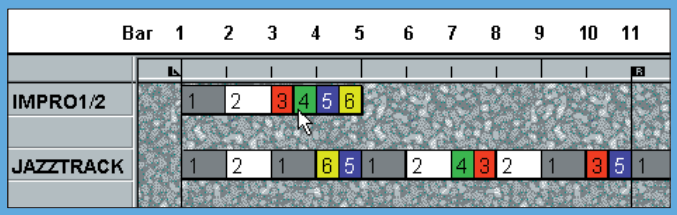
— This is a simple jazz fill pattern which has been part-doctored using a *Cubase* groove quantise, although only the bit contained in the white box. The results are shown more clearly in the enlarged section. The result is a lazy, lumpy snare fill which sounds very human indeed!

I would probably apply this quantise to any other instruments which were playing at this time, so that the whole 'band' sounds locked in together, even though they're all 'out of time'. Rather than applying these quantise treatments wholesale across a song, I tend to use different treatments in different parts of the song. There are times when you want things to sound tight and absolutely locked into the groove, other times when you want to 'push' a chorus, or 'pull back' a verse. This may sound corny, but think of the different character of each part of a song, then look at how you might enhance them through playing about with the micro-timing of beats.

You can also try a reverse approach. A lot of people will quantise the rhythm track to death while being happy to input the rest of the instruments in real time. What you can consider is copying instrumental tracks to the drum tracks, then using the note-ons of the melodic parts as the basis for quantising the drums.





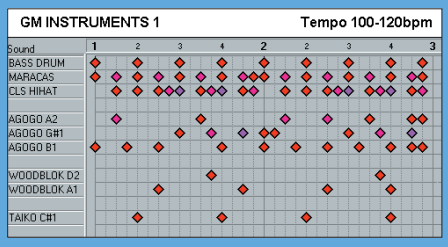


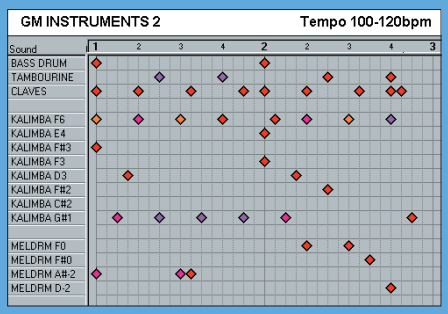
JAZZ IMPRO 1, 2 & 3 — You've probably already got the idea from the main body of the text, but here's a couple of patterns which have been chopped up and reassembled.

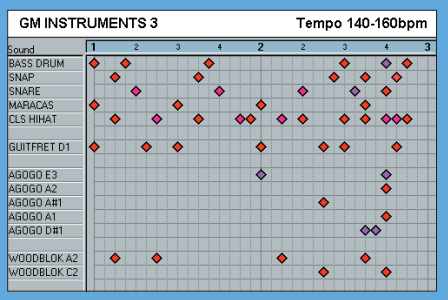
The toms in Jazz Impro 1, especially in Section 1, give the pattern a strong theme, so when putting the track together I've used this as the first bar in each four-bar section.

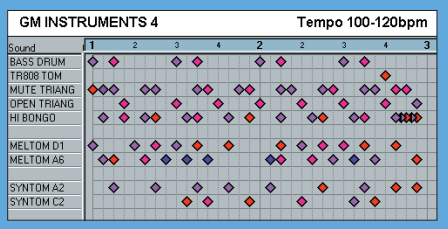
PART 3: NICHOLAS ROWLAND explains how you can take advantage of your computerised drummer to generate effects that sound anything but human...

THE EXAMPLES



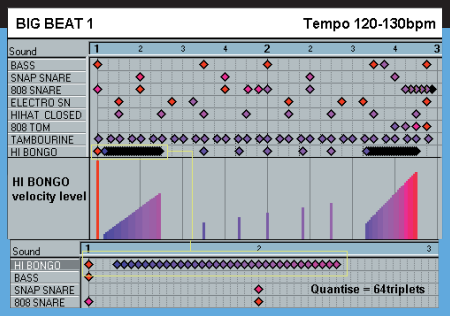


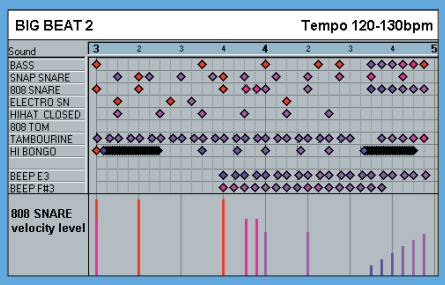




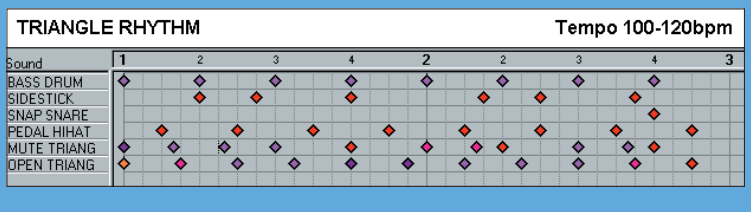
GENERAL MIDI — The four examples (left) all mix conventional drum kit voices with various non-drum sounds from the GM sound set. The purpose is to show what can be achieved even with the fairly limited capabilities of a GM sound module. Obviously, if you're working with a more capable unit, you'll be able to bring in more interesting sounds.

BIGBEAT 1 & 2 — Dance programmers have done much to advance the art of inhuman programming, using a drum machine's inherent mechanical nature for special effects. One example is what used to be known as the machine-gun snare roll. Due to the limited polyphony of early drum machines, if one sample followed too quickly on the heels of another it would just cut it off, leading to a 'staccato' sound which was regarded as highly unnatural. Indeed, compared to the sound of an acoustic drum roll it was. But now such a sound is *de rigeur* in any slammin' dance track, usually falling at the end of every 16-bar section. Here I've applied the same principle to the bongo part, which is programmed in using a quantise value of 32nd-note triplets. The effect is a bit like a tent zipper being pulled up sharpish. The section below shows MIDI velocity, and as you can see, each group of notes fades in very quickly. For good measure, you could also pan the sound from one side of the stereo spectrum to the other. Or program two bongo sounds and have one panning left to right, while the other pans right to left. The area below shows the bongo notes on a slightly bigger scale. In the second half of the rhythm, I've chosen to show the MIDI velocity values of the snare.





TRIANGLE — In this example, (below) the triangle part has been programmed as a triplet rhythm running against the hi-hat, which uses a series of straight 16th notes. The effect is to skew the rhythm, making it slightly disjointed. But with the underpinning of the snare and bass you're not going to have people tripping over themselves as they try to dance to it. As I use *Cubase*, this kind of effect is easy to achieve by setting the appropriate quantise, 'brushing in' the notes, then going back and deleting certain ones until the rhythm sounds 'right' (or wrong, depending on your point of view).



Even a killer rhythm pattern won't make the grade if it's played with lacklustre sounds. In the concluding part of this series, NICHOLAS ROWLAND puts on his sound designer's head and explains how you can re-tread your tired timbres...

IN THROUGH THE OUTBOARD

Here are some (very general) observations on the use of external kit with drum sounds:

• REVERB

Percussion always benefits from a touch of reverb, though the precise settings will generally be determined by what's going on with the rest of the track. For a harder-edged sound, go for plate reverbs. Gated reverbs appear to have long gone out of fashion as the *de rigeur* effect for snares — I certainly never touch 'em myself, guv. But you might want to try reverse reverb as a once-in-a-blue-moon special effect on fills. For all our sakes, though, please use sparingly.

• EQ

If you want to create ground-shattering basses, it's not just a question of cranking up the low end. The 'bass-ness' of a sound is more defined by the sum of frequencies and the shape of the wave than the fact that it inhabits a frequency deeper than hell itself.

If you must play around with EQ, try boosting at around the 80Hz mark. But you might also want to try cutting the mid-range back slightly, to tighten up on the muddiness which often results.

• COMPRESSION

Unlike real drums, the sounds from drum machines are generally well-behaved enough not to require much in the way of compression. However, if you want those larger-than-life big beats, try a low threshold value (-20dB or lower), a ratio of 12:1 or lower, and a release of around 40-80ms. Then play around with the attack times until you get a hard-edged sound.

• TEMPO DELAY

Tempo-related delay is one of the most underrated rhythmic tools in the drum programmer's kit, and provides a good way of creating complex-sounding rhythms from otherwise simple percussion lines. Some delay units kindly allow you to simply punch in the tempo and the musical value of the delay you want, and they will then make the necessary calculations. The rest of us need to keep a calculator or a tempo delay chart about our persons.

To work out the sum, divide 60 by the BPM value, then divide again by the desired sub-beat (4 for a quarter note, 8 for an eighth note, 12 for an eighth-note triplet). There are also lots of freeware tempo-delay calculators available on the Internet. A trip to the Shareware Music Machine site (http://www.hitsquad.com/smm) produced links to various examples for Windows PCs, Macs and Ataris.

• PITCH SHIFTING

Tempo-related pitch-shifting delay can be another useful tool. For example, try feeding a single hi-hat beat into a pitch-shifting delay, set to give eighth-note repeats that rise or fall by a semitone with each repeat. Then stand back and be amazed. You can also use pitch-shifters to create dub effects which rise and fall in pitch throughout the pattern.