Simon Gibson

The Beatles back catalogue is undergoing a definitive remastering and The Beatles Rock Band game is in the works. ROB JAMES talks to Simon Gibson about the pivotal use of CEDAR Retouch at Abbey Rd.

When evaluating audio hardware and software I always try to spend as much time as possible using the product. This is still a far cry from everyday use in anger. When I wrote about CEDAR Retouch originally I was very impressed, but aware that much more would become possible with everyday experience. I was therefore delighted to have the opportunity to talk to Simon Gibson, surround mastering and restoration engineer at Abbey Road Studios.

Simon is a master in the art of Retouch and showed me how he uses it to deal with some real world problems and introduced me to some revolutionary applications you may never have thought of. Simon has been working with Giles Martin and Paul Hicks on the digital remastering of the entire Beatles catalogue due for release in September 2009 along with the Beatles Rock Band game.

'The first thing I'd say is that since we've had Retouch, and we all have them on our Sadie's in the postproduction rooms, we've changed the way we work. It does that. It enables you to fix things that you might have had a solution for in the past, but it would have been rather convoluted and faffy. So, for instance when we do analogue tape remastering and you get a short little analogue drop-out on the tape at the beginning of a piece where there has been a splice and the next cycle round you get a small drop-out. You could probably fix that with a small edit or a bit of reverb or something. With Retouch, it's 10 seconds. You just bring it up and you can instantly see the drop-out — one click, gone, 100% of the time. Simple little things like that and then the obvious things like little acoustical or electrical clicks or distortion. Because it's there and not a separate box, it's integrated inside your workstation, you can use it whenever and as many times as you want.'

Are you also using the CEDAR workstation?
Here I'm using a Sadie with Retouch as a plug-in but we also have the CEDAR Cambridge system. We pass audio out through CEDAR and back into Sadie for a real-time process like de-noising and stuff or via the CEDAR Cambridge on the way in from the analogue domain and then capture it on Sadie.

What else do you use Retouch for?
On an every day level Retouch gets used for all sorts of things. Some of the things that I've ended up using it for over the years are acoustic noises. I'll play you an example in a minute. I also remember using it on a Maria Callas recording that had a kind of roving high frequency whistle that goes on for 30 or 40 seconds. Simply by doing small chunks and copying and pasting over, it was possible wipe that out. Before Retouch that would have been impossible.

Let me put some context on this, this is a recording from about 1977; a live piano recording in a French Chateau. You can clearly hear the phone ringing in the background. This is something I remastered a few years before Retouch came out and the CD went out with the telephone ring still in it. Obviously, it can now be removed. You could zoom in and do each line, each harmonic absolutely precisely, but frankly though it isn't critical. The next thing to do would maybe be to get rid of the phone when the piano starts again.

Any other examples?
If you have a church recording or something and a car goes past outside and honks its horn or in a studio environment where somebody's banged a chair with a violin, the same applies, but I often come back to this one because it's quite a useful example. Of course, it is also very useful when you are working on multichannel material to be able to home in on just a single channel. If you're working on a 5.1 and you've got something in the left surround and left front you can just do those.

How did The Beatles Rock Band game come about?
The albums have been ongoing for the last four years whereas Rock Band has only been on the cards for the past 18 months. The way we got into the game was that because of the work that I was doing in terms of audio restoration on The Beatles catalogue we realised the variety of uses you could put Retouch to and then the question came from Apple, 'We want to do this and we've got to come up with a demo to try and prove that we can do it.'

The techniques we explored and used to clean up the albums and led us to think we could probably use them for the Rock Band game. So we tried a couple of tracks and then Paul took it and recreated the songs. The guys from Apple came in and listened to it and we went from there really. It's been the last 18 months working steadily through the songs. As we've done it, I've discovered different ways of making it work, not least with some of the tracks having to do two, maybe three, passes across the track, which means effectively going second-by-second through the song. The first Retouch pass being, say, taking out the kick drum, the second pass maybe taking out the hi-hat and the third pass the vocals. I found different ways of working particularly on the high frequency stuff. I realised that the best way was to do a broad brush copy and paste, finding the border frequency below which it sounded crap and above which it was acceptable. So I could remove what's above in the sense of finding a clean bit of ambience and copying and pasting that across, almost like painting it out.

How does this works in the game context?
As Giles said earlier, there is no way that Rock Band could happen or would he have been able to offer the front half of the catalogue without Retouch, so it's critical. Paul Hicks and Giles Martin worked together on the Love Album which was different in the sense that it was taking Beatles catalogue and all the Beatles tapes and just mixing and recreating, whereas, for The Beatles Rock Band game the remit was to come up with a way for the player to play along and recreate Beatles songs. So what was required was a way of pulling apart the elements that make up the music.

A chunk of the catalogue has more tracks to play with, but even there you find two or three musical lines within a track pair and it's those that presented the problem of how do we get them separated. For instance, this is Paperback Writer and it's a guitar, bass and backing vocal track. So you say, OK, remove those vocals.

(The result is uncannily good.)

You lose a little bit of the transients on the bass and a few of the harmonics.

But you could paste those back in?
Life's just too short [laughs]. So that's one clear example. Taxman here is working from a file that I'd already done. I'd taken out a guitar and now he wanted me to take out the drums and stuff. Fortunately there's a reasonable gap between one instrument and the next. Some work better than others.

As you can see here in I'm Looking Through You I'm taking out claps. It's nice and sharp but laborious in the sense that you've literally just got to go through them one by one and knock them out. You do them 10 seconds at time.

[Simon showed me several more examples for illustration. The results are little short of miraculous. Once Simon has worked his magic the results are further tweaked by Giles and Paul to make them fit back together as complete tracks.]

Are they using multiple versions?
I'm not completely sure how it works in every scenario but it's something like this. If the game player gets it right you get the whole line but if they don't they will just get a percentage, so each line has to be able to be set at 0-100% independently. So

it's incredibly complex, which is why they need as much control as possible. Effectively, there is a multilayer process going on so that, when everything comes together, the track plays back as the original should sound. Some of the tracks needed filtering as well but for the vast majority of things we found we could get what we wanted with Retouch. I think there were less than a handful where we couldn't do what they wanted so one or two tracks have had to be shelved.

What was the limiting factor?

The obvious one is where things were too close-nit frequency wise. For example where you have a vocal mixed up with a rhythm guitar and the harmonics are overlapping and so on.

How do you approach restoration?

It isn't a question of varnishing everything beautifully clean at all, it's a question of assessing whether something just gets in the way a bit too much. Like the low end pops that give a low frequency thump. Because Retouch gives you the possibility of synthesising less than 100%, so instead of obliterating 100% of what you've gated [selected] you can use, say, 50% and then it's a level reduction. It's like taking the top off a click and leaving the low end but that's acceptable because it's just the high-end attack on something like that.

Predominantly it's the normal noises you'd expect but then at the sub-atomic level there are the things that Guy and Paul heard through incessant listening on headphones which sometimes completely defeated me. They'd come in and say 'there's a noise just on the third syllable there' and I'd listen to it ten times and say, 'I still can't hear it.' But then you bring it up on Retouch and you can be forensic. You just zoom in and zoom in and then you'd see a little grey sort of shadow, 'OK, got it'. Well, funnily enough, you'd do that then play it and think, 'Ah, now I can hear it.' So, between several pairs of ears you sort of get it. This isn't so much the coal-face as the diamond face! (laughs). Somebody rang up once when I was working with Guy Massey and said, 'What are you doing' and he said, 'Fiddling with the crown jewels.'

But with everything in the EMI world, in the EMI archive, working here, you feel a huge sense of responsibility. It's not to be treated lightly. You don't own it, you're just looking after it and what we are doing in this scenario is representing it for another generation.

I often liken audio restoration to picture restoration. It's trying to remove the accumulated dirt and that's often introduced by the media that are used, whether it's vinyl, 78 or tape — things have been introduced that weren't actually there in the studio when they performed it. You're getting back as close as possible to what was heard in the studio without the intervening layers and if you're using CEDAR Cambridge to de-click and de-hiss, that's an obvious way of demonstrating this. With Retouch it's a little more fine-tooth comb, more archaeological. But, interestingly with the comparison of the catalogue remasters of the albums where it's plain and simple removing, we weren't dismembering; moving on to the Rock Band we switched it round so we were dissecting it, if you like, and finding a way to use Retouch on a much bigger level and it works.

As I said at the beginning Retouch has changed the way we work, not necessarily the way we approach things, but it has given us a quicker and easier way of fixing things and a more successful way. It covers so many different problems. ■

From everything I heard and saw it is clear that, in the hands of somebody as experienced and skilled as Simon, Retouch has become an indispensable restoration tool. It is also becoming apparent that there are many more creative possibilities waiting to be explored.

There are two versions of Retouch in existence, the version for the Cambridge system and the plug-ins. The Cambridge version includes some facilities that are not available on the Sadie and other plug-in versions. For example, the biggest difference is the ability to draw complex shapes that can have holes in the middle rather than simple rectangles. So you can have a complex sound and retain it while changing everything around it. In topological terms it's like a doughnut or torus, although it can be much more complicated than that with multiple 'holes'. Although the graphic of the 'wings', which contain the material that will be used to synthesise the replacement for what is removed or diminished is still rectangular, the actual processing takes account of the shape of the doughnut. For example, where you have a splat of noise that is irregularly shaped and you've got stuff that is very close to it you can draw much closer to it. You can create a much more accurate envelope.