



RADIOHEAD'S

CARBON-NEUTRAL TOUR

Innovative design and energy-saving ideas result in a stunningly original production

By: Steve Moles

Without wishing to detract from the music, there are two good reasons why anyone with the slightest interest in the concert production industry should read this article and/or attend the current Radiohead tour.

One: Radiohead has set a challenge to make this tour as carbon-neutral as possible. This was not well-intentioned tokenism, as exhibited by certain other bands: The group did the research, briefed the production team, engaged promoters and venue managers, and communicated with fans.

Two: Radiohead placed a great deal of trust in the tour's production team, taking big risks and incurring additional expenses. The benefits are

detailed below. Some are tiny but, in the bigger scheme of things, worthwhile. Some are great, though the rewards are yet to be realized. Whatever you think about the environmental issues involved, it bears examination, if only because several new methods have successfully been applied to touring production and presentation.

One thing to add: As far as the show goes, I've never seen anything like it, not in more than 15 years as a journalist, nor my 20 on the road before that. At the end of the concert in Houston, audience members literally lined up to shake the hand of Andi Watson, the lighting designer. It is a truly extraordinary experience.

Going green

Indeed, Radiohead was totally serious about coming as close as possible to the carbon-neutral ideal. Thom Yorke, the group's lead singer, struck an ecological note early on, when he announced in an interview with *The Daily Telegraph*, "As much as possible, we want to book gigs where people can come by public transport." It's a laudable goal, but one wonders: Is it realistic, especially in the U.S.? "In the U.K. and Europe, the venues we've chosen are easy: Victoria Park London, Glasgow Green, Lancashire CC in Manchester," says Richard Young, the tour's production manager. "None of these places has good

parking locally, but excellent public transport; But no, it's not so easy in the U.S.

"However," Young adds, "the band contracted with Best Foot Forward, a company specializing in environmental audits for manufacturing and main-stream industry. They looked at touring impact—the obvious stuff: trucks and busses, power consumption, and how the fans move to venues. Far and away, fans had the biggest impact, especially when there was no choice.

continues. "We did look at trains, but you're not allowed to transport freight and people on the same train—and you still end up with ferrying gear from freight yards to the venue. Our agents, Sound Moves, looked at sea freight as an alternative to air freight for the international travel. Thom was keen, but it's 14 days to get across the Atlantic, longer to ship to Australia, Japan, and further afield. You can overcome those time frames, but what do you do with the

the band; the lighting companies provide truss, cabling, mains, control infrastructure, rigging, and some crew. "So, instead of the usual 20 tons of production air freight, I'm just moving 12 antique guitars and a few bits and pieces, less than [2,204lbs].

"We've looked at every aspect and tried to make a change," Young continues. "In the U.S., Upstaging fitted landline power to all their trucks so, when the drivers are sleeping in cabs, the motors aren't running to power the AC; in Europe, McGuinnesss have invested in new Volvo Euro5-compliant trucks. [Euro5 is a new, energy-efficient engine.] Wherever possible, the trucks run on biofuel—and only biofuel reclaimed from used oil, not from the catastrophic crops-for-oil campaign." (The latter approach has fallen into disrepute among environmentalists, because of the likelihood of disrupting world food production.)

Katie Friesena is the environmental co-ordinator, charged with applying and policing the tour's ethos. "We're taking as a basic starting point a ten-bullet-point list from [the network of environmental organizations] Friends of the Earth, and translating that list into an eco-test for venues," she says. "The major success has been car-pooling—that and working with the venues to purchase renewable energy. They purchase such energy through the regular utility company, the premium cost being offset by the tax breaks applied. Some venues have discovered the added social kudos of such a shift in policy and, since our visit, have elected to do it for all shows. Here, in Houston, is typical; the extra cost is maybe \$150 a month after the tax breaks are applied, so it's not a huge impact on the overall running costs of a venue. If just one more band decides to play the venue because of that policy, then the cost is covered."

Furthermore, she says, "All the venues agreed to encourage car-



Specialz built the set to assemble quickly and to fit easily into festival situations.

So the band took the initiative to relay information to the fans. For example, in Atlanta, the promoter offered early entry to the gig for any ticket holder who turned up with evidence that they'd travelled to the concert by MARTA [Atlanta's public transportation system]. And there has been a tremendous amount of car-pooling, encouraged by new initiatives around parking and access benefits.

"The next bit was air freight and overland transport of gear," Young

crew and production entourage while you're waiting for the gear to arrive? You can't keep laying them off; the alternative is too expensive. So how about two sets of gear, one on each side of the Atlantic?

"That was agreeable and practical, so now the band owns two sets of gear; all we rent in each country is the PA." The lighting contract for the show is held by Upstaging in the U.S. and Neg Earth in Europe, but all the LED units in the rig are owned by



Watson's design features intricate mixes of lighting and video.

pooling. The parking fee is built into the ticket price so, logistically, it's easier; turn up with four people in your car, and you're directed to a better space nearer the venue. Right now, people in the U.S. are environmentally concerned, because they're economically stressed. Gas prices are high, so they are open to car-pooling, anyway."

What has been the reaction of vendors and venue management to the policy changes that have been requested? "We've been happily surprised," she says. "What has worked in our favor is this: There have been other bands and tours with green initiatives, but we've approached it differently. We've brought our own ideas to the table, things like shore power to the trucks—even water bottles for all production personnel, instead of disposables. Those things add up, and vendors and promoters see we're also walking the walk."

Of the design itself, says Young, "Andi Watson really took the ecology concept to the nth degree; I was the one who said, 'Can we not have dimmers? Andi responded by saying, 'Let's do it all LED.' He's produced something stunning and adhered to the ethos."

The LED forest

To meet the carbon-neutral dictum, Watson elected to light the entire show with LED units. He conceived a hanging forest of LEDs, consisting of multiple rows of Element Labs Versa TUBEs populating the stage from front to back. In addition, he chose BB4 and BB7 LED lighting modules from the U.K.-based manufacturer i-Pix; these are, respectively, a four-

the same size as a PAR 36. Each is individually controllable, in terms of color and intensity.

The BB7s feature a circular arrangement, with six cells placed around a seventh on center, set into a concave faceplate. Immediately, you see these are intended to provide a focussed beam, and indeed they do; individual units on the front truss are manually operated as truss follow-

“All on, we need just 140A per phase at 240V; that's lights and video. In fact, I've calculated that we could run the show off the combined generator power of the six crew busses.”

and seven-cell “high-power homogenized 10° RGB light, using a custom Lamina light engine,” according to the company's literature. Nick Barton, one of Watson's crew members, says, “The BBs on the front truss are as powerful, in output terms, as 12 Molefays. There are 48 linear four-cell units, all individually controllable.” The reflector in each BB is approximately

spots. “When we get back to the U.K., the BB7s will be fitted with top hats,” says Barton. “The beam is a little fluffy at the edge; they do need the top hats.” How do they fare as followspots? “I thought the IATSE guys would balk when they first saw them, because all they have to do is stay awake and point; Andi controls color and fade. But they love them;

you can easily see the beam pattern on the stage.”

There are independent BB7s dotted about the trusses, and another five blocks of BB7s in pods off an upstage truss—one pod for each band member. Affectionately known as the Quins, the pods sport an LED border of Philips Solid-State iColor Flex as a bit of frou-frou. And, barring a few LED floor lights (e.g. iW Blasts from Philips Solid State Lighting for a touch of tungsten color uplift), that’s it for lighting.

What enables Watson to create his jaw-dropping effects is the total integration of LED video screens into his lighting system. Two screens of comparable size are supplied by Nocturne; approximately 2m (6.56’) tall and 14m (45.93’) wide, a strip of Saco V9 modules are flown some 4m (13.12’) above stage. Onstage, floor-mounted, sits another horizontal strip, made of Barco D7. Leaving content aside for one moment, what Watson often does is spend time matching the color, tone, and intensity of the screens to his lighting looks, so one media subsumes the other. Monochrome images, colorized to match—it is very, very powerful.

“The front truss is 5’ too low in this gig,” says Watson. (He’s speaking in Houston, before the tour’s seventh performance.) “It should sit above the Versa Tubes, the separation between the two adding a dynamic element. That apart, this is how it should look.”

But how does Watson work with an all-LED rig? He doesn’t have the variation available from moving heads, nor does he have different color temperatures to play with. And while LEDs work well head-on, doesn’t the stage seem a little dim to the audience?

“Within two days of rehearsals, any fears I may have had about that were gone,” Watson says. “I’m spectacularly happy with the rig and what it can do. But you’re right—no gobos, no beam-size variety, just

color, the Versa Tubes, and the screens. There isn’t a huge amount of scope. Whenever you design something that’s not been done before, you do already have an idea in your head, but you never know quite how it will work in reality. You discover things; some look even better, and some don’t look as good as expected. One of my main tools—and what makes this interesting for me—is the interaction between high and low resolution.” Thus, he says, depending on where they sit, different audience members have different perspectives on the show. “I spent a long time with CAD 3D, working out the spacing and dimensions of the Versa Tubes,” Watson says. “Too tight, or too loose, and it just doesn’t work. I always try to make a show that works everywhere, not just for the kids in the expensive seats.”

Did Watson consider alternatives to LED lighting? “No, I didn’t,” he says. “The amount of power that lighting rigs consume has been a concern to me for a long time. When I abandoned incandescent sources, I knew already that LEDs had overtaken fluorescent units, and this was the most efficient route—but I did do a lot of research. Did it concern me? Yes, but it also excited me. We all know that LED sources can look very beautiful, but there is a compromise, to do with timing and intensity from zero.

“The concern I took to rehearsals,” he says, “was: Would the dynamic variety be enough to sustain a two-and-a-half-hour show?” And, of course, there’s the show’s fluid, 56-song set list. “Yes, this band likes to reflect a deeper, more complex set of emotions. I have different color versions of some songs, in case changes

“There have been other bands and tours with green initiatives, but we’ve approached it differently. We’ve brought our own ideas to the table, things like shore power to the trucks—even water bottles for all production personnel instead of disposables. Those things add up, and vendors and promoters see we’re also walking the walk.”

What are the weaknesses of the rig? “The beam lights on the front truss are not quite bright enough,” Watson notes. “For the purposes of a followspot, I could still do with more. But they’re the brightest available, and the fact you’ve got a LED fixture that projects 30’ is stunning. It does limit me slightly; lighting the band members on specific positions is not always achievable. We could have had a moving yoke for the BB7s, but that was an expense too far.”

to the set list put several similarly colored songs in succession.”

There’s also a pronounced video element, with nine remote-control cameras in the rig. “For me, it’s been very important to integrate video to production lighting; artistically, I see it as the same thing. It’s very disturbing for the artists to see fans looking off to one side or up high at a video screen; they might as well be watching TV. So the position of the V9 screen upstage is such that viewers don’t



Watson achieves a number of startling monochromatic effects with the LEDs.

have to move their heads, which means they can spend more time looking at the band.”

“Cameras and equipment turned out to be very expensive, so I’ve bought a very high-quality CCTV system,” says Watson. “All the cameras are by [the U.K. company] Merit Lilin, SDI Hi Def. The effects are striking, and, in this application, would not be improved by using a £20k [\$40,000] camera. I can tint the video to match any color I’m using. That’s something not often done by video directors in concert applications, because they all strive for perfection. I run four Catalyst systems to control and manage content, Pip Rhodes created some graphical images for me, custom-manipulating moving 2-D into 3-D images by re-mapping the pixels.” Watson toured with a pair of MA Lighting grandMA consoles for control—one spare—using them to drive the Catalyst.

There are many striking images from this unusual design, little touches, like the host of Tinkerbells (small flickering balls of white light from

within the Versa Tubes) hovering above the band for the song “Arpeggio.”

The deep oscilloscope green that pervades the stage for “Gloaming” is totally otherworldly. But it’s the interplay between high and low res, between the forest and the screens, as Watson indicates, that carries the show. The intimate aspect of the camera locations, the persistent use of monochrome imagery and video graphics expanded to 3-D through the forest all conspire to produce startling juxtapositions. It’s almost as if the band is appearing live on stage and simultaneously in its own documentary; it’s wonderfully observational and a compelling visual experience.

Rigging for touring and festivals

Richard Young adds that Specialz, the Birmingham, England-based scenery house, made an important contribution to the tour’s realization.



“The tracking system is a good example of what makes them different,” he says. “Specialz came up with a way to suspend the forest of Versa Tubes. They are a big part of Andi Watson’s design—but remember, we are taking this show to festivals; you can’t leave that lot hanging around onstage all day. It’s just completely unfair to the other bands—yet we do need to present our proper show at the evening’s end. So the deployment had to be fast, easy, and simple. It was Andi who reminded us of that; just when the solutions were all looking a bit tricky, he said, ‘Why not a double-wipe-tab approach?’ He said it, and off they went.”



The tour's 15-point Kinesys automation system consists of Elevation 1+ drive units and PC-based Vector control.

The forest is rigged from three trusses, each with tandem parallel scenic tab-track that enables six cross-stage rows of Tubes to be swept onto the stage minutes before the show opens. Spezialz developed a structural joint for the Versa Tubes and provided a daisy-chain connector that enables up to nine 1m (3.28') pieces to be rigged vertically in line.

"Dave Smith at Spezialz did the research and proposed two systems; let's call one standard, the other expensive," says Young. "Both worked, but we chose the more expensive system—not a decision imposed on us by the set builder. They are our primary contractor; all the tracking—the Quins frames for the BB7s, the followspots gallows mounts, even small details like custom scaff plate feet—all come from them."

"The tab system for the vertical

Versa Tubes is Handraulic control, a precision German positional control device, operated by Johannes Soelter, [of the lighting crew]. He pulls the cord and the tubes sweep out across the stage," says lighting crew member Ed Jackson. Tommy Green, from Upstaging, puts up the Quins truss. "He's a one-man lighting crew," says Andy Beller, lighting crew chief.

The tour's 15-point Kinesys automation system consists of Elevation 1+ drive units and PC-based Vector control, operated by Beller from the side of the stage. It was supplied by Neg Earth Lights, the lighting provider for the U.K. and European sections of the tour. The Elevation 1+s are used in conjunction with CM Prostar hoists, three each of which are used to move the Quins.

"Normally, we only rehearse for a week but, because we were contem-

plating so much that was new, different, and untried, I pushed for three weeks," says Young. "We've also been a bit naive in the past in terms of expectations and what can be reasonably achieved. We felt we'd needed the first week just to get the software working; it's a show of complex technologies. Andi had been working on the design since November; Spezialz, came onboard in December, so that we could work out the detail of the fabrication logistics ahead of time. I made many a train trip from London to their Birmingham base, but it was time well-spent. Upon reflection, it was a shrewd investment of resources, because they delivered five days ahead of schedule and, barring a few drilling issues, when we loaded into rehearsals, we were up and running in two days. The rest of the time could be spent on art."

Sound with a bit of grit in it

In many ways, the sound system for the tour relies on gear that has been tried and tested. Jim Warren, Radiohead's front-of-house engineer, has used the L-Acoustics V-DOSC loudspeaker system for years. Has he ever contemplated making a switch? "In terms of sound quality, there's nothing around that's made me want to swap," he says. I've had good results with d&b's J Series, and Adamson is probably the closest sounding to V-Dosc. But, in terms of a mix like this, with the complex dynamic shifts involved, I think V-Dosc is the best there is—especially right now, when we're playing the sheds. So much carries right out onto the lawn areas that we barely have to use the house delays."

As with most open amphitheatres in the U.S., the PA rig is fairly straightforward. Twelve V-Dosc are used per side, with three dV-Dosc beneath. The latter are pointed down into the rear of the d&b audiotechnik B2 subs stacked onstage. "They travel rigged as a threesome," says Sharif El Barbari, the system tech, "so I keep them that way—but here, the bottom two are off; the top one does shoot over the subs and gives good 'fill' support to the front rows."

To the off-axis sides, Barbari hangs four L'Acoustics KUDO cabinets. "I'm just covering the slice down the sides, where the V-Dosc doesn't reach; keep the bottom cabinet at exactly the same height as the V-Dosc hang and you always have the same relationship—higher or lower, and it would never be perfect. All the weight in the low end comes from the subs and the main system, so the Kudo is just there to lift the high end."

There are 18 d&b B2 subs in total, six for each side and another six at the center. Apart from the astonishing rich, deep, and rounded low end these speakers produce, Barbari does a fine job of time-aligning

between the three stacks to eliminate the usual summing peak up the middle of the audience area, successfully closing the null that forms on either side of the narrowest of strips.

In terms of control, "I've been using the Digidesign VENUE for about three years now," says Warren. [On previous tours, he had a DiGiCo desk and, before that, a Soundcraft Series 5.] "In fact," he adds, "I had one of the earliest Venues, on Nine Inch Nails, and, even then, despite the period of many changes all new desks experience at first, it was immediately rock-solid. Yes, I had early concerns—things I either didn't like or found awkward in operation—but, within a month, they began to address them. Six months later, they brought out a software revision that dealt with most of the issues we had

glitch. It's now easier to distribute channels on the desk, so that they fall conveniently into bank layers. Here, I'm using two sidecars, because this is a channel-hungry band; with 96 inputs possible, I've actually got 70-plus from the band, and another 16 stereo effects returns. The total 'hands-on' 40 channels from the main desk and sidecars means that I can arrange sets of instruments on top of one another in bank layers, and, at the start of a song, bank-safe all the channels I need."

With the onus on shipping as little equipment across the Atlantic as possible, does Warren mind not carrying the same console around the globe? "Not at all," he says. "In fact, we've always used Firehouse [Productions, based in New York] to

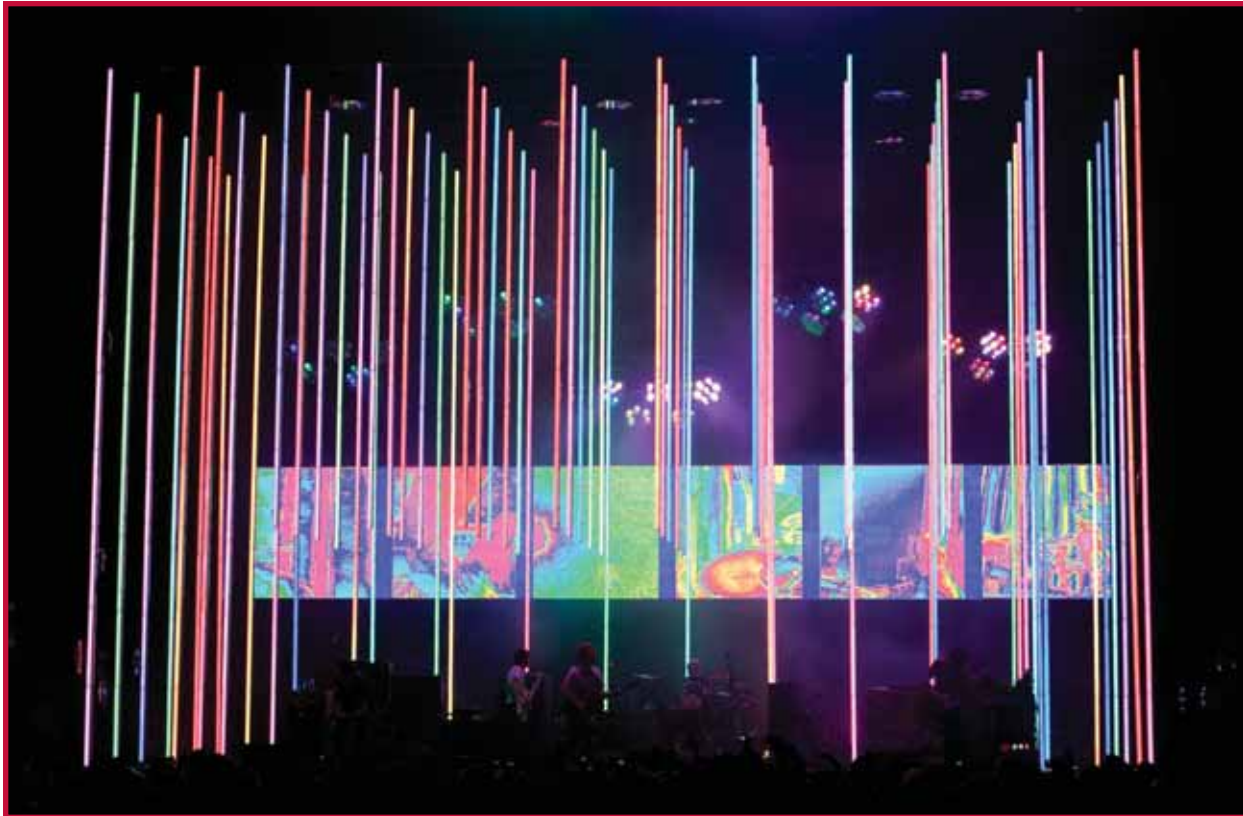
“The amount of power that lighting rigs consume has been a concern to me for a long time. When I abandoned incandescent sources, I knew already that LEDs had overtaken fluorescent units and that this was the most efficient route—but I did do a lot of research.”

raised. Their software procedures are thorough; there have not been a lot of revisions over the past few years, so, when you go from territory to territory, you're not constantly adjusting as you encounter various incarnations of software.

"With the most recent updates," he says, "I particularly appreciate Bank Safe, which makes a channel stay on the surface when another bank is selected, allowing you to build up custom patches with all the important channels for a song on a single layer. Also, allowing me to put empty channels wherever I want has removed an annoying operational

supply our system over here, and Wigwam in Europe; it's never been a case of picking up stacks and racks in the U.S. Bryan Olson, of Firehouse, has always supplied all front-of-house, and control as well. They are both reliable companies. Their support is valued, especially this time around, where the touring periods in each territory are relatively short."

One reason for desk consistency is the ever-expanding ensemble of musical instruments and other noise sources so beloved of Radiohead. "Yes, there is a hell of a lot going on," Warren says, with a rueful smile.



Watson spends much of his time matching the color, tone, and intensity of the screens to his lighting looks.

“Not just from the start, but also as the tour develops, and the band explores their own songs. Over time, you might find that a keyboard sound leaps out, so I’ll slap a compressor on it; as long as there’s enough DSP on board, I can do anything I want, without calling the supplier every day for more outboard gear. The complexity of some of these mixes is immense, but it’s all on a USB key.”

On his last Radiohead tour, Warren expressed a desire to reduce his inputs. This time out, he says the 56-song set list includes “all the material I’m used to and more on top. They always swear they’ll reduce the amount of backline, but the truth is, though they might cut a few things, there’s at least another half dozen new things they add.”

In terms of mics, Warren says, “I’m a firm believer that you can do a gig with nothing but [Shure] SM57s, but, yes, I’ve quite a variety here. I’ve got an AT phantom powered

tube mic, the [Audio-Technica] AT3060, which sounds great on guitar. Jonny [Greenwood, the guitarist] also has a Fender 85 transistor amp combo, on which I use an Audix OM3; we tried it out years ago as a vocal mic, but I’ve found it ideal for that particular cabinet.

“They play a lot of different guitars and through a variety of cabinets: Fender, Vox, Mesa, Ampeg. Specifically to achieve different sounds, I also use variously SM57s and Sennheiser 609s. I always ask for 509s but everyone sends you 609s. I’ve got two mics on the snare; that’s not so unusual, but not the regular top and bottom. I wasn’t happy with the sound from the close mic at the top, so I ended up positioning a Beyer 201 round the side about 2” away from the shell. It gives me a more natural snare sound. It doesn’t work for Graham [Lees the monitor engineer], so there’s still a Sennheiser 604 in close for him.”

Warren affords the drums as much attention as the rest of the instruments, especially in the way he pulls the drums up and down the mix for punctuation. “I also like to put an ambient pickup on the kit,” he says. “Normally, I place a lavalier omnidirectional mic on top of the bass drum. In this instance, though, I’m using an ATM35 pointed towards the snare, which gives a similar sort of full kit sound you get from an overhead, but without the predominance of the cymbals. It’s another tool that helps me vary the mix, song to song, to the way the band intends it sound.

“Getting back to the channel count, we have managed to rationalize the keyboard side of things; there’s now one big sampler with a number of MIDI controller devices around the stage, and that has made our lives a lot easier. The only difficulty with the no-shipping ethos is the band does suffer from two sets of backline. In a show where stuff is constantly

evolving, or where you discover something that's unreliable and create a work-round, then you've got to try and remember all that when you cross back over the ocean to the second set of gear."

Interestingly, there is no offboard equipment in sight. "With a console like this, it's very easy to get yourself into a comfortable position, because of that total recall," Warren says. "But you still have to remember what you have programmed into the desk when you're driving the show. In the past, I've limited things I do for that reason, though this time I have gone out on a bit of a limb, because I'm more familiar with the desk and the plug-ins. But it's still not a lot: two drum kits panned hard left and right, and bits and pieces on guitar—though, obviously, the band has already done most of the work there. Also, there are some spacey delays on keys. In terms of color and texture, it's just a little bit of delay here, reverb there. I run up flanging and distortion on the vocal channel, just to put a bit of grit in it."

Again, there's that desire not to sound too nice. Aurally, this is not a picnic in the park with a chilled Chardonnay; this is a hard hike up the mountain and you can expect a few blisters. But the sense of achievement when you get to the top is well worth it.

The band has both wedges and in-ear monitor systems; the wedges are Firehouse models, a rare item in Europe. Are these an essential piece of gear that must be freighted everywhere? "Fortunately, no," says Graham Lees. "Wigwam already has some. The wedges are there mainly to add weight. Ed [O'Brien, the guitarist], at stage right, has in-ears and a wedge; Johnny [Greenwood] just has wedges, mainly kick, snare, and bass guitar. The wedges are useful for giving penetration to the snare, weight to the kick. Thom [Yorke] relies on the wedges less and

less; his in-ears have almost become ear defenders for him. He has Ultimate Ear Pro 10 inserts; they exclude most external noise. I have a pair, too, and I must say they're the best fitting inserts I've ever used. Ed uses Shure E5s, Phil [Selway, the drummer] also has Pro 10s. Unlike other drummers, there's no thumper or sub-bass cabinet. Overall, it's very controlled onstage. I've never got any feedback off any of the vocal mics. I take all feeds from the drums, even [Warren's] ambient kit mic; I don't want it all, I don't use Jim's distant snare mic, but it's useful to have them all come to me when we're line-checking. If I've got signal and Jim hasn't, we immediately have a more defined search area."

It's a complex musical texture. Are the mixes equally complex? "They're still basically a five-piece rock band; it's just they play lots of different instruments," Lees says. "I

of space it takes. But to answer you're question directly: It's not as complex as it might seem. I'm a big fan of the band; I know the songs very well. With 56 songs possible, that depth of knowledge is essential. For them it's a quality, not quantity, thing. Even though much of the stuff mustn't sound good, as in 'not perfect,' as Jim explained about the piano sound, they still want specific sounds."

Keeping track of the results

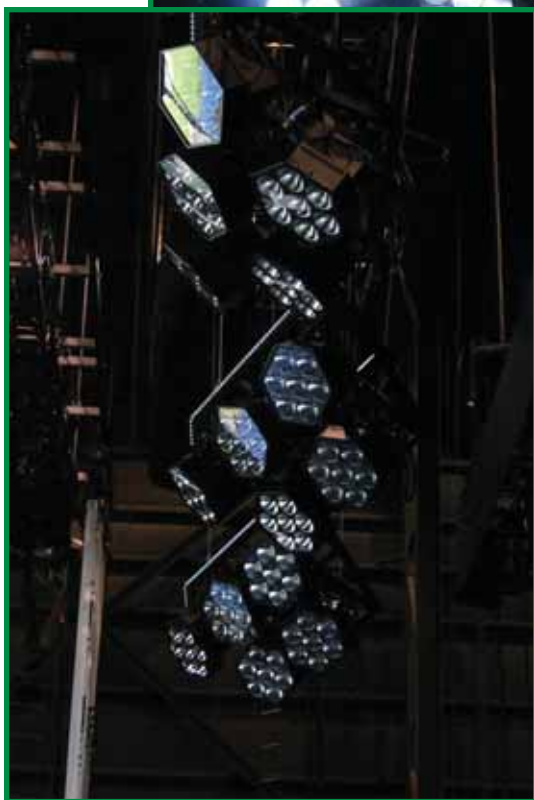
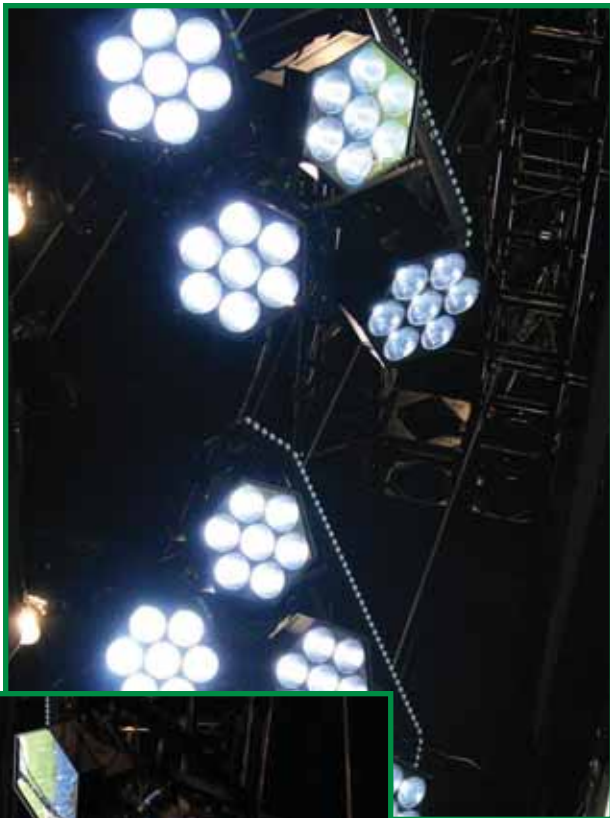
Asked, seven shows into the tour, if the ecological decisions were proving effective, Richard Young says, "Through all the things we've done, we've proved you can still produce a successful rock concert. I hope that manufacturers will be similarly inspired. The LED light producer, i-Pix, managed to knock out in excess of 190 units for us in three weeks."



Using his lighting and video gear, Watson creates complex, layered looks.

don't set scenes on the console, just lots of auto-mutes. I've been using a Digidesign Profile since the last tour; before that, I used the Yamaha PM5D. With both desks, it beats running two [Midas] H3000s, which is where I started. I really like the Digi, if only for the tiny amount

"We're in the process of collecting statistics on average energy consumption on a per-venue basis," Katie Friesena continues. "We need that information to compile a report and see how effective this has been after the tour. There are things you can't measure, but are still worth



Left/Below left: A close-up view of the BB4 and BB7 units. Right: The L-Acoustics loudspeaker rig.

doing; we encouraged all the caterers to compost all vegetable waste.” How? “By helping them forge links with local garden suppliers and the like. We also encourage the venue to recycle as much waste

from the event as possible. Backstage, we apply similar measures. Shows with radio mics and in-ear systems notoriously replace all batteries after every show. That doesn’t mean you have to throw them in the trash—most of those batteries have plenty of life left in them—so we store them in production and give them out free to anyone who needs them for their flashlight or any other personal device. All printers are, by default, set to print both sides of the page. It’s little stuff, but it adds up, and it requires little effort, just a willingness to engage. As I said, we’ve been very impressed how everyone has contributed. There are two good reasons for that: It comes from the band downwards—they do as they say and everyone can see that. And we’ve developed some specific, concrete ideas and suggestions that people can deal with.”

The energy savings are impressive. “All on, we need just 140A per phase at 240V; that’s lights and video,” says Ed Jackson. “In fact, I’ve calculated that we could run the show off the combined generator power of the six crew busses.”

There are many implications to this approach, Young points out: “Andi’s decision to go LED also impacted cost savings elsewhere—trucking, for example, because an all-LED rig is small and light, and requires a lot less cabling. You do still need as many crew—it’s just as time-consuming—but there are no moving light techs. This stuff is very reliable.”

“The great thing is the universal acceptance of what we’re trying to achieve,” Young says. “Even the buses have disposable cups made from corn waste. Radiohead didn’t jump on the bandwagon; they did the research and came up with things to try, big and small.”