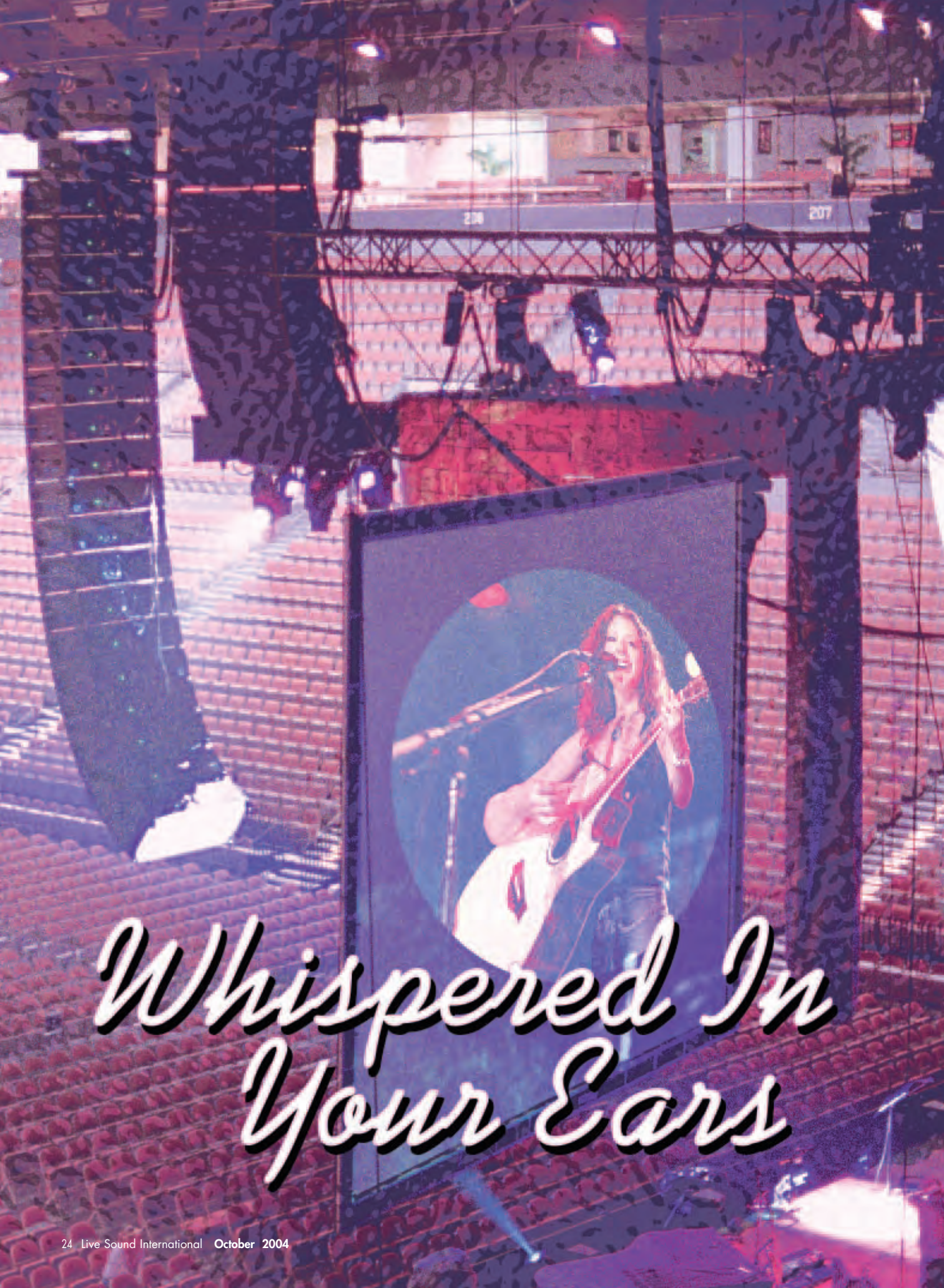


Whispered In Your Ears



Sarah McLachlan and crew take on arena settings

Best known for ballads but fully capable of rocking with the best, multiple Grammy and Juno Award winning artist Sarah McLachlan is one of the most compelling vocalists on the popular music landscape.

For the first time since 1999, when she appeared on the bill of her brainchild package *Lilith Fair* (which featured established and emerging female artists), McLachlan currently finds herself in the midst of a concert tour, appearing first in North America and then moving on to Europe.

By E. Victor Brown

Sarah McLachlan photos by Todd Kaplan





McLachlan and band on an uncluttered stage, and she's using her long-time vocal mic of choice, a Neumann KMS 150.

The tour, in support of her latest recorded release, *Afterglow*, features the headline performer backed by a seven-piece band that includes family and long-time friends. The shows highlight a vocal quality she's described as "two o'clock in the morning, whispered in your ears."

The singer's popularity is taking her to arena-size venues where long-time Front-Of-House Engineer Gary Stokes has the challenging task of creating an intimate, theater-like experience in those cavernous spaces, backed by sound system suppliers Sound Art Touring and AVM (Audio Video Methods), both based in Toronto.

"It's more like a quest than a tour," chuckles Jeff Berryman, director of Sound Art Touring. Specifically, the audiophile Stokes, something of a perfectionist, along with House System Tech Gord Reddy and the rest of the crew are striving to recreate the lush, personal sound of McLachlan's recordings, particularly through constant high-frequency coverage and control.

Berryman continues, "With Gary and Gord, a certain amount of night-to-night variation is acceptable if it occurs in pursuit of that elusive intimacy. This is an uncommon ethic, but they're all very experienced at working with each other and are comfortable with it."

During the sound design process, all parties agreed on a line array loudspeaker approach. Typically, the main rig comprises two front arrays of 16 Meyer Sound MILO cabinets each plus two side hangs, each with eight more MILO boxes. At the bottom of each of the four arrays are two MILO 120 extended coverage boxes, which provide 120 degrees of horizontal coverage for downfill.

To fill in areas not covered by the main system, the tour is carrying a set of smaller Meyer loudspeakers that are stacked on the stage. These include six UPJ-1P compact self-powered systems, incorporating the company's VariO rotatable horns, and eight M1D ultra-compact curvilinear array loudspeakers, Bass is produced by a cluster of 16 Electro-Voice (EV) Xsub line array subwoofers, with two columns of eight cabinets flown downstage.

EASY SPLIT

One key to aspect is separate control of each small section of the loudspeaker array, says Stokes. "Because the Meyer loudspeakers are self powered, it's easy to split the arrays into a relatively large number of zones. This gives us independent control for high-frequency shading and other tweaks."

Specifically, the line array columns are divided into multiple control zones to allow for optimization of coverage. Each front array has four zones, and each side array has three. The entire house loudspeaker system is managed by a set of XTA DP-226 digital processors, remotely controlled by XTA AudioCore software.

There is also a delay package consisting of six small proprietary delay horns flown with small motors. "Doing this means I don't have to attempt throwing 10 kHz about 300 feet from the MILO arrays. We want to approach the system as if everyone in the upper bowl is about the same distance from the main system," Reddy notes.





A look at a typical array structure deployed by Gary Stokes and Gord Reddy, both posing for photos in catering.



Meyer's MAPP online acoustical prediction program has been an asset. "We used it quite a lot in pre-production and in rehearsals, comparing various configurations," details Stokes. "Now that we're on tour, Gord uses a CAD program to model the rooms. Each morning, he measures the venue with optical surveying equipment and models it in CAD, then uses MAPP online or offline to determine array rigging parameters."

Even with MAPP prediction, the best placement of the sound system is not always possible. "It's problematic, because it's sometimes hard to get ideal rigging points," says Stokes. "MILO offers a solid 90-degree coverage pattern, but venues don't necessarily conform to that shape. If all the seats within the pattern were the same distance from the array, it would be fabulous, but sometimes the 90-degree coverage area is 300 feet deep on the onstage side and 200 feet deep on the offstage side. One EQ curve can't compensate accurately for both of those distances."

After flying the house system, Reddy uses both music and measurement to tune the rig. SIA SMAART is deployed to measure the system, outfitted with a wireless kit that allows adjustment of the system from any point in the venue.



The True Systems P2 mic preamp on MacLachlan's vocal, and the rack of Sennheiser wireless in-ear systems used by the entire group.

Once the main arrays are in good shape, Reddy turns the keys over to Stokes and begins tweaking supplementary zones and delay. "I try to get some constants with the main array, so Gary can execute the sound check without any dramatic changes in the sound of the room," explains Reddy. In tuning, Reddy takes care to direct a significant amount of system output at FOH, so that Stokes always has a good idea of peak sound pressure levels in the room.

To analyze room mixes, Reddy and Stokes do a lot of listening to original digital recordings ("board tapes") taken from previous live performances. "For years, people were tuning sound systems strangely, so the board tapes were like photo negatives representing everything the mix should be - but was not, or vice versa. A well-tuned system should give vital information from board recordings," Reddy comments.



The XL4 house console accompanied by more digital (left) and analog (right) channels.

NEW DISCOVERY

Stokes began his career doing club sound in the early 1980s, progressing to larger shows and eventually forming a relationship with Nettwerk Records of Vancouver. Cutting his "early touring teeth" with groundbreaking industrial acts such as Skinny Puppy, he was paired with Nettwerk's (at that time) new discovery Sarah McLachlan, with whom he has worked with ever since.

"For this tour, we're fairly involved with trying to create a lot of atmosphere to compliment Sarah's subtle dynamics, using everything from the music when the audience enters the venue to the set to the lighting, and we try to preserve the mood from beginning to end," details Stokes. "That's a little hard to do with popcorn hawkers, banner ads for cars and halogen sports lighting, but we think we've been successful in making the experience feel more intimate than your average arena gig. In that respect, the line array is a good advantage because you can keep a little more sound pressure off of the hard



surfaces and excite the space less."

The FOH mixing console is a Midas XL4, with 54 of its 56 inputs pulling duty. In addition, the band's two keyboardists provide their own submixes. During the show, the two guitarists make numerous instrument and setting changes, and the two keyboard players double on accordion and pump organ.

This situation adds complexity to Stokes' task. He assigns a VCA to each musician, and additional VCAs to drum loops and other specialized inputs, then mixes the show mainly on those VCAs. He also builds in some variability - "I set up different scenes for each song so I can alternate between the two settings if necessary."

McLachlan splits time between the front of the stage and at a piano, both locations outfitted with dual Neumann KMS 150 hypercardioid condenser microphones to capture her vocal. This feeds directly into individual channels of a True Systems P2 analog microphone preamp, which in turn feeds a custom, proprietary line-level transformer and then an XTA D2 dynamic equalizer inserted on the channel.

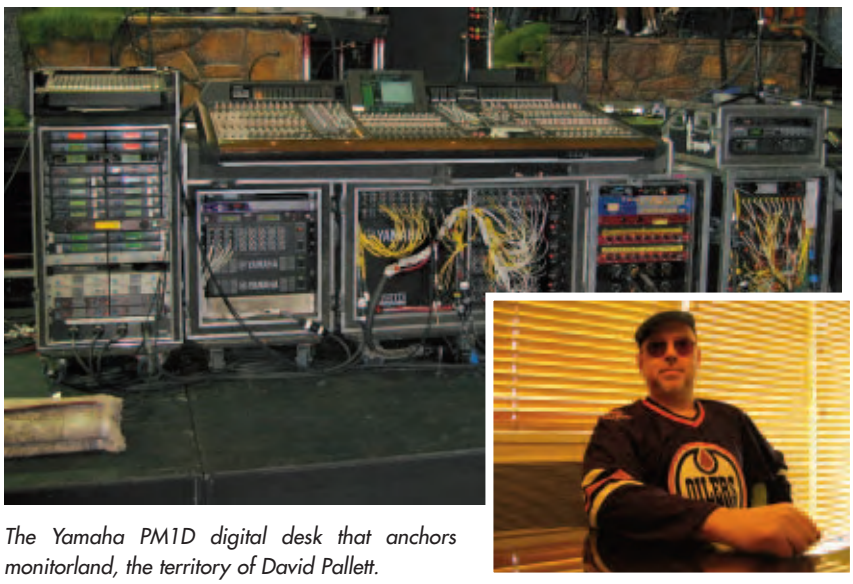
"The stereo D2 allows me to mirror the setting changes as she moves from her downstage microphone to the piano, so I only have one knob for both microphone positions," explains Stokes.

The seven backing vocals are all on hardwired Audix VX-10 condenser mics. They, along with an additional Sennheiser wireless microphone system outfitted with a Neumann KK 105 capsule (used by McLachlan for one song) go to a common vocal group with an insert of a Focusrite Producer Pack offering EQ, de-esser and compressor. "It's primarily there to add a little high frequency sweetness on top and retain a little of the mid-range stuff Sarah does, without adding any destructive EQ," he says.

Drummer Ash Sood (who is also Sarah's husband) serves as the primary backing vocalist, using a Crown CM-311 headset microphone with the company's "differoid" design making it very tight against stray stage leakage. His kit has an EV RE20 on kick, a mix of Shure and Neumann on toms and snare (with a Beyer 88 on the lowest tom), and Earthworks mics on stands overhead.

McLachlan's piano is mic'd with a pair of Neumann KMS 140 condenser mics on shock mounts clamped to the inside bracing structure. A Helpinstill piano pickup is also deployed, particularly to enhance the lower frequencies.

Acoustic dampening material is applied to the underside of the piano lid, right above the current mic locations, to help lessen direct reflections and producing more of an "open lid" sound. Further, the lid also has been outfitted for attachment of mic mounts, so the sound team has plans to experiment with it.



The Yamaha PM1D digital desk that anchors monitorland, the territory of David Pallett.

WITH A TWIST

Monitor Engineer David Pallett, who's worked with McLachlan since 1992, chose to use a Yamaha PM1D digital console, with a twist. An Apogee Big Ben stand-alone master clock is linked to the console, an approach that Pallett feels enhances the top end.

The PM1D's internal gates and compressors are applied to a wide range of instruments, everything from acoustic guitar to kick, while the board's eight onboard effects allow him to tailor reverb for anyone in any configuration. The only outboard gear is a Focusrite ISA220 Session Pack for EQ and compression on lead vocal. Eight stereo mixes are provided for the band, and another seven for techs and one for the production office.

The stage is devoid of monitor wedges. Four Sennheiser Evolution G2 Series in-ear personal monitoring systems (IEM), with Sensphonics custom-molded earpieces, are provided for McLachlan and the band. A Professional Wireless Systems (PWS) antenna amp/combiner enhances reception of the IEM systems, working in tandem with helical antennas.

The four remaining band mixes route to Furman headphone amps feeding boxes (with gain control) for plugging in headphones. Sood's drum position has plenty of low-end air moving, courtesy of two single-18-inch-loaded EV subwoofers driven by a QSC Audio power amplifier.

Six years away from the touring scene certainly didn't dampen the enthusiasm fans have for McLachlin in the live realm, and apparently, the break didn't cool the knowledge and enthusiasm of the sound crew one bit either. The tour has been selling quite well on the North American leg, and an even bigger response to that "two o'clock in the morning, whispered in your ears" sound is anticipated as the show moves overseas. ■

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