

650 WSM

GRAND OLE OPRY

# UPGRADING AN ICON

A new sound direction at  
the Grand Ole Opry

**M**ore than a million fans annually flock to the Grand Ole Opry House in Nashville, Tennessee to experience top-shelf country and bluegrass live music performances. Artist members of the Opry include current contemporary favorites such as Alan Jackson, Vince Gill, and Martina McBride as well as thriving legends like George Jones and Loretta Lynn.

The venue, home to Opry performances since 1974, has a heavy production schedule that includes live televised broadcast performances (Grand Ole Opry Live on Great American Country and CMT Canada channels) and a series of weekly live radio shows heard on Nashville's 650 WSM-AM, Sirius Satellite Radio, and streamed on [www.opry.com](http://www.opry.com).

In addition to its regular productions, the Grand Ole Opry House also hosts national pop, rock and musical performance acts throughout the year. And, it's the site of a variety of special entertainment and awards shows, including the Country Music Association (CMA) Awards, gospel music conventions, and Radio City's Christmas Spectacular.

Executives from Gaylord Entertainment, parent company of the Grand Ole Opry House, spent several seasons reviewing various options to modernize the aging facility. A recently concluded \$7.5 million renovation addressed several aspects, including a new sound system for the 4,400 seat amphitheater-style auditorium. Nearly a decade after the previous house system upgrade, the Opry House staff began the search for an audio solution that would enhance both coverage and clarity.

"Early planning began over a year ago with the evaluation of line arrays, and it's worth mentioning why we headed in this direction," explains Jon Mire, technical services manager for the Grand Ole Opry House and its sister venue, the Ryman Auditorium in downtown Nashville. "In years past, we've seen plenty of systems come and go, with a lot of artists choosing not to use the house PA for different reasons. When an artist carries his or her own production, we always pay attention to what's coming off the trucks, and we began to see many line array rigs coming through with artists like Bruce Springsteen and Bob Dylan. That tipped us off that maybe we should look at this type of system."

*By Linda Seid Frembes*

*Photos by Bob Hailey*



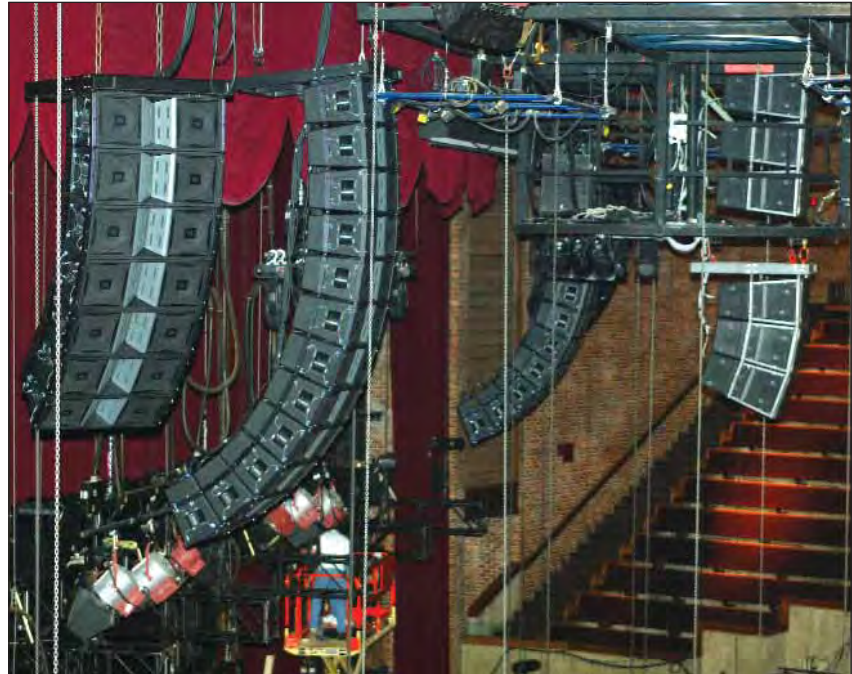
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## HEAVY HITTERS

In early 2003 Mire and his team began researching and evaluating several different vendors of line arrays, with a team of pro audio veterans assembled for the overall system evaluation and selection process. Engineer and producer George Massenburg was engaged as audio quality consultant, while musician and producer Steve Gibson, a key player in the Nashville music scene, signed on as music quality consultant. Sam Berkow, founder of SIA Software Company, provided technical consulting for room acoustics.

In-house resources included veteran audio mixers like Tommy Hensley, front-of-house (FOH) mixer for the Grand Ole Opry, and Tim Farris, who handles broadcast audio. "We knew that in order to offer our new installed system as an option for touring acts, we'd really have to do our homework and be sure we could meet the production needs of our own in-house events, and also outside activities that we service," notes Mire.

As the system team sought product information, Ted Leamy, director of engineered sound marketing, spear-



All four new arrays serving the Opry House, plus the new subwoofer array in the center.

headed the project for JBL Professional. "We were already aware of the unique challenges faced by this venue, thanks to our previous relationship with Opryland," says Leamy. "Our team engaged directly with the Opry House production staff to learn

more about their requirements."

A carefully orchestrated sequence of on-site system evaluations took place over the course of two months as the venue personnel and their consultants reviewed various options. System design concepts were formed based on the overall goal of the system. These included requirements for smooth, even coverage and speaker array configurability for various types of events, and a review of what existing equipment might be applicable to the new installation.

The Opry audio staff was adamant about having a smooth evaluation process. "We took each system in for a week, starting with the Tuesday night performance, and then made some tweaks in time for each Friday night Opry show. On Saturday nights, when the show runs its longest at nearly six hours, we'd run the system really hard and have everyone in to listen to it," Mire expounds.

In working to match its VerTec line array loudspeakers to the venue's needs, the JBL factory team worked closely with Nashville-based Clair Brothers Audio Systems, selected by the Grand Ole Opry as the installing contractor and selling dealer. Clair's Dan Heins coordinated logistics for the evaluation, required to take place



*Inset1 and Inset2 - Caption to be supplied in pre-proof.*

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over the course of a regular production week without affecting the existing event schedule.

"This was quite a challenging project," explains Heins, who now heads up Clair's Nashville-based permanent-systems design and installation efforts after many years on the road as FOH mixer for Garth Brooks. "Neither the evaluations, nor the install, were ordinary."

## STEM TO STERN

When the Opry production staff made its decision in July to move forward with the Crown-powered JBL house loudspeaker system, the Clair team had little time to work out the details.

"We had eight weeks to bring it all together to meet the install date, from final design to reworking the structural steel and rigging to actually flying the rig, and had to address maneuvering and placing the system around the existing curtain rigging and lighting," details Heins. "Lots of advance work had to be done in the shop, and I can't emphasize enough how much planning we did. As a result, there were very few surprises."

The system installation could not disrupt the Opry's production schedule. With a four-person installation crew from Clair, two union deck hands and three riggers, Clair's strategy was to work ahead as much as possible. Andy Upchurch, a Clair design engineer, measured the Opry House

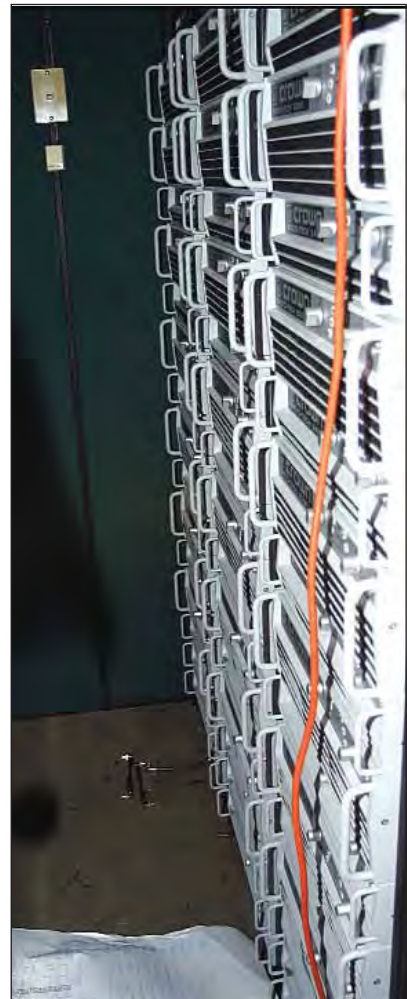
from "stem to stern" and returned to the shop to pre-cut every piece of custom cable.

Pre-testing was also key with this project marking Clair's first installation involving VerTec loudspeakers, and it was also a maiden voyage for this JBL technology to be implemented with Lake Technologies-designed Clair iO digital signal processing (DSP) speaker controllers, specified by the venue's audio staff.

"Transitions for the various evaluations were similar to the logistics needed for the install," Mire further explains. "We all knew what we had to do and at what point we needed to be on what day. That seemed to help with planning and execution of the actual installation, since the Opry crew had been through it three times already."

The installation team descended upon the Opry House early on a Sunday morning to remove the old system. "One part of the team immediately began rewiring the amp room while the other started to fly a temporary system," Heins outlines. "The amp room took the greater part of the first day since we were combining older amplifiers with newer models."

A unique challenge arose when the team used the existing amps, older Crown Macro-Tech IQ serial bus models, and married them to the newer TCP/IP versions. This required a total rewire of the three amp racks, a total



*Doing exemplary service, the wall of Crown Macro-Tech amps enlisted for their second Opry tour of duty.*



*Dan Heins of Clair Brothers eyeballing an array before it's lifted into position.*

of 46 amplifiers. "The decision to use our former amps was cost-based, plus we also have the mentality that they've reliably lasted this long, so why not continue to use them? Crown has done a good job realizing that their customers would use two generations of product together," notes Mire.

Come Monday morning, a temporary loudspeaker system of MD/Clair Bros. T2 loudspeakers was flown. At this point, there were three separate groups of loudspeaker arrays hanging in the room including the older installed rig, with the Tuesday night show handled by temporary Clair rig. The next day, the VerTec arrays and subwoofers were put into place, with Thursday reserved for tuning the new system.

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## PURPOSEFULLY AIMED

Each of the four JBL VerTec arrays flown in the room is comprised of VT4888 loudspeakers, a mid-size full-range three-way system loaded with JBL's 2262H 12-inch NDD dual-coil neodymium woofers. There are 12 line-array elements in each front main hang and seven elements in each of two side hangs. In addition, JBL VT4880 enclosures make up a center-cluster subwoofer line array.

The arrays are flown higher than a conventional fan-shaped array and angled downwards using VerTec's rigid, adaptable suspension system. They're also tucked into the ceiling grid for a more discrete appearance. Heins notes that the precision of the integral rigging included with the arrays enabled them to be more exactly positioned for precision coverage of the seating area.

"The VT4888 arrays are purposefully aimed to miss the last few rows due to some severe reflections," he adds. "As a result, we decided to cover the last few rows via a distributed center



Vince Gill in full swing on the Opry stage, with a full house enjoying new audio.

delay system of four JBL AE 6315 loudspeakers. The theater has a center section that goes up 20 feet in the last few rows with a big brick wall in back. Historically, it's always been a problem. Sam Berkow is also in the process of implementing some treatments that will help."

Finishing the house loudspeaker

picture, six JBL MS26 and 14 JBL Control 30 loudspeakers are used for front fills and under balcony fills, respectively. "VerTec, AE Series and Control Contractor Series are all working side-by-side at the Opry House with seamless integration even though they are from various JBL product lines typically used in different market segments," Leamy points out.

Completing the main system picture is a new ATI Paragon II Series house mixing console that was chosen for its ease-of-use, especially in a live setting. It replaced a 64-channel Paragon P40 that served every Opry show for 11 years. Like its predecessor, the new P II console offers 64 channels, but a total of 88 inputs adds to its versatility.

The new system debuted at the 37th Annual Country Music Association Awards with the arrays moved approximately 10 feet to 15 feet downstage to compensate for an additional temporary thrust stage. Immediately afterwards, with arrays back in their original location, the system served a long stint featuring the Rockettes from Radio City Music Hall.

"This sort of flexibility is exactly what we hoped for when we started shopping for a new sound system," concludes Mire. ■



The house sound crew at the Paragon board, mid performance.

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