
Photo: Steve Jennings

# THE CIRCLE GAME

## Geometry is destiny on Bon Jovi's new tour

By: Sharon Stancavage

To many, Bon Jovi is the quintessential American rock band. The group's current tour, linked to the album of the same name, is called *The Circle*; it features a production design by Doug "Spike" Brant, and the show director, JUSTIn Collie, both of the Performance Environment Design Group, an ArtFag company.

### Shaping the stage

For the tour, Jon Bon Jovi "wanted the stage placed at the end of the arena, and he wanted it to sell in the round," says Brant. "He also wanted a thrust that started on one side of the stage and came around to the other side." Even if the album title did make the stage shape seem obvious, the design team looked in other directions. "We tried to resist the shape, as we were aware that it has been done for years by the Irish Band," he adds, using his own term for U2. "But the geometry of a circle is what it is." In the end, "the album title sort of dictated the shape of the stage," says Collie, who prefers to be called Justin.

The stage, fabricated by Tait Towers, of Lititz, Pennsylvania, had other requirements as well. "The band wanted to create an inner sanctum for the more devout fans and yet still be able to access the audience outside," explains Justin. This meant a circular thrust, creating an enclosed space for the fans. The stage, which sits naked on one end of the arena, changes throughout the production, thanks to the video, which makes up the show's dominant visual element.

### Columns of video

"The principal video elements are the video columns, which are an evolution of the Venetians that we did on the last tour," explains Brant. There are 12 columns, comprised of dual-sided V9 LED tiles [from Nocturne Productions of DeKalb, Illinois], which transform from a single 36'-wide-by-12'-high screen to ninety-six 18''-by 36'-individual units. Each LED panel is mounted to vertically interconnected pantographs, all hung from a circular track over the stage; the pantographs are individually automated to raise and lower, and each column is motorized to travel around the circular track. "The video elements are completely kinetic and transformative, with no fixed IMAG screen, so the audience can't watch TV," Brant comments. The design contains more than 100 axes of movement overall.

To ensure the stability of the screens, the team used the new RSC Lightlock from Total Structures. A motion-dampening technology for moving light rigs, the product was chosen to provide stability for the tour's Syncrolite MX4 fixtures, which are suspended from custom point lifts designed and manufactured by Tait. During rehearsals, something was needed to stabilize the 12 video columns—thus the RSC Lightlocks are attached to the bottom of each.

The content of the video is divided between pre-produced material created by Kosher Pixels, Lightborne, the designer Roger Staub, and IMAG. The latter dominates, since the fans are there to see the band and its lead singer.

The photos above and below show the V9 LED tiles in different configurations. They can transform from a single 36'-by-12'-high screen to ninety-six 18"-by-36" individual units

## Custom video control

To manage the visuals, Stuart White and Dirk Sanders, of Control Freak Systems, designed a custom video control system. It is operated by Jason Gangi, and incorporates three PRG Mbox Extreme media servers. “For what we’re doing, the Mbox is perfect,” says Gangi. “It offers DVI and HD-SDI outputs running in parallel, a hardware dimmer, genlock capability, and, in the newest version, the HD-SDI live capture for video effects has incredible performance.” Other key components are two Vista System Spyder X20s, which feed the imagery to the screens. The Spyders are controlled by Art-Net. “Control Freak provides a DMX bridge, allowing the Spyders to be controlled from the front of house on a grandMA console,” he adds. The custom software gives the design team almost endless possibilities: “It creates a fast work flow to create the various looks—we’re taking the camera cuts, sizing them, and routing them to the screens; it gives more control to the designer this way.” The video package includes three Barco R12+ projectors and three Barco Image Pro management systems.

As the video breaks into columns and then into individual screens, the images must change as well. “Stuart White created a custom media server building upon the technology used on [Bon Jovi’s] *Lost Highway Tour*,” says Gangi. “Positional data from Tait’s motion-control system feeds into the media server; this allows the ratio of video to stay the same as the wall moves.” The final video element is a 100'-wide-by-12'-tall FlexiFlex curtain, provided by RGB Lights; it’s a low-resolution video screen located upstage of the band. “The low-res is just a background behind the band that covers the seats that are pushed in at the back of the arena,” Brant comments.

The two photos above also show David Eisenhauer’s large-scale PA, which consists of i-5 Series boxes from Clair Global.

Photos: Steve Jennings

The 100'-wide-by-12'-tall Flexi-Flex curtain, provided by RGB Lights, is located just upstage of the band.

## Automating the robots

This element of the tour is simply referred to as “the robots.” “They’re something we’ve tried to do in years past, and weren’t able to,” Brant says.

The IRB7600 series robots, from ABB Robotics, of Auburn Hills, Michigan, are typically used for industrial tasks. “Tait Towers purchased these articulated arm robots from ABB and built a support system around them, so they are able to be set up quickly and accurately,” says Gordon Hyndford, the robot operator. “Each robot weighs 6,800lbs and travels in its own steel frame system. Each video screen also travels in its own dolly, with each cart pinned together to make its own base detail. This prevents the whole assembly from tipping over, since typically they are bolted to the floor in factories.”

Each robot has a 9' wide by 6' high V9 video wall at the end of the arm, which functions as a screen as well as a scenic element. “The whole idea is for Jon to use them as a ramp to get to the back of the audience,” confides Brant. The video walls, which are covered by Plexiglas, also turn into steps for the singer. “The robots have six axes of motion, allowing an unlimited range of fluid motion. Because of the accuracy of the robots, we are able to have the screen move to several different formats: We do a wraparound screen, a tall screen, and five separate screens facing different direction,” says Hyndford. The robots themselves were programmed using Robot Animator software from Andy Flessas, of Roboscreen. “It’s a different method of programming robots from the typical way that you would in a factory setup,” Hyndford comments.

One of the major challenges involved with the screens on the robotic arms is related to the visuals. “Stuart White, of Control Freak, created a custom-built media server that uses UDP data from the robot controller and auto-scales and positions content. As the robots run their movements, cameras remain correctly orientated, not upside-down,” explains Gangi. As one would imagine, creating a software program to ensure the imagery is displayed correctly isn't the easiest task. "It was complicated, Stuart and the robot programmers did a lot of testing to correctly decode the coordinates coming in for the robots many axes and joints," Gangi notes.

Drew Findley and Jason Gangi programmed the show during preproduction rehearsals. Jeff Bertuch is the Control Freak Systems technician who sets up the system every day and maintains it.

## Bring on the lighting

Working in conjunction with the video is the ample lighting system. “Our lighting fixture count is over 250,” explains

A computer drawing shows one configuration of the video elements.

Each IRB7600 robot, from ABB Robotics, has a 9'-wide-by-6'-high V9 video wall at the end of its arm.

Sooner Routhier, the lighting director. It includes 41 Martin MAC III Profiles, ten Mac 2000 Performances, 35 Philips Vari*Lite VL3500 FX Washes, 12 Vari*Lite VLX units, four Barco/High End Systems SHOWGUNS (with an additional three modified for use as truss spots), 12 High End Cyberlight 2.0s, and 84 GLP Impressions, which are distributed in the U.S. by Elation. The latter are placed around the perimeter of the rig, for lighting the fans. "The Impressions are very reliable. They have great color mixing, you get good beams out of them, they are fast lights, and they're bright," notes Routhier.

Adding even more brightness are the 16 Syncrolite MX4 units. "We utilized the RSC Lightlock for 11 of the Syncrolite positions, allowing us to rig them from winches while maintaining stability. The Lightlocks were extremely impressive and will be featured again in our designs," explains Justin. Also included in the gear list are 45 Martin Atomic strobes and 18 Martin Stagebar 54s.

On the floor of the arena behind the stage are six DMX-controlled zip lifts, each with two VLXs and one Mac III on top. "The zip lifts move up and down, so you can change the shape of the floor lighting package instantly for each song—you also get an up-and-down motion with the light, which is great," Routhier adds.

While most productions have an instrument that can be defined as the workhorse, that isn't the case on this tour. "The work is spread between a number of fixtures, all of which play their parts. We have a very long 'short list' of songs, and we need to create as many dynamics as possible with the lighting," explains Justin.

That "short list" is expansive. "We were in pre-viz, and we did 50 songs; since then, I've added close to 15," notes Routhier. The set list changes every night, which means that she has to be constantly on her toes. "Jon will come in at soundcheck, they'll play a new song, and I'll try to program something into a cue stack before the show—but, if I don't get it done, I'll work on it the next day," she adds. The early programming, in pre-viz, was done by Felix Peralta.

Because of the IMAG, different tones of CTO and CTB are prevalent in the visual palette, along with red and blue. "Spike always says, 'Too many crayons,' when he sees three colors," Routhier says with a chuckle. Consequently, the tour is not a fruit bowl of hues. "We're typically doing two colors at the most in these songs, with white, which is your free crayon—we try not to do too many more than that," she says.

However, rules are made to be broken. "I think the most we have are three colors—red, blue, and green—in 'We've Got it Goin' On'—but it matches the content perfectly. It's our primary color song," she adds.

There are also two colors that the audience won't find in the show. "No pink, no magenta," admits Routhier. "It wasn't specifically said, but it was looked down on." The colors aren't missed, however. "I try to stick to lavender and purple rather than magenta and pink," she adds. "Sometimes, I use salmon for some of the ballads. I try to use as many tones as possible, so the whole show doesn't look the same."

Routhier use a grandMA console to control the lighting, zip lifts, and variable hoists. "I've been on MA for years now," she says, "I don't use any other console now, because I can get everything I need out of it." All lighting gear, including the console, was provided by Epic Production Technologies, of Oxnard, California.

## Analog audio

The final element is, to many fans, the most important: the Bon Jovi sound. Behind the console at the front of house is David Eisenhauer, a veteran of five Bon Jovi world tours. His PA consists of an i-5 Series from Clair Global, of Lititz, Pennsylvania, The show sells in the round, but the stage is at one end of the arena; consequently, Eisenhauer needs main, side, and back hangs. "We have forty-four i5 line-array boxes and thirty-six i-5b boxes in the main system," he says. "We're also using 40 Clair i-3 line-array boxes for a rear side hang and a stereo rear hang." The i-5s provide the throw for the main hang; with the i-3s, "we're only throwing a fourth of the distance. Also, the horizontal coverage of the i-3 is wider than an i-5." The wide coverage, combined with a short throw, is critical for the side and rear hangs. "Given the fact that the i-5s have to throw to 200' to the back of the arena, the i-3s just have to throw about 40-50'; because of how high we have to fly them, it was really important to get the horizontal coverage right."

There are eight separate PA hangs in the system, which are divided into zones. "Typically, we split the i-5s up into three different zones—we walk to the upper deck of the arena, control those, then we walk down to the middle section and control those, and then everything on the floor," says Eisenhauer. The i-3s are also placed in three similar zones; all are controlled using Clair/Lake/IO software and a tablet PC. "The control we have over this system is unsurpassed—so we can get in and control almost down to every two boxes of various zones," he comments.

At the front of house, Eisenhauer runs a Midas XL4 console, a product that seems to be having a resurgence among engineers. As he says, "The most common question that I get asked is, 'Why aren't you using a digital console?' My answer is, 'Is it really going to make the artist's life any better?' The answer is probably going to be no. Is it going to make it better and easier for the people you're working with? The answer is generally no."

A primary reason that Eisenhauer prefers the Midas, outside of the sound (he also likes the console's pre-amps), is the ease of use. "As human beings, our brains are analog in the way they work," he says. With an analog board, he adds, "You can look down at any given point and get the status of a dozen different things; you don't have to go through various windows or pages." Glen Collet and Andy Hill, who run monitors for the band, and Ritchie Sambora, the band's lead guitarist, each use a Midas Heritage 3000, another analog board.

Although Eisenhauer uses digital consoles when the application is right, he feels there are inherent problems with taking them on tour. Although show data can be easily stored and loaded, issues can arise. He poses a question: "What if you spent six months in the U.S. on a Yamaha digital console, and it was software Version 2.3, and, when you get to Japan and they've upgraded to Version 2.4, your show doesn't load?" It's a question no one wants to face.

Working in conjunction with Eisenhauer's Midas XL4 is a variety of outboard gear that he's come to rely on over the years. "I've been using T.C. Electronic's M5000 reverb units. They're from the mid-'90s, and I love them. They sound great and they work every day. I've also had Rupert Neve 9098 parametric EQs as my vocal chain for 15 years, and they work great." He also uses Summit TLA 100s, DCL 200s, Empirical Labs distressors, and Aphex 622 gates. "All of those pieces are the exact same things I use tour-to-tour, and I get results with them I like," he says.

While many engineers have a wide inventory of microphones from an unimaginable number of mainstream and obscure manufacturers, most of Eisenhauer's choices can be rounded up with one word: Shure. "I'm not interested in using the latest Gucci mic that's come out," he says with a chuckle. "We're probably about 95% Shure with our mic package; the entire drum kit is all Shure micro-phones. It's really standard stuff that we know is going to work." His inventory includes a Shure SM52 and SM91 on the kick drum, SM57s on the snare, and SM98s on the toms. He has also found a new Shure product he favors: the KSM353. "I think it is fabulous on the guitars," he states. And, he adds, "Jon is still singing through a Shure Beta 58A; it sounds great—and you know what? He can drop it and it sounds great," he says with a smile.

Bon Jovi's *The Circle Tour* continues on the road in the U.S. until the end of May, then moves on to Europe and Canada.

Left: Courtesy of Performance Environment Design Group. Right: Tom Schmal/Robotic Arts