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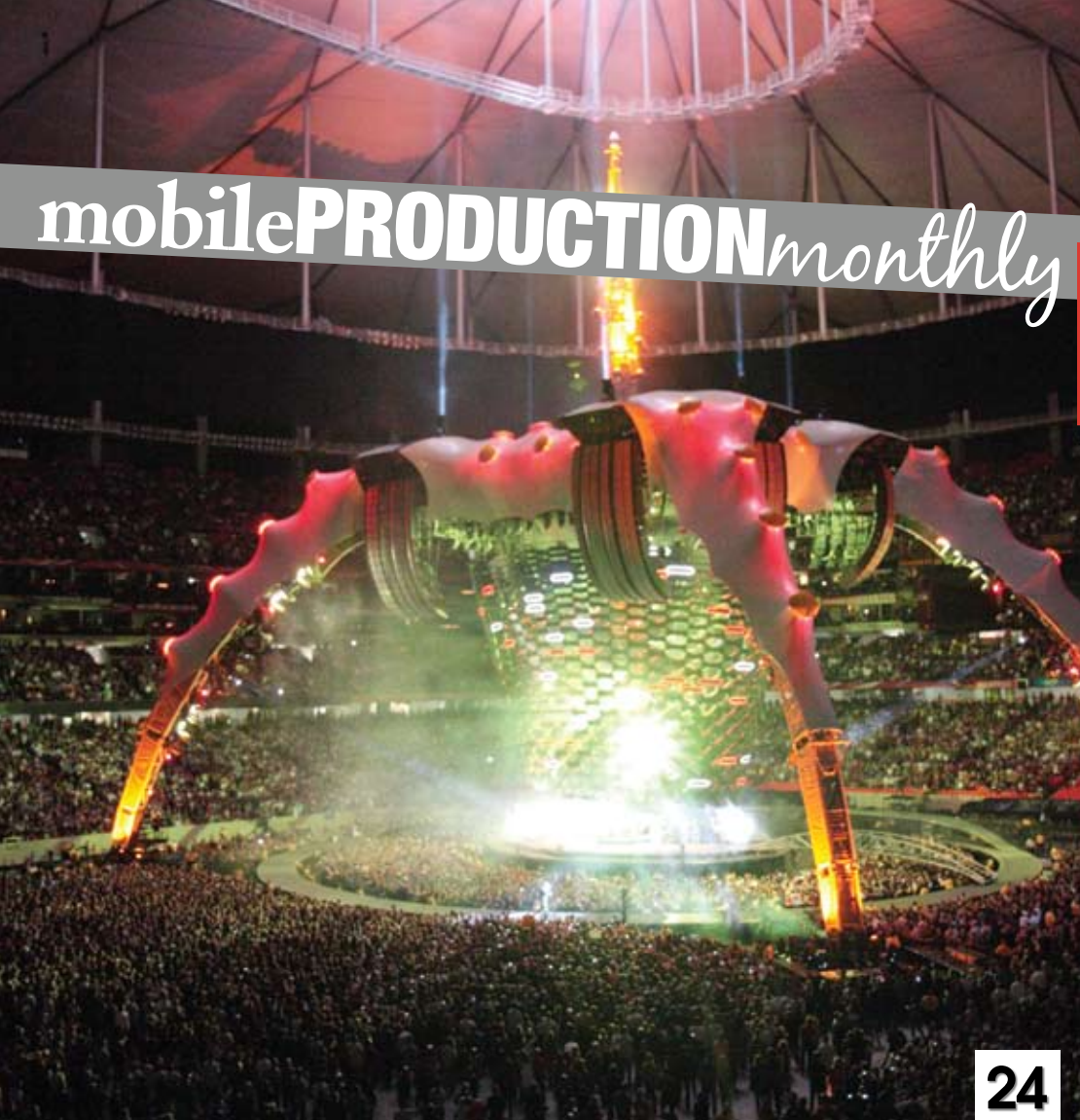
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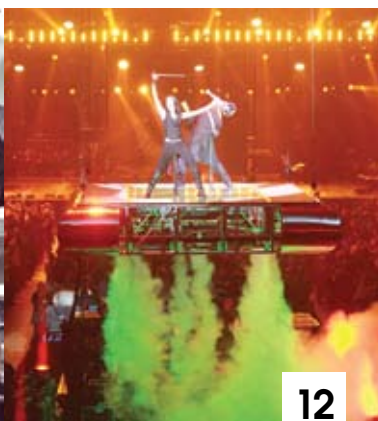
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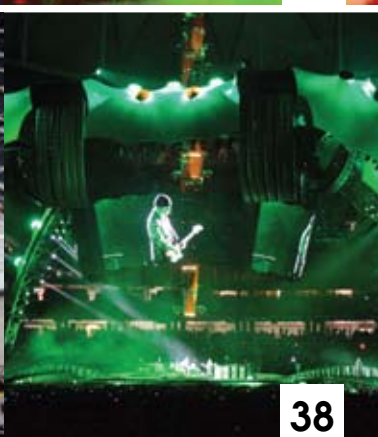
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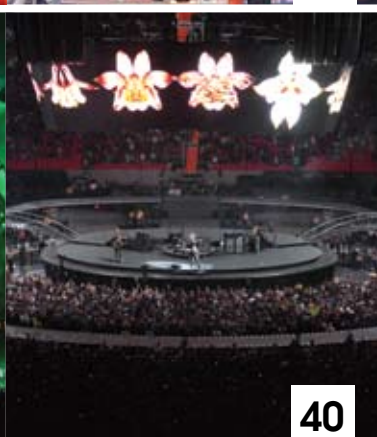
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With this issue we wrap up our coverage of the industry in 2009, and we felt that U2 would be the appropriate tour to feature. After such a difficult year for many of us, we wanted to feature the outstanding show of the year – U2. Several other shows were strong candidates, but I admit to having a personal bias for the people on this tour. People like Dennis Sheehan, Jake Berry and Rocko Reedy are the primary reasons that I am still doing this business. Their support of me personally and the work we do have made life a lot easier and certainly more productive for our entire team. So, first and foremost, our thanks and mine personally, go out to those three people, their entire crew and all the vendors.

Also in this issue, we are again taking a look at my favorite holiday show, Tran-Siberian Orchestra. This show has evolved over the past couple of years to become a holiday staple, much like the Radio City Rockettes. TSO delivers their style of Holiday Rock (as I call it) in a highly professional and polished manner that is a real treat for anyone who loves a blend of sharp production and good music. I hope we can continue our tradition of covering this show every year. It gives me a great excuse for an enjoyable evening out with my wife. I get to see the show, cover a great production and make my wife happy all in one evening. That is a treat for any guy!

As we wrap up the year, all of us here wish all of you the best of holidays and our hope for a much better year in 2010. We pray that things will be brighter, more productive and a lot less stressful for everyone in our beloved business.

Larry Smith

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Tour Director -Trans-Siberian Orchestra.



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"I know it's their job to deliver for the client, but those guys went well above and beyond. I always knew when the aircraft was wheels up and wheels down. I knew that if I had to talk to Apollo at one in the morning, they were going to take my call. If they hadn't done as much as they did, the job would have gotten done, but it would have meant a lot more work on my end. And that's what makes the difference when you have to decide if you are going to use a company again."

Craig Bolling, Road Manager, *Britney Spears Circus* tour
from *Mobile Monthly* Volume 2 Issue 5 2009



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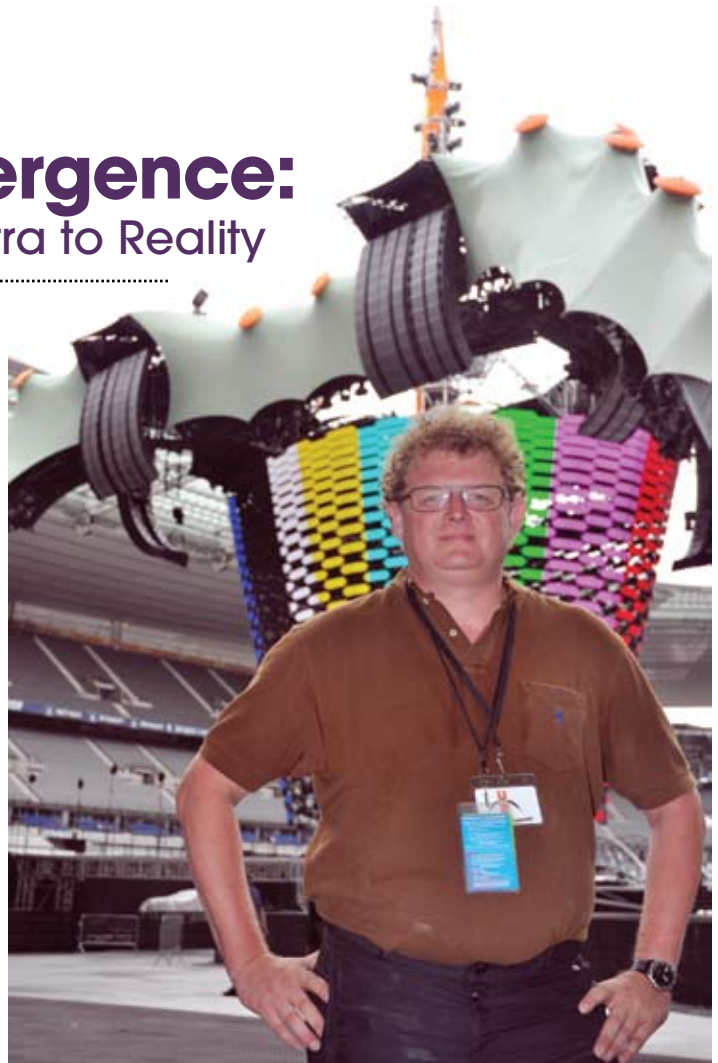
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Video Scenic Convergence: Tait Technologies Takes the Mantra to Reality

Tait Technologies takes the next logical step into the future of LED video and high tech scenic applications; seamless integration for a unified solution.



Tait Towers and Frederic Opsomer, founder of System Technologies - both well-known names in the entertainment design industry - today announced the joint founding of the new company, named Tait Technologies, effective as of 1 February 2010.

The new company will be led by Frederic Opsomer, who assumes the position of CEO of Tait Technologies. The company will have its headquarters in Waardamme, Belgium.

By setting up Tait Technologies, both parties have taken a strategic decision to refine their focus on the converging video and scenic industry. The company will develop and supply standard and bespoke mechanical and automation solutions that allow easy and seamless integration of video and scenic products.

Backed by long-standing reputations in the live entertainment design industries, Tait Technologies will focus on providing the entertainment and event design industry with **the following key services:**

➤ Rental of scenic and mechanical products. Tait Technologies will carry a full, European-based, rental fleet of Tait Towers' renowned scenic and mechanical products used throughout the world of live design and entertainment.

➤ Custom designed mechanical structures for the Integration of video products. Tait Technologies will also design and develop bespoke mechanical structures to integrate with demanding creative video applications for the entertainment sector.

➤ Development of standard and custom-made automation solutions. With an unparalleled understanding of the demands of the entertainment industry, Tait Technologies will design and deliver both standard and custom-made automation solutions; solutions that enable their customers to seamlessly integrate video and scenic products into sophisticated presentation applications.

Tait Towers and Frederic Opsomer have an unparalleled history of successful cooperation on major projects throughout the live entertainment design industry. Amongst others, the companies collaborated on The Rolling

For additional info,
contact Frederic Opsomer
tel: + 32 491 123321
frederic@taittechnologies.com
taittechnologies.com

Stones Voodoo Lounge and U2 Popmart tours. The founding of Tait Technologies will serve to further consolidate and enhance the close relations between both parties. ☺

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The advertisement features a collage of various backstage passes and tickets for artists like Black Eyed Peas, 944 Vegas, and Smashing Pumpkins. It also includes a guitar and a microphone.



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SPIRIT OF AMERICA TOURS/CORPORATE TRANSPORT The New Transportation Specialists

Spirit Of America Tours is a division of Corporate Transport, LLC located in Solon, Ohio. Having been in business for five years, Corporate Transport has focused solely on the corporate and high-net worth individuals and their ground transportation needs.



Two years ago, Spirit Of America Tours was founded as a division of Corporate Transport, LLC with the sole purpose of meeting the needs of the touring individual. This division was formed due to the many requests they were getting from athletes, authors, public figures and royalty to provide a consistent service during their various tours that it was embarking. Unlike any other service that was being provided in the industry, Spirit Of America Tours rose to the top and set new standards for their touring clients.

SOAT's Ray Duval comments, "We like to say that we are like 'Disney on Wheels', because our unique form of service is magic. Our experience is one that creates a need in our clients, one that becomes so indispensable that they cannot live without it. Spirit Of America Tours delivers a world-class experience, we just happen to use luxury vehicles as one of the tools to help us attain the end result."

What exactly makes SOAT unique in the industry?

- Managers can make one call and explain the entire tour requirements. They book the tour once, and they can move on to other aspects that need attention.
- Security personnel make one call to us and explain the security protocol for the tour. This is a plus to them, because they don't need to explain the protocol to multiple limousine

companies throughout the tour. By explaining it once to SOAT's team, it is carried out and executed consistently throughout the tour.

- Managers can allow the backhouse team to assist them when it comes to making dinner reservations, shopping outings, etc. for their clients.
- All team members have undergone extensive FBI background checks, and many have been cleared at the highest security levels.
- For the tour manager or tour accountant, imagine the ease of booking the entire tour at one time with one company that insures the delivery of consistent service levels and equipment type throughout the entire tour.

Contact **Ray Duval**
Spirit of America Tours, Inc.
34208 Aurora Rd, Ste 153 Solon, Ohio 44139
direct dial: 440.465.4212 fax: 440.348.2301
co. email: ray.duval@soatours.com
personal email: rhdmad@sbcglobal.net

- It does not HIRE team members it SELECTs them. The difference is that it is not trying to put a warm body in a position, but rather it is selecting the correct individual for the job... with the correct DNA, as it were.



- The team must have what it calls the SERVANT GENE. What we are talking about here, is that they have a gene inside of them that creates a need in that individual to serve our clients in a manner that is unheard of in the industry today. They need to serve the client in order to be fulfilled inside.
- The selection process for an individual is very rigorous:
 - Full and extensive FBI background checks are done on all team members
 - A 4-hour intensive interview is done with an industrial psychologist to determine if the individual has the correct DNA and will be able to handle the rigors of an extended tour.
 - Three days are spent with an expert in the field of customer loyalty, teaching our team members how to create a unique experience for the client, anticipate the needs of that client and be pro active, rather than re active.

- When on tour, SOAT provides company personnel and equipment, thus eliminating any chance for failure in experience levels

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"The Experience," a non-denominational gospel music concert in Lagos, Nigeria has grown to become by far the largest music event in Africa. A Woodstock-sized throng estimated at 450,000 jammed into the Tafawa Balewa Square and spilled over into an adjacent cricket field for a spiritual celebration featuring 14 American and Nigerian gospel artists, including headliners Kirk Franklin, Phil Driscoll, and Bebe and Cece Winans. The event's ongoing sound system supplier, GQ Acoustics of Lagos, pampered the enlarged crowd this year with an expanded Meyer Sound system that had been boosted with more MILO® line array loudspeakers and 700-HP subwoofers, plus a new complement of problem-solving JM-1P arrayable loudspeakers.

"The main venue is an open quadrangle about 170 meters across, with the stage on one long side, grandstands opposite, and three-story pavilions on the short sides," explains David "dB Dave" Dennison, a consultant engineer who assisted with system design and technical support. "The extreme width made it impossible to cover the far corners effectively with only the line arrays. Fortunately, the JM-1Ps were perfect for delays and fills because I could add 20 degrees of horizontal coverage by simply adding another box until I had exactly what I needed. That was priceless."

Of the 16 JM-1P loudspeakers, four were placed on each of the two delay towers for back corner coverage, three per side were aimed far off-stage toward seating areas beyond the coverage of the side arrays, and one per side was used for VIP areas adjacent to the stage.

The main stage system comprised 14 MILO line array loudspeakers plus 14 MICA line array loudspeakers per side for side fill. Two UPA-1P loudspeakers covered immediate front-center while 36 700-HP subwoofers at the stage arranged for cardioid response plus two at each delay tower supplied bass impact. The stage monitoring complement included 16 MJF-212A stage monitors, four MTS-4A full range loudspeakers, and two USW-1P subwoofers. A Galileo® loudspeaker management system with two Galileo 616 processors was employed for signal processing, and the system was aligned using GQ Acoustics' own SIM® 3 audio analyzer.

Except for a few groups bringing their own engineers, FOH mixing was entrusted to GQ Acoustics' Andrew Adesina and Ifeanyi




For additional info. about the Meyer Sound JM-1P arrayable loudspeaker
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Achibiri of House on the Rock, the organizer of the event.

"The sound this year was awesome, absolutely out of the world," says Achibiri. "I'm certain we will have GQ Acoustics and Meyer Sound back again next year. No other company in the region can do this kind of work."

Peter Iriah, managing director of GQ Acoustics, was pleased that his bolstered system stayed one step ahead of the swelling attendance. "Also, the high level of technical support we received from Meyer Sound was invaluable, going far beyond what most companies provide," adds Iriah.

As in past years, the 2009 Experience was convened by Paul Adefarasin, founder and senior pastor of the House on the Rock. Based in Lagos, House on the Rock is a multi-racial, multi-tribal church with 35 sites in Nigeria as well as branch ministries throughout Africa and Europe. 



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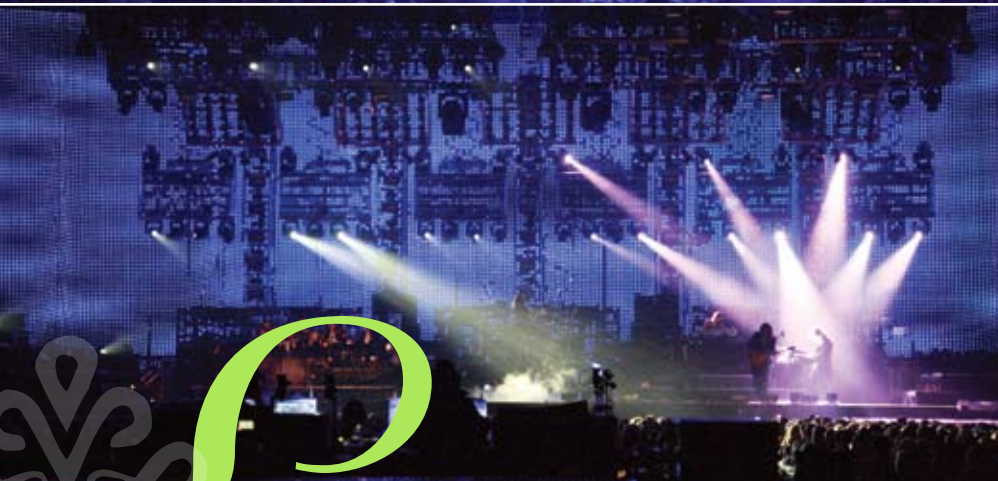
Trans-Siberian Orchestra



**BIGGER
BETTER
BRIGHTER**

by MICHAEL A. BECK





Every year starting in October a touring phenomenon unlike any other experience on the road takes place. And every year it is our pleasure to go out and cover it just to see what's next in the mind of gonzo production designer Bryan Hartley. The tour we're speaking of is, of course, **Trans-Siberian Orchestra**. The production is exclusive in nature for many reasons. First and foremost, it has no individual stars on stage. Yes, there are searing performances by the musicians out on the tour. However, the real star of the show is the production itself.

The centerpiece of the production has always been the visual aspects of the show. The philosophy of the production design has always been to include as much of the audience as possible in a front row experience of sorts. This has been accomplished by extending production elements out into the house both in the form of flown pods and an elevated platform behind the mix position. Over the past three years, the main rig over the stage consisted of three large pods. Last year's show was expanded to use three sets of two concentric pods which either functioned independently of one another or could fly inside one another to function as three dense pods.

This year, Hartley departed from the pod design over the stage opting for a massive array of linear truss. However, as mundane as that may seem, the finished look was anything but. "It's similar to several

years back when I had straight truss," Hartley told us. "But I have so much more going on up there now that there really is no comparison."

He's right. This was the first year he was cleared to use video in large amounts, and he didn't waste the opportunity. Opting for video content rather than I-MAG, he was able to insert video imagery on the vertical surfaces of two truss lines of the flown rig as well as using it as a three-floor mounted 6 x 15 foot set piece called firewalls. In addition to the panels in the air and on the deck, Hartley mounted six 4 x 8 foot panels dubbed "TV screens" on Panagraphs and surrounded them with VL-3500 Washes and 3000 Spots. While the lighting system was indeed a configuration of straight sticks, the longest runs of truss were able to articulate utilizing hinges that were custom designed by longstanding TSO

Trans-Siberian Orchestra
West Coast Crew

W





pictured on opposite page - MEC (Catering Crew): Top: David Rell, Brent Beimfohr, Tim Lawler, Diane Gonzales, Angelo Francavilla, Eric Gratton, Mark Gratton, Bottom: Henry Miller, Emily Diller, Matt Mosley | **Production:** Andy Omilianowski, Jeff Boguski, Billy Flynn (floor), David Comeau, John Warren, Candice Simmons, Carl Acampora, Paul Serio | **Chaos Crew:** Tyler Munson, Steve Burkholder, Dave Sheppard, Dustin King, Wayne Matlock, Joe Finn | **Laser Crew:** Brian van Trigt, Wally Gazda | **SGPS:** Top Left: James Ford, Bottom Left: Kyle Wolfson, Top Right: Jeremiah Anderson, Back Right: Tony Micheals, Middle Right: John Kehoe, Bottom Right: Jeremy Sorensen | **Audio Crew:** Back-left to right: Ricardo Avila, Mike Connors, Scott Fraser, Jay Muth, Front-left to right: Kurt Vanderhoof, Chris Hoffmann | **Syncro Crew:** Robbie Sheene, TJ Benton | **Riggers:** Tim Finnannon, Mark Ward, Russel Keith | **Lighting Crew:** Trevitt Cromwell, Marty Langley, John Lonio (computer image), Justin Dowbiggin, Dan Cassar, Mark Donahue, TJ Benton, Robbie Sheene, Daniel Brooker, Alan Gregg, Matt Tucker, Jason Bowman (on road case), Brad Wagg (floor) | **Carpenter Crew:** Top: Russel Voyta, Scott Wienclaw, Jason Hahn, Bottom: Bob Madison, Bill Watkins | **Backline Techs:** Eric Gornley, Ron Hise, Ed Halverson | **Pyro Crew:** Noam Sigal, Gregg Pearson, Hans Lundberg, Adam Cryderman, Keith Maxwell, Clint Ranse

West Performers

Musical Director: Al Pitrelli
Keys: Jane Mangini
String Master: Roddy Chong
Bass Guitar: Chris Alenhoff
Guitar: Angus Clark
Keys: Derek Wieland
Drums: John O'Reilly
Narrator: Tony Gaynor
Singers: Tommy Faresse, Bart Shatto, Kristin Gorman, April Berry, Katie Hicks, Andrew Ross, Erin Henry, Abby Lynn Mulay, Jeff Scott Soto
Strings Musician: Caillin Moe

West Crew

Tour Mgr: David Comeau
Production Mgr: Jeff Boguski
Prod. Co-ord.: Carl Acampora
Road Mgr: John Warren
Asst. Road Mgr: Candice Simmons
Stage Mgr: Andy Omilianowski
Prod. Asst: Paul Serio
Drum Tech: Ron Hise
Guitar Tech: Ed Halverson, Eric Gornley
FOH Eng.: Kurt Vanderhoof
Lighting Director: Dan Cassar
Riggers: Mark Ward, Russel Keith, Tim Finnannon
Carpenters: Russel Voyta, Bill Watkins, Scott Wienclaw, Jason Hahn, Bob Madison
SGPS Grid/Crew Chief: John Kehoe
SGPS Grid Tech: PRGM Kyle Wolfson, Anthony Michael, Jeremiah Anderson, Jeremy Sorensen, James Ford
Epic Lighting/Crew: John Lonio, Matt Tucker, Alan Gregg, Jason Bowman, L Mark Donahue, Trevitt Cromwell, Daniel Brooker, Marty Langley, Justin Dowbiggin, Brad Wagg
Syncrolite Crew: TJ Benton, Robbie Sheene
Chaos Video Crew: Joe Finn, Dave Sheppard, Dustin King, Steve Burkholder, Tyler Munson, Wayne Matlock
Clair FOH Eng/Crew Chief: Mike Connors
Clair Monitor Eng.: Chris Hoffmann
Clair Sound Crew: Scott Fraser, Ricardo Avila, Jay Muth
Laser/Crew Chief: Brian Van Trigt
Laser Tech: Wally Stan Gazda
EFX Tech: Adam Cryderman
Pyro Shooter/Crew Chief: Keith Maxwell
Pyro Tech: Clint Ranse, Hans Lundberg, Noam Sigal, Gregg Pearson
Merchandise: Billy Flynn
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Catering: Mark Gratton, David Rell CEC, Matt Moseley, Henry Miller, Brent Beimfohr, Angelo Francavilla, Tim Lawler, Erik Gratton, Emily Diller, Diane Gonzales
Catering Bus Driver: Roger Burris



vendor, Epic Entertainment Technologies.

The primary challenge of this production is how to get 17 trucks into the venue in time for a matinee performance, something that occurred on a fairly regular basis throughout the run. Whereas logistical efficiency is a standard mantra on all productions, it becomes a religion on this tour. The result was an ingenious integration of form and function. The vast majority of truss used in the rig were WinVision video panels as well as Versa TUBE. Although the end result was dazzling, the notion of having to uncase hundreds of feet of video panel and Versa TUBE then mount it to the truss on a daily basis was beyond unworkable.

Fueled by the reality that what Hartley wants Hartley gets, the geniuses on the tour and in the shops of both Epic and Chaos Video devised a system through which both lighting and video panels never left the truss with very few exceptions. Additionally, the video panels that played independently of the lighting rig rode in custom racks similar to set carts. All of this made for a sensational execution of the show from a video perspective, but it wasn't enough in and of itself for Hartley's tastes. So he backed the stage with a massive wall of Soft LED, which offered an outstanding backdrop for the show. He then drove the video as far into the house as possible by running it through the arena's LED banner strips. This gave the audience a sense of



being totally immersed in the production.

This year's lighting system contained a much higher concentration of automated lighting than in years past. While there was a smattering of ACLs and conventional pars loaded with LED panels, the bulk of the show consisted of Vari*Lite 3000 Spots and 3500 Washes.

While in years past the effort to extend the rig out into the house consisted of two enormous pods, this year the look was comprised of eight small pods hung in two rows of four. These arrays were made up of the truss and corner sections used in the pods that flew over the stage in previous years. Mr. Hartley allows nothing to go to waste.

Two other elements of the production that have been mainstays from the beginning are pyro and laser. Pyro, presented by Toronto-based Pyrotek, had a spectacular array of colored flames, dragons and a great looking gold gerb waterfall to finish the show among the 15 different pyro effects that were used in this production. However the standout effect for this writer was the sensational use of Fire Screen which was developed by Pyrotek and put to better use on this tour than ever before. As the temptation to get wildly verbose about lasers in this show is pressing, the reality is that it doesn't take a lot of language to describe what happened. It was simply bigger and better than ever before.

*Trans-Siberian Orchestra
East Coast Crew*





pictured on opposite page - Bryan Hartley - Production Designer | Yader Mena - Rigger, Ken Mitchell - Head Rigger, Tom Cusimano - Rigger | Patrick Zales President of the Charlotte chapter of the Bryan Hartley fan club, Bryan Hartley - Lighting Designer | Front: Jorge Del Angel - Syncrolite Crew, Roseanna Capuano - Syncrolite Crew | Erik Swanson - Clair Sound Crew, Michihiro Tanikawa - Clair FOH Engineer, Dave Wittman - FOH Engineer, Scott Evans - Clair Sound Crew, Robert Taylor - Clair Sound Crew Back: Bryce Ferris - Epic Lighting Crew, Allyson Solar Epic - Lighting Crew, Will Anglin - Epic Lighting Crew, Tim Solar Epic Lighting | Crew Chief | Jeff Snider - Production Coordinator, Patrick Whitley - Production Manager, Elliot Saltzman - Tour Director, Kenny Silva - Road Manager, Stephen Levy Mazin - Production Assistant, Ken Brown - Assistant Road Manager, Steve Roman - Stage Manager | Nick Zangari - EFX Tech, Jason McEachern - Laser | Crew Chief, Jason Bridges - Laser Tech | Front: John Bedell - Chaos Video Crew, Brandon Oosterhof - Chaos Video Crew Back: Wayne Boehning - Chaos Video Crew, Kenny Ackerman - Chaos Video Crew | Chief, Kevin Levasseur - Chaos Video Crew, Dave Duca - Chaos Video Crew | Kyle Sabel - Guitar Tech, Imy James - Drum Tech, Cris Lepurage Guitar/Keys Tech | Front: Tristan Ford - Pyro Shooter | Crew Chief, Nick Zangari - EFX Tech, Jan Sanderse - Pyro Tech, Back: Sean O'Donnell - Pyro Tech, David Domanski - Pyro Tech, Danny Silvestri - Pyro Tech

East Band

*Musical Director: Bob Kinkel
Narrator: Bryan Hicks
String Master: Anna Phoebe
Guitars: Chris Caffery, Alex Skolnick
Bass Guitar: John Lee Middleton
Drums: Jeff Plate
Keys: Luci Butler, Vitalij Kuprij
Vocalists: Jay Pierce, James Lewis, Steve Broderick, Tim Hockenberry, Rob Evan, Jodi Katz, Danielle Landherr, Alexa Goddard, Valentina Porter*

East Crew

Tour Director: Elliot Saltzman
Production Mgr: Patrick Whitley
Prod. Co-ord.: Jeff Snider
Road Mgr: Kenny Silva
Asst. Road Mgr: Ken Brown
Stage Mgr: Steve Roman
Prod. Asst: Stephen Levy Mazin
Drum Tech: Imy James
Guitar Tech: Kyle Sabel
Guitar/Keys Tech: Cris Lepurage
FOH Eng.: Dave Wittman
Lighting Designer: Bryan Hartley
Riggers: Ken Mitchell, Tom Cusimano, Yader Mena
Carpenters: Scott Nordvold, Steve Robinson, Eric Bolenbaugh, John Prater, Manny Medeiros
SGPS Grid | Crew Chief: Jesse Sugimoto
SGPS Grid Techs: Vince Gallegos, Buzz Gibson, Will Wilkinson, Daniel Wright, Mark McKinney
Epic Lighting | Crew Chief: Tim Solar
Epic Lighting Crew: Will Anglin, Allyson Solar, Bryce Ferris, Ryan LeComte, Marshall Blair, Jarret Borodenko, Terry Smith, Glenn Rupert, Mark Abra
Syncrolite Crew: Jorge Del Angel, Roseanna Capuano
Chaos Video Crew/Chief: Kenny Ackerman, Brandon Oosterhof, Dave Duca, John Bedell, Kevin Levasseur, Wayne Boehning
Clair FOH Eng.: Michihiro Tanikawa
Clair Mon Eng./ Crew Chief: Tony Luna
Clair Sound Crew: Robert Taylor, Scott Evans, Erik Swanson
Laser/Crew Chief: Jason McEachern
Laser Tech: Jason Bridges
EFX Tech: Nick Zangari
Pyro Shooter | Crew Chief: Tristan Ford
Pyro Tech: Jan Sanderse, David Domanski, Danny Silvestri, Sean O'Donnell
Merchandise: Don Hall

Pyrotek's sister company Laser Design Productions has always been a standard fixture on the tour as well. However, this year laser designer Doug Adams brought a little more than ever before. The centerpiece of the laser array for this show was two 25-watt lasers that were originally designed for last year's Michael Jackson production. When that show was tragically canceled, the lasers became available and Adams put them to use on the tour. Although only two units were created for the Jackson tour and both were designed into the TSO look, Adams and company had to hustle and get two more online for this tour.

"The thing that distinguishes these lasers from everything else is not just their power," Adams told us. "It took us a long time to build these things. The colors are absolutely pure. Red is red and there is no doubt about it, and we went one step beyond standard RGB. These have yellow as well."

In addition to the high-end visual technology this show presented, there was also a representation of gold stage craft worked into the show's main reveal. The show opened with

two guitar players positioned downstage left and right and the lead violinist mid-stage center. As the music began they all rose into the air on scissor lifts. This show also unitized the rising mix position platform, which has been the case in years past. However, this time it got a bit a face-lift as the sides of the platform sported a rounded fascia of "mirror ball" type mirrors.

This show offered something that couldn't have been expected, and it only happened at the Charlotte show. John Zales, local resident of the area, asked if Bryan Hartley was anywhere to be found and as it happened Hartley was at the console. Zales explained that his nine-year-old son Patrick was a huge fan of Hartley and asked if it would be possible for the youngster to meet the master.

Hartley agreed, and up came Patrick. When asked what made him a fan of Hartley's Zales explained, "I love the way lighting works with music. I found out the lighting designer of this show, and my dad helped me find out what other shows he did. So I looked them up, and I became a fan." Hartley just smiled.



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Tour Credits

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Paul O'Neill
TSO Composer/Music Director/Co-Producer:
Robert Kinkel
TSO Composer: Jon Oliva
Music Director: Al Pitrelli
Director Of Touring & Production:
Elliot Saltzman
Lighting Design: Bryan Hartley
bryanhartley.com
Production Design: Bryan Hartley, Elliot Saltzman
Stage Design: Jeff Boguski, Patrick Whitley

Business Credits

Management: Night Castle Management
Band Artist Development: Dina Fanai
Accounting: Robert Bandman for Prager and Fenton
Booking Agent: William Morris Agency
Record Label: Lava/Atlantic Records
Legal: Rooks & Ferrara
Merchandising: Bravado Merchandising
Additional Photos: Beth Kelly of Beth Kelly Photography, Matt Wignall
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String Contractor: Steve Trudell
TrudellOrchestras.com
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Sound: Clair Showco Chicago
Trucking: Potenza Enterprizes Inc.
Buses: Wildfire Coach Leasing Inc.
Lasers: Laser Design Productions
Pyrotechnics: Pyrotek Special Effects Inc.
Truss Automation & Custom Grid :
SGPS, Inc / ShowRig, Inc
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Bono, The Edge
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Paul McGuinness – Manager

EVER GO OUT

by MICHAEL A. BECK

photos by Michael A Beck

IN THE LATTER PART OF 2008, THE GROUND STARTED TO RUMBLE FROM ACROSS THE POND. THE WORD WAS THAT U2 WAS PREPARING TO SET SAIL WITH THE LARGEST THING TO EVER GO OUT. THAT WAS INTERESTING, BUT IF WE HAD A DIME FOR EVERY TIME WE'VE HEARD "THIS'LL BE THE BIGGEST THING EVER" WE COULD AFFORD TICKETS TO SEE MADONNA. HOWEVER, THIS IS U2 AND WHEREVER U2 GOES SO GOES THE ARMY OF HUGE THINKERS LIKE WILLIE WILLIAMS, MARK FISHER, STAGECO AND, OF COURSE, JAKE BERRY AMONG MANY OTHERS. ALL OF THE SUDDEN "THE LARGEST THING TO EVER GO OUT" DESERVES A LOT MORE THAN PASSING INTEREST OF "WE'LL SEE."

For those who haven't heard anything about this leviathan we'll start out simple. The tour was designed for stadiums and it is safe to say that this stage is without a doubt the most unique and ambitious touring show design in history.

While it was not designed to play in the round, it did play to a 360° crowd from an "end-on" position in the stadium. Although this certainly added more seating availability, it brought the age-old matter of site line obstruction into play. The answer was as elegant as it was functional. Fashioned after Los Angeles International Air Port's iconic "Theme Building," the structure of this show stood 100 feet tall with a center spire known on the tour as the "pylon" that reached close to 100 feet above the main structure.

The structure weighs 250 tons prior to the production hang. It only touches the ground at four points and after the production hang, the total weight capped out 420 tons. Although this isn't a lot more than other stadium shows, what made this one different was that it seemed to apply 105 tons of downward thrust at each foot. And because the legs 'arch' rather than stood vertically, the load isn't completely downward. It presses down and out from the center. With all of that in mind, two of the engineering challenges were the need to disperse the load evenly, and keep the legs from spreading at their bases.

The answer to the weight distribution was to tie it all together and create a shoe so stiff that the weight would cover the entire area between the legs. At the end of the calculation, the load was only about a ton per pad on the ground, which isn't any more than one would see on any other stage. The feet were tied together with tension rods that ran diagonally under the center of the stage and in a square all around. This stopped them from spreading outwards.

The arched design of the legs created another challenge. They couldn't be built as freestanding bits and tied into one another at the top. The solution was amazing because of the arched design the legs couldn't be built from the bottom up. The only answer was to build them from the top down. Sounds odd don't it? The crown of the structure was built first and flown by 4 huge hydraulic lifts that climbed between 2 truss towers. These lifts traveled on 7 trucks and were brought in for the build, dismantled and removed from the building until the load out when the whole process took place in reverse.

Because this was a serious balancing act the lift had to be done with extreme precision. This couldn't be left to one person controlling each tower. Thus, all 4 lifts were controlled from a central controller. When the centerpiece of the roof was completed, it was flown high enough to attach the first leg section. Each leg section





had 4 attachment points per end where it pinned together with the other sections and ultimately into its footing. Then the leg section would be craned up in a horizontal attitude. When it was at the right height, it was gently connected to its outside 2 points by riggers who were inside the roof. These outside points would then act as a pivot point. As the crane lowered the leg section, it guided itself into its final position where the riggers would connect the bottom points. The riggers would then move down through the inside of the legs and repeat the process until the structure was complete.

The buzz within the touring industry is the amazement at the sleek look coupled with the sheer size of this stage and that nothing like it has ever toured before. However, rock 'n' roll's architect extraordinaire Mark Fisher has a different view of it all. "I am an architect first and foremost,"

he told us. "I just make my living in rock 'n' roll. I could introduce you to a thousand architects and engineers who could design this stage as well or better than I did."

Fisher went on to explain that it was something of a pleasure to get a design that was any kind of stretch at all. Although there were some challenges inherent in project, the biggest one was designing this thing to be taken on the road. Fisher explained further, "What we bring to the project through our relationship with Stageco is the ability to put a team together that can take the thing out on the road, put it up and tear it down every 5 days. That's the real magic trick. For me, the thing that the rock 'n' roll world delivers that the conventional construction world couldn't is the ability to deliver it time after time on time in cities 400, 500 and even 1,000 miles apart. That's what the rock 'n' roll world should really be proud of because it's developed a culture and skill base that allows that to happen."

In order for this show to get in and out of a stadium it took 5 cranes, 38 trucks per roof (there were 3 roofs) and 48 trucks of production

gear. Tour Production Director Jake Berry explained, "On most stadium shows you're carrying 32 to 38 trucks of gear. On this one when we get to 38 trucks, we still have ten more trucks to go."

Berry explained that the massive size of this production carried with it larger than normal logistical concerns. Put quite simply, there was more truck movement and more gear to be distributed around the floor. Therefore, it was decided early on for the tour to carry its own flooring system provided by German based APF (Arena Panel Flooring). "It's common knowledge that if you do a show on concrete it's easier because you can drive your tucks in and things push easier and forklifts drive better, and you don't trip over the edges of plywood." Berry told us. "By laying the arena deck we were in essence creating our own concrete floor, and by taking it with us we had the same floor everywhere we went."

Of course the decking system added another 15 trucks to the count.

The down side is that there was no way to avoid killing the grass wherever the show played on

grass. Berry added, "The flooring system assured that there was no way we were going to save the grass, but without it we would still be loading out of Barcelona."

The power needs on this show were what one might imagine for a show of this size. CAT Entertainment Services' Mitch Margolin discussed, "In the beginning you have to have more out there than less because you don't know what looks Willie [Williams] is going to put up and when. We started out thinking we'd need about 2,000 kw, and once things settled down and we saw what the show was doing every night, the real total mutated down to about 1,400 kw."

In the beginning, the show required 90 runs of 4/Ø (weighing at a pound a foot) feeding into the stadium. Margolin offered some personal perspective, "When I was running power out on U2's Zoo TV Tour, we were running 36 runs, and I was thinking 'man this is insane.' When I saw this, I realized what insane really is. But that's what this show takes."

This amount eventually shrunk down to down to 65 runs. That being said, it's still a massive amount of copper to be pulling around the stadium. Where it really got ugly was getting it up to the roof. There was significant workspace in the ceiling of the structure for crew to load in and maintain lights and sound, and although there were 2 elevators in the roof to get gear up and down because there was not a personnel lift. The crew got up and down by way of ladders inside the legs. This was also the way that power got up there.

The requirement was to pull five lines of 4/Ø up each leg. The mere thought of that is enough to have anyone who understands the process reaching for hard liquor and tall glasses. It was Jake Berry and Green Site Coordinator Seth Goldstein who found the solution – Aluminum 4/Ø. Who knew? Margolin admits that the aluminum was not as soft and pliable as copper. On the other hand, it didn't have anywhere the weight of copper and that made all the difference. So much for tall glasses.

The actual stage area was a circular platform that was built by Tait Towers. It took up the entire



U2.360° TOUR THE LARGES

center area between the legs of the structure. With the exception of the backline gear on stage, it was extremely clean.

There was an upstage walkway that allowed the band to get relatively close to the fans behind the stage. There was also runway that contoured the shape of the stage leaving about 30 feet of space between the “B” stage as the runway was called on the tour and the main stage. This area was called the Red Zone and was filled with audience members who paid to be in there. While the Red Zone was the area where fans could have the closest access to the band, it was the least expensive ticket in the house. This was done in an effort to beat scalpers at their own game.

The “B” stage was only accessible from the main stage via motorized bridges. Their home positions were at 10 and 2 o’clock relative to the stage, and they were able to move anywhere around the stage. This allowed the band to

get deeper into the crowd and interface with fans both inside and outside the Red Zone. It also had the added benefit of offering the odd goober the experience of getting tossed out of the show for hitching a ride on the bridge as it flew over the crowd. It takes all kinds.

PRG brought a major effort to this show, with 196 Bad Boy™ units, 8 Big Lights, 156 Atomic Strobe 3ks with color changers, 6 Nova-Flower 2Ks, 12 Lycian truss spots and Strong Gladiators as well as a few other knick knacks.

The bulk of the heavy lifting in the lighting system was done by the Bad Boys. Most of them were hung in the legs and roof of the structure. The lights in the legs provided key light and back light depending upon where the band members were as they moved about the stage. Backlight was also provided from the lights in the pylon that pointed down out of the center of the roof. Bad Boys and high-powered Nova-

Flower units positioned on 7 platforms placed around the upper levels of the stadium, along with Gladiators that the tour carried as house spots, provided additional lighting for the stage. In addition to lighting the stage, the Bad Boys and Nova-Flowers were also used to light the skin of the roof.

However, controlling all of this gear around the house posed an interesting challenge. Depending upon the venue the show might be playing in, the amount of DMX and ICOM cable needed to make the satellite lighting positions happen could be unspeakable. The only logical solution was to do it all wirelessly. PRG’s Tim Murch discussed that with mPm, “We actually found the limit to the distance you can go with wireless DMX. It was one of those interesting little challenges we had in Barcelona. The first system we had didn’t work so we had to change it out then we had to have some RF techs come and sort it out.”

When it all boiled down to gravy, the result was a collection of follow spots, Bad Boys and Nova-Flowers on 7 platforms at 5 different locations that needed nothing more than local power, which was dropped by the house.

There is one interesting note about the PRG Bad Boy. Show Designer / Director Willie Williams used the process of a blind shootout to decide what his main source of stage light would be. The event took place in Wembley Stadium where they shot from the end of the floor up across the seats and onto the scoreboard. In addition to the Bad Boy, the audition included the VL3500 and the MAC 3000 as well as a few others. Murch explained what happened next, “When we fired them all up, I was standing next to Willie and he turned to me and said, ‘I’ll bet you really want yours to be the one on the left don’t you.’ He was right. It turned out to be the case”

Not only did the Bad Boy blow the completion out of the water in

the shootout, but also it stood up to the strain of touring with equal success. Murch told us that the breakdown rate was less than one percent.

In addition to the Bad Boys and strobes in the structure, each leg had a truss section that contained 3 Lycian truss spots. When the operators strapped in for the show, the truss flew up in a diagonal attitude and tucked neatly into the leg of the roof never to be noticed again. It was a very sleek design feature.

Mirch was specific about bringing two matters of concern to the story; his ardent respect for both Willie Williams and Lighting Director Ethan Weber. "Willie's vision, that I was introduced to in 2008, and what we all achieved in Barcelona was truly amazing. Willie really drove it beautifully. I had never worked with Ethan Weber, but I can now say that he is one of the best moving light programmer/operators I have ever seen on a show. He really hit it

right from the very beginning, and it only got better from there."

One cannot talk about U2 without to mentioning FOH Audio Director Joe O'Herlihy. He joined the band on September 25, 1978. When *mPm* discussed this tour with him he was typically low key. "When you have a show this big and you're playing in nothing but stadiums, you're going to have your challenges. Every room has its sweet spot. In all but a few cases we were able to hit it if I may be so rude as to say so."

O'Herlihy went on to explain that the amount of headroom built into the system was a big benefit to some of the more difficult to mix rooms such as Atlanta's Georgia Dome. "Preventing the room from reacting badly is half the battle in difficult situations," he told us. "But you have to run your show as it is, after all, it's a rock 'n' roll show, and you have to have the energy that goes along with the concept. You will find that with the system we've created with the 360°

touring event is that we have a substantial amount of headroom, which is a saving grace in all of this. We also have a system that is distributed magnificently regarding the area that we are able to specifically direct sound into. That means that we don't ever have to have the system running at it capacity in any way, shape or form to deliver the quality of audio first and foremost to get up into the nether reaches of the stadium."

Because the show was designed to play to all sides and the stage structure had 4 distinct sides, the system was hung facing 4 equally distinct directions by all outward appearances. However, at a closer look, the rigging was positioned to spread the system out to offer outstanding coverage throughout the room. However, the show didn't play in the round in the classic sense. As was said earlier, the stage played end-on. That meant that the SPL (Sound Pressure Level) had to be greater on the line arrays making the long

throw. O'Herlihy said the parallel line array configuration was part of what made that possible.

When asked if there were any stadiums that beat him in his quest for the highest possible quality sound, O'Herlihy was graciously non-specific saying that there were a few places that gave him more trouble than others. However, he did add that the design of newer stadiums don't seem to take into account that in addition to the 8 or 10 football games there are actually going to be concerts played in the venues as well. The result is a copper box loaded up with thousands of square feet of reflective surface that kills a good mix.

The one visual aspect of this show that most assuredly had people walking away talking was the video presentation. It is also the most difficult to describe. Indeed when asked to describe it before the show Jake Berry simply said, "It's too hard to explain, you'll see it." Because of the 360° nature of

ST TOUR TO EVER GO OUT



the show the screen was a vertical cylinder that tapered in from top to bottom like a funnel. It was made up of several plates that varied in size (larger at the top). Each pixel of the overall display was individually loaded into its respective plate and then had to be mapped into the overall look. The screen contained roughly 450,000 pixels. The show started with the screen at a high trim above the stage. At one point during the show it flew into a lower elevation. From there the top of the unit expanded up to an elevation that was several feet higher than where it started at its first position. In the process of this expansion the individual plates separated creating an entirely different kind of display. This meant that in the mapping process the vertical expansion had to be accounted for as well as a light twist that occurred as well. It also revealed the bracing of the display which now became an active part of the display.

Once fully deployed, the thing fully encompassed about 90 percent of the area between the roof and the deck. The deployment of the unit was very slow, and like all large-scale automation moves, it had a soft start and stop. Of all of the engineering solutions put forth in this production, this one may have been the best. The challenge was to create this funnel shaped cylinder and make it expand vertically and still maintain its shape.

The answer was in the structure it hung from as well as the frame of the unit itself. The frame consisted of a series of X braces that could scissor out in order to allow the cylinder to deploy. The unit, which was divided into 4 tears, hung off of a circular frame. The tears were supported off of spars that extended into the center of the circle. Eight hoists with the exception of the "C" tear, which was lifted at 16 points, lifted each tear. All of this was operated by a motion control system. Regardless of where you watched the show from, this was an incredibly dramatic display.

Monitor world on this tour is a good bit more complicated than on most tours. The show has 3 monitor engineers, Alastair

McMillan – Bono, Niall Slevin – Edge and Dave Skaff handled Adam Clayton, Larry Mullen Jr. and Programmer/Keyboard player Terry Lawless. On the last tour, two people off of the same desk ran monitors for Bono and Edge. This time out, the 2 were put on separate consoles, which gave the engineers more precise control.

Because there is so much gear needed to fill the monitor needs of this show it all had to be based under the stage. That's nothing

importance to the guys under the stage.

Once the stage is built, 48 trucks of production gear rolls in. Half of the gear that has to be stored was put back in the trucks, as there was precious little storage room to be had wherever the show was. The task of getting everything where it all has to go falls to the one and only Rocko Reedy. There's no arguing that this is the largest tour to ever go out, but Reedy takes it all in stride while handing the praise to those

for the crew. He went on to explain, "It didn't take too long in Barcelona for everyone to get a feel for the big picture on this thing. They understood early on that with this much gear how and where it comes into the room is critical, and they showed a great sense of cooperation with one another understanding that this isn't a race."

Seeing it come in the door and spending time with those involved and making it happen is the only way to get a feel

1 Jack Richard - Automation Tech, Raffaele Buono - Head of Automation, Timothy "TK" Woo - Automation Tech, Simon Twigg - Automation Tech **2** *Front Row:* Niall Slevin - Monitor Engineer, Dave Skaff - Monitor Engineer, Alastair McMillan - Monitor Engineer/Recording, Jennifer Smola - Audio Tech, Jo Ravitch - Audio Tech/Crew Chief, Vincent Perreux - Audio Tech, Tom 'Duds' Ford - Audio Tech, Jason O'Dell - Audio Tech *Back Row:* Hannes Dander - Audio Tech, Pascal Harlaut - Audio Tech, Dave Coyle - Audio Tech, Chris Fulton - Audio Tech, Jason Brace - Audio Tech, Josh Flower - Frequencies, Lunch Box - Audio Tech, Kelsey Gingrich - Audio Tech, Blocker - Audio Tech **3** Russell 'Bits' Lyons - Lighting Tech - High Platforms, Ethan Weber - Lighting Director, Alison Triplett - Lighting Tech, Craig Hancock - Lighting System Crew Chief, Mick Stowe - Lighting Tech Dimmers/Distro, Jessica LaPoint - Lighting Tech, Jake Sullivan - Lighting Tech - Moving Lights, Stuart Lee - Lighting Tech: General/Mains, Alex Murphy - Lighting Associate, Andy Beller - Lighting Tech - Moving Lights, Chris Keene - Lighting Tech, Gareth Morgan - Lighting Tech, Christopher Davis - Lighting Tech, Nick Barton - Lighting Crew Chief, Blaine Dracup - Lighting Tech/Moving Lights **4** Jake Berry - Tour Production Director **5** Dallas Schoo - Guitar Tech: The Edge **6** Rocko Reedy - Stage Manager **7** Terry Lawless - Programmer/Keyboards **8** CAT power crew - Cisco Reyes, Erich Nemier, Jon Boss - CAT Crew Chief, Dennis Crespo, Todd Miklos, Jimmy Angerami **9** Todd Mauger - Head Rigger, Riggers - Scott Fremgen, Robert Slepicka, Dion Pearce **10** Philip Docherty - Guitar Tech: Bono **11** Joshua Kapellen - IT Specialist **12** Scott Nichols - Security Director **13** Jessica Berry - Production Coord, Sarah O'Herlihy - Security Assistant, Helen Campbell - Production Coord **14** *Front Row:* Adam "AJ" Rankin - Asst Head Carpenter/Bono Stage Assistant, Jesse Thayer - Carpenter, Rick Beulink - MOJO Barrier, Johnny Mendez Gonzales - Carpenter *Middle Row:* Carpenters - Kerry Rothenbach, Andrew Johnstone, Appy Thörig, Hajime 'Haji' Minatodani - *Back Row:* Flory Turner - Head Carpenter, Gino Cardelli - Carpenter **15** *Front Row:* Patrick VanSteelant LED Tech/Crew Chief, Eoin McLoughlin - Camera Operator, Jeroen "MyWay" Marain - Video Engineer, Tobias Kokemper - LED Tech, Richard Jewell - Camera Operator, Luke Levitt - Video Tech, Stefaan Vanbesien - Video Engineer, Ollie Clybouw - LED Tech *Back Row:* Jeroen Mahieu - LED Tech, Jan Bonny - LED Tech, Mark Cruikshank - Camera Operator, Frederik Goemaere - Video Tech

new as they were under the stage on Vertigo as well. But on this tour, they were under a walkway that served as the band's entrance from upstage. This had them a good distance from the action. Contact between them and the backline guys who were in direct contact with the band members was critical. This was achieved through an open mic.

That wasn't enough. By the time an issue got from Edge through his guitar tech Dallas Schoo and on to Niall Slevin time is lost. Therefore, there was a separate video cut specifically for the monitor guys so that they could see exactly what was going on onstage at all times. This was a tough to pull off given that the cut was pulling from the same cameras that were going into I-MAG, and what was important to Video Director Tom Krueger may not have been of paramount

around him. "Well what I'm most fortunate with, and it's easy to say it but it's the God's honest truth, is that I'm surrounded by the best people in the world." Reedy told us.

"They brought George Reeves out and gave him the title of assistant stage manager which I don't get because you're either the stage manager or you're not. But he's a spectacular stage manager, and he's much younger than me, so I'd better watch myself. Then there's Jake. The thing that Jake always brings to the table whether he's doing Dinosaurs, The Stones or U2 is an organizational skill that is unmatched by anyone else. So following his lead makes it all pretty easy."

Big respect for Jake Berry and George Reeves notwithstanding, Reedy had equal admiration

for this production. This is an exceptional group of people, but there is no question that the most extraordinary among them is Jake Berry. He has a grace and ease about him that seems to spread throughout the entire building. When asked what the biggest challenge of the tour is, he finally settled in on letting the crew answer the question, "I'll bet if you asked the crew what the biggest challenge is they'd say it's storage."

While walking the site with him, *mPm* asked what it was like in the beginning. He admitted that there were some rough spots to be rubbed out, and then he gestured to the ballet of work going on around us, smiled and said, "Look at it, you don't see much panic going on here now though do you?" Nope. 🙄



JAN PAULSEN

An Amazing Story of Loyalty, Friendship and Perseverance

by MICHAEL A. BECK



Jan Paulsen & Lennie Watson

IN SEPTEMBER OF 2000 Jan Paulsen was rigging out a television shoot in the German city of Kiel. He'd finished what he was doing in the roof and noticed that some of the guys on the ground were having some difficulty in breaking down the stage. So he called down and asked if they needed help. They accepted the offer and down he came.

When he got under the stage one of the beams of the deck fell in on him and severely cut his head. He told the guys he was helping that he needed to sit down, have a smoke and let the profuse bleeding subside. While he was resting he looked up and noticed that there was cable that had been left up in the ceiling. He thought, "Damn, I'd better go up and get it."

Not knowing the severity of his head injury he climbed back up. This was a move that would change his life. When he got up to the cat walk he passed out and fell some 40 odd feet onto a concrete floor. He suffered extensive internal bleeding and massive head trauma. He was in a coma for two months and when he came to his entire right side was paralyzed.

He would be in a wheelchair for a year and he would have to completely relearn to walk and talk. But he mounted the challenges.

While he was in the process rebuilding the function of his body, U2 had gone back out. He'd been getting enormous support from the band and crew all the way through his ordeal. At one point they invited him to come out

and see the gang in Copenhagen. He explains, "There's no way I was going to let them see me in a wheelchair. I managed to train myself up until I was on crutches and my girlfriend and I took the plane down to see them. We had a wonderful reception there. They invited me up onto the stage with the band during rehearsal and they had a little prayer with us and it was very nice time. They were quite impressed with the way everything was progressing and the fact that I was even alive at all."

While this was a heartwarming experience, the real world eventually intruded as U2 continued on with the tour and Jan continued with the journey of recovery. A couple of years later the band came through Oslo and he received yet another invitation to come and visit. When he showed up everyone was universally amazed at the progress he'd made. His speech was completely restored.

At one point Bono assured Jan that we would be working for the band again. Although those words were certainly flattering and filled with earnest Christian kindness, Jan knew the score.

But when Christmas of 2008 came around and he heard that the 360° tour was going out he took his shot and contacted some friends he knew in Dublin to ask if there was room for him on the tour. In addition to undergoing a withering regiment of physical therapy for years, he'd also gone to school and gotten his bachelor's degree in video engineering. U2 Manager Paul McGuinness had heard of Jan's new skill set and suggested that he contact Tour Production Director Jake Berry or XL Video and inquire if there was room on the video crew.

No Joy. By now the tour was set and ready to go. The temptation to sink into the dumps at the prospect of a career that may have passed him by was certainly there. But the support he was getting from those around him and within the U2 camp telling him to not give up was stronger than the temptation. In June of 2008 he got the call asking how soon he could get to Barcelona. A member of the video crew had gotten injured and had to leave the crew.

At very long last he was back in the game. But it wasn't to last. By the end of the European leg the crewmate he'd replaced had recovered from his injuries

and would be reclaiming his position for the American leg. Heartbreaking as it was, Jan understood the situation possibly better than anyone else, but he hated the prospect of losing his spot on the tour.

Patrick Martens who was the crew chief of the Stageco's red crew did some checking as did McGuinness and they found a hole on Martens' crew. The circle was now complete as was Bono's prophecy that he would work for the band again. Jan was now engaged in the work he was doing when this odyssey began nine years earlier. It was the one thing he never thought he'd do again.

"I had my doubts at times," he recalls. "But then I would say, 'Now hang on, you've done this stuff before. It's in there somewhere.' And I was getting positive feedback from those around me. I figured if it was a hopeless case they'd tell me. I'm tremendously grateful. When I was in hospital Bono sent me a CD in which he'd written a personal message to me, which was very, very nice. Everyone stood by me and never gave up and never let me give up."

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Assistant Stage Mgr: George Reeves
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FOH Audio Director: Joe O'Herlihy
Production Coords: Helen Campbell, Jessica Berry
Tour Coord: Alison Larkin
Crew Chief & Drum Tech: Larry Mullen Jr, Sam O'Sullivan
Guitar Tech: The Edge Dallas Schoo
Programmer/Keyboards: Terry Lawless
Bass Tech: Adam Clayton Stuart Morgan
Tour Tech: Rab McAllister
Guitar Tech: Bono Philip Docherty
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Security: Brian Murphy, Jerry Meltzer, Steve Denelsbeck, Darren Murphy
Production Security Coord: Knute Brye
Security Assistant: Sarah O'Herlihy
Wardrobe Associate: Karen Nicholson
Wardrobe Assistant: Chloe Bloch, Eva Maguire
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Monitor Engineers: Niall Slevin, Dave Skaff
Consultant: Robbie Adams
Audio Tech: Tom 'Duds' Ford, Dave Coyle, Chris Fulton, Ben Blocker, Hannes Dander, Kelsey Gingrich, Pascal Harlaut, Joel Merrill, Jason O'Dell, Vincent Perreux, Jennifer Smola
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Lighting Techs: Jessica LaPoint, Alison Triplett, Chris Keene, Gareth Morgan, Christopher Davis
Video Director: Tom Krueger
Video Tech Director: Stefaan Desmedt
LED Tech / Crew Chief: Patrick VanSteelant
Video Engineers: Stefaan Vanbesien, Jeroen "MyWay" Marain
Camera Operator: Mark Cruikshank, Richard Jewell, Eoin McLoughlin, Gordon Davies
LED Techs: Jan Bonny, Jeroen Mahieu, Ollie Clybouv, Tobias Kokemper
Video: Frederik Goemaere, Luke Levitt
CAT Crew Chief: Jon Boss
CAT Power Crew: Dennis Crespo, Todd Miklos, Erich Nemier, Cisco Reyes, Jimmy Angerami
Head Rigger: Todd Mauger
Riggers: Scott Fremgen, Robert Slepicka, Dion Pearce
Head Carpenter: Flory Turner
Asst Head Carpenter & Bono Stage Assistant: Adam "AJ" Rankin

Carpenters: Gino Cardelli, Bill "Sox" Shewmake, Johnny Mendez Gonzales, Andrew Johnstone, Hajime 'Haji' Minatodani, Jesse Thayer, Kerry Rothenbach, Kenneth Bonnet, Appy Thörig
MOJO Barrier: Rick Beulink
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Videographer: Cutter Hodierna
Catering: Steve Quinn, Joshua Ireland, Courtney Keene, Tai Lopez, Natalie Parkinson, Christian Streppel, Marisa Zoccolan, Rebecca McCartney, Bonnie Simpson, Gemma Peacock, Bruce French
Advance Caterer – Blue: Adrian Morson
Advance Caterer – Red: Paul Kennedy
Advance Caterer – Green: Matthew Pierce
Stageco Blue Steel Crew Chief: Johan 'Bellekes' Van Espen
Stageco Blue Crew: António Alves Monteiro, Tim Beckers, Olaf Brinkmann, Austin Brown, Ben Bryant, Cees Dazler, Arne De Knegt, Mark Gandy, Rene Havermans, Jonathan Hawkins, Michael, Hillebrand, Tambani Lokoza, Joel Olbeira, Franz Rieger, Christian Rouelle, Jasper Ruebens, Fran Schilte, Kurt Schneider, Sonya Schubert, Tom Strauf, Karsten Truyens, Michiel van den Boomen, Martin Van Eijk, Jan Van Eyck, Johan Van Lieshout, Jesse Winn
Stageco Red Steel Crew Chief: Patrick Martens
Stageco Red Steel Crew: Kim Achterberg, John Campbell, Koen Daems, Eivind Haugen, Ludo Hoebrechts, David 'Cinch' Lanosga, Marc Melotte, Dalibor Misura, Jan Paulsen, Lothar Schader, Lennart Siik, Bjorn Steegen, Jim Stoner, Robert Szerszyn, Jimmy Termaat, Carly Thomas, Elmer Vallejos, Bart Van Damme, Michel Van Der Veken, Erwin Van Duyse, Mark Van Gorp, Gregory Vervoort, Jaap Vriens, Lennie Watson, Norbert Wiesinger, Ryan Worsham
Stageco Green Steel Crew Chief: Hendrik Verdeyen
Stageco Green Steel Crew: Milt Angelopoulos, Jason Bond, Wim Carens, Wilfried Celen, Ken De Roovere, Randy Ellson, Gilles Gemberling, Magnus Harding, Iain Hardwick, Ben Hommers, Hughes Imschoot, Oisin Kelly, Janos Kerekgyarto, Patrick Lively, Erik Muhm, Dan Ravas, Florian Sadrawetz, Benny Sterckx, Marc Van Dijck, Christophe Van Hostauijen, Maarten Van Kruisjdijk, Pieter Van Tulder, Florus Van Zaten, Zachary Wennmacher
Field Cover: Okan Tombulca, Sebastian Tobie, Markus Kaiser, Dirk Henneberger, Matthew Kelly, Richard Dunne, Luis Steffen
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Bus Drivers: Jeff Feightner, Geoff O'Connell, Tom Blauvelt, Scott Seeley, Joe Folk, John Kubus, Lyman Cantrell, Mike Lee, Tracy Key, Brian Brown, Terry Rogers, Fred Anderson
Lead Truck Driver: David Heath
Truck Drivers: Scott Rottler, Brent Morrison, George Berlinger, Bill McMichael, Dave Patch, Vicki Plattel, Tim Carpus, Joe Clark, Anthony Horton, Gary Stembridge, Danny Martin, Phil Sauls, Leo Johnson, Kurt Mannhardt, Tony Vallejo, James Needham, Matt Chesnut, Terry Chesnut, John Phipps, Pat Mudgett, Joe Harrison, Fred Rice, Pat Blount, Richard Geneaux, Don Rolofson, Mike Milligan, JR Edwards, Phyl Richards, Dale Vaughan, Ken Weddle, David Tidwell, Jay Usgaard

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U2 360° Redefines Live Production

It's almost a given for U2 to push the creative envelope when it comes to live production, and U2 360°, the band's current tour in support of its latest album *No Line on the Horizon*, more than lives up to that reputation by totally redefining the live production experience and outdoor stadium sound.



establish design criteria and structural requirements. Notes O'Herlihy, "We knew that the PA system, type, and application design had to be a line source array system, and the new Clair i-5 was the most timely and perfect solution to accommodate the off center stadium 360-degree configuration." Final versions were approved almost a year later, and featured a system which was based around the Clair i-5™ line array and fully integrated into the set design (See *Sidebar*).

In early 2009, the team tested their theories and ideas by setting up the i-5/i-5B stadium system at Toronto's Rogers Center (Sky Dome). Tests included verifying sonic calculations and phase references, and establishing low end time alignment. The goal was to maintain full 360-degree coverage, and cover the audience right up to the edge of the stage with an even, uniform distribution of high SPL, full dynamic range, and high quality sound.

The massive sound system covers 15 zones with a combination of hangs: L/R hangs of 36 i-5 & 36 i-5B each side at FOH; L/R 24 i-5 & 24 i-5B, Rear; 16 i-5 & 16 i-5B at House L; and 16 i-5 & 16 i-5B at House R. Main stage front fills include 24 FF2 and 24 BT218 subs, while a "B" stage area includes 72 S4 subs.

For additional coverage and intelligibility in hard-to-reach areas, the main system is supplemented with four hangs of eight of Clair's new 2-way delay cabinet, the iDL™, which was developed specifically to meet the unique requirements of the tour.

According to Jo Ravitch, senior systems engineer and Clair crew chief, the system is powered by the largest number of amplifiers ever put together by Clair for a tour, with more than 150 Lab.gruppen model PLM 10000Q and 14000Q,

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U2 is playing stadiums everywhere this time out, with a 360-degree audience configuration, ambitious staging, a cylindrical LED video screen, and a Clair sound system which marks what might be the largest collection of speaker cabinets in touring history. The 170-foot "spider" centerpiece structure, inspired by the Theme Building at LAX, incorporates lighting systems, manned cameras and spotlights, the massive video screen, and speaker arrays.

U2 360° also marks a 30-year relationship between U2, Clair, and the band's audio director and FOH engineer, Joe O'Herlihy, who has been involved with the groundbreaking production from conceptualization to implementation.

"The '360' concept was first envisioned by the band at the end of the *Vertigo* tour in Honolulu's Aloha Stadium in late 2006, but had really been a plan since the *Joshua Tree* days," says O'Herlihy. "They presented the idea as a goal for the next tour, and I was charged with developing, planning and implementing an audio design which would not only set new industry standards, but would also maintain what U2 and their fans have come to expect—sonic quality, high dynamic range, and crystal clear stadium sound."

O'Herlihy and show designer Willie Williams, along with Mark Fisher and Jeremy Lloyd from production architects/designers Stufish, worked collaboratively with Clair's R&D and engineering resources beginning in early 2008 to



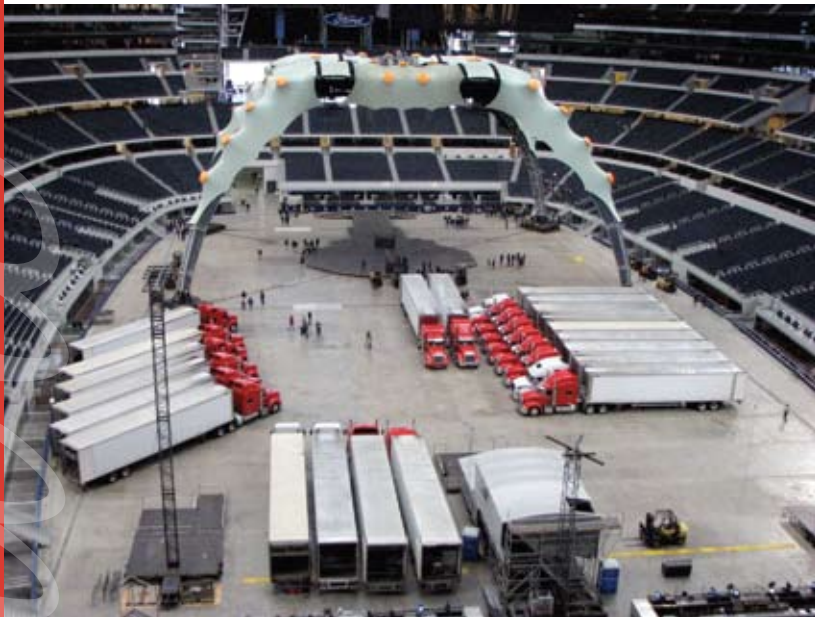
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LITITZ NASHVILLE CHICAGO TORONTO LOS ANGELES BASEL LONDON TOKYO SYDNEY

Upstaging U2 200 Trucks. No, Really.

By MIKE WHARTON



was universal, appearing at every show, while the other teams leap frogged city to city.

Doing a large stadium tour requires a group

The phrase “over 200 trucks” has been floating around conversations and articles regarding the fleet transportation since the beginning of the U2 360° USA tour. Taking into consideration that Upstaging usually operates an inventory upwards of around 200 trucks at peak capacity during the height of touring season, this is a staggering number by any standard even to an industry stalwart such as them.

mobile Production monthly reached out to Chanon DiCarlo, Upstaging Transport account manager for the tour, to get a definitive answer on just how many trucks it actually took to move the production. DiCarlo jokingly considers herself a “newbie” having been with the company only 11 years and is quick to point out that she “just does sales.” DiCarlo acted as liaison with U2 handling scheduling and contract negotiations, while Upstaging’s Greg Regan and its operations department worked on logistics, hiring, coordinating and dispatching drivers as well as conferring with the various site coordinators on U2’s production staff.

Typically her involvement would be on the front end of pre-production; pricing the tour routing schedule the client provides and handling whatever negotiations that have to be done with Regan overseeing the operational aspects of getting the transport equipment and drivers out the door and on the road. Due to the complexity of this groundbreaking tour, the two collaborated on the project from start to finish.

Altogether, a total of nine designated teams shepherded the tour throughout the States. They consisted of 3 steel teams, 3 field cover teams, 2 terraplas or flooring teams and 1 production team. The equipment consisted of standard trailers and flatbeds, although a few were slightly modified to accommodate specific needs requested by U2 Production Manager Jake Berry. Regarding the quantities on each team, DiCarlo deferred to Berry. He told *mPm* that 48 trucks carried daily production, 38 trucks transported each of the 3 “staging” or steel teams and the field cover and two flooring teams consisted of 14 trucks each.

The staging teams transported the circular stage itself, “The Claw,” sound delay towers and E.O.H. as well as the aluminum decking which allowed trucks to drive into the stadium and onto the playing surface without damaging the field. The terraplas, an interlocking plastic composite, was laid down on top of the aluminum after production load-in for the audience and seating purposes. This further spread the load out over the field surface. The production team

effort on all parts of a production company acknowledges DiCarlo. “Every job, no matter how small, contributed to the success Upstaging had on this tour,” she says. DiCarlo says that a significant lead time was allotted during the planning stage on how this show would move through the US. She emphasizes this was integral to Upstaging not only servicing U2 to the best of their abilities but the rest of their clients as well. Early on it was determined that a core staff of Upstaging veteran drivers needed to be in place due to the scope of the tour.

“Jake really set the tone throughout all this,” says DiCarlo. “He, and the rest of his production staff including the site coordinators were all very communicative, ensuring this was a team effort.” Upstaging sent their lead driver David Heath to the London shows to observe the logistics, the load-in and load-out of the show. Heath is a veteran of 27 years with the company. His duties as overall lead driver did not limit him to the production team alone but also included communicating and coordinating with the other team’s lead drivers, all of whom are Upstaging veterans.

Berry, in turn, brought his European lead driver, Sean Robinson, as part of the production staff to the US leg to assist Heath with wrangling truck and “bone yard” flow at each stadium. Robinson and Heath got along very well after having

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Sound Moves

Moving U2 From There to Here and Back!

By BILL ABNER

When the U2 360° Tour cranks back up at Angel stadium in Anaheim, California in June of 2010, it will be a continuation of the largest production ever to hit the road. While that alone is noteworthy considering the scale of some of the productions that have been out there over the years, even more amazing is how this production is able to move across the country and around the world on a daily basis, and never miss a beat. That feat is due in large part to the efforts and orchestrations of global logistics experts Sound Moves.

There's no way a show such as this could operate with just a single production unit moving from city to city. That's one reason why the show triple-leapfrogs from one destination to another. That in itself is nothing new. We've all seen productions from The Rolling Stones to Reba McIntyre do the leapfrog trick, but it has never been done on this scale, especially the move across the Atlantic Ocean from Europe to the US.

As the European leg of the tour was wrapping up, and shows were ending last August in Glasgow, Scotland, Sheffield, England and Cardiff, Wales, Sound Moves' crews began amassing the gear in London for one big move across the water. One really big move. Sound Moves' Vice President Justin Carbone breaks down the numbers for *mPm*: "U2 is 3 identical steel systems that filled 48 ocean containers *each*. The production elements filled another 55 containers, and the flooring system alone took another 48 containers." A combination of 250 40 foot cubes and flat rack systems made the move from London to the depot in New Jersey at one time. "We think it's the largest logistical project in the history of the live entertainment industry. It might be the biggest move anybody's ever done," postulates Carbone.

Once the gear arrived in the US and had cleared customs, crews from Sound Moves Linden, New Jersey

depot began distributing it into transportation vendor Upstaging's big rigs. The 3 separate systems then headed out over the road to the show's first three venues in Chicago, Toronto and Boston for the start of the production's leapfrogging odyssey across the US. Even more remarkable is that this whole process only took about two weeks from the time the gear was ready to leave London, to the final loading onto the trucks in New Jersey, but that's still really only half of the story.

While the tour is on hiatus, it will start up again in June and then will end its US leg in July of 2010 at East Rutherford, New Jersey. Sound Moves will then begin moving the production elements back to Europe via airfreight, employing as many as 6 fully loaded 747 aircraft. Finally, as the last 3 shows in the US are winding down, and the steel and flooring elements become freed up, they will go back on "sea-tainers" for another trip across the Atlantic, where crews will complete the process in reverse for the remainder of the European dates.

As if all of this weren't enough for the logistics group, the company is also currently supporting the *AC/DC Black Ice* tour, among others. *mPm* caught up with Sound Moves President (and Account Agent for U2) Duane Wood while he was with *AC/DC* in New Zealand. "These are two of

the biggest shows in the world, and we're able to move them effortlessly around the world because of our vast network of global resources," says Wood. Granted, while the process itself is fairly common, not many organizations have the "juice" to arrange the movement of 250 ocean containers for a single move across the Atlantic, not to mention doing it twice. Having depots in 13 cities around the globe certainly makes the process easier.

Additionally, there are a lot of other things that go along with logistically supporting a tour besides just moving a production across an ocean. Carbone explains, "We support the tour in terms of logistics for the vendors as well. As the tour goes along, the vendors may need to replace gear, add elements or for whatever reason get their equipment from point A to point B. That's when they come to us as their logistics team and we're there to make that happen and support them as well."

Conversations with both Wood and Carbone reveal that they both are proud, and rightly so, that at the end of the day these mega-shows, these juggernauts happen every day in large part because of their company's contributions. Carbone says, "Our job is to make sure everything is there, so that all the other teams – the sound guys, the lighting guys, the video teams – can all do their jobs. Our job ends when everybody else's job begins."

What's next for Sound Moves? "More touring," says Carbone. "We'll be out with U2 and with *AC/DC* through 2011, and that along with all of the other tours we have out will keep the team busy." Understatement of the year... ☺



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Stageco

The Bigger the Better

by MICHAEL A. BECK

It's hard to tell if anyone knew what would happen in 1984 when Stageco got the call to provide stages for the Rock Werchter Festival in Belgium. However, at this point it's equally difficult to imagine anyone caring much about it in light of what actually did happen. Twenty-six years later the company has become the hallmark of its industry with no other company standing anywhere close.

A very distinct corner was turned when Mark Fisher first teamed up with Stageco on the arch top roof for the 1994 Pink Floyd "Division Bell" tour. The result of that collaboration is a relationship with Fisher that has brought the likes AC/DC, The Rolling Stones, Genesis, Robbie Williams and U2 to the company's door step. Fisher gives the company high praise, "We've had 16 years of working very closely with Stageco, and we know their engineers very well. They have a lot of confidence in what comes out of our studio."

High praise indeed when one considers the scope of the designs that come out of Fisher's studio. That confidence is crucial to the process. It is unfortunate in today's world that a corporate slogan has little more importance than that of meaningless poetry. Such is not the case with Stageco whose motto is: "If you can imagine it we can build it." The fact is that the only thing one can't imagine is the project that this company *can't* build.

Stageco's current project that has the entire touring industry and beyond buzzing like a bee hive:

U2 360° Tour

According to Stageco spokesperson Bo Betten the U2's stage came together in a remarkably tight time frame, "We hit the go button in the fall of 2008 and after a long series of conceptualizing the whole thing we began the test builds in March of 2009."

Given the chronology presented, this might have been incredibly tight when one considers a tour kick-off date of June. But once again Mark Fisher puts a fine perspective to the situation, "I don't ever underestimate Stageco's belief in the project." After all, it's hard to imagine that Stageco has access to resources that other companies in the business don't. It all comes down to one fact. There is a consummate understanding that there is no reason why any project can't be completed on time and under budget.

In an interview done for the cover story in this issue, Fisher told *mobile Production monthly* that the real trick in building a stage like this is not in its sleek and original design, but in its functional design in that it has to get in and out, down the road safely and in a compact

amount of time. Betten addressed that, "Portability was very important to us on this project. We had to build new building blocks. We wanted the pieces to be as big as possible but we also had to take into account the loading limits on trucks both here and in America and it also had to fit into shipping containers."

Betten explained that there is always a balancing act between the desire to keep the budget down by trying to use as much of the existing materials in Stageco's current inventory in order to have the budgetary headroom to add custom made elements when needed in order to meet design specs.

Betten also added that in the festival market, which is huge in Europe, the tendency is to use standard currently existing elements, which makes it easier to add to the design when the desire arises.

So in the end the painfully obvious question to everyone in this industry is and always has been, "So where do you go from here?"

Betten had the perfect answer, "We don't know. We ask ourselves the same questions. It seems that the sky's the limit. The U2 tour will definitely raise the standard. So we are interested in seeing how the industry will rise to meet and go beyond that standard. We expect that the industry will always find ways to get bigger and better, and we will always be there to meet the challenge. It's what we do. It's what we love."

After a momentary pause she simply added... "The bigger the better." 🍷



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Spirit of America Tours continued from 8

due to the use of a sub-contractor. By utilizing its own equipment and personnel throughout the tour, it essentially become part of the family, and the client base feels more comfortable overall in this type of environment.

- Team members sign a non-disclosure with the company. This way, any business or personal conversations that are discussed in their vehicles remain private and are not leaked out to the public.
- Team members operate at all times in the most professional and ethical manner. The client's privacy is always the number one concern.

Previous experience has helped to put our company at the top of many high-end clients when it comes to selecting a ground transportation service for their tours," explains Duval. "I have spent 28 years in the event management industry and have designed and implemented client retention programs at many companies as well."

"My belief is that relationships are built on trust, morals, values and integrity," he continues. "With these basic building blocks in place, the relationships with our clients continue to move towards an end result that

is complete loyalty between the two parties. Once this is achieved, each party becomes indispensable to the other, and the bond between the two is not easily torn apart."

Duval concludes, "One of the main reasons that we are entering the music industry is that we saw a need for consistent limousine service throughout the tours. I am aware that there are a few companies out there that are providing a full service type of booking for the managers, but the consistency factor is at risk by using sub-contractors during the tour. Our team will actually run the entire tour just as the coaches do now for the artist community. We provide a 24-hour, on-call service while on tour for the artist, and we deliver an experience not just an everyday service." ☺

Upstaging continued from 36

the opportunity to meet and discuss logistics in London. DiCarlo points to this as yet another component of the team mentality exhibited throughout the U2 road production and Upstaging's home staff.

"The difference between the last leg and the upcoming leg," she says, "is that now we've done it, so obviously and know what to expect when it goes out again this year."

The tour resumes in June of 2010. 🇺🇸

Jan Paulsen continued from 32

Today when he's not touring with the band, Jan works locally both rigging and in various aspects of television production, and he still does physical therapy three times a week. When the days get long, he remembers that he fell more than 40 feet onto concrete and survived. Through his own perseverance and the support those around him, he climbed back.

In May 2010 when U2 hits the road again, Jan Paulsen's ticket to the States will be stamped along with everyone else on the tour. When asked for the last word on the story, his answer was quite simple... "It's a good story. It's kind of a sunshine story." ☺

Writer's note: In the four years I've been writing for this publication, I have only had the opportunity to stumble across a story like this a few times. When I have, it has reminded me that in among the thousands of paragraphs of detailed descriptions about the technical and logistical aspect of what it takes to bring a design to life, there is flesh and blood. I am deeply grateful to Jan Paulsen for sharing his experience, and I would like to urge our readers to impart any similar accounts you may have. We'd love to hear them, and so would you mates on the throughout the industry.

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plus racks of Powersoft K10 units to power the low end. By conducting measurements with proprietary Clair AlignArray™ software, the crew has been able to calculate SPL required for an audience of up to 95,000.

O’Herlihy chose the DiGiCo SD7 console for its multi-matrix capacities and onboard effects. Two SD7s run identical shows; each has three stereo outputs for inside L/R, outside L/R and the matrix L/R, a combination of the inside and outside L/R for side hangs. There are two 40-input main stage racks, with one distributing AES to each leg, and a backup system of analog feeds to each amplifier.

Monitor duties are shared between Dave Skaff, Niall Slevin and Alistair McMillan. Slevin and McMillan mix on DiGiCo SD7s, with one assigned to Bono and another for The Edge. Skaff mans a Digidesign D-Show Pro for bassist Adam Clayton, drummer Larry Mullen Jr. and an offstage keyboard player. With the literally subterranean location of “monitor underworld,” the three have no direct sight lines with the band, and work off video monitors.

Vocal effects include a Manley Vox Box for Bono and an Avalon 737 for The Edge. A Summit Audio DCL-200 comp/limiter handles guitar compression, with the remaining limiting provided onboard by the SD7. Band members use Future Sonics in-ear monitors paired with Sennheiser G2 hardware, except for a selection of Clair 12AMIII “Stealth” wedges for Bono, making for a virtually clean stage.

“This has been a huge challenge for both Clair and for me, but we were able to complete it, despite working on a very stringent timetable,” says O’Herlihy. “A project of this scale would probably not have been attempted ten, or even five years ago. But thanks to lighter weight, lower profile speaker cabinets and digital mixing consoles, a show—even of this magnitude—can be designed, set up, run, and loaded out in a timely manner. Technology caught up with the concept and made it possible.”

U2 toured Europe through late August, arrived on American shores in September, and played North America through Oct. 28. The tour will return to the U.S. in June, and has scheduled international dates through 2010. ☪

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Clair i-Series: Built for Sound

For more than four decades, Clair has remained a pioneer in the development of industry-standard sound reinforcement products with constant research and development, lots of road experience, and in-house manufacturing which keeps quality control and specifications in check.

According to Rick Lehman, Director of Engineering for Clair, what began as a response to increasing industry demand for more compact, lighter weight loudspeaker design led to the development of the Clair i-Series vertical line array system and its first generation model, the i-4, a 4-way cabinet which was put into circulation around 1999.

“The i-4 applied some of the same component technology used in the successful Clair S-4, but in a much smaller package,” explains Lehman. “Our research showed that the future of touring sound reinforcement was in smaller systems that could be hung, positioned and tuned quickly, safely and accurately, and deliver consistent SPL and frequency response throughout the venue—full bandwidth, total coverage without peaks, overlap or dead spots regardless of room acoustics, sight lines or show design. So this type of system was very attractive in terms of acoustics, aesthetics and economics. We engineered the i-4 with new component combinations, crossover configurations, and integrated rigging – all of which made an attractive package for the medium-to-large scale touring market.”

Today, the Clair i-Series line array arsenal includes the i-3, i-5 and i-DL. Each utilizes Clair’s AlignArray™ integrated rigging hardware and prediction software, and consistent upper crossover frequencies to ensure that combining systems will minimize any phase anomalies.

Originally developed as a rearfill speaker for use with larger systems, the 3-way i-3 featured a more compact design, a centrally located mid/high section, dual low frequency tuned reflex chambers, and exceptionally wide dispersion. Initial response hailed the i-3 as a formidable system, potent enough to be used as mains on tours in smaller venues such as theaters and amphitheaters.

The flagship i-5 is Clair’s latest innovation in large format line array system technology. According to Lehman, the design not only answers the industry’s demand for total system flexibility, efficient mobility and sonic



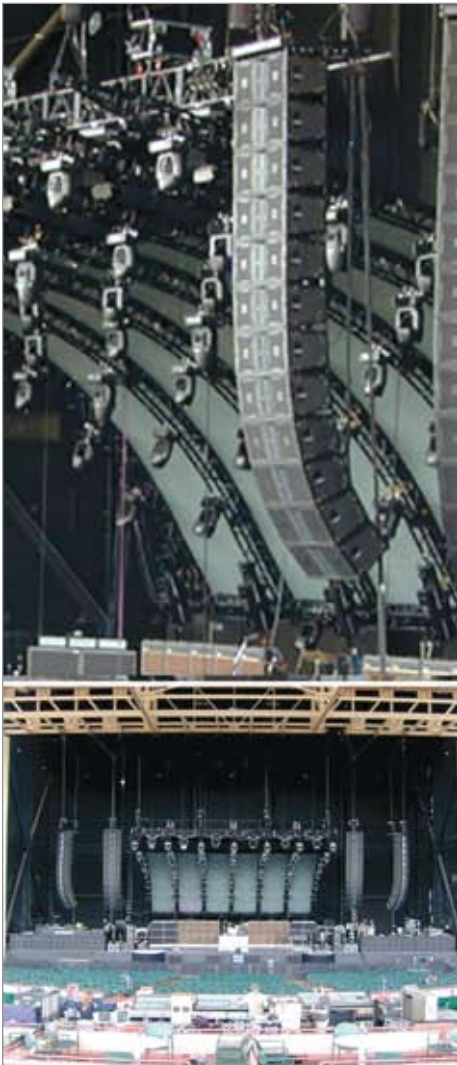
excellence, but also represents a reduction of the design to a more coherent 3-way design. Each i-5 array module is available in dedicated stage left and stage right configurations, and has a defined horizontal coverage pattern of 90°.

The fully expandable system consists of three proprietary long throw, medium throw and near throw vertical coverage patterns (near throw is available in 90° and 120° horizontal dispersion for additional nearfield coverage). With the development of the cabinet’s Coherent Transfer Midrange™ (CTM), the system is able to create a wide-bandwidth, high-output consistent waveform with even coverage, more headroom and superb efficiency.

Clair developed the i-DL specifically to meet the unique requirements of the current U2 tour. Designed as a completely modular system, the 2-way i-DL features a single low/mid element and an interchangeable horn module, providing either 60° or 90° horizontal dispersion and 10° vertical coverage.

“This i-Series is the product of research, road testing and input from a lot of leading sound reinforcement engineers,” notes Lehman. “The U2 tour has provided some high profile exposure for the line, and has also been a great litmus test for the new i-DL. The cabinets are performing well, and we look forward to keeping the line on the road for years to come.”

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