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I - Hollywood Bowl, Ramesh Shihora (Yahoo! Flickr)

## HOLLYWOOD HI-FI THE CONTINUING EVOLUTION OF SOUND

There are few outdoor venues in the world as instantly recognizable and respected as the Hollywood Bowl, the summer home of the Los Angeles Philharmonic since 1922. With its iconic concentric ringed shell and dramatic Hollywood Hills backdrop, the country's largest natural amphitheatre has been immortalized in dozens of films and television shows over the decades.

TOTAL QUANTITIES	PRODUCTS
32	KI
8	KI-SB
8	KARA
8	ARCS II
16	SB28
8	KARA
12	5 XT
30	LA8
4	LA4

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Fred Vogler  
Principal Sound Designer and Mixer Los Angeles Philharmonic

This season, The Bowl once again plays host to a staggering diversity of artists. The official opening night gala was on June 22 and paired the Hollywood Bowl Orchestra with new Hollywood Bowl Hall-of-Famers Steven Tyler and Joe Perry of Aerosmith, Patti Austin and John Legend. Yet even before the official kickoff, 2013 Bowl concertgoers witnessed lease events with Fleetwood Mac, Hillsong United, Andrea Bocelli, Björk, Pitbull with Ke\$ha and the 35th Annual Playboy Jazz Festival.

Nestled into the southern base of the Hollywood Hills, the Bowl sits on prime real estate. But location aside, much of the venue’s success over the years can certainly be attributed to the high production values that have long been its hallmark.

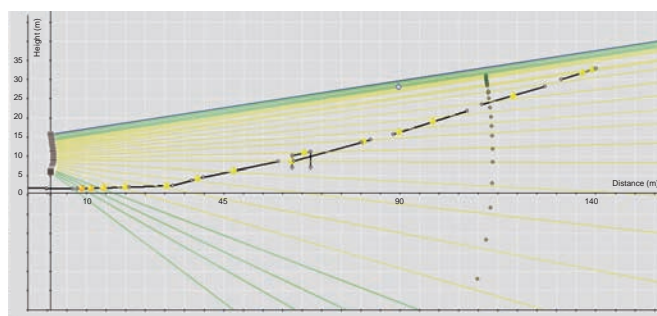
“Although the Bowl is a natural amphitheatre, it’s a very challenging venue,” says Fred Vogler, principal sound designer and mixer for the Philharmonic. “The seating, which accommodates almost 18,000 patrons in a giant parabolic teardrop, is over 450 feet deep from front to back. There’s also quite a steep rake to the seating, which slopes up nearly 100 feet from the stage.”

But the challenges are not simply physical. “We attract a very sophisticated audience, so expectations here are really high — especially when it comes to classical music, the Bowl’s staple,” Vogler adds. “Our patrons expect the whole experience to sound, look and feel incredible, because that’s all part of the reputation and aura of this venue.”

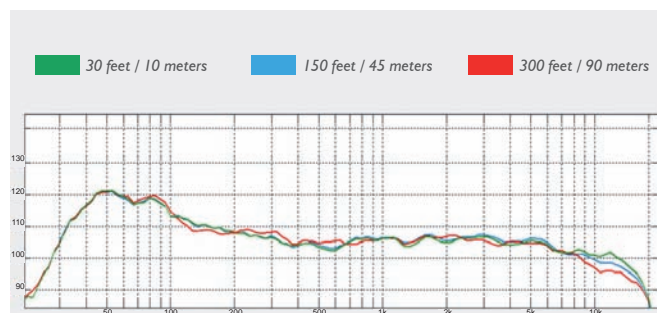
Achieving that level of production has been an evolutionary process. One of the most obvious enhancements to the venue’s sound took place prior to the 2004 season. It corresponded with a complete rebuild of the Bowl’s shell to better accommodate both the Los Angeles Philharmonic and the Hollywood Bowl Orchestra, formed in 1991.

Vogler, who came onboard at the beginning of the 2003 season, was keen to switch the venue from a conventional loudspeaker cluster to a more modern line array system. As a result, the Los Angeles Philharmonic chose to install a sizeable V-DOSC system from L-ACOUSTICS following the season’s close.

Since then, the Hollywood Bowl has been honored at the annual Pollstar Concert Industry Awards as the “Best Major Outdoor Concert Venue” every season for the past nine consecutive years.



2- System cut view



3- Frequency response curve

“KI SOUNDED THE MOST NATURAL. IT FELT EQUALLY GOOD WITH THE STRING QUARTET AND THE JAZZ GROUP. IT DIDN’T HAVE TOO MUCH PERSONALITY, YET DIDN’T HAVE TOO LITTLE PERSONALITY. IT WAS JUST RIGHT.”

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## Modern Times

Technologies have continued to improve — and with V-DOSC approaching the 20th anniversary of its initial product debut, the Bowl's production team began exploring other system options.

"We were certainly aware that L-ACOUSTICS had come out with KI, yet didn't want to automatically assume it would be our next choice," notes Paul Geller, Hollywood Bowl's production director, now in his 43rd season with the venue. "Even though we had all been very happy with V-DOSC and the refinements we'd made to it over the past decade, we owed it to our patrons and ourselves to hear what else was out there."

To accomplish this, the engineering team made arrangements for a blind loudspeaker system "shootout" last November with three of what they considered the leading potential candidates. Each manufacturer brought its own amplification and two 10-element arrays, which would be flown adjacent to the other companies' systems, to address only the lower Bowl seating area. As a control, the venue's existing V-DOSC lower Bowl system (minus dV-DOSC downfills) was incorporated into the listening test.

Rather than listen to pre-recorded program material, the test featured a variety of live performers: a string quartet, jazz ensemble, and vocal soloist with piano accompaniment. While each performed, a single mix engineer switched back and forth through the four systems on the same console. "The dynamics and overall presentation you get from a live performance tells you so much more," Vogler notes. "It was a revealing exercise."

After critically listening to each of the systems, the unanimous choice of all in attendance — both seasoned audiophiles and novice listeners — was L-ACOUSTICS' KI. "KI sounded the most natural," Vogler notes. "It felt equally good with the string quartet and the jazz group. It didn't have too much personality, yet didn't have too little personality. It was just right."



4- Mike Sheppard, Head of Audio/Video, Hollywood Bowl  
and Fred Vogler, Principal Sound Designer and Mixer for the LA Philharmonic

## Nuts and Bolts

With the loudspeaker choice settled, The Bowl called upon L-ACOUSTICS' U.S. head of application for touring Scott Sugden to spearhead the new system's design. Using the manufacturer's SoundVision acoustical modeling software, Sugden — along with Vogler and L-ACOUSTICS' applications team in France — created a system that was smaller than the previous V-DOSC system by six enclosures per side but significantly better in performance.

Installed in late April and early May, the new system features left and right main PA hangs each with four KI-SB subs and 16 KI elements acting together in line-extension mode, along with four KARA's as downfill. A single center array of eight additional KARA's is flown from the leading edge of the catwalk "halo" above the stage and delivers augmented coverage to the front seating area and slightly beyond. All KI, KI-SB and KARA enclosures have a custom white finish to minimize their presence on the face of the famous shell.



For low-frequency reinforcement, eight SB28 subs per side are positioned just offstage and covered with a scenic element to remain visually discreet. Four ARCS II enclosures on each side of the deck cover extreme left/right ramp box seating areas near the front of the venue, with two more ARCS II per side as stage side-fills.

For rock, pop and other non-orchestral shows, eight KARA enclosures spread out across the stage's "piano lip" provide front-fill coverage. During orchestral performances, patrons in that same area receive ample direct energy from the acoustic instruments, so the KARA's are replaced with up to a dozen tiny coaxial 5XT enclosures. These 6.5-inch "cubes" add additional reinforcement for speech, piano or select soloists that may occasionally need to be pushed a bit above the rest of the orchestra.

Power and processing comes from 31 LA8 amplified controllers, offering highly efficient amplification and advanced control/monitoring capabilities. Occupying 62U of rack spaces, the LA8s are spread out between three primary rack rooms within the shell structure.

In addition to the LA8s, each of the venue's four lighting towers has a single LA4 that powers an existing coaxial 115XT HiQ in each location to compensate for the acoustically shadowed areas behind the towers.

## Mission Control

Also installed for this summer season is a pair of 52-fader DiGiCo SD7 digital consoles for FOH and monitors. Audio distribution is fully 96 kHz/24-bit digital between the four DiGiCo SD racks located onstage and LA-series amplified controllers. An analog backup to the digital signal path is in place for redundancy.

"The DiGiCo's had been recommended as the number one touring board by many engineers coming through here over the past two years, so we knew we were making the right choice from a rider standpoint," says Geller. "But we were curious to see if we'd notice the difference in running at 96K Hz instead of the 48K our previous consoles provided. Hearing the audio through the new console over the new loudspeakers, the difference was immediately apparent to all of us."

Michael Sheppard, Hollywood Bowl's head of audio/video, also appreciated the SD7's input flexibility. "Our previous house desk required using a 40-channel companion console every time we mixed orchestral shows," he recalls. "The fact that the SD7 has 256 inputs and lets us put everything on one desk is huge for us. Plus the quietness of the console and quality of the processing are fantastic. It's a beautiful complement to the K1."



5- Hollywood Bowl - Adam Latham

## Intents and Purposes

“Even though our new KI arrays are much smaller than our previous V-DOSC hangs — they are without a doubt much more effective,” says Geller. “My first experience in hearing the system after it had been tuned was that it literally stopped me in my tracks as I stepped out into one of the promenades. I immediately looked up at the stage because what I was hearing sounded like a completely natural, unamplified, acoustic sound, but at such a volume level that I knew I had to be hearing the instruments through the sound system. And as I walked the entire width of the venue from side to side, there was no discernable drop in dynamic range, volume or quality. The same could be said going from front to back, which is amazing.”

## And the Winner is...

This project establishes The Hollywood Bowl as the first and only concert venue in the world to feature KI as a purchased permanent house system.

In order to ensure that visiting artists would opt to use The Bowl’s house system, rather than bring in their own production, choosing a system that would meet or exceed rider specifications for all different genres of music was of paramount concern.

“I love KI because we don’t have to sell anybody on it,” says Sheppard. “Engineers that mix on it absolutely love it. This system sounds absolutely stunning. The very first engineer who mixed an event here this season told me, ‘You know what? I’ll never be able to mix on another PA. That’s it.’ And all of the comments we’ve heard since then have been just as flattering.”

“V-DOSC really had such a high level of acceptance for us over the past nine seasons and I know that we’ll be able to carry on that tradition with KI,” adds Vogler.

Geller confirms that opinion. “I can so comfortably say that we have the finest sounding system in the world. Nobody can top it. I have toured the world with the Philharmonic for years performing just about everywhere one could imagine and I’ve never heard a system that comes close to this.



6- Amy Tierney / Thrive Images

“ALL OF US ON THE PRODUCTION TEAM HAVE ALL LITERALLY HAD THE HAIRS STAND UP ON OUR ARMS AND NECKS WHILE LISTENING TO THIS SYSTEM. EXPERIENCES LIKE THAT DON’T COME ALONG OFTEN FOR MOST PEOPLE, BUT THIS SYSTEM DOES IT FOR US. AND I HAVE A FEELING THAT PATRONS COMING TO CONCERTS HERE ARE GOING TO HAVE THE OPPORTUNITY TO EXPERIENCE THAT AS WELL, WHICH CAN ONLY ADD TO THE BOWL’S CHARM.”

Paul Geller  
Production Director - Hollywood Bowl



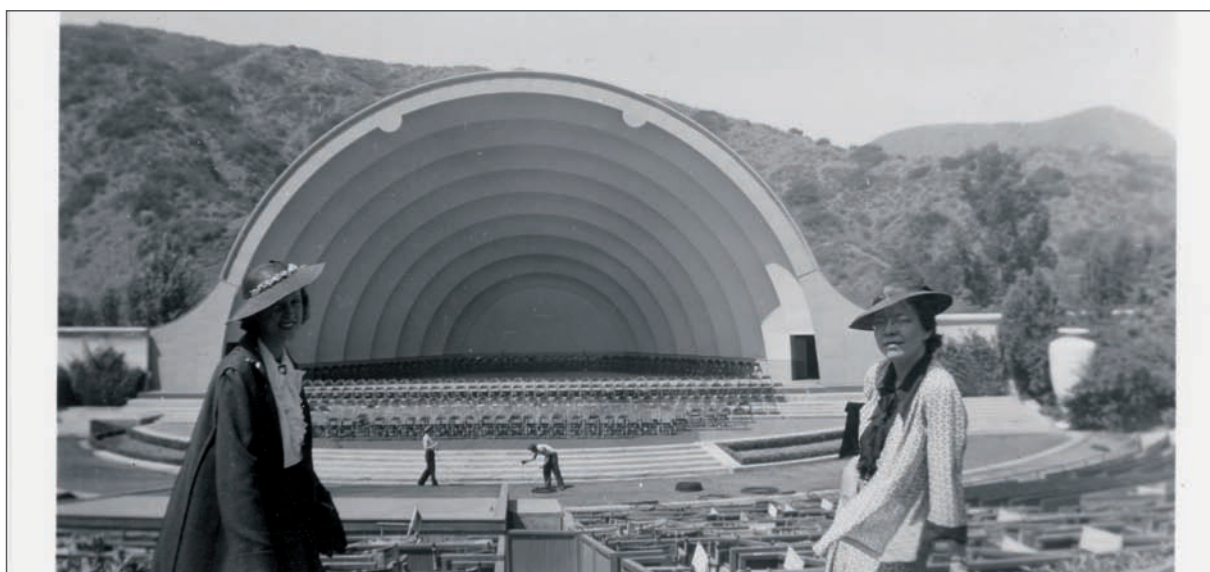
## The Hollywood Bowl: A Short History

The largest natural amphitheatre in the United States, the origins of the Hollywood Bowl go back to 1919, with a \$12,000 land tract purchase in the Hollywood hills. The intent was to create a performance area that took advantage of the natural acoustics formed by the surrounding foothills. The first season was in 1922, with a simple canvas-topped wood platform and some benches for the audience.

The first attempt at creating a shell in 1926 featured an arched proscenium, which was beautiful but had poor acoustics. A year later, Lloyd Wright (son of noted architect Frank Lloyd Wright) used leftover wood from a Paramount Studio set to create a temporary pyramid-shaped shell, followed by a circular shell in 1928, which was designed to be dismantled and stored, yet was damaged after being left up over the winter.

Finally, the firm of Elliott, Bowen and Walz designed the 1929 Hollywood Bowl shell. While preserving the visual aspects of Wright's 1928 design, it substituted a semicircle for the elliptical form and became the iconic image of the Hollywood Bowl that continues today. Constructed of a cement-asbestos mixture on a steel frame, the 55-ton shell was mounted on rails (later removed in the 1960s), and could be hidden behind a nearby hill to accommodate elaborate opera and theatre sets.

After years of incremental acoustical changes, a new shell debuted in 2003. Intended to recreate the historic look of the 1929 Bowl, the new shell incorporates 30 percent more stage space, better artist facilities and improved acoustics.



7- Tourists visiting the Hollywood Bowl, 1937. Photo credit: Hollywood Bowl Museum Collection



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