



In addition to Spencer's win for sound design, the show also earned Tony Awards for best musical plus nods for director Danya Taymor and lighting designer Brian MacDevitt.

Ready to Rumble

By: David Barbour

Creating innovative effects and spatialized sound for Broadway's *The Outsiders*

Cody Spencer enjoyed quite a theatre season in 2023-24. He began the year with his audacious sound design (with M.L. Dogg) for *Here Lies Love*, a disco-flavored musical about Imelda

and Ferdinand Marcos, which turned the entire Broadway Theatre (one of the street's largest houses) into a multitiered nightclub. The following spring, he took home a Tony Award

for the design of the new musical *The Outsiders*. (The show also earned a Tony for outstanding musical plus nods for director Danya Taymor and lighting designer Brian MacDevitt.) In an unprecedented twist, he also earned a Drama Desk Award for the same production, participating in a three-way tie with Nick Lidster, of *Autograph* for *Cabaret at the Kit-Kat Club*, and Walter Trarbach, designer

of *Water for Elephants*.

The challenges of *Here Lies Love* were detailed in our August 2023 issue, but *The Outsiders* came with plenty of unusual requirements, too. Based on S. E. Hinton's classic young-adult novel—the 1983 film, directed by Francis Ford Coppola, featured a stars-of-tomorrow cast including C. Thomas Howell, Matt Dillon, Ralph Macchio, Patrick Swayze, Rob Lowe, Diane Lane, and Tom Cruise—the musical is a stark tale of teenage gang violence in mid-1960s Tulsa. The action pits The Greasers—underprivileged kids living one step ahead of a sentence to juvie hall—against the Socs, entitled offspring of the country club set. The book, by Adam Rapp and Justin Levine, includes an accidental killing, a gang rumble, an escape from a burning building, and death by railroad train. The alt-country score, by Jonathan Clay and Zach Chance, of the duo Jamestown Revival, and Levine, is given a lean, country-ballad twang by orchestrators Levin and Matt Hinkley.

Spencer's design is unusual on several fronts. It features a series of creative effects, including enhanced drum hits that punch up the violence of the choreographed rumble sequence, as well as electric sizzles, accompanied by lighting designer Brian MacDevitt's blinder cues, for scenic transitions. The rumble effects were developed in collaboration with sound effects specialist Taylor Bense. "He has been with Rick and Jeff Kuperman [the show's choreographers] for some time, helping to accent their pieces," Spencer says. "He came with a rough draft of the sequence, and I and my team took his ideas and amplified them." The effects are heavily layered, he notes. "During the rumble, we have, I think, 28 different stems of audio playing at various times with something like 1,000 different sound effects. Each effect might have a hit but also the beginning of a thunderclap, lightning, a slap, or a train engine. There are so

many textures and layers."

The technique, he notes, is cinematic. "We use various impacts, like a hammer hitting cardboard or wood, to give you this big, low-end effect. We spent a lot of time manipulating and playing with these effects. We had, I think, six different versions of the rumble. If you changed one thing, it cascaded across all departments. We spent a lot of time working with lighting and video [designed by Hana S. Kim] to get it right, and then we would change it and hope we liked it because it would take days to change it back. Every time you hear a sound effect, there's also a cue going out to lighting and video. There are 100 cues just in the rumble."

Interestingly, he notes, some of these include Foley effects. "There's a decent number of them throughout the show; 99% of the effects that you hear in TV and films are from someone on a Foley stage. We spent a lot of time recording and gathering audio, getting some great things. Most of the time, we will put a little accent layer on top that's usually some sort of Foley

effect, even if it is subtle, just to give it that punch. A lot of my effects these days are much more successful when they don't consist of one thing but, instead, have, like, ten layers on top of each other."

The previously mentioned sizzle sounds tied to MacDevitt's blinder cues are pulled from video games and are also treated with extra layers. Again, Spencer strives to lend a distinctive quality to each effect. "I hate to say it but, on Broadway, you hear the same sound effects over and over, usually from the Sound Ideas library. If you hear a baby cry, ten bucks says it's the same baby cry you heard in a show two years ago. I really try to expand the horizon of effects. I don't capture effects for every single piece, but I try to do something different, looking in unusual places." Some of the show's effects, he adds, "were built in Ableton. It has so many sounds, textures, and layers, and you can easily manipulate a sound to make something different. One effect is a key that jingles but gets slowed down and delayed. You can also take something



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that's percussive and fast, put a whole bunch of delays on it, and make these weird swooshy sounds. The fact that we're doing these complicated layers of elements is part of the reason we got into using L-ISA for this."

Spatialized sound

Spencer chose L-Acoustic's spatialization tool because he, Taymor, the music department, and the choreography team "wanted the audience to be encompassed by the sound. With much of the show, the audience is 'inside' the actors' heads—it's a play in which much of the action is being recalled by characters instead of happening in the moment. Using L-ISA, we're able to get the audience feeling the sound from all around them at all times. Early in the show, for instance, Ponyboy [the young protagonist] gets

kicked in the face; you can hear the kick, but then you also hear his ears ringing—not just in front of you but all around you. Those kinds of effects help to make you feel like you're actually part of his world."

L-ISA is put to other purposes, too, Spencer says. "The score [orchestrated by Levine and Matt Hinkley] is very simply done, sometimes just with piano and guitar. I want it to sound full and big but not loud. We use what's called the L-ISA room engine, which emulates being in a big hall. When only the piano is playing, we push the room to make the piano sound more encompassing; this is a key reason I wanted L-ISA." Also, using L-ISA, he says, "I can control the band, putting it in different places. 'Friday at the Drive-In' is a big number, but we don't want it to be loud. As members of the band

do solos, they get put into the center of the room, straight down the middle, being pushed and pulled forward. The rest of the band is still playing but the overall level isn't really changing. By changing the focus on where the band is in the system, we can give that solo instrument more presence without giving it more level. We're using spatial audio to get more texture and context."

Like many sound designers, Spencer notes that most Broadway houses were not designed for electronically amplified sound and must be approached with care. This is certainly true of the Bernard B. Jacobs Theatre, home of *The Outsiders*. The frontal array of the musical's loudspeaker rig, for orchestra and front mezzanine seating, comprises five Scene hangs (designed to meet the width of the

performance zone) of L-Acoustics' new long-throw L2D arrays, spaced across the top of the proscenium. "The Outsiders represents Broadway's first use of the L Series, and the enclosures nicely helped resolve an early design challenge for us," Spencer notes. "Initially, I wasn't convinced we needed them on this show." But his thinking changed once he began considering the implications of the full-stage rain effect employed during the rumble sequence.

"Once I learned how far out we had to move the front-of-house speaker points to account for the rain curtain and other effects that needed to be downstage of the proscenium, I plugged them into our Soundvision model and quickly found that L2D gave us three more rows of coverage in front of the orchestra over traditional line array loudspeakers. At that point, the L Series was the clear winner for providing better immersive coverage to more of the room's 'money seats'."

In addition to the L Series, two centrally flown sub-arrays of three KS21s each are bolstered by two more KS21s positioned left and right, under the stage. The balcony delay system features five Scene arrays of two A15 Focus medium-throw concert loudspeakers flanking Extension arrays (expanding the soundscape as far as the side walls of the venue) of two A15 Wide units. Seven spatialized X8s, mounted across the face of the stage, serve as front fills for main-floor seats, and various combinations of X12s, X8s, and 5XTs are deployed as other fills, as needed. A combination of LA7.16, LA12X, and LA4X amplified controllers drive the system.

"We also have a row of compact 5XT speakers for the middle of the orchestra, which helps get the high end to the very front of the overhang," he says, "and then another row of X8s as spatial fills to fill in the back of the orchestra underneath the overhang." The main system's surround arrays utilize a combination of X8 and A10 enclosures, while the balcony sur-

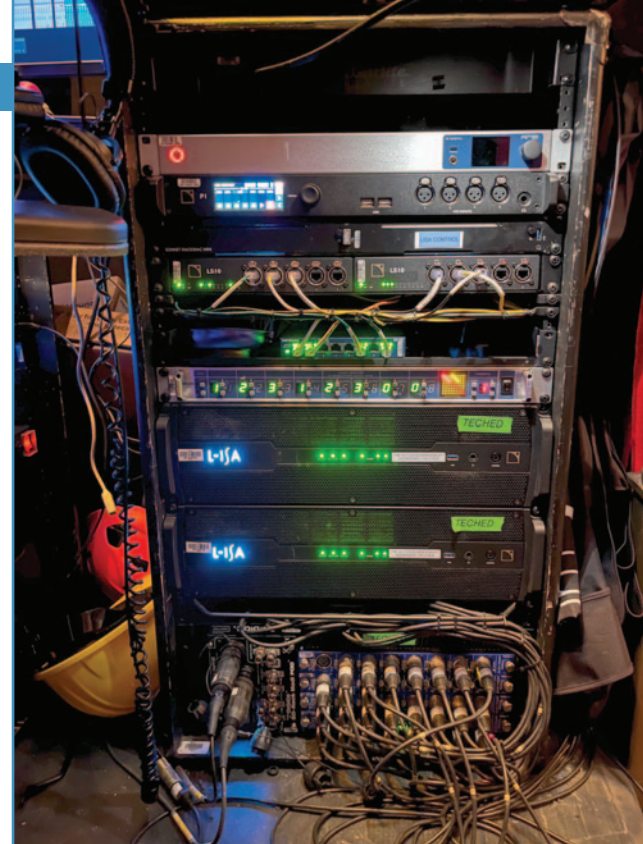
rounds are four Syva two-way, passive, medium-throw units, deployed two per side, he adds.

The use of the L2D units was slightly experimental, Spencer notes. "It was a learning curve for [L-Acoustics], too, because they've never had it in this kind of application, where just the downfill speakers were used, not the full array. We spent a lot of time measuring and tweaking. We hung the whole array a few times, which was a process. My team was amazing; they got it done in hours. When we first hung it, the image was too wide. We tried it on the proscenium but then, in the balcony, it felt like the voices were offstage. So, we moved the speakers 3' from the edge of the proscenium."

Unusually, Spencer notes, "The monitoring system onstage for this show is bigger than most entire house PA systems in typical Off-Broadway theatres." It comprises six X12s, flown three per side as stage side-fills; six X12s in two rows of three as overheads; ten X4i boxes spread across the stage lip firing stage-ward, for downstage-fill; one X8 on each side of the proscenium arch firing toward center stage as proscenium fills; and a dozen 5XTs in two rows of six as under-platform monitors.

"We wanted to ensure that everyone—not only out in the house but also up on the stage—would be able to hear every single word crystal-clear to best create intimacy, emotion, and connection," he says. "When you only have a few loudspeakers onstage and the actors are all the way downstage, fostering that connection can be a challenge. So, we extensively covered the stage to make sure that wherever the actors were, we could turn up various voices or instruments in specific locations to give them exactly what they needed in those positions. The compact X Series systems give us the control we were looking for."

The foldback system is also designed to deal with the rain effect. "I spent a lot of time making sure every single inch of the stage had cov-



The sound system is managed by a redundant pair of L-ISA Processor IIs, and the entire setup relies on Milan-AVB for networked routing, which has "been a real lifesaver," says Spencer. "It just makes life so much easier being able to grab streams and not have to run a whole bunch of copper."

erage," Spencer says. "When we get to the rain sequence, where it's loud onstage because of the rainfall, we can turn up the whole foldback system. In the typical system, you don't have that much to turn up; we spent a lot of time making a robust system to support the cast."

The band, which includes keyboards, guitar, drums, bass, reeds, cello, and violin, is located under the stage to protect them from the rain effect. "They're in a studio setup for the most part," Spencer says. "We have a lot of baffling. The strings and reeds are in dedicated rooms, as are the drums; the guitar, bass, piano, and conductor [Hinkley] are in their own space. The main keyboard is an actual acoustic upright piano. I pushed for it. For the most part, the piano sounds are completely analog." Indeed, the orchestration is well-suited to the music's lean, yearning qualities. The musicians use the Allen & Heath ME-1 personal monitor mixing system. Backstage comms are handled by a

Clear-Com system.

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The system has some unique design aspects. For instance, mixer Heather Augustine’s monitoring array at the front of house is its own mini-immersive environment. “She’s in the middle of the house mixing on X8 spatial fills that are right in front of her; for surround, she’s got more X8s around her to the sides and behind,” he says. “It mimics the larger arrays that the audience is hearing.”

Singing in the rain

Of course, having actors fitted with wireless mics getting deluged onstage is not ideal. To handle this situation, Spencer went with DPA 6061 lavalier microphones hidden in the actors’ hair. “They’re my go-tos these days. They’re so small and they sound great,” he says. They were chosen following a highly unusual product shoot-out. “Early on, I was talking with Jeremy Chernick [the show’s special effects designer, with Lillis Meeh] and I said, ‘How much rain is there gonna be? I need to test the mics.’ He said, ‘Put the microphones on and take a shower.’ I said, ‘Are you serious?’ Well, he was. So, I had this crazy setup in my bathroom. I had one of each type of microphone I could get my hands on with my comparator and my headphones, which I have now thrown away because they got so wet. The question wasn’t how the mics would take the water. It was, how quickly



Speakers are tucked away in various positions onstage.

could they clear the water? We did tests with other manufacturers I won’t mention that didn’t hold up as well, because they held the water too long. The DPA is built with a capsule on top of a capsule with holes in it, so the water dropped out very easily.”

In addition, Spencer’s team treated the mics with a waterproofing spray, used to protect shoes. Also, he says, “We have these crazy little gaskets that let us control how the water goes down the mic, not stopping at the capsule. But the DPAs performed best, and they sound great; they were the clear winner.” The wireless systems are Shure Axiom products. “They sound the best,” he says. “The companding is so much better than anything else out there.” He notes that the wireless system performs well in the rain. “They have rubber gasket sealing everything so water can’t get in. Also, their antennas are internal, so they do amazingly well with the water.” Instrument mics include gear from AKG, Audix, Coles, Countryman, Earthworks, Neumann, Schoeps, and Shure.

The show is controlled on a DiGiCo SD7 Quantum. “The unlikely thing you see at the front of house is that we have a lot of analog gear,” Spencer says. “Again, it’s because we’re doing such simple, classic orchestrations; I wanted really nice saturation on all the inputs and the band stuff. We wanted the piano to sound amazing, so we’re saturating the preamps on the front

end. We have two Neumann U87s, one Neuman TLM140, and a Schoeps MiniCMT on the piano going into Neve 4081 preamps before hitting the digital world. The bass, guitars, strings, and drums are hitting various preamps to get a nice full tone before we go digital.”

Other key audio personnel include Thomas Ford (associate sound designer), Mike Tracey (production sound), Stephen Jensen (sound programmer), and Joe Samala (assistant sound). Audio gear (along with lighting and video) was supplied by PRG. David Strang, vice president, audio sales for PRG, comments that spatialization techniques are likely to become standard on Broadway: “We’ve been doing different versions of surround-type sound in theatres and on Broadway for years, but the new tools, including L-ISA, make that a whole lot easier and a lot more fun in terms of what you can do with image manipulation. It used to be a lot more difficult when you were doing it yourself with pan and delay parameters programmed into a digital console. L-ISA unlocks creativity for sound designers, mix engineers, and artists.”

Next up for Spencer is a revival of *Romeo + Juliet*, starring Kit Connor and Rachel Zegler and featuring a score by pop composer and producer Jack Antonoff. Like all of the designer’s shows, it will most likely sound like nothing else on Broadway. 🎧