

IQ SYSTEM 2000 AND NEW CROWN MICROPHONES FEATURED IN INDIANAPOLIS MOTOR SPEEDWAY SOUND UPGRADE

In the annals of motorsport history, some of the most important figures have left lasting impressions on the 2 1/2 mile oval track at the Indianapolis Motor Speedway. Their names are legendary: Unser, Petty, Foyt, Johncock, Andretti, Badke,

and Szerencse. Wait a minute...unless you just fell off of a turnip truck yesterday, you've undoubtedly heard of A.J. Foyt and Richard Petty. Al Unser, Mario Andretti, and Gordon Johncock are no slouches when it comes to name recognition either. But

how about those last two guys, Badke and Szerencse? Who the heck are they anyway? Well, if you know them as Crown product application engineer Dennis Badke, and Tom Szerencse of Crown's engineering department, that's who were writing

INDY AUDIO REALITIES or HOW TO SURVIVE HOOSIER EXTREMES

-by Gregory A. DeTogne

On a human scale, I can speak from experience when I say that it takes a hearty soul to survive year-round here in the Midwest. As COUNTERPOINT'S editor, I even have it relatively easy, because my office here in Northern Illinois is on the "correct" side of Lake Michigan. Sure, I have my share of sub-zero mornings and withering 100-degree summer afternoons, but over in Indiana, the northerly winds that come howling down the lake in winter are worse—bringing not only the frigid chills of an Alberta Clipper, but more snow as well—in all shapes and forms from great globs to drifting mountains. Summer over there is filled with many nice days, but there are occasional risks associated with these seemingly harmless pleasantries, such as thunderstorms, hail, lightning, rain, and searing heat.

So what does all this have to do with Crown or audio in general? Or more specifically, the Indianapolis Motor Speedway's sound system?

"The environment plays a big factor in everything that is done to the sound system at Indy," Dennis Badke relates. "You've got to remember that the track is located out on a big flat expanse. That makes it great for racing, but sometimes very threatening when it comes to weather. In addition to lightning strikes, which can strike one loudspeaker location and travel along an associated miles-long network knocking everything else out along the way, the amp racks are stored in a portion of the control tower which is far from climate-controlled. When it's 23 degrees below outside, it's about 19 below at the racks. Conversely, when it's 100 degrees outside in the summer, it's 104 at the amp racks."

To tough to care in the fine Hoosier sense, the leviathan Macro-Tech 10,000s can easily withstand these environmental extremes, although they are left on in the standby mode 24 hours a day, 365 days per year to combat the effects of condensation created by the dramatic shifts from hot to cold. As for the loudspeakers, they are removed when not in use and stored safely away to prevent them from the debilitating effects of the elements, especially lightning.

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Studebakers
Forever

about here. While it may be stretching things a bit on COUNTERPOINT's part to compare them with the above Hall of Famers, the duo has in fact contributed greatly to the rich collection of Indy 500 lore in that they were driving forces behind the Crown group which recently began a long-term upgrade of the fabled speedway's sound system.

Used for voice announcements, the new design elements given to the system this year included an IQ System 2000 and an assortment of microphones. Before we get into the nuts 'n bolts of this topic, however, it may be useful to take a look at some of the things that have happened to Indy's audio over the last few decades. To wit:

"Modern" audio first came to the track in 1948.

Electronics for this system, just like the current one, were housed in the main control tower, and included 5,000 watt tube amplifiers. Designed, built and operated by the same gentleman until his death, the system was eventually inherited by present-day chief audio engineer Tom Allebrandi and his assistant John Royer. As a team, the pair first met up with Crown in April of 1986, when a group of engineers was consulted in the track's efforts to bring new amplifiers to the system.

"Upon completion of the engineering study, which included testing to see what the load impedances were like, the

engineers concluded that our big amplifiers would be appropriate for the job," recalls Szerencse. "When first installed that year, four Crown amplifiers were delivered. Two actually powered the system, while the other two remained on the shelf as back-ups."

The "big" amplifiers Szerencse refers to are none other than Crown's Macro-Tech 10,000s, which, as their name implies, are capable of delivering 10,000 watts of brute power. Today, all four amplifiers have been put into

use, and the system is distributed at 240 volts.

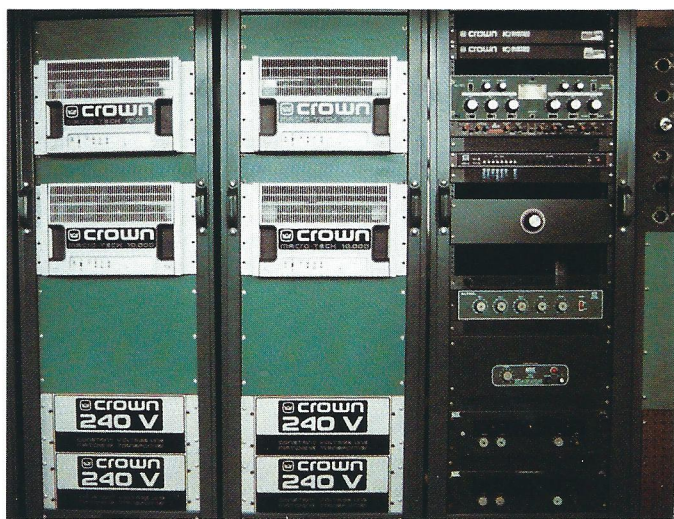
"The Macro-Tech 10Ks are the perfect complement for the system," Dennis Badke



believes. "That's because it has got to be the biggest PA in the world, so it stands to reason that you need that kind of power. To give you an idea of the sheer magnitude of its size, there are 460 loudspeakers used for the entire area of coverage, which measures 600 acres and includes the infield. It's also worth noting that the longest runs from the amps to the loudspeakers are 2 1/2 miles."

Badke and Szerencse's efforts this year were orchestrated as the initial part of a larger plan to upgrade the system. "The addition of the IQ System 2000

was done at this juncture in part to prepare them for next season, when the amplifiers will be moved to a new location in the control tower much farther from the mixing console,” Badke revealed. “With the IQ’s installation, a much broader range of control and monitoring features has been obtained as well. With regards to the latter, the IQ System provides more monitoring and control information than could ever be gathered from the front of an amplifier panel. For example, by



looking at the IQ’s ODEP readings, you can instantly tell how much reserve is available in the system. Significant changes in impedance can also be rapidly detected, which is a good way to track down shorts in the loudspeaker lines or open loudspeaker lines. Whenever you have a system this big, any problem can occur. And regardless of whether it’s caused by a lightning strike or a group of hard-partying race fans in the infield, it saves valuable time when you have something like the IQ System to help track it down.”

While COUNTERPOINT first heard the term “tridundant” as it applies to a custom microphone Crown installed in the system this year from Tom Szerencse, kudos should be extended to Bruce Bartlett, Tom Lininger, and the Crown Microphone Group for designing and building the device. Outfitted with three separate internally-mounted discreet elements, it can effectively feed redundant signals to the track PA as well as ABC-TV and The Indianapolis 500 Radio Network, the two broadcasters responsible for

transmitting the sights and sounds of the event to the rest of the nation. Those who saw the opening of this year’s race have seen this unique mic whether they realized it or not: it was the one used to relay the famous starting message, “gentlemen, start your engines...”

The starting line of the race was additionally the point at which a Crown PCC160 Super Cardioid boundary microphone was used to pick up the sound of engines being started at the outset of the race. Pre-race entertainment provided by Jim Nabors and Sandi Patti was handled by a Crown CM200 microphone, which is a hand-held phantom-powered unit (the Purdue marching band, serving as accompaniment for Jim and Patti, was miced with Crown PZM units on a stereo wedge).

Back in the control tower, a CM310 differoid mic was utilized by

the track announcer. Chosen for its excellent ability to discriminate between ambient noise and the announcer’s voice, it is a phantom-powered hand-held condenser unit.

Not to be overlooked in all this hoopla are the speedway’s new SASS-P microphones. Mounted in the pit area and along the front straight-away, one group is used for the AM stereo radio broadcast, while a single overhead SASS-P enabled ABC Sports to pick up stereo crowd and race sounds.

Along with the hardware supplied to the speedway this year, Crown provided strong factory support which insured the timely completion of the project. Other than arming key personnel with beepers that kept them in contact with the track’s audio engineers, a plane was kept on call to quickly deliver technicians to the site to deal with whatever problems needed their attention. As for next year’s sound system plans, you can bet that Crown will keep the audio wheels turning and engines revving...count on more reporting on these pages then.

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IBM SOFTWARE NOW AVAILABLE FOR CROWN'S IQ SYSTEM 2000

Crown recently unveiled new software for their IQ System 2000 which allows the computer-driven amplifier control and monitoring network to work with all IBM computers and virtually any IBM