

# Fox Sports picking up Janesville engineer's microphones

By NEIL JOHNSON

Saturday, July 21, 2012

---

## Photo



Photo by [Mark Kauzlarich](#)

Paul Terpstra doesn't need a fancy work bench to fix one of the integral pieces of equipment for your national sports casts. Thanks to his engineering and designs, Terpstra is starting to provide parabolic microphones to FOX for their sporting events, here fixing a unit that was damaged at the MLB All-Star game.

JANESVILLE — When a Fox Sports audio engineer heard the pop of a baseball in the catcher's mitt through a new microphone designed by Janesville engineer Paul Terpstra, he nearly jumped out of his chair.

“He told me it gave him goose bumps,” Terpstra said.

That was July 10 during Fox's broadcast of the Major League Baseball All-Star Game in Kansas City, Mo.

Terpstra was there, at the Royals' Kauffman Stadium, to see the parabolic microphones he'd finished designing last year unveiled in perhaps their biggest field test yet.

They passed with flying colors. In fact, Terpstra said the microphones worked almost too well. They kept picking up water noise from the fountains beyond the center field fence nearly 500 feet away.

Fox Sports has since ordered 50 of the microphone systems, which Terpstra calls the Klover MiK. He said Fox plans eventually to replace all of its parabolic microphones with Klover MiKs.

In televised sports broadcasts, production crews use parabolic microphones, which look like small, hand-held radar dishes, to hone in on the sounds that define a game for television viewers.

Crews use the microphones to capture such sounds as the crack of a baseball bat, the scrape of a tennis ball on

a clay court or the crunch of an NFL linebacker's helmet against a quarterback's shoulder pads.

Terpstra is a former mechanical engineer at Janesville manufacturer Gilman. In 2004, he began designing lightweight steel frame stages for network television sports broadcasts for the West Bend-based firm Kernwer.

About two years ago, Terpstra said he learned through a TV producer that Fox Sports was looking for an improved parabolic microphone for its broadcasts. Terpstra decided to try to design one, and so were born Klover MiK and Terpstra's cottage industry, Klover Products.

Working at the dining room table of his rural Janesville home, Terpstra said he made improvements such as designing a 24-inch sound-reflecting dish that's a true parabolic shape. It has a steeper curve than competitors' sound collectors, which usually are shallow half-spheres, he said.

The parabolic shape improves the way sound waves bounce from the surface of the dish to the electronic microphone pickup, which is mounted in the center of the dish, Terpstra said. The result: better, crisper sound.

Terpstra sound-dampened the microphone's framework and improved its construction so the system is lightweight, won't easily shatter and can be assembled or broken down in under a minute.

The components are mostly parts made in the United States, he said.

Terpstra said it took him months to design and complete the Klover MiK, but last year Fox tried a prototype of the microphone during the NFL playoffs.

The network plans to use the microphones in the upcoming football season. Terpstra said Fox is now using the microphones at Major League Baseball games all over the country.

At the All-Star game, Fox set up three of the microphones behind home plate to capture the crack of bats and sound of the balls hitting catchers' mitts. One of the microphones got damaged by a foul ball, Terpstra said.

The systems aren't cheap. Terpstra wouldn't talk prices, but similar systems found online range from \$1,000 to \$2,000.

"You won't see them at Wal-Mart anytime soon," he said.

Terpstra hopes to market the microphones for police and military surveillance and to help emergency responders locate people trapped in burning or collapsed buildings.

For now, the company's emphasis will be marketing the microphone to major TV networks for sports broadcasts.

Next month, Terpstra plans to pitch his Klover MiK to ESPN, and he hopes to offer the NFL Network a field test of his microphones at the Packers-Bears game Sept. 13 at Lambeau Field.

Terpstra said he hopes the success with Fox is just a start for his upstart company's forays into television broadcasting.

"We've got big hopes," he said.

---

**Published at:** <http://www.GazetteXtra.com/news/2012/jul/21/fox-sports-picking-janesville-engineers-microphone/>