REPRINT OF VOLUME 17, ISSUE 1 NOVEMBER 2003

VOICE COIL®

THE PERIODICAL FOR THE LOUDSPEAKER INDUSTRY

SPOTLIGHT

We Visit MISCO

By Perry S. Marshall

It may appear that speaker manufacturers in the US are a dying breed. Not according to Dan Digre, president of Minneapolis Speaker Company, which services 1,000 companies from its new production facility in Minneapolis, Minn. MISCO offers fast turnaround even on small orders, custom driver designs, stringent quality standards, and advanced materials and technology. *Voice Coil* recently toured MISCO, and discovered, contrary to the usual stereotype, a company that is healthy, progressive, and expanding.

The original sign for Minneapolis Speaker Reconing Company, founded in 1949, which later became MISCO.

Deep Roots in the Speaker Industry

Founder Cliff Digre (*Photos 1* and *2*), who just turned 80 this past spring, attended communication schools in the Army Signal Corp and flew as a radio operator/gunner with the Eighth Air Force in World War II. He was studying at National Radio School preparing for a career in broadcast engineering when the radio belonging to his wife, Bernice, developed a distorted sound. After unsuccessful attempts at having it repaired at the dealer, he took it to school and found out the speaker was bad—it had a rubbing voice coil. There were no reconing shops in Minnesota, so the instructor joined him in forming a reconing company, Minneapolis Speaker Reconing Company, in 1949 (*see above*).

He called every radio shop in Minnesota, sent out mailings to D&B lists, and in two to three years had become the primary reconing company in the US. The drive-in theater market, for example, was hot—and they received orders for hundreds of speakers every season from some locations.

Wright-Decoster (*Photo 3*), one of the oldest speaker companies, sold raw drivers to radio companies and parts distributors. Doug Wright was a partner at that company, which also private-labeled drivers for Utah. They had an agreement that Cliff would recone the rejects. One day Mr. Wright said, "Cliff, your recones are better than the new drivers I get. Why don't you make my most popular 8″ speaker?"

Cliff agreed and received an order for 500 of the 3.16 oz Alnico magnet units, and Mr. Wright loved them. The second order was for 1,000 units, and the third order was for 2,000. But then just after Christmas in 1955, the secretary called. "Mr. Wright passed away and we're closing our doors."

Cliff suddenly had a lot of unsold product on his hands, so he started going to jobbers. They'd take six or eight or ten units. Within a week, customers reported that they really loved them and they'd order 20 more. Soon the company

PHOTO 1: Cliff Digre, 80, founder of the company. Cliff is still involved in the daily operations of the company and continues to work on design projects.

PHOTO 2: ALMA luncheon meeting, Chicago 1974. Paul Oslac, McGregor Electronics, speaking on how to compete with imported speakers from Japan. To Paul's left: Barry Brennen (Fibre Form), John Derkach (Alpha Products), and Charlie Matthews (Wm Welsh Company). To Paul's right: Harry Moskow (McGregor Electronics), Cliff Digre (MISCO/Minneapolis Speaker Company), and Claude Smith (Nuway Speaker Products).

was also making 6 × 9s, 5 × 7s, and 4 × 10s.

In 1960 they trademarked the "Red Line" series of speakers (*Photo 4*) for sale through distribution. It was the first full line of colored cone speakers. They continued to make OEM products into the '70s, and when CB radio became big, they produced an external speaker that Dan says, "paid for my college education."

By the late '80s MISCO had become a broad-line OEM, producing everything from drive-thru speakers for McDonald's to drivers for alarm systems and aircraft. Cliff's son Dan Digre became president (*Photo 5*), and added a sales and marketing dimension to Cliff's engineering-centric approach.

Dan grew up doing every job, starting with buffing and deburring steel parts and cleaning out the acetone vat. Sitting on the line with a soldering iron was a prestigious post by comparison. And it took many years to get there. All four of the Digre children worked there, and Dan's sister, Carrie, is now Chief Financial Officer. Both Cliff and Dan are past presidents of American Loudspeaker Manufacturing Association and have woven themselves into the history of the US speaker business.

Why Most Don't Survive the Second Generation Transition

Why have most of this country's speaker OEMs disappeared? Whatever happened to Pyle, Oaktron, CTS, Utah, Oxford, Gefco, McGregor, and Jensen?

Many times conglomerates bought companies, paid too much money, and couldn't service the debt load. In most cases the acquiring company didn't really understand the speaker industry.

Sometimes the second generation didn't possess business wisdom. The new owners of one company, for example, immediately bought new cars and office furniture, and so the company ended up in receivership within six months.

Dan Digre insists that while Asian competition has played a major role, it's not really the core of the problem. He says the real problem is that US companies have been unwilling to invest in new equipment, tooling, and technology. And if a speaker company is acquired by a conglomerate who must service a large debt load, they won't invest in the company, and a downward spiral ensues.

PHOTO 3: The company's office features a miniature museum of designs from pre-World War II to the present. This is a Wright-Decoster "Hyflux" magnetic lever speaker, from the 1930s.

PHOTO 4: MISCO became famous for its "Red Line" series of drivers in the 1960s, which was the first brand of colored loudspeakers on the market.

And Why MISCO Survived

MISCO, on the other hand, is debt free. Dan says, "We mind the store. We're financially prudent. We've had the cash on hand to buy equipment when it becomes available—usually when our competitors went under. Everything at MISCO is debt free. The only thing we do with our bank is put money in it. Why should we pass along interest payments to our customers in the form of artificially inflated prices?"

He continues, "We're family owned, which means a long-term growth strategy instead of a quarterly profits mentality. We're in the speaker industry, not the equities industry. My father's been in this business for 55 years and I've been in it since I was four years old.

"You have to adapt to changes in the marketplace. In the last five years there have been a whole set of new realities—Asia, with all its pros and cons; European companies have great quality but they're often inflexible; in the midst of this, we provide high quality drivers, custom made even in small quantities, with fast delivery and a total finished cost that's highly competitive."

Digre cites his orders in hand for the upcoming week: the average shipment contains around 100 units; he has about 20 orders for less than 100 units, and the smallest order is for four units. The minimum order size is $30, or $15 per speaker. The biggest order for the week is 6,000 units, and his largest customers order around 100,000 units per year.

"You can call us on Tuesday with a custom order for 10 pieces and it'll be out the door by Friday—often even the next

PHOTO 5: Dan Digre, president of MISCO. Behind him, a small section of the current production samples. The company currently services about 1,000 customers in dozens of different industries.

PHOTO 6: MISCO is traditionally known for its small full-range speakers, but also produces high-end woofers with advanced materials and features, such as this 8″ bass midrange.

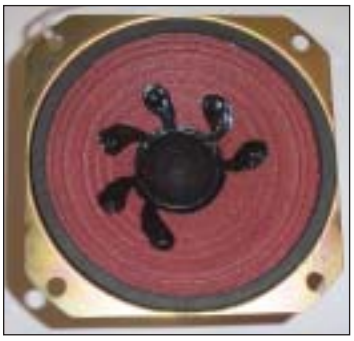

PHOTO 7: This triple-voice coil 4″ unit is a good example of the unusual designs that MISCO produces for specialized applications. This unit accepts inputs from three different radios.

day, if necessary. We've designed our entire production facility for extremely fast setup of parts runs, high speed changes to adhesive dispensing systems, and we rarely have to delay orders for parts—we have them already on the shelf for over 50% of the orders when they come in.

"[If] a guy calls from an old radio repair house and asks for two 45Ω 4 × 6 speakers, we can satisfy his requirement."

MISCO has a large collection of off-the-shelf designs, with specs available for search on their website, www.MiscoSpeakers.com, which was recently completely redone to allow customers to search by several descriptors such as size, application, power rating, cone material, or even specific small-signal parameters. MISCO's designs range from general-purpose round and elliptical speakers to high-end woofers and mid ranges, to alarm speakers, drivers for medical equipment, waterproof speakers for outdoor designs, defense applications, gaming, and industrial vehicles (*Photos 6* and *7*).

Unusual products include a 500Ω speaker and a triple voice coil 4″ unit for the military. "Our biggest marketing challenge is adequately conveying the enormous variety of applications and industries we can serve, and our ability to produce high-end woofers and mid-range drivers," Digre reports.

Minnesota Job Skills Grant

Last year MISCO was awarded a large grant from the state of Minnesota to develop an enhanced manufacturing job skills curriculum. The criteria for receiving the award included demonstration of past technology performance and continuing growth potential. Quality Manager Lee Anderson is developing computer-based training programs, which enable even non-English-speaking employees to quickly learn assembly and quality procedures. The grant covers three years of extensive world class manufacturing skills development of all levels of employees, from beginners to CEO.

Design and Production Capabilities

You can give MISCO a set of box parameters and they will develop the required small-signal parameters to design the transducer. Given small-signal parameters, the company can design a speaker to match them.

MISCO employs SPEA*D* driver design software (*Photo 8*), which instantly converts desired parameters into physical constants for fast design-time turnaround; measurements are done with LMS, Hewlett-Packard, and TEF 20 systems (*Photo 9*). The company can provide frequency response, SPL, polar plots, power specifications, small-signal parameters, THD, magnetic flux density, total magnetic energy, impedance, and phase response.

For designs with stringent technical requirements, the company employs the services of D. Michael Shields (*Photo 10*), an internationally known acoustics and loudspeaker system design consultant who was on hand for our plant visit. Mr. Shields' knowledge of both the industry and nuances of advanced speaker design is quite extensive.

The company produces speakers up to 15″ in diameter from both domestic and foreign-made components. They can supply all manner of small and mid-sized drivers from 2″ up, including elliptical and square housings.

MISCO does not currently produce tweeters, but because European tweeters tend to be expensive and Asian tweeters often inconsistent, MISCO plans to establish a tweeter line.

The company produces only OEM speakers, not finished products, and thus does not compete with its customers. Likewise, Digre pledges that the company will not share its customers' designs with other customers.

Quality Procedures

Gail Boyum is the materials and customer manager, and expedites components for fast turn-around of orders. Asian parts have become a mainstay of many designs and foreign sourcing manager Bin-Bin Shu has a rigorous program for qualifying vendors and ensuring consisten-

PHOTO 8: SPEA*D* driver design software drastically reduces the design cycle. This 5″ midrange took only one week from concept to finished design.

PHOTO 9: MISCO uses LMS, TEF 20, and HP3562 signal analyzers in their design lab.

PHOTO 10: Dan Digre, president of MISCO, left, with Mike Shields, an internationally known acoustics and loudspeaker system design consultant in Minneapolis. He assists the company with advanced design projects. Shields contributed to a very engaging discussion about the history of the speaker business.

PHOTO 11: Bob Deblieck, maintenance manager, demonstrates LMS quality control test unit, which assures consistent performance within specific frequency response and resonance tolerances. The company will soon be installing Bob True's advanced end-of-line QC system.

cy. The company's quality system is modeled on ISO 9001 2000 practices, but Digre says, "We have shunned the ISO tendency for quality programs to satisfy auditors instead of customers."

Management reviews key quality metrics on a weekly and monthly basis, and manufacturing manager Tim Stickney clearly runs a tight ship. The facility is clean, well organized, and air-conditioned for even more consistent quality.

MISCO has a custom-configured final QC tester for statistical verification of frequency response, polarity, sensitivity, distortion, and rub/buzz (*Photo 11*). They will also be installing TrueTechnologies' acclaimed end-of-line QC system late this year.

Dan Digre fields sales inquiries and welcomes inquiries from companies and industries of every sort, and promises prompt, Midwest-style service, and consistent quality. Reach Dan at info@miscospeakers.com, visit the company's website at www.MiscoSpeakers.com, or call (612) 825-1010.

Perry S. Marshall & Associates (www.perrymarshall.com) develops marketing and publicity systems for audio, capital equipment, and embedded technology OEMs. A free audiobook, entitled "Guerilla Marketing for High-Tech Sales People," is available by e-mailing your street address to vc@perrymarshall.com or calling 24/7: (888) 231-9716.