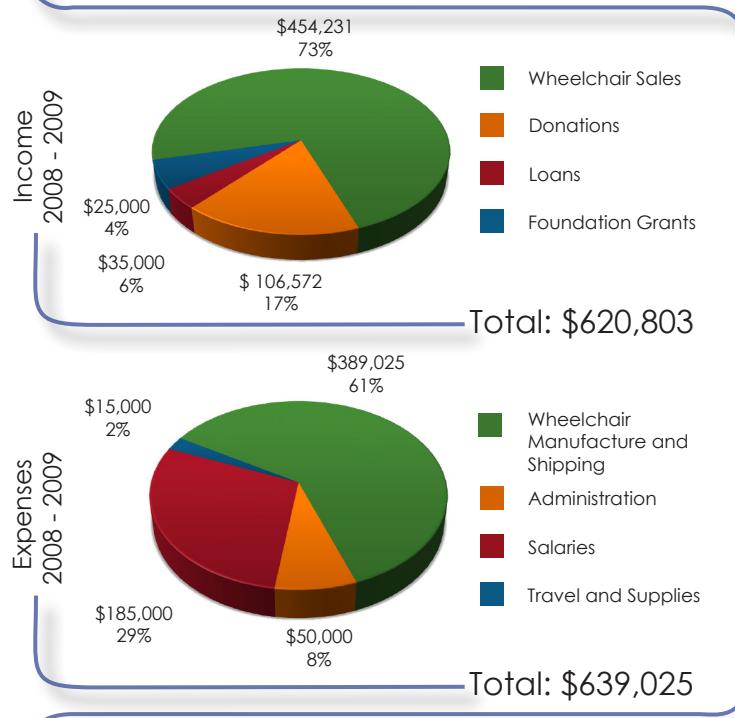


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FALL NEWSLETTER

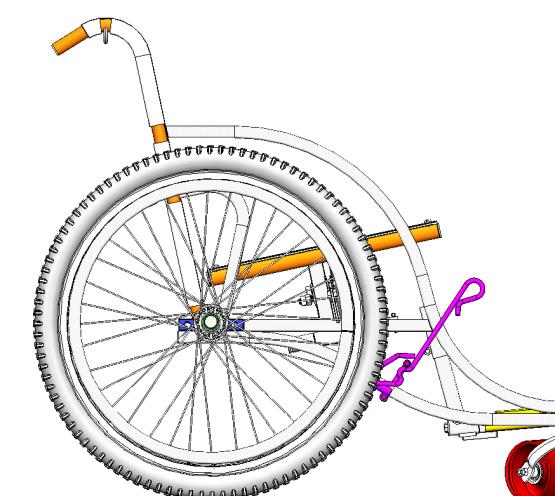
2009



Chino has been riding his Whirlwind for over 20 years in Nicaragua



Testing a Whirlwind made in Zambia, 2006



Whirlwind is part of the Institute for Civic and Community Engagement at San Francisco State University

WHIRLWIND WHEELCHAIR

INTERNATIONAL

www.whirlwindwheelchair.org

Ralf Hotchkiss, Chief Engineer
Marc Krizack, Executive Director

Dear Friends,

This has been a rollercoaster year for everyone, including Whirlwind. The first half of the year was quite slow as donors and wheelchair purchasers fought to stay afloat economically. At year's end, we are back on track, providing opportunity and independence to the 36 million riders across the globe who still need a good wheelchair.

As you read this, most of our team is in the Republic of Georgia training wheelchair riders to build Whirlwind's flagship wheelchair, the RoughRider™, at a brand new factory. Despite difficulties, we are bringing four new factories online in the coming months, bringing to 7 the number of factories producing certified RoughRiders.

In August, we won a substantial research grant from the U.S. Department of Education. Although it does not support our 2010 budget for product development or wheelchair provision projects, it funds research that will enable Whirlwind and other disability groups to refine and improve their methods of providing wheelchairs and other assistive technology in the poorest regions around the world. More details are provided on these and other exciting developments in the following pages.

Over the next six months, we plan to begin the manufacture of **three important new products**. The **new kids' chair** is almost ready to move from prototype to production. For children, a rugged, appropriate chair allows them to enjoy play, have transport to school, and avoid even further disability which can result from a poorly fitted wheelchair. We will also complete two high priority accessories, an **anti-tip bar** and a **quick release rear axle**. The anti-tip will increase safety for new riders, and the quick release will make it easier for them to optimize the chair for their own individual pushing abilities. Shops around the world will have access to these accessory designs for free – something we can only do with your continuing generous support.

You are a vital part of Whirlwind's efforts. Today we are presented with more potential than ever for meeting the basic needs of riders in the developing world. A donation of \$40 can purchase a pair of wheels; \$220 will pay for a RoughRider and its proper distribution. This holiday season we are hoping that 30 donors will make gifts of \$1000 or more. Could you contribute on that level? Enclosed you'll see the donation envelope, which can also be used to update your e-mail address. But whether you give \$10 or \$10,000 dollars, we need and value your encouragement and support.

Remember, as you help Whirlwind you help change the world.

Sincerely,

Marc Krizack



Trainee receives lesson in shop safety in Tbilisi, Georgia



Shaya Asindue, Kenyan Rural Health Worker, is testing a Whirlwind in 1992

Buy One Give One - RoughRiders™ in the USA

Many people in the developing world have appreciated Whirlwind designs over the last 30 years. Following the PBS Frontline/World coverage, US riders have called in asking, "How can I order one of those chairs? I'd love to be able to experience the out of doors with my kids," and "We need chairs like that here, too." At the same time, we've heard from a handful of Americans who have to pay for their own wheelchairs.

In an attempt to serve both groups and carry on our non-profit mission, we will be testing a Buy One Give One (BOGO) program which can offer a chair at 1/5 the price of comparable US wheelchairs.

"I see this as a technology trickle up opportunity. It's wonderful to imagine that our chairs could benefit U.S. riders."

Marc Krizack, Whirlwind Executive Director.

2010 RoughRider™ - The Next Generation



Always striving to do better, Whirlwind will be coming out with a new, improved RoughRider™ in 2010. In the past year we received considerable feedback and ideas for improvements from our factories, from purchasers, and from riders. Although the changes may appear minimal to the untrained eye, even slight changes can make the chair lighter, stronger, cheaper to make, and easier to use. Whirlwind is committed to creating the most optimal wheelchair designs that meet the users' needs for active daily living under all conditions.

Good Cushions Made Locally



A warning like this, indicating the need for a cushion, will be sewn onto the seat of every RoughRider.

People familiar with wheelchairs know that a properly fitted cushion is an integral part of the chair. To ensure that wheelchair riders who receive donated chairs get the most appropriate wheelchair possible, we are asking our distribution partners to gather information about each rider's seat dimensions and level of feeling in the buttocks, so that an appropriately sized wheelchair can be shipped with an appropriate pressure relief cushion when needed.

Whirlwind is now freely distributing an information package about pressure relief cushions for factories, distributors, and smaller shops to produce cushion replacements locally around the world. This cushion information is available at whirlwindwheelchair.org/cushion.



Aaron Wieler uses an electric carving knife to shape a foam cushion

"Working on the cushioning project at Whirlwind has helped me understand the relationships and information flow between manufacturing facilities, distribution centers, wheelchair users, and local repair facilities; this helps ensure that users' needs are properly considered in wheelchair distribution, manufacturing choices, and design processes, all the way back to material selection at a factory."

- Aaron Wieler, Whirlwind Product Designer

Whirlwind Lands Coveted Grant Expands Research Arm

The US Department of Education has awarded Whirlwind a 5-year, \$4.75 million research grant to conduct a comprehensive study of how assistive technology (that is, products and services for hearing, vision, and mobility impaired persons) is provided in resource-limited environments around the world. The project will fall under Whirlwind's newly expanded research arm, co-directed by Whirlwind Executive Director Marc Krizack and Dr. Kim Reisinger, the project's Principal Investigator. Whirlwind has hired a number of expert researchers, including rehabilitation engineering specialist Dr. Kim Reisinger, Orthotics and Prosthetics expert Andrea Ikeda, and wheelchair seating specialist Bill Armstrong. Former Whirlwind designer Alida Lindsley has also returned to work on this project. Ray Grott of SFSU's Rehab Engineering program is also a key researcher.

The research will take staff to Vietnam, Cambodia, Tanzania, South Africa, and Colombia and also to Indian reservations in the US, a first for Whirlwind. In the initial year, focus groups will be held with assistive device users, manufacturers, distributors, and service providers. Face to face interviews and surveys will help determine what factors are affecting successful provision of high-quality assistive technology. In the second year, we will conduct over six hundred surveys in each location. The results will be analyzed and used to create a best practices guide for businesses, government agencies, and non-profits. In years three through five, we will put our research findings into action and establish three test projects.

We expect that the systematic and comprehensive research from this project, including looking at what businesses and non-profits have done in fields not related to assistive technology, will help us determine how to provide the most appropriate mobility devices to so many different people in so many different environments around the world. This project is funded under US Department of Education Award # H133A090020.

Our donors should note that the grant does not cover Whirlwind's on-going product design and development costs, for which we still rely on your generous support.



Riders Building Wheelchairs: New Manufacturing Shop In Georgia

"Think former Soviet Union, not peaches." We'll make that clarification many times over the next three years as we embark on an exciting project in collaboration with the World Institute on Disability (WID) of Oakland, California and our Tbilisi-based Georgian partners, the Coalition for Independent Living (GCIL).

Whirlwind will set up a wheelchair factory, provide production and quality control training, and assist with technical and marketing concerns while WID works with GCIL to remove architectural barriers and promote advocacy and the social integration of people with disabilities.

Recent emphasis on working with medium scale regional manufacturers has increased the number and quality of Whirlwind RoughRiders™. Unfortunately, that shift resulted in less direct involvement with local disability communities. This project marks a welcome return to community-level work. Most of the workers in the Tbilisi factory have a disability and the factory itself will be owned by GCIL, a non-profit organization run by Georgians with physical disabilities. Funding is from the US Agency for International Development.

Learning to use the drill press



Research Team
Back: Keoke King, Dr. Kim Reisinger, Marc Krizack, Ray Grott,
Rachel Kishon, Andrea Ikeda
Front: Ralf Hotchkiss, Alida Lindsley, Aaron Wieler, Bill Armstrong

New Kids' Chair

About 90% of children who need a wheelchair also require special seating and positioning to accommodate their precise medical conditions and body geometries so the child can do what kids do best – play with other kids.

Whirlwind product designer Matt McCambridge, who is currently based in South Africa, is fast at work modifying a good children's chair that was designed by the Cape Town company Shonaquip, whose products serve children in diverse African environments. Matt calls what he is doing "Whirlwindizing" the chair, designing for maximum durability, ease of maintenance, and minimizing manufacturing and shipping cost. Early intervention with postural support wheelchairs, coupled with rehabilitation services and training for kids and parents, can greatly increase a child's quality of life and reduce the future cost of managing that young person's disability, says McCambridge.

LATEST DESIGNS



Quick Release Rear Axle - Greater Mobility



The ring requires little hand strength

When quick release (QR) rear axles from US wheelchairs are used in developing countries, they quickly jam with dirt and grit, sometimes causing the wheel to fall off. Once perfected, Whirlwind's jam-proof QR will make it easier to remove the wheels for transport in a car, and first-time riders will love the convenience of easy axle position changes in order to optimize their pushing and balancing ability. Final testing is expected to begin in early 2010. We have collaborated with Project H Design (www.projecthdesign.org) on both the QR and Anti-Tip Bar devices.

Anti-Tip Bar - Health and Safety

Tipping backward is a wheelchair hazard that also has certain advantages. Chairs push much more easily if the rear wheels can be put in the more "tippy" forward positions. And, riders gain comfort and additional access over obstacles if they can learn to "pop a wheelie" (tip back just far enough to balance on the drive wheels). Most anti-tip bars (ATB) keep the rider from reaching the balance point. Our ATB is adjustable so riders can learn to "pop a wheelie" with confidence. The ATB will also allow those with paralysis to lean back and rest on the ATB to take the weight off their buttocks, which helps to prevent pressure sores.



This ATB prototype is in the deployed position

Caster Retrofit Kit for Standard Wheelchairs



Whirlwind caster with bolt-on attachment for a standard chair

More than a million standard hospital chairs have been distributed in developing countries in recent years. They break early and often, especially under active use, and the cost of a new chair is high where people make only a few dollars each day. Beyond simply highlighting the inappropriateness of these wheelchairs, we have decided to do something about it. In our shop, Canadian wheelchair rider Craig Lenz and engineer Dwight Johnson developed an affordable RetroKit which allows the rider to replace the entire caster assembly, which usually fails first, with Whirlwind's high-quality assembly that includes bearings, fork, hub and wide shock absorbing front wheel. The RetroKit will keep the chair going a few added years until the frame itself breaks. It also makes the chair more usable than when it was brand new.

WHIRLWIND MANUFACTURING NETWORK EXPANDING

THE WHIRLWIND MANUFACTURING FRANCHISE

As governments and donors seek to meet the huge need for durable appropriate wheelchairs, Whirlwind is establishing partnerships with manufacturers at strategic regional locations around the world. For our manufacturing partners, we provide technical drawings for the RoughRider™, special tooling, training on production processes, and sales and marketing assistance. We also provide an ongoing quality assurance program that gives buyers confidence that the user features carefully designed into the chair are available in every chair that comes off the factory floor.

WHIRLWIND WELCOMES KIFAS, OUR NEWEST FRANCHISE FACTORY

Founded by transplanted Californian Ken Erickson in Ankara, Turkey, in 1993, Kifas has a long track record of quality and service. While some Whirlwind shops had difficulty in scaling up to increase production, Kifas has shown it can make larger numbers of chairs with good quality. Kifas will start at 50 per month capacity and move to 100 per month once we can generate regular orders.

MEXICO

Fundacion Bertha in Mexico, by virtue of its relative proximity to San Francisco, has become our test location for new fixtures and manufacturing techniques. They are currently testing our low-cost cushion manufacturing process.

SOUTH AFRICA

CE Mobility is currently working on an alternate RoughRider design solely for the South African market that meets South African government requirements.



VIETNAM

In June 2009 Whirlwind and our Vietnamese production partner, the Kien Tuong Private Enterprise Wheelchair Factory, were featured on PBS Frontline/World. You can see this moving video by clicking on the link on our home page www.whirlwindwheelchair.org

THE PHILIPPINES

Freedom Technology (FT), a wheelchair shop on the island of Mindanao, was established by Handicap International, a French international non-governmental organization. Whirlwind has agreed to provide technical support to FT by the end of 2010. FT's first wheelchair advisor was Matt McCambridge, now a key Whirlwind employee. FT has been building RoughRiders™ for more than a year, and the shop is on track to be awarded Whirlwind quality certification by February 2010. Certification assures wheelchair purchasers that all the features designed into the RoughRider are in every chair for every rider and that the chairs are made to Whirlwind standards.

