ON 3 + RIDES

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DO-Endeavor, doing business as Endeavor Trikes, is a concept developed by an individual at home in a 20-foot by 24-foot attached garage, as is the case with many inventions. I suppose one would call this a grassroots conception. I have a modified saying I commonly use, "Necessity is the Mother of Invention but Laziness is the Father of Efficiency." The invention of Endeavor was based on my desire to have an openair vehicle that was exciting and could go anywhere. My design is of a universal fit due to my laziness and quest for subsequent efficiency.

Motorcycle trike conversions have been around for literally a 100 years. The vast majority have been rear

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wheel modifications. It's a logical method. No steering or geometric design is really required as you just remove the rear wheel, add an axle and two wheels and you have a trike. Obviously it's not exactly that simple. There is also suspension work and cosmetics to contend with. But in general, this is the way trikes were done and for no other reason than that's the way it has always been done.

Like most seasoned motorcyclists, I felt a trike was something I would drift toward when I was too old to handle a two-wheel motorcycle. At age 58 and in perfect health, this was still in my distant future but something to

think about and like most riders. I felt the move to a trike would be a compromise that I would have to live with.

I have owned some 100-plus motorcycles. I had just recently passed the million-mile mark and as always, I was on the lookout for something new, something that would catch my eye and my attention. In 2008, BRP released the Can-Am Spyder. For me the timing was ripe. I had just taken up fly-fishing and geocaching, two outdoor sports that require back-roads travel, something not conducive to large tour-type motorcycles. So I headed out one Saturday morning to test ride a Spyder. My initial response was, "This is great! I can ride 100 miles down the paved highway then jump off on the gravel and chase some trout!" At that moment my world changed.

PROTOTYPING

I really liked the Spyder and immediately understood the advantages of this concept but I also liked my current motorcycles. I had two Excelsior Hendersons, a GL1800 and a '97 Valkyrie Standard. I got to thinking why not just build your own? What's the worst that could happen? So I went out and purchased a crashed '95 Honda ST1100, which became the first prototype named the Stealth11. I will admit, as with all initial builds, this one was crude and odd looking, but to my surprise it worked! This was 2009, and this trike went through 22,000 miles of testing, cutting and welding until I had what seemed to be a viable and workable product. Feeling the need for more, I purchased another Valkyrie, this time a crashed '99 Interstate, which became prototype no. 2. The Valkyrie, which became the Valk3, was my two-up tour trike. It was a success from day one. The lessons I learned building the Stealth11 paid off – the V3 handled and rode great from the very beginning. Neil Young proclaims, "Rust never sleeps." Well, neither does R&D, research and development. Being a chronic fiddler, good enough is never good enough. So it was more adjustments, more testing and the never-ending circle of change.

What I had discovered during all this is my favorite motorcycle of all

time; the GL1800 spent most of its time parked. We would ride it on Sunday afternoons and on our annual long trips but the day-to-day adventure riding was dedicated to the trikes. The GL1800 was not well suited to gravel and all

the weird off the paved road locations where trout seemed to gather. So in 2012, I decided to have the GL join the prototype squad. A new front frame was added along with A-arms and wheel assemblies and the GL became the GLRT (GL Reverse Trike).

Each year my wife and I, along with another couple, venture out together for a motorcycle vacation. The trips vary in mileage and destination, and it's something we have done together for over 30 years. In the summer of 2013, our annual trip was

to be a 10-day stint in Estes Park. I was in charge of coordination and lodging and as usual I screwed it up. I rented a cabin for our stay; however, I had the wrong date for our arrival. Consequently we ended up with an extra day to kill before we could move in. This was during the Sturgis rally so we decided, "Why not









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buzz through Sturgis and see what was happening?"

PATENTING

To my great surprise my wife and I were inundated with onlookers who wanted to know, "How does it ride?" "Does it lean?" "Do you

have a patent on this?" and most importantly, "Who builds these?" My standard answers where, "The ride is awesome." "No it does not lean." "No I don't." and "I do." Now keep in mind, we were on my GLRT not a Harley, but virtually all of the people huddled around were Harley riders. By the end

of the day, my wife who is pretty conservative said, "You know, you should look into a patent." The day we arrived home I contacted a lawyer and we filed a provisional patent on our "Universal Trike Conversion Kit." We later changed the filing

to a PCT where the design is now patent pending worldwide (148 countries). The name I picked for the company was IDO-Endeavor. IDO refers to the fact that when people asked, "Who builds it?" I would honestly have to answer, "Well,

I do." And Endeavor means move ahead or proceed.

EXHIBITING

My initial idea was to license this product, so I headed off to the 2013 Minnesota Invention Expo where I won Invention of the Year. A few months later, I attended the INPEX show in Pittsburgh where IDO-Endeavor won a first place gold medal for engineering. This was a huge win. We beat 13 MIT class colleges and 26 countries in this category.

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It was at this show where I met a gentleman in his 80s who was a retired aerospace scientist. He worked with Chuck Yeager directly. While we only talked briefly, he offered me some of the greatest advice possible. Things related to airflow dynamics and pressure points as they relate to the balance center. How airflow is critical to overall handling and control. Of course he was talking of wind effects while traveling 8,000 mph and I am thinking more like 80. His input and advice changed the design once again. I had the mechanics down quite well by now so the focus changed to aerodynamics and how air movements would affect the overall handling and efficiencies.

MANUFACTURING



In July of 2014, Endeavor was ready and officially this was the date of our launch into what I called soft production. A 2010 Yamaha Raider was officially the first customer production build, which entitles Endeavor Trikes the claim of first to market with this design. This reverse trike conversion was displayed at the 2014 SEMA show in Las Vegas.

Since this Endeavor has had many firsts. Endeavor is the first and only RT conversion that is designed to fit virtually any large motorcycle. Endeavor is first to file a PCT for a conversion of this type. Endeavor is the first to market with this design. Endeavor is the first to offer a storage compartment as standard equipment. Endeavor is the first to offer additional cooling features as standard equipment, third radiator for the GL1800 and 14-inch cooling fan for the air cooled V-twins. Also a standard addition is an oil cooler plus fan for the Harley twins.

Just recently Endeavor was the first to offer "wink

lites" or angle eye lights and LED strip lighting. Every Endeavor also has the trademark "smoke flame" hood design which is part of the finish along with the new 1Z designation. The 1Z was a concept borrowed from the Kawasaki Z1 where the Z1 was a bike designed as a multi-sport motorcycle capable of doing all things – Z being the last letter of the alphabet and 1 the first numeral. For Endeavor, it signifies the ability to do anything and ride anywhere over any road surface.

Endeavor is the only front wheel conversion kit that will fit virtually any large cruiser or tour bike. Being first to file, I have a patent pending on the entire unit from frame construction to suspension and control structure. My concept is actually quite simple, the main frame contains all the running gear and suspension



components, which include shocks, A-arms, anti-sway and spindle sets. This frame and related components are the same regardless of the motorcycle being converted. Between the motorcycle and the main frame is a unit I call the "adapter cradle."

This cradle creates the union between bike and main frame. It is a bolt-on unit so the base motorcycle frame is never altered or modified. The conversion kit can be removed and the base bike returned to original form at any time. Also, due to the fact the frame is not modified, no inspections are required as the kit is classified as an accessory add-on.

The Endeavor kit is also a hybrid of sort. The unit is generic in terms of the main frame being identical for all builds allowing mass production of main components. However, the body skins and designs are custom, and in my opinion, works of art. No two builds are exactly alike. Each bikes finish is customized to fit not only the bike lines but also the owner's expectations. I am in constant contact with owners getting their input and coming up with a design scheme that will give them the "wow" factor.

But how does it all fit? How does it perform? My sales pitch is pretty simple. First off I am not a good salesman. But I don't need to be as the trikes do all the selling. My typical sales ploy is this. Take one or all the trikes I have for a good test ride. I have my GLRT, Victory and Venture available to test ride. I then tell them to go test out a Spyder and a bunch of wheels back conversions then decide between them. I have never had any customer say they would consider a wheels back conversion but have lost one or two to the Spyder. For me this is a success. BRP spent literally millions on development of the Can-Am Spyder and



I didn't. I spent my share on legal and development costs but 90 percent of what I did was real-world testing, just over 150,000 miles to be exact. Recently two trike manufactures have also entered the wheels forward conversion market. Two years after Endeavor.

RESULT

Earlier this year a local motorcycle magazine, *Minnesota Motorcycle Monthly*, took my "pride of the fleet" trike for a test run. The trike they tested was my 2006 Victory KingPin, which has been retitled as a 2015 Endeavor. Two independent testers took this trike for a series of high speed runs, general cruisings, along with a run on some gravel roads and even an oval dirt track. Both testers gave it rave reviews and both, while independent, duplicated each other's comments and opinions. This article is open for view at http:// mnmotorcycle.com/may-2016-bike-review-endeavortrike-conversion-take-the-right-turn.

There is a big difference between conventional wheels back conversions and these new RT or wheels forward conversions. Number one - these new trikes are designed specifically around steering and handling. Steering on a conventional trike is nonadjustable except for offset triple trees, which change the trail (not the rake). The wheels forward conversions take full advantage of all the geometry and physics related to standard and accepted automotive designs. The aerodynamic profile is also much more transparent so power and fuel efficiency is also maintained. In general, this is part of a new class of motorcycle, which is not a compromise rather a parallel move. All the new RT style trikes are sporty and exciting to ride. If you have ever taken a snowmobile out drift busting or a quad dune-jumping you can relate to the concept of sport riding a non-leaning multi-wheeled vehicle.

In 2012 just after the patent filing, the Stealth11 was cut up into pieces and scrapped. The Valk3 is my only remaining prototype unit and the GLRT is now a full production build with 148,000 miles on the odometer.

Full commercial production began in March 2015 and I moved from my small garage to a commercial building where I do all my fabrication, powder coating and machining. To date, I have successfully converted the following models, Harley Softail, GL1500, GL1800, Victory, Kawasaki Vulcan 900, Yamaha Venture Royal, Honda VTX 1800, Honda Valkyrie. Yamaha Raider, and in the next few months a BMW 1200R and Suzuki Katana 700.

Norm Kokes, GWRRA #399256, and his wife, Monica, have three children and six grandchildren. They rode their GL1800 for 11 years before using it as a prototype. Endeavor Trikes, at 1401 E. Main, New Prague, Minnesota, has units on display and available for test rides.