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'You feel like you are on a bike'

Shore inventor looks to make big break with motor-powered cycle

By Brice Stump Staff Writer



SALISBURY - Drew Phillips is convinced he's built a better mousetrap. Well, in his case, a new and improved bicycle. Powered by a 49 cc Huskvarna two-stroke chainsaw size motor, inventor Phillips said it isn't a motorcycle or a mo-ped. It's a whole new way of getting around. " Problem IS, after 12 years of work on his "Biketoo" invention, he's yet to make the flrst sale. He has built just one, a prototype that incorporates all of his hopes and aspirations, patents and ingenuities.

Crafted from parts of a standard men's bicycle, the Biketoo can zip along at about 35 miles per hour. "It is street legal. You do need a driver's license, but you don't need registration, or tags, or insurance or helmet or eye protection or a motorcycle license. Out of the box, it will go 30 to 35 . miles per hour," he said. With its modest 49 cc motor, the bike is viewed by the government as a motor-driven cycle rather than a motorcycle.

The bike has a two-speed automatic " transmission, no manual shifting required, which makes it user friendly. "Some people do not feel comfortable on a powered cycle. Here you just twist the throttle and you're gone," he said. It also has wet-weather drum brakes, not rim brakes like a bicycle. Even the tires are unique.

"There were no DOT approved 24- and 26-inch bicycle size tires available. So we had them made, sent them to the lab and they were amazed how well the tires did. These tires, as far as we know, are the only DOT-approved bicycle size rims and tire combination for use with" a motorized cycle anywhere. We wanted and needed a DOT-certified bike tire."

Over the years of experimentation and development, Phillips was able to get two patents - one has 40 claims, the other six claims. What is "revolutionary" about the Biketoo is that the crankshaft and transmission components are parallel with the seat post.

"The beauty of what we did with our transmission is that we can utilize any motor, two stroke, four stroke, diesel. Any power plant can bolt right up to the transmission, regardless of the rotation of the motor.



The position of the motor and the transmission was done in such a manner that when you sit on the bike, you aren't looking down at a motor assembly. All the components are behind you. You feel like you are on a bike," Phillips said. "We wanted a comfort level, that anyone could get on and feel like they were on a conventional bike."

Then was the matter of a special suspension assembly. "I went through a lot of trouble to make sure we had full suspension, front and rear. ' The drive sprocket, the driven sprocket, the swing arm and engine are all one piece. When the suspension moves, there is no geometric change between the front and rear sprocket' which you normally have and this gives us the ability to have an on-road or off-road machine without derailing the chain. I don't know of any motorized bike that has full suspension," Phillips said.

Unique, too, is the function of the manual disconnect knob. "When you are on a mo-ped for example, when you pedal it you are turning all the transmission components at the same time. You may as well get off and push, than pedal, because you will exert more energy trying to move it along with the pedals. When you pull the drive release knob out, that releases the transmission from turning any components at all, and you are riding it, just as a bike. In the power mode, when it is pushed in, the transmission is engaged and you can ride under power. Or you can also pedal under power, any combination you want.



"Anybody can ride this as a - bike the first time and as they get comfortable, switch to the power mode. This is a great entry-level machine for a would be motorcyclist. For police, it offers a

great advantage - they can pedal through the neighborhood, and if they get an emergency call, they push a button and can be on scene in an instant. We had overwhelming interest and great response from the police: departments in Ocean City, Princess Anne, Fruitland, Salisbury."

The inspiration for this dream machine was simple enough - "I wanted to have a bike-styled vehicle with the power of a motorcycle. I did not go to school to be an engineer, but I can work on it until it works, said Phillips, who owns TTI Hydraulics Inc., in Fruitland.

The inventor even designed the "lines" for his personally created add-ons. The gas tank style and shell are unique to the Biketoo. "It has about a two gallon gas tank. Making it conform with the overall visual design of the bike was a challenge with down-home ingenuity.

"I bought blocks of foam, used for holding dried flowers. I glued pieces together until I had a giant chunk, then hand carved it down till I got the basic shape I wanted. That was sanded down until I got the rough shape, then fiber-glassed the whole outside. When I got done, I cut a hole in the top, poured acetone in it - which ate the foam - and it left me with the hollow vessel."

Right now his creation is on a diet. It weighs 90 pounds. "I weighed every single part, everything on the bike. The pedal weighs 1.1 pound; its counterpart, in an alloy, weighs just 1.1 ounces, so we are able to make weight adjustments on other parts of the bike and bring it down to about 50 pounds. A Huffy bike right out of the store weighs around 40 pounds, for comparison. We can get this thing light enough to put on your shoulder and carry it upstairs to your apartment." Basically, every component on the bike will be of an alloy construction.

The prototype was completed four years ago. "That we have an operational prototype is not a minor thing. This is not an idea on paper," said business associate Phil Adkins. "The biggest hurdle for us is finding somebody to say 'Bring it to me so I can see it.' We have been trying to find somebody to build it and haven't had much success. This wasn't just an idea on a piece of paper I have a working thing. Making the thing and making it work was the easy part. My biggest struggle is finding somebody to build it, finding someone to manufacture it is the hard - part."

And a manufacturer is a must. "I don't think someone is willing to spend the amount of money to have me build a bike, one at a time. Given the amount of man-hours needed, especially for the quality I want to achieve, it would be too high. It needs to be mass-produced on a level that's got a price point that everybody can afford it."

"We decided from the beginning if something worked, maybe something else could work better, we kept improving it. This is the exciting part. We finally have everything come together. This is it. Maybe now something will happen." Phillips thinks the retail price could be about \$1,200 to \$1,500 per unit. "Bear in mind you can go to the bike store and spend \$5,000 or \$6,000 without blinking an eye."

To get to that \$1,200 or so retail price, an investor would have to put up more than \$2 million to get the ball rolling on mass production. "Even at that price," said Adkins, "it would probably have to be made offshore. To have mass production and an assembly line to produce, say; 50,000 bikes, it would take that kind of money."

The manufacturer Phillips has in mind would probably be one more closely related to the motorcycle production than bicycles. "We have talked to Harley Davidson, but they said they want to stay on the big cc bike end. We talked to Schwinn. We attempted to talk to a Tomas (a mo-ped builder) guy; but didn't get far with him.

"Basically; we are where we are today because I tried everything I could possibly try and failed as many times as I could possibly fail and we have something here that works. There were many issues that had to be overcome, and people in the past may not wanted to have spend the time. We spent the time," he said.

What has this interest and idea costs them to date in time and money? "I'd say about \$200,000," Phillips said.

The last developmental hiccup cup lies in intellectual tweaking. "I need an engineer to look at the transmission and say 'We need webbing (reinforcing elements) here, webbing there, and this is as small as you can make these components and have them hold up for the duty cycles they need to do.' I don't have that capability."

In the meantime the two are waiting for the big break. "I am ready to be discovered, I've been ready," Phillips said. "I need someone to step up to the plate and say; 'Yes! This is a great idea and we have all these manufacturing facilities sitting idle and we'd like to utilized them to make this bike.' "

For more information, visit their Web site, www.biketooinc.com