The 29er – Bike Patrol Breakthrough?

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Since 1999, the 29er has been the new boy on the block. This design has grown in popularity and has become a large new market in the mountain bike industry. 29er bike enthusiasts feel this bike is the "Holy Grail" of mountain biking. They say it floats over roots and rocks, and zips through sand better than any bike in their arsenal. They say it has less rolling friction, a more comfortable ride, better obstacle rollover, and even better traction. But does this mean it will be a good bike for public safety work? I think not, and here's why.

Although many of the big name bike companies are now offering 29ers, they are not yet in the mainstream of the cycling industry. Finding parts, especially a wide selection of parts, can be a difficult task. Not every bike shop stocks parts for 29er bikes, meaning that an officer in need of parts could end up waiting 2 to 5 days, resulting in unnecessary downtime.

There are only a few tire designs available for 29er bikes, most of which are off-road designs. An officer who damages a tire or wheel could be limited on his selection. It's not like he will be able to go to any store and get a tire, rim or wheel. It's going to have to be a specific shop or he is going to have to order it.

The big companies have not yet solved all of the bicycle design problems. The head angle of the 29er has caused many problems with toe overlap, the front end feels sluggish and less agile, and the top tube is too long for shorter riders.

Tire/toe overlap occurs when your foot is on the pedal and the pedal is at its maximum point forward. When you turn the wheel, the back of the tire hits your foot. This issue can cause an rider to lose control or cut down on his/her turning radius, which is a safety issue. Although this has been resolved for most riders over 5'7", it is still a safety issue for riders who are 5'7" or shorter.

The front end still feels sluggish and it is not very agile. The companies are working on this. Most of the loss in agility is due to the fact that you are moving a bigger wheel around objects. Moving this larger wheel takes time and space, which requires more skill. The shorter officer will find this more difficult because of the geometry of the bike, a higher bottom bracket and a changed center of gravity. At slow speeds, trying to get the wheel around can push the bike upright, throwing the officer to the outside of the maneuver and making them feeling less stable. The sluggish feeling at slow speeds is due to the wheel contact patch. The contact patch of the 29er is longer and thinner than that of a 26er. This long and thin patch means you have to pull more of the tire across the ground, making it harder and slower to move.

The top tube is not an issue with many tall riders, but not all officers are 6' tall. They come in all shapes and sizes. The 26er design fits all body sizes, but the 29er does not. Those with long legs and short torsos and those shorter than 5'7" tall will be stretched out more, giving them less control and putting more pressure and strain on their lower backs. This will lead to an uncomfortable ride which leads to less ride time and less usefulness of the bike.

The 29" wheeled bike does not offer many options for riders who stand 5'7" tall or shorter. Officers who stand at this height or less or have an inseam of 28" or less will find that the smallest bike frames on a 29er will be too tall for them. The 15" frame fits more like a 17" frame and the top tube hits where you don't want it to while you are straddling the top tube in a standing position.

Cyclists who are shorter than 5’7” will find that they will have a harder time pulling the bike’s front end off the ground. This is caused by the rider sitting in between the wheels. This change in geometry takes away from the leverage afforded by the 26” design. This may not seem like a problem because the 29er rolls over objects better, but there are occasions that do call for lifting the wheel. If an officer has difficulty getting the front end up, it could cause a crash and possibly injuries and damaged equipment.

The size of the 29er wheel creates another problem. The 29er wheel does not offer the lateral strength that the 26-inch wheel does. 29er wheels have folded under stress from braking and hard turning far sooner than their 26-inch wheel cousins of similar weight. A test of 29er wheels in Moab found that they just cannot be built to withstand the stresses of off-road and speeds. The test, conducted by White Industries, found that breakages of full suspension 29ers occurred more often. They found that the side loads on the wheels were just too great to tune-in any “give” through the use of 36 or 40 spoke rims. They found that the longer spokes of 700c wheels just don't jibe, except in rare circumstance – for instance, a mid-sized (around 5’11”) light-weight racer (under 150 pounds) with a smooth riding style would have very limited problems, but riders over these limits have faster and more frequent problems. They recommended no “big boys” on 29-inch wheels until the industry builds a better rim and thicker spokes.

The 29er can offer many advantages for the individual rider, but at what cost? As a departmental bike, these issues can add up. Most police departments do not have the luxury of having a bicycle for just one officer. Most departments have to buy a few bikes to fit their masses. The limitations of the 29er frame designs, including fit, parts and their availability, and safety limitations, the 29er might be a problem for agencies that buy and maintain a fleet of bikes, and are concerned with the safety of their officers and the versatility of their equipment. It is best that they concentrate on one bike for their inventory; the one that is proven, safe, easy to maintain, and is the best buy for the money.

Steve has been a San Antonio police officer for 20 years and a member of the Downtown Bicycle Unit for 18 years. He has been the department's Bicycle Coordinator for the past four years. He has been an IPMBA member since 1994 and was certified as an IPMBA Instructor in 2004. He can be reached at sb0247@hotmail.com.