QUINTANA ROO 2009

In 1987, Quintana Roo sent Ray Browning to Ironman New Zealand with the first bike *specifically* designed for triathlon, the Superform. He was ridiculed for bringing the strange looking bike with unorthodox geometry to the race. As many people remember, he came off the bike with a 30-minute lead that year, and since then, the modern tri bike invented by QR has been copied many times over.

In 2009 , the goal for Quintana Roo was to completely reinvent the way triathletes can use the bike to gain an advantage. We weren’t looking at ways to shave a second or two with frame design, but find a way to cheat the wind. We know that bikes have evolved over the years, but the tri bike has essentially stayed the same. This year, Quintana Roo decided to unveil a bike for triathletes that is as ground-breaking as the Superform was in 1987.

Over the last year and a half, the Quintana Roo design team has spent more time in the wind tunnel, testing tube shapes and frame designs, than they had in the previous 20 years of company history. The 2009 Cd0.1 is the result of a massive undertaking to give triathletes the competitive advantage like Ray Browning had in 1987.

Cd0.1

Aerodynamic wheels efficiently control airflow from the front of the leading wheel to the back of it. Airflow at the backside of the wheel wants to cleanly reconnect as soon as possible with limited airflow disturbance. Our challenge was to minimize the drag that is created with even, aerodynamic downtube shapes.

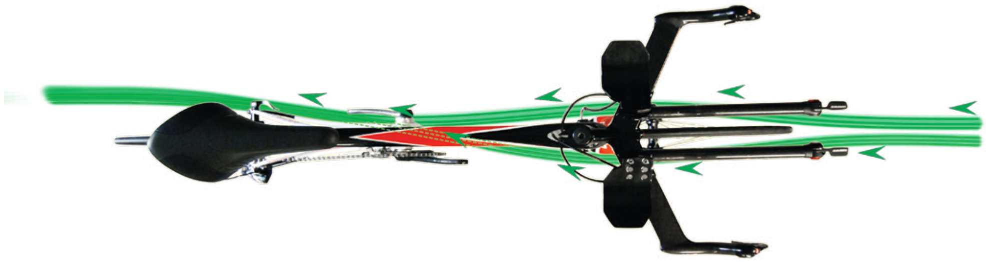
Quintana Roo's solution was to reduce drag created not only from the tube shapes, but also from the drivetrain. The non-drive side of the downtube is offset by 18mm towards the drive side. This shifts the airflow away from the "dirty" side of the bike, or drive side, to the "clean," or non-drive, side of the bike. By minimizing the explosion of air into the downtube via routing it to the non-drive side, the drive-train becomes virtually invisible to the wind.

The bottom line is that most bike manufacturers spend time touting frame aerodynamics and taking pictures of bikes in wind tunnels, but they never discuss the complete bike and the effect of the drivetrain on aerodynamic performance. Quintana Roo does not disregard the dirty side of the bike. The drivetrain is the number one cause of drag on a complete bicycle.

Quintana Roo isn't concerned about shaving one second here or there. We want to save you minutes. Plural. A bunch of them. And, for the first time since 1987, only one bike company has managed to do it. Again.

STABILITY

Once we finished designing a bike that met all of our aerodynamic criteria, we discovered a new, unexplored area of aero bike design, stability. Stability is at least as valuable, if not *more* valuable than aerodynamics when you examine bike design closely. Had we not developed our Shift technology, we would not have recognized the importance of a stable bike frame.



There are many ways to calculate how many seconds, watts, or grams you can save by adding an aero wheel or fork. The one category unexplored until now is how a stable bike contributes to measureable efficiency when trying to shave valuable time. A bicycle is an asymmetric object. When riding, there are uneven forces at work on either side of the bike. By shifting the air flow to the clean side of the bike, the rider will experience less turbulence from the airflow. Try walking in a straight line with two friends lightly pushing you from either side as you walk. Some of your energy and concentration shift to their efforts, making it harder to walk in a straight line.

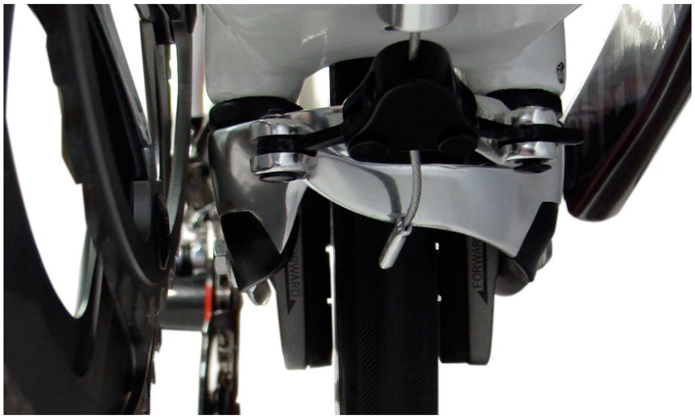
This is the exact same effect when riding a bicycle. If we can create a more balanced and stable bicycle, the rider is more energy-efficient in a straight line, rather than fighting small, contrary forces from the side.

FRONT BRAKE

If you look carefully at the front brake, it's pretty obvious that we mounted it behind the fork to maximize the front-end aerodynamics of the bike. Look closely at the way the bolt mounts with the bulge horizontally positioned. It is clear that we kept the most critical aerodynamic factor constant -that all bulges be kept horizontal.

REAR BRAKE

We placed the rear brake behind the bottom bracket of the frame to remove it from the airflow that travels around the seat tube. It has a small allen bolt on either side of the chainstay to easily adjust the brake travel based on the diameter of your rim.



FORK

We have two very specific features on our proprietary fork to assist in controlling airflow. The U-shaped, bowed blades of the fork leave a larger space for aero wheel airflow to continue across the wheel uninterrupted. The front fork opening above the tire is funnel-shaped to force more air through the opening. In the wind tunnel, we found approximately six mph (approximately 24 mph at bike speed) of air trailing off of the front tire and being pushed back through the opening opposite the direction that you are riding. By forcing more air into the fork opening, we are redirecting the wheel airflow down into the Shift air flowing to the clean side of the bike. It sounds complicated. It is. We figured it out just so you can go faster.

SEAT TUBE BULGE

We bulged the leading edge of the seat tube where the seat stays join the trailing edge of the seat tube. By making the leading edge slightly wider where the stays connect at the rear, we minimized the amount of drag created at the seat tube/seat stay junction.

SEAT POST and CLAMPING BOLT

Designing an aerodynamic seat post, collar, clamping system and rail mounting mechanism is one of the most difficult mechanical elements in a bike. When you use an aero post, the clamping forces around the post are uneven (making the post prone to slippage). We've developed a way to clamp the post by integrating a single bolt into the front of the clamp. When you bolt the seatpost from behind with any size bolt, you lose the trailing edge that is critical in aerodynamics. Moving the seat post bolt to the front is another small detail that we chose not to overlook.

The post itself looks simple, but months were spent engineering it to make it simple for bike fitters to use. The most critical component of bike fitting is the position on the saddle. Our new post design allows you to move easily from 75 to 82 degrees by sliding the rail clamping system along the post opening. We decided to make the cutout for the rail clamp angle slightly to account for saddle height using FIST fitting principles. As a person's position becomes more aggressive, the saddle height needs to be raised slightly. We've calculated and accounted for that slight increase in saddle height in our seat post design to both save fitters time when fitting a customer and save athletes time in competition.