



THE GURU OF SPEED

If you want to squeeze the most out of a rider aerodynamically there is a very short list of people that can help. One of those experts is **STEVE HED**. This was the man Lance Armstrong went to for aerodynamic tweaking and we all know how that turned out. When Hed isn't spending time in wind tunnels assisting teams with their riders, he's in Minnesota designing things that go fast. We caught up to him at the Low Speed Wind Tunnel in San Diego, California with the High Road team.

I saw an interesting wheel with what looks like a carbon fiber spoke protector.

STEVE HED: Aerodynamically the front cylinder of a hub causes a lot of drag and is bad aerodynamically, so we are working on a center section to replace a traditional front hub which will streamline the wheel more and give you more performance than a normal wheel.

What else is do you have in the works?

HED: We are at a point where our aero stuff is good and under control and we have a plan so this year we started working on some wheels that guys like myself and others at work want to ride, so we have a new wheel called the Ardennes, which is basically a 23mm wide clincher rim. It isn't a deep section and there isn't any carbon in it. The alloy is scandium, so it is pretty high tech. It's a clincher wheel that rides as close as a tubular wheel that we love riding. It's a fun project.



So what makes it unique?

HED: It is 23mm wide rim when traditionally a lot of riders have 19mm wide rim. But they are putting a 23 or 25mm tire on it to give them the ride they want. What happens when you put a wide tire on a skinny rim is the sidewalls bulge more and you get a little bit of squirminess around corners and the rolling resistance isn't quite as good. So we decided about a year ago to work on a clincher that really matches the tires that is the choice today. We are riding a 23mm clincher tire so we're making a rim that optimizes that tire.

What are some aerodynamic myths that you can bust?

HED: Any time that you have a disc wheel or deep section wheel you are going to go faster than spoked wheels. The majority of the time that is true, except if the winds are coming from the wrong direction and you aren't going fast enough to swing the wind to the front. Also a side wind will make you go slower if you have too much side surface area on your wheels.

You've worked with the cream of the crop of riders. Now with these new, young guys do you see anyone with really good aerodynamic numbers.

HED: The fun thing about being here today with the guys from High Road is they have the Scandinavian national time trial champion who is young, but he was riding Hed products in his previous teams when he was 16. Linus Gerdemann started riding Hed wheels when he was 15 on his Yeti downhill bike. He started out as a downhiller. With John Parker, myself and Jeff Ringlé we had designed this aero downhill bike and was on a team that rode our aero downhill stuff before he started riding the road. So I guess I've been around long enough to get this 20 year olds that have been really serious about the sport for a long time. We are going to see them take the place of George, who of course we'd love to see go another 10 years or so. Eventually we are going to have to look at a 28-year-old kid winning the Tour. Alberto Contador is kind of like that. He is the new generation.

What has been your role here today with High Road?

HED: The High Road team are customers of ours and they asked for a little help in the wind tunnel, so we showed up. What's nice about it is that wind tunnel time is really expensive, so every time you come you are accumulating hours and learning more and more every time which will help you the next time you come in. There are riders with different body shapes or different arm lengths than you've never seen before, so you are adding that to your database.

What's the most common aerodynamic tweak you see among professional riders?

HED: Trying to roll their shoulders in. Traditionally a lot of riders are using their upper arms to support their body. If they are doing that, the arms are rigid and you have to show them the right shaped arm cups and how to roll their shoulders to reduce their frontal area and still be comfortable and supported. Then they have reduced their drag by quite a bit.

What about a triathlon or more forward position?

HED: Because of the UCI regulations what you would think of as a triathlon or more forward position is not legal. There's also the thinking that the majority of the road guys are riding in their road position that's fairly far back on their saddle. So now they have to move radically forward on the saddle and they don't want to do that. In the Tour there are two time trials in a matter of three weeks so they want to use the same techniques and same muscles they've been racing with.

Do you find that some of the riders are resistant to your changes?

HED: That's what's nice about the wind tunnel. If you just go to camp and start to tweak them then you might get some resistance. Luckily I have a good track record, so I don't get that much resistance anymore. What you see here [at the wind tunnel] is written in stone. It's open to interpretation.

What else are you working on with the riders in the tunnel?

HED: We are also working on some climbing positions that are aero. If you think about it the place where you can gain the most time on your competitor is when you have a climb. So you want to stay aero as long as you can on a climb. So how you sit on your saddle, where you put your arms,

how do you grab your bar that lets you stay in a fairly aerodynamic position and still generate power before you have to stand. We know that the first person that stands is the first one going backwards and that is true with a time trial. It's making sure their set-up is appropriate and maybe choke-back on the bars a little bit, slide back on the seat, stay narrow and getting a couple hundred meters before they have to stand.

I saw written on the board in the wind tunnel control room 'George's bar.' What is that?

HED: It is a set up that worked really well with him. We were up at training camp and he has his two time trial bikes. I grabbed one of his bars that worked well with him. One of the steps we go through is we use three different positioning processes and we brought George's bar to see if it worked for any of the other guys. We tested five guys today and George's bar probably helped two of them. It is a different way of shrugging in your shoulders and with that type of body style the bar helped them. The other three guys it didn't do anything for them, but we put it on them because we knew that they would be riding with George and see him riding like that and think, 'Should I be riding like that because it is working for him?' Now they know riding like that doesn't work for them.

Seems like it is psychological too.


HED: It all is. You look at guys who are time trialing or

climbing a mountain. Aerodynamics and power are 80% of it, and you still have to have that 20% heart or desire to win.

What are some tips for time trialists?

HED: Ride your time trial bike. Get out on it once a week. Don't look at that as the part you dread. I think that is what Lance did to change time trialing more than anything. When he became a g.c. guy he went on two to three hour rides on his time trial bike. He was religiously out on his time trial bike. For a lot of these guys it isn't fun for them. You are in a position that isn't quite as comfortable and not as social. You don't have a nice ride and you're not drafting or trying to beat each other up the hill. It's a different sort of thing. So I think it's a discipline that riders haven't spent the time doing. As you can see with Lance it really paid off.

Speaking of Lance, how important was the F1 project?

HED: That was Oakley, Nike, Trek, Bontrager, Giro, Hed and Chris Carmichael. It was like some of the early Olympic projects that they were doing in 1984 to win gold medals. The guys at Capital Sports put together a program to bring these guys together and it really advanced aerodynamics. Clothing, positioning, [the importance of] tunnel time. The riders that were on Discovery have brought a little bit of that as they go to different teams. 



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