



## **The Science Behind the Bike** *The History of the hour Record*

### **Commentator**

History in the making and one of the sports greatest moments. Chris Boardman is now the holder of the most coveted cycling record in the world.

### **Graham Obree**

It is the ultimate pure time trial.

### **Chris Boardman**

It's incredibly risky because there is no second place. You win or your lose.

### **Graham Obree**

What there is is a track – black line – and a clock.

## THE SCIENCE BEHIND THE BIKE THE HISTORY OF THE HOUR RECORD

### **Presenter**

The world hour record measures the distance a cyclist can travel around the track in one hour. While Olympic distances and events have changed many times over the years the basic conditions for the hour record remain the same.

Since the first record was set in 1876 on a penny-farthing the hour record has been regarded as the ultimate test of an individual's strength and stamina.

### **Chris Boardman MBE**

Three times World Hour Record Holder

The hour record was always sort of like your blue ribboned record within cycling and all that the greats .. That's really what attracted us to it to actually get a name on the – on the trophy as it were alongside of Eddy Merckx and Francesco Moser and some you know real all time cycling greats.

### **Presenter**

The bench mark for the modern day hour record was set by legendary Belgian cyclist Eddy Merckx in 1972. He covered a distance of 49.432 kilometres on a traditional bike. The record stood until the 1980's when the introduction of science and technology to cycling launched a remarkable period of twenty years during which the record was repeatedly broken. The man who sparked this trend was Francesco Moser.

### **Francesco Moser**

Twice World Hour Record Holder

Professor Dal Monte had this idea of building disc wheels and we found a company that worked with carbon fibre and they said "We can do disc wheels for you". I broke the record but it wasn't particularly hard, I was very well trained. And the 23rd we made another attempt and I broke 50.808 km with 51.151 km and then we went home to Italy.

### **Presenter**

In 1993 two Brits stepped into the arena to take on the record.

The first of these was Graham Obree, riding a hand made steel tube bike with carbon fibre tri-spoke wheels. And a radical new praying mantis style riding position. While Moser

introduced new materials and innovative bike design for his record attempts Obree concentrated on the aerodynamic aspect of long distance time trialling.

### **Graham Obree**

Twice World Hour Record Holder

It's been my ambition since I was fifteen. The first thing that inspired me was the World Hour Record that I would ultimately one-day ride. And the ultimate inspiration for me was Merckx and Moser. Especially Moser with his – his infusion of technology, pushing the limits of aerodynamics and bike technology. That started a whole year of technological innovation. It was the beauty of it and the purity and beauty of it. It's the law of the jungle. It's like the ultimate law of the jungle isn't it? Here's a track. Ride round it. You break the record and get all the glory or you don't break it and you go away and feel like nothing for years.

### **Presenter**

Obree broke the record covering 51.596 kilometres in a ride that changed his life.

Gerard Vroomen

Innovator and Cervélo Bicycle Designer

Yeah I think that Graham Obree is really the example of how innovation can help your performance. I think that Graham Obree raced against people who were probably athletically more gifted than he was but with aerodynamics its ninety per cent resistance; the body is two thirds of that and you come out with the better body position than everybody else it doesn't matter that .. is maybe ten per cent less than the other guy. If you're aerodynamic resistance is ten per cent less you're the winner.

### **Presenter**

Hot on the heels of the innovative Scotsman Obree was the second British challenger – Olympic Champion Chris Boardman who just six days later broke the record on a bike with carbon air foil tubing, triathlon handle bars and carbon quad spoke wheels.

### **Chris Boardman**

What appealed to me about the Hour Record was its seeming simplicity. There is a huge irony in that it just looked like you ride round in circles until someone says stop. But where it gets complex is you can do that in any way that you like from a positional point of view from to within – within parameters equipment point of view the pacing strategy is absolutely critical with something like this.

### **Commentator**

And at 10 o'clock this morning Chris Boardman – enormous cheer from a stadium packed with 2000 spectators, rolls now and the attempt is on for the World Hour Record.

Chris Boardman

1993 was our first attempt on the World Hour Record and it came off the back of winning the Olympic Games in 1992.

### **Commentator**

This is unbelievable. No one has ever been inside 23 minutes at the 20 kilometres distance in the Hour Record before. Chris Boardman is on a schedule now to annihilate this record. History in the making and one of the sports greatest moments Boardman now – it's only a question of how far can he go. The record will shortly be his. 57 minutes, 28.749 at 50 kilometres but it's a record and there's no doubt about that. The gun has gone. Chris Boardman is now the holder of the most coveted cycling record in the world.

### **Presenter**

Over the next three years the World Hour Record was broken a further five times on increasingly esoteric bikes. However the international cycling body the UCI, stepped in to outlaw Graham Obree's "praying mantis" style and tightened the rules on approved bikes and body position.

**Gerard Vroomen**

I think he should get a medal from the UCI instead of having the position banned but its not easy to be popular when you upset the apple cart. So I think Graham Obree is everything that's right about this sport and I think that his accomplishments and the Hour Record are really some of the most exciting that we've seen in the history of the Hour Record.

**Presenter**

In 1996 Chris Boardman broke the record on a futuristic bike designed by Lotus Cars, using a super man position. This position was designed by Graham Obree and involved the rider being stretched out to cut the aerodynamic drag. At this point the arc of technology and ergonomics had reached its peak.

**Chris Boardman**

Now I'd been labelled because of Lotus Bikes at the Olympic Games and then using the super man position to some good effect as one of the people that was really pushing technology in the sport of cycling. And it had really hit in the mid Nineties when there was all sorts of wacky ideas coming in and it was Samaranch actually of the Olympic Games who said "this doesn't look like a bike race anymore". And the Union Cycliste Internationale set about – set about changing the rules to – to wind back the clock a bit to keep a bike looking like a bike.

**Presenter**

It was time for the World Hour Record to return to basics with Chris Boardman making a record attempt reminiscent of Eddy Merckx's ride in 1972 on a traditional bike.

**Chris Boardman**

Well it was just a mark we wanted to set but it captured people's imagination and the UCI got involved very late in the day and decided to adopt it as the Athlete Hour record. And the record was eventually broken by just ten metres.

**Presenter**

With advantages in technology stripped away the World Hour Record was broken by a distance of 10 metres a mere 0.02 per cent twenty-eight years after Eddie Merckx set the benchmark.

With the purity of the test preserved by stringent UCI rules what does the future hold for this prestigious prize in cycling? How far can man go in one hour?

**Gerard Vroomen**

When there are rules there is a way to get to the edge of the rules and still get an advantage. I mean as the rules get tighter and tighter the advantage you can find is smaller but still today you can make a frame within those rules let's say Eddy Merckx's rules that you know state that a bike should look like the one that Eddy Merckx rode forty years ago to set his record within those rules you could still make a frame that's a lot faster than the one that Eddie Merckx actually used.