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**Renishaw helps hand-powered cyclists make history**

At the World Human Powered Speed Challenge at Battle Mountain, Nevada, USA, Paralympian Karen Darke, MBE and Ken Talbot broke world records for both male and female arm powered speed. By reaching 46.05 mph and 51.86 mph respectively, Darke and Talbot are now the first and second fastest hand cyclists in history, with Darke exceeding the previous men’s record. The records were achieved using a bike created through the ARION4 project run by the [University of Liverpool Velocipede Team](http://www.ulvteam.co.uk) (ULV Team), with the support and expertise of engineering companies such as [Renishaw](http://www.renishaw.com/en/1030.aspx?utm_source=StoneJunction&utm_medium=Hard+news&utm_campaign=REN417).

On Wednesday September 12th, Darke set the female world record, reaching a speed of 41.86 mph in 2.5 miles. This exceeded the previous female record by 17 mph, clearly securing the win for the ARION4 team. On the same day, Talbot raced with the aim of adding to the team’s achievements. Talbot raced the five mile course and reached a speed of 51.86 mph, breaking the world record and becoming the first hand cyclist to cycle over 50 mph in history.

The next day, Darke broke her own record by reaching 46.05 mph. This achievement puts her faster than the previous men’s record, making her the second fastest hand cyclist ever, only behind Talbot.

As part of the ARION4 project to build the bike, Renishaw additively manufactured the central titanium support (CTS), a vital component of the bike that attaches to the headtube to hold the layshaft and front wheel in place. The component is the backbone of the ARION4 transmission system, allowing riders to put in as much power as possible without worrying about the structural integrity of the front of the bike.

"This record is the culmination of two years hard work by our engineering students”, explained Steven Bode, Senior Lecturer at the University of Liverpool’s School of Engineering and the project's Lead Academic. “Their combined passion for engineering and pushing the limits of human potential have resulted in the success of the ARION4 riders, Karen Darke, MBE and Ken Talbot. I’d also personally like to thank all of our sponsors, as without their support the Arion project would not exist.”

“We are starting to see the benefits of additive manufacturing being taken advantage of in high-speed applications, from the BLOODHOUND Supersonic Car to the TransFIORmers MotoGP bike,” explained Llyr Jones, Mechanical Engineer at Renishaw. “When aiming to reach high speeds, small technical enhancements can have a large impact. The design freedom of metal 3D printing ensured a crucial component of the bike was strong and light enough to meet the conditions of the race.”

For more information about the ARION4 project and the ULV Team, visit [www.ulvteam.co.uk](http://www.ulvteam.co.uk/).

To read more about Renishaw’s additive manufacturing projects, visit [www.renishaw.co.uk/additive](http://www.renishaw.co.uk/additive).

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Notes to editors

UK-based Renishaw is a world leading engineering technologies company, supplying products used for applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It has over 4,500 employees located in the 36 countries where it has wholly owned subsidiary operations.

For the year ended June 2018 Renishaw recorded sales of £611.5 million of which 95% was due to exports. The company’s largest markets are China, the USA, Germany and Japan.

Throughout its history Renishaw has made a significant commitment to research and development, with historically between 13 and 18% of annual sales invested in R&D and engineering. The majority of this R&D and manufacturing of the company’s products is carried out in the UK.

The Company’s success has been recognised with numerous international awards, including eighteen Queen’s Awards recognising achievements in technology, export and innovation.

Further information at [www.renishaw.com](http://www.renishaw.com)