

# ROLLS-ROYCE ELECTRIC WORLD RECORD ATTEMPT HELMET DESIGN COMPETITION

CAN YOU THINK UP A DESIGN THAT REPRESENTS THE FUTURE OF ELECTRIC FLIGHT  
TO WIN THE OPPORTUNITY TO MEET THE TEAM BEHIND THE WORLD RECORD ATTEMPT?



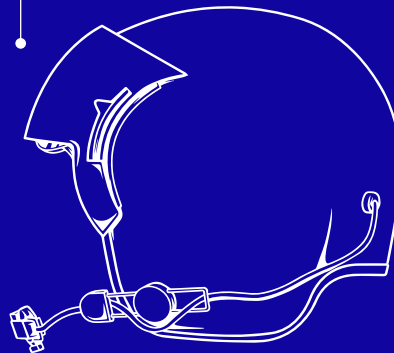
Rolls-Royce is developing an all-electric plane the 'Spirit of Innovation' that will be aiming for the record books with a target speed of 300+ MPH later this year.

Rolls-Royce is launching an exciting competition to design the helmet that our test pilot, Phill, will be wearing throughout the flight-testing period and for that all-important world-record attempt in our 'Spirit of Innovation' aircraft.

## NOW IS YOUR CHANCE!

### The Challenge:

Think up a design for the helmet that will be worn by Phill, the pilot of 'Spirit of Innovation' for the record attempt.



## YOUR ENTRY

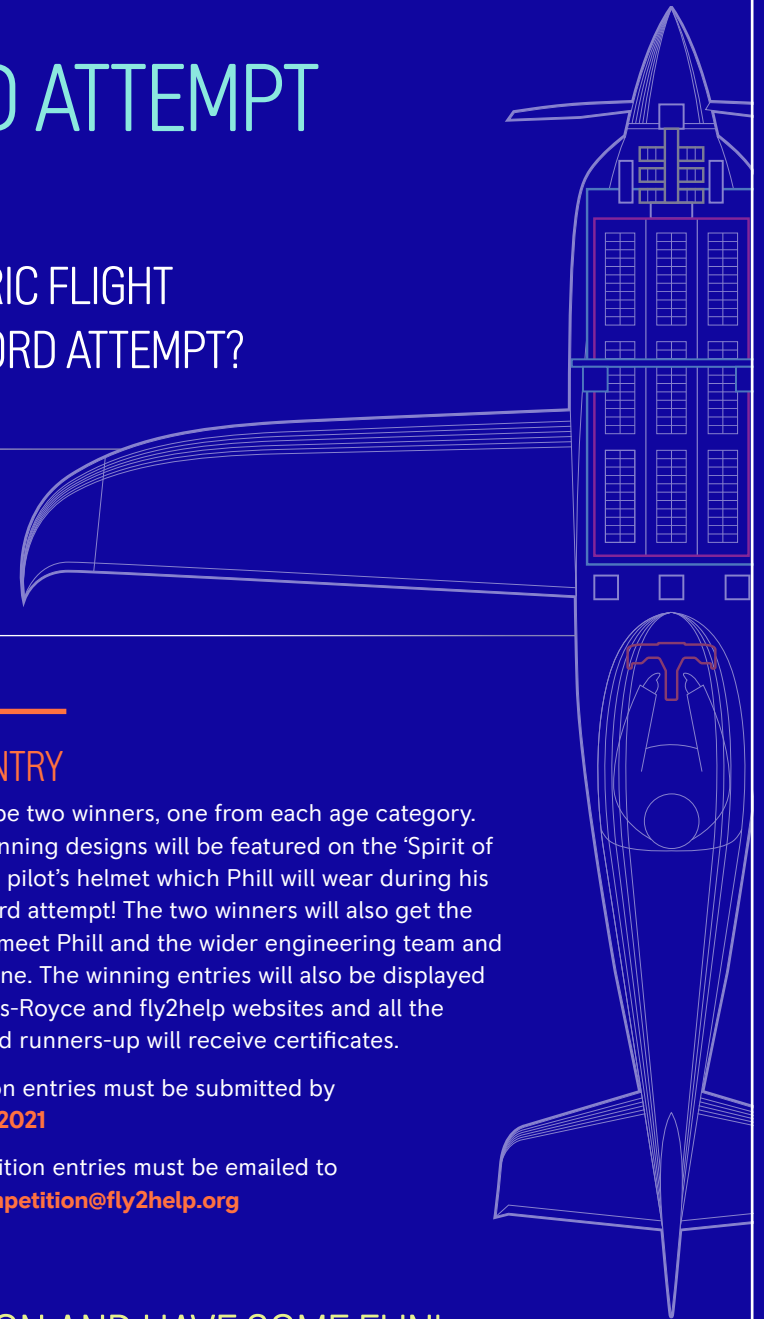
There will be two winners, one from each age category. The two winning designs will be featured on the 'Spirit of Innovation' pilot's helmet which Phill will wear during his world record attempt! The two winners will also get the chance to meet Phill and the wider engineering team and see the plane. The winning entries will also be displayed on the Rolls-Royce and fly2help websites and all the winners and runners-up will receive certificates.

Competition entries must be submitted by  
**28th April 2021**

All competition entries must be emailed to  
**[helmetcompetition@fly2help.org](mailto:helmetcompetition@fly2help.org)**



NOW SWITCH ON YOUR IMAGINATION AND HAVE SOME FUN!



# COMPETITION GUIDE

THE COMPETITION IS OPEN TO ALL CHILDREN IN THE UK AGED 5-18. THERE ARE TWO AGE CATEGORIES: 5-11 AND 12-18. ONLY ONE ENTRY PER CHILD WILL BE ACCEPTED. CHILDREN MUST INCLUDE THEIR PARENT'S OR CARER'S EMAIL ADDRESS IN THEIR ENTRY.

Each entry must include a creative design drawn on the helmet template, either designed on paper and scanned or photographed, or designed on a computer or tablet. The design should represent the future of electric flight.

**Submit your entry via e-mail to [helmetcompetition@fly2help.org](mailto:helmetcompetition@fly2help.org) no later than midnight on 28th April 2021. Only one entry per child will be accepted. Entries must include the child's parent's/carer's name, email address, contact telephone number and home address, plus the child's name and age category in their entry.**

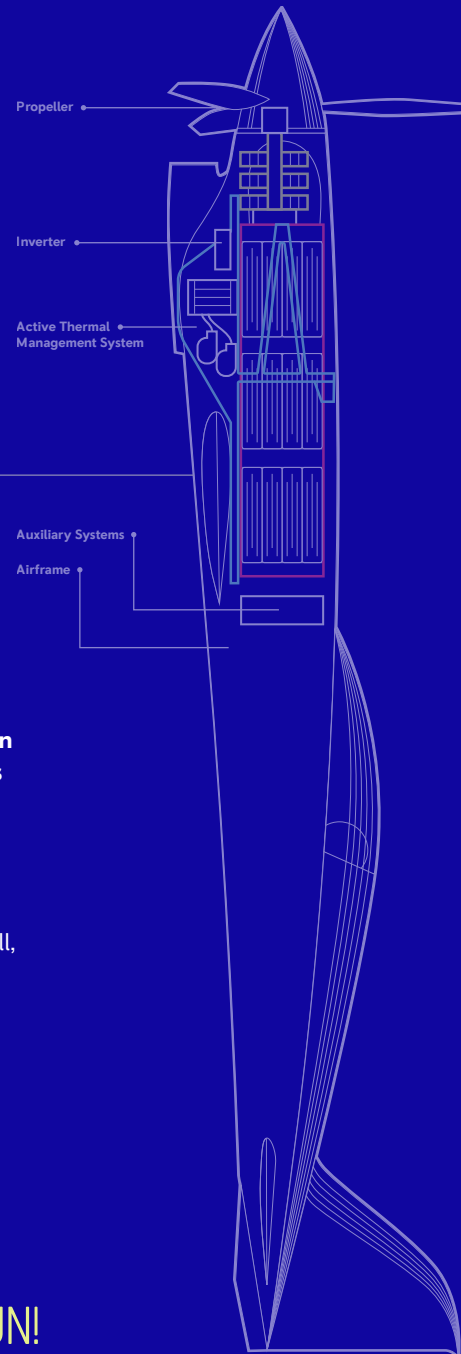
There will be two winners, one from each age category. The two winning designs will be incorporated into the design for the 'Spirit of Innovation' helmet. The winners will also get the opportunity to meet Rolls-Royce test pilot and Director of Flight Operations Phill O'Dell, the wider engineering team and see the plane.

**Winning entrants will be notified by email by 30th April 2021.**

Four runners up will also be selected for their entries to be displayed on the Rolls-Royce and fly2help websites.



NOW SWITCH ON YOUR IMAGINATION AND HAVE SOME FUN!



## WHO ARE ROLLS-ROYCE?

Rolls-Royce is a global industrial technology company that pioneers cutting-edge technologies that deliver clean, safe and competitive solutions to meet our planet's vital power needs. We have three main business areas: Civil Aerospace, Defence and Power Systems. For more information see [www.rolls-royce.com](http://www.rolls-royce.com)

## WHO ARE FLY2HELP?

fly2help was founded in 2006 by Rolls-Royce test pilot Phill O'Dell, to offer exciting flying experiences for families struggling with difficult life challenges. Over the intervening years, fly2help has grown and developed into a national charity that takes all that is exciting and inspirational about aviation and uses it to change lives and encourage children's future career ambitions through innovative and impactful aviation-based activities. To find out more about us please visit [fly2help.org](http://fly2help.org)



# ROLLS-ROYCE AND ACCEL

ROLLS-ROYCE IS DEVELOPING AN ALL-ELECTRIC PLANE THAT WILL BE AIMING FOR THE RECORD BOOKS WITH A TARGET SPEED OF 300+ MPH (480+ KMH). THE PLANE IS CALLED 'SPIRIT OF INNOVATION'.

THE ACCEL PROGRAMME IS SHORT FOR ACCELERATING THE ELECTRIFICATION OF FLIGHT.

This is just one of the ways that Rolls-Royce is pioneering cleaner, sustainable aviation and inspiring tomorrow's scientists and engineers.

Electrification of flight is an important part of our strategy as Rolls-Royce aim for net zero carbon by 2050. Rolls-Royce will be using tech from this project for other products too.

ACCEL has only been made possible through strong partnership with aviation energy storage specialist Electroflight and electric motor and controllers providers YASA.

Half of the funding for this project is provided by the Aerospace Technology Institute (ATI), in partnership with the Department for Business, Energy and Industrial Strategy and Innovate UK.

## FACT FILE

### + Rolls-Royce Net Zero Ambition

Science tells us we must curb global temperature rise to 1.5°C to avoid the worst impacts of climate change. We have committed to ensure our operations and facilities target net zero emissions and the products and technologies we are proud to pioneer can be used in a way that generates net zero emissions by 2050.

### + Our Sustainable Focus

We've taken steps already and tested 100% sustainable aviation fuels in our aircraft engines in Derby and we've signed up to provide electric propulsion for flying taxis and regional aircraft that will fly in the next few years. Our 'Spirit of Innovation' all-electric test aircraft and the ACCEL project shows what can be achieved when industry and Government work closely together.

### + Electrification of Aerospace

This is why electrification is so important right now:

- Electric flight is now technically and financially possible
- It means that aircraft design and operation can be made more efficient and waste can be reduced
- It allows us to create different transport solutions that are quieter and more accessible.

### + The ACCEL Challenge

Rolls-Royce is leading an exciting challenge to build the world's fastest all-electric aircraft. Our zero-emission 'Spirit of Innovation' is making a run for the record books with a target speed of 300+ MPH later this year. So far, the plane has powered along a runway for the first time. Rolls-Royce are now working towards the next milestone of first flight and then the target will be breaking the air speed record.

## FURTHER INFORMATION

Rolls-Royce ACCEL: [www.rolls-royce.com/ACCEL](http://www.rolls-royce.com/ACCEL)

Rolls-Royce STEM Stories: [careers.rolls-royce.com/united-kingdom/stem#stem-stories](http://careers.rolls-royce.com/united-kingdom/stem#stem-stories)

Rolls-Royce Graduate and intern programmes: [careers.rolls-royce.com/students-and-graduates/graduates-and-interns](http://careers.rolls-royce.com/students-and-graduates/graduates-and-interns)

Rolls-Royce Apprenticeship programmes: [careers.rolls-royce.com/students-and-graduates/apprenticeships-and-school-leavers](http://careers.rolls-royce.com/students-and-graduates/apprenticeships-and-school-leavers)



# ROLLS-ROYCE 'SPIRIT OF INNOVATION' HELMET DESIGN COMPETITION

YOUR DETAILS – PLEASE PRINT

Child's name:

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Age category: 5-11  12-18

.....

Parent's/carer's name:

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Email address:

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Contact telephone:

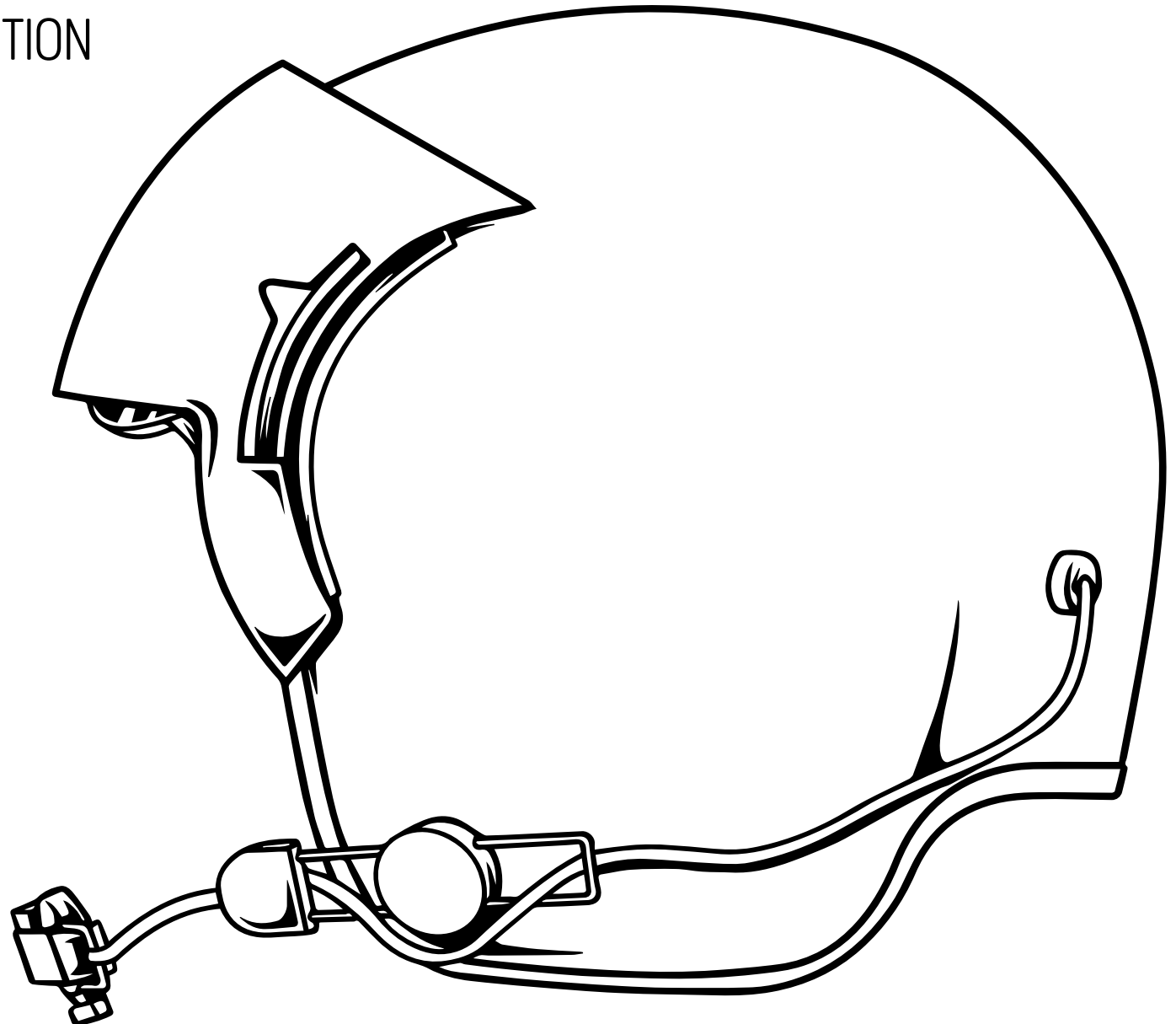
.....

Home address:

.....

.....

All competition entries must be emailed to  
**helmetcompetition@fly2help.org**



[www.rolls-royce.com/stem](http://www.rolls-royce.com/stem)

# PRIVACY NOTICE

Your trust is very important to us. We are committed to protecting the privacy and security of your personal information.

It is important that you read this privacy notice so that you are aware of how and why we are using such information and describes how we collect and use personal information about you during and after your relationship with us, in accordance with data protection law.

## What will we collect and how will we use it?

fly2help will collect and process the following personal data: parent/guardian name, parent/guardian email address, parent/guardian contact telephone number, parent/guardian address, child's name and child's age category.

The legal basis for processing your data is because you give us consent to do so and you may withdraw your consent at any time by contacting [info@fly2help.org](mailto:info@fly2help.org) or by writing to The Data Controller at fly2help, Unit SE12B, Gloucestershire Airport, Staverton, Cheltenham Glos GL51 6SP.

fly2help will retain your personal information until 31st December 2021.

## Sharing your information and Recipients of the data

By entering the competition, parents will be providing consent for the publication of the winner's entry name, age and region in any media and this consent will provide Rolls-Royce a non-exclusive licence to use and publish these details for the purpose of announcing the winner.

Your personal data will, in the first instance, be shared by us with the judges and with Rolls-Royce. Where consent to publish is given information about the winner will be shared indefinitely on the social media platforms of Rolls-Royce and fly2help unless we are asked to remove it.

## Your rights and more information

You have the right to withdraw consent to the processing of your personal data at any time and to request information about how your personal data is processed, and to request a copy of that personal data.

To find out more about how fly2help handles your personal information or to find out about your rights please visit fly2help's Privacy Policy.

[www.fly2help.org/privacy-policy](http://www.fly2help.org/privacy-policy)





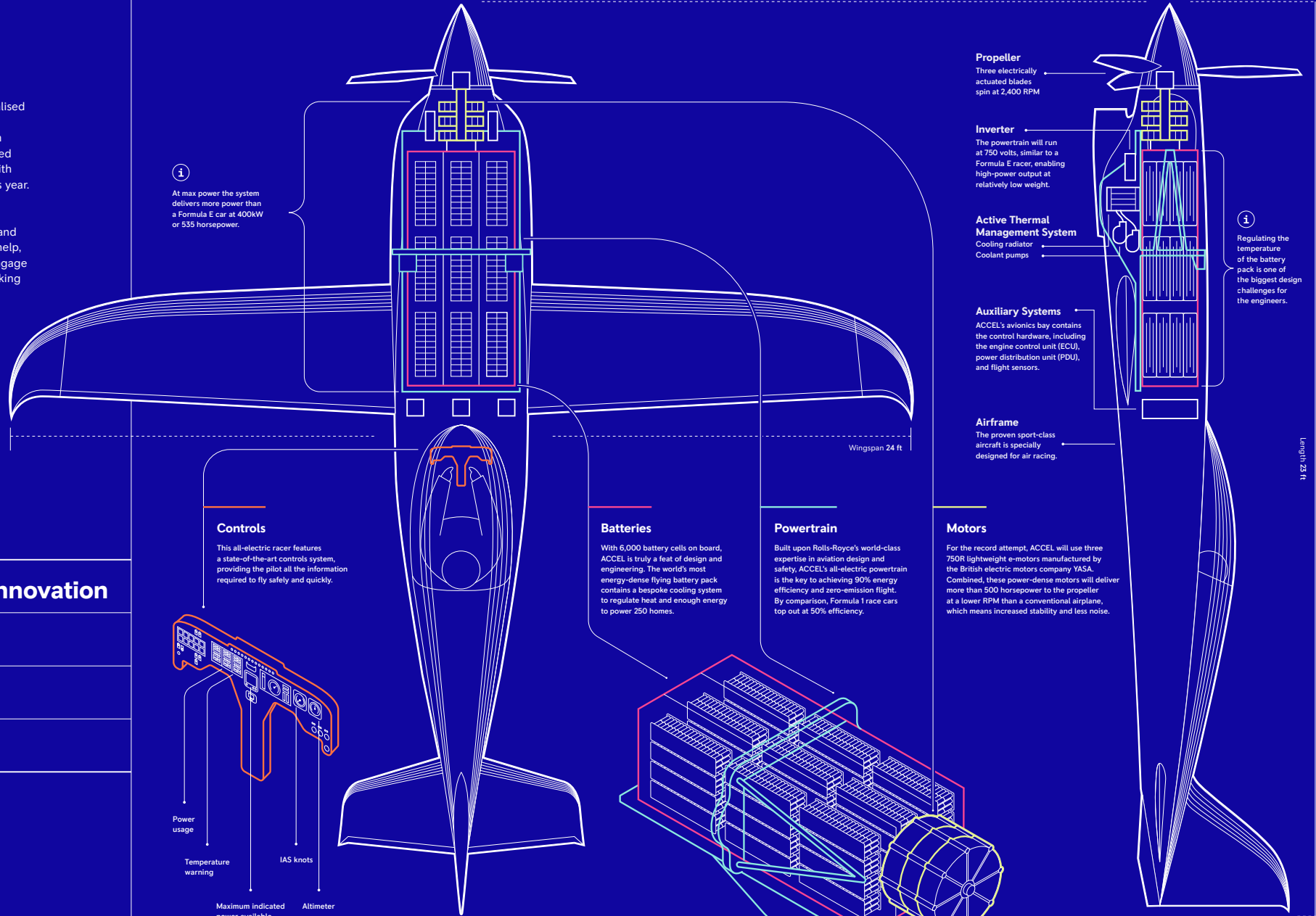
# Electrifying Flight

Rolls-Royce is leading a highly specialised challenge to build the world's fastest all-electric aircraft. Our zero-emission 'Spirit of Innovation' aircraft is expected to make a run for the record books with a target speed of 300+ MPH later this year.

Inspiring tomorrow's scientists and engineers is a key aim of the project and we are proud to be working with fly2help, a charity that supports our aims to engage with young people and get them thinking about a possible career in aviation.

Here's a look at the great innovation in our record breaking aircraft.

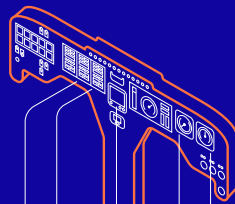
Aircraft name	<b>Spirit of Innovation</b>
Max power	<b>400kW</b>
Top speed	<b>300+ MPH</b>
CO2e	<b>Net Zero</b>



**i** At max power the system delivers more power than a Formula E car at 400kW or 535 horsepower.

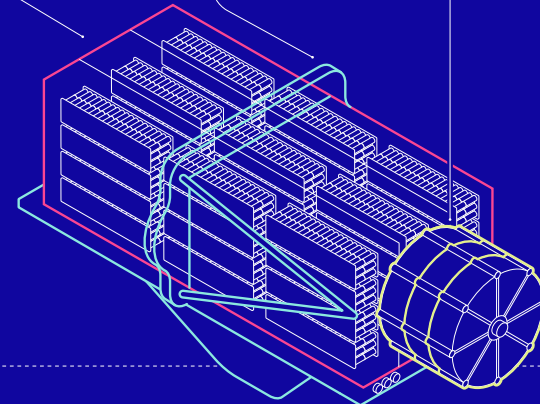
**i** Regulating the temperature of the battery pack is one of the biggest design challenges for the engineers.

**Controls**  
This all-electric racer features a state-of-the-art controls system providing the pilot all the information required to fly safely and quickly.



Power usage  
Temperature warning  
IAS knots  
Maximum indicated power available  
Altimeter

**Batteries**  
With 6,000 battery cells on board, ACCEL is truly a feat of design and engineering. The world's most energy-dense flying battery pack contains a bespoke cooling system to regulate heat and enough energy to power 250 homes.



**Powertrain**  
Built upon Rolls-Royce's world-class expertise in aviation design and safety, ACCEL's all-electric powertrain is the key to achieving 90% energy efficiency and zero-emission flight. By comparison, Formula 1 race cars top out at 50% efficiency.

**Motors**  
For the record attempt, ACCEL will use three 750R lightweight e-motors manufactured by the British electric motors company YASA. Combined, these power-dense motors will deliver more than 500 horsepower to the propeller at a lower RPM than a conventional airplane, which means increased stability and less noise.

**Propeller**  
Three electrically actuated blades spin at 2,400 RPM

**Inverter**  
The powertrain will run at 750 volts, similar to a Formula E racer, enabling high-power output at relatively low weight.

**Active Thermal Management System**  
Cooling radiator  
Coolant pumps

**Auxiliary Systems**  
ACCEL's avionics bay contains the control hardware, including the engine control unit (ECU), power distribution unit (PDU), and flight sensors.

**Airframe**  
The proven sport-class aircraft is specially designed for air racing.

Length: 25 ft

Wingspan: 24 ft