

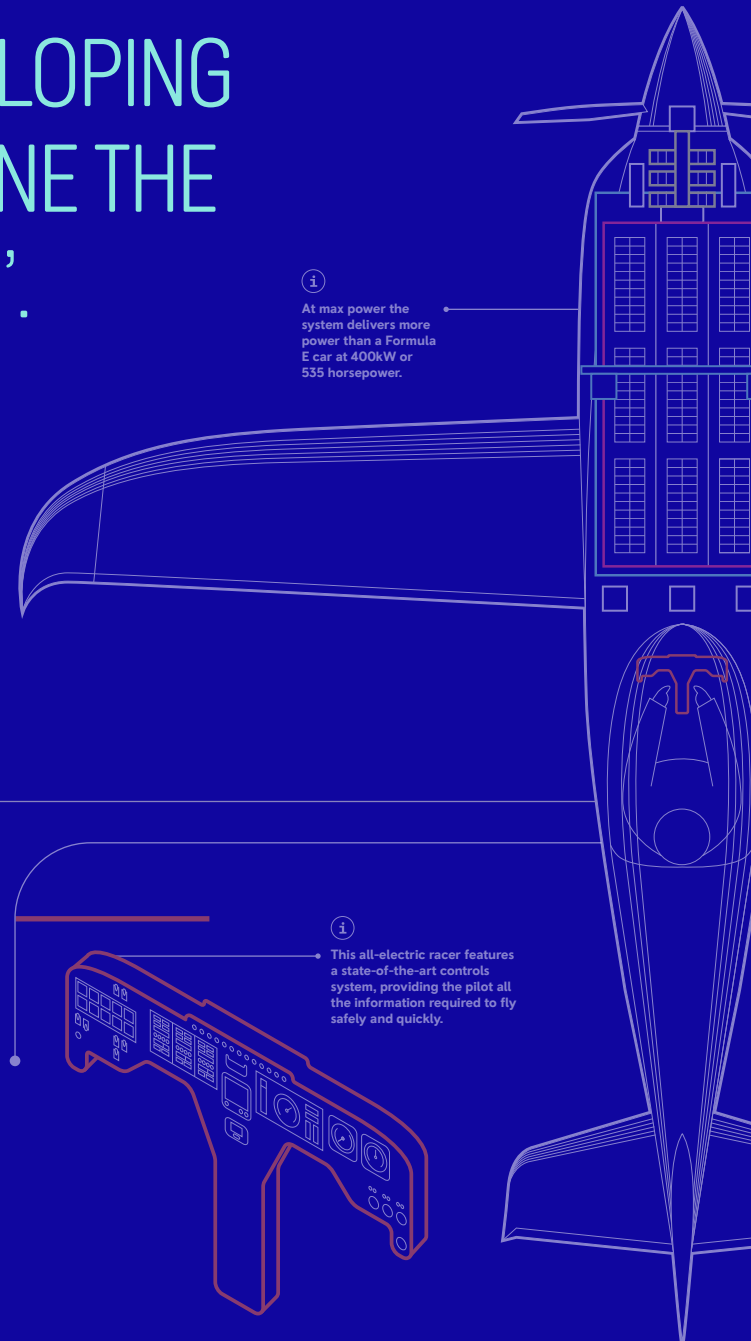
ROLLS-ROYCE IS DEVELOPING AN ALL-ELECTRIC PLANE THE 'SPIRIT OF INNOVATION'.

LATER THIS YEAR WE WILL BE AIMING FOR THE RECORD BOOKS WITH A TARGET SPEED OF 300+ MPH.



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



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

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



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. Earlier this year the plane powered along a runway for the first time and then successfully achieved first flight. Rolls-Royce are now working to optimise testing and performance ready for achieving the target to break the world air speed record.

FURTHER INFORMATION

Rolls-Royce ACCEL: www.rolls-royce.com/ACCEL

Rolls-Royce Pathway to Net Zero: www.rolls-royce.com/innovation/net-zero#

Rolls-Royce STEM Stories: 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

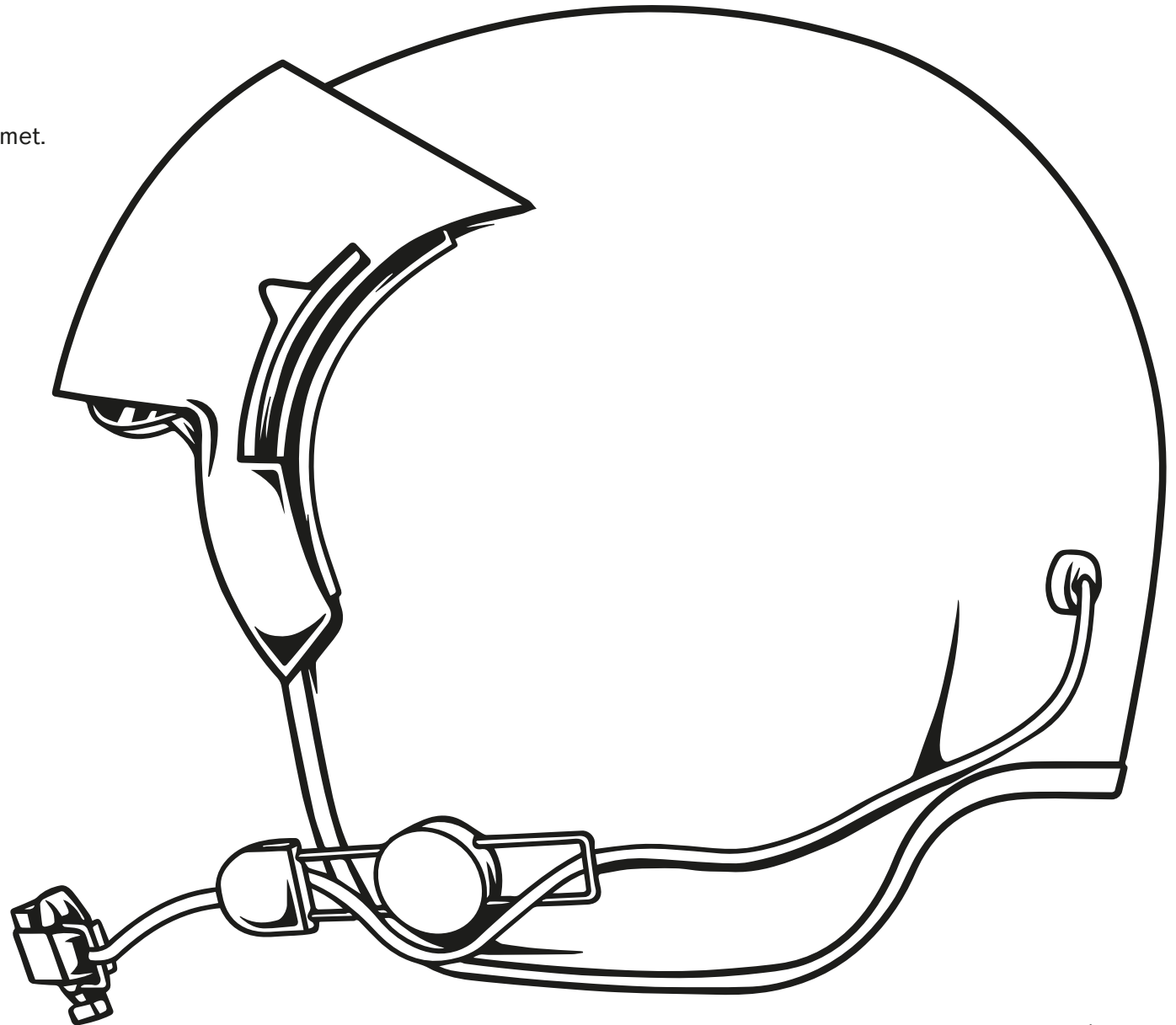
Rolls-Royce Apprenticeship programmes: careers.rolls-royce.com/students-and-graduates/apprenticeships-and-school-leavers



HELMET DESIGN ACTIVITY

Earlier this year we ran a very successful competition for children to design Phill's helmet.

You can use this template to draw your own design – can you think up a design that represents the future of electric flight?



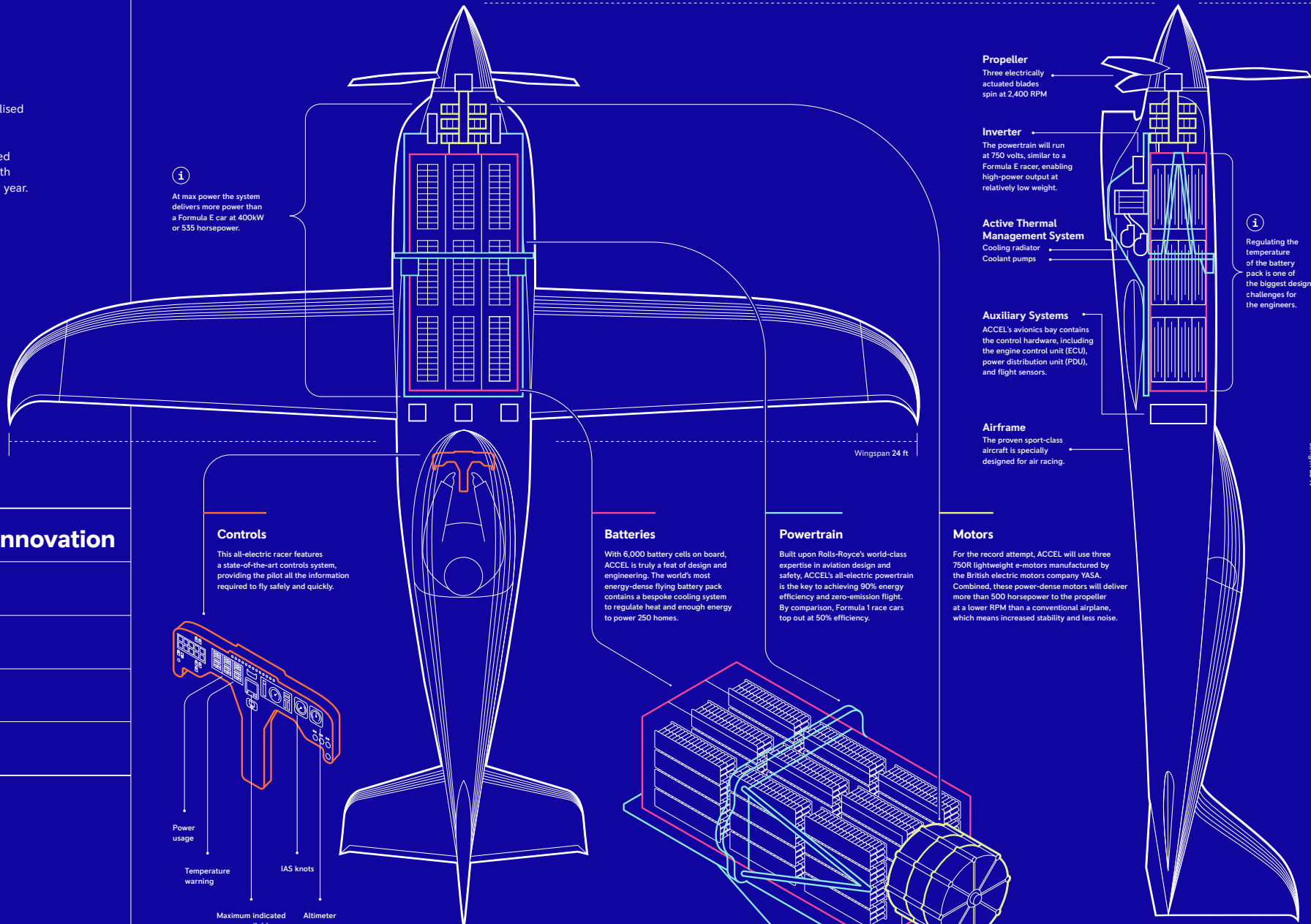


Electrifying Flight

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.

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

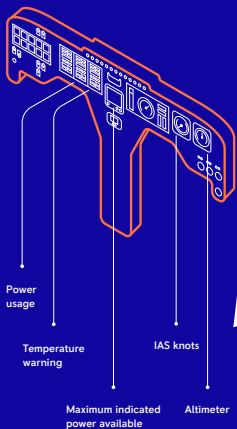
Aircraft name	Spirit of Innovation
Max power	400kW
Top speed	300+ MPH
CO2e	Net Zero
Weight of plane plus Phill the pilot	1250KG



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

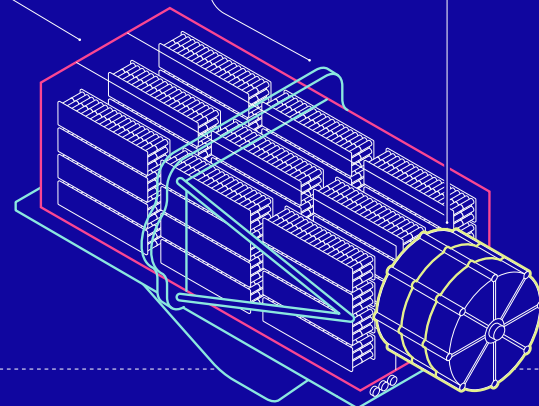
i Regulating the temperature of the battery pack is one of the biggest design challenges for the engineers.

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.



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: 23 ft