

[News story: Explosion inside an equipment case, Guildford](#)

At around 14:37 hrs on Friday 7 July, an explosion took place inside an under-floor equipment case on the 14:37 hrs Guildford to London Waterloo service, as the driver applied power to depart from Guildford station.

There were no reported injuries. However, debris, some quite sizable, was deposited on public platforms and the car park.

The train comprised two four-car class 455 units coupled together and the explosion took place under the third carriage of the leading unit.

Class 455 trains are undergoing a programme of retrofitting new traction equipment, which started in May 2016. The traction equipment involved was of the new design and the mechanism which caused the explosion was believed to be understood by the industry parties involved. Similar, smaller explosions, have occurred on at least two previous occasions where debris scatter was much more confined. The previous occurrences had been attributed to a manufacturing defect, leading to a build-up of explosive gas within the traction equipment. Industry parties were in the process of devising possible solutions to the problem at the time of the 7 July accident and are continuing to do so.

Since the immediate cause of this accident is already understood, our investigation will focus on:

- the change management processes that were applied to the retrofitting programme
- the response to the previous similar incidents
- the adequacy of any risk control measures that had been implemented
- any other relevant underlying management factors

Our investigation is independent of any investigation by the railway industry or by the industry's safety regulator, the [Office of Rail and Road](#).

We will publish our findings, including any recommendations to improve safety, at the conclusion of our investigation. This report will be available on our website.

You can [subscribe](#) to automated emails notifying you when we publish our reports.

Press release: Business Secretary to establish UK as world leader in battery technology as part of modern Industrial Strategy

- Business Secretary announces first phase of its £246 million investment in battery technology as he launches Industrial Strategy's landmark 'Faraday Challenge'
- first phase includes launch of £45 million 'Battery Institute' competition to establish a centre for battery research to make technology more accessible and affordable
- Business Secretary to give keynote Industrial Strategy speech later today in Birmingham where he will also outline cutting-edge energy plans to break down barriers to new technologies and business models

Business and Energy Secretary Greg Clark will today (24 July 2017) announce in a keynote speech on the Industrial Strategy the launch of the first phase of a £246 million government investment into battery technology to ensure the UK builds on its strengths and leads the world in the design, development and manufacture of electric batteries.

Known as the Faraday Challenge, the 4-year investment round is a key part of the government's [Industrial Strategy](#). It will deliver a coordinated programme of competitions that will aim to boost both the research and development of expertise in battery technology.

An overarching Faraday Challenge Advisory Board will be established to ensure the coherence and impact of the challenge. The board will be chaired by Professor Richard Parry-Jones, a senior engineering leader with many decades of senior automotive industry experience and recently chaired the UK Automotive Council for 6 years.

At a speech hosted by the Resolution Foundation in Birmingham, Greg Clark is expected to say on the need for an Industrial Strategy:

At its heart is a recognition that in order for all our citizens to be able to look forward with confidence to a prosperous future, we need to plan to improve our ability to earn that prosperity.

To enjoy a high and rising standard of living we must plan to be more productive than in the past.

Economists have pointed to what they have called a productivity puzzle in Britain. That we appear to generate less value for our efforts than, say, people in Germany or France. In other words, we have to work longer to get the same rewards.

It's not that we want – or need – people to work longer hours. It's that we need to ensure that we find and seize opportunities to work more productively – as a country, as cities and regions, as businesses and as individuals. If we can do so, we can increase the earning power of our country and our people.

We have great strengths. Our economy has been extraordinarily good at creating jobs. When we look at our closest neighbours, we can be truly proud of the fact almost everyone of working age in this country is in work and earning.

Greg Clark is expected to say on the government's approach:

Our strategy will create the conditions that boost earning power throughout the country – its people, places and companies.

If every part of Britain is to prosper in the future we need to ensure that we have the right policies and institutions in place to drive the productivity – which is to say, the earning power – of the economy, and the people and places that make it up.

I want to thank all of the organisations across the UK for the formidable response to the consultation that we have undertaken on our green paper 'Building our Industrial Strategy'. The response has been extraordinary.

Over 1,900 written responses – full, thoughtful and creative. From all parts of the United Kingdom; from new start-ups to big businesses; from organisations as diverse as the Premier League to the Wellcome Trust and the Women's Engineering Society.

Later in the year we will respond formally to the consultation with a white paper. But the shape of it is already becoming clear.

One of the strengths of an industrial strategy is to be able to bring together concerted effort on areas of opportunity that have previously been in different sectors, or which require joining forces between entrepreneurs, scientists and researchers, industries, and local and national government.

So as part of our I am today launching the Faraday Challenge, which will put £246 million into research, innovation and scale-up of battery technology.

The first element will be a competition led by the Engineering and Physical Sciences Research Council to bring the best minds and facilities together to create a Battery Institute.

The most promising research completed by the Institute will be moved closer to the market through industrial collaborations led by Innovate UK.

And the Advanced Propulsion Centre will work with the automotive sector to identify the best proposition for a new state-of-the-art open access National Battery Manufacturing Development facility.

The work that we do through the Faraday Challenge will – quite literally – power the automotive and energy revolution where, already, the UK is leading the world.

The Faraday Challenge's competitions are divided into 3 streams – research, innovation and scale-up – designed to drive a step-change in translating the UK's world-leading research into market-ready technology that ensures economic success for the UK:

- **Research:** To support world class research and training in battery materials, technologies and manufacturing processes, the government has opened a £45m competition, led by the Engineering and Physical Sciences Research Council (EPSRC), to bring the best minds and facilities together to create a virtual Battery Institute. The successful consortium of universities will be responsible for undertaking research looking to address the key industrial challenges in this area.
- **Innovation:** The most promising research completed by the Institute will be moved closer to the market through collaborative research and development competitions, led by Innovate UK. The initial competitions will build on the best of current world-leading science already happening in the UK and helping make the technology more accessible for UK businesses.
- **Scale-up:** To further develop the real-world use and application of battery technology the government has opened a competition, led by the Advanced Propulsion Centre, to identify the best proposition for a new state-of-the-art open access National Battery Manufacturing Development facility.

Today's announcement follows a [review](#), commissioned as part of the Industrial Strategy green paper, by Sir Mark Walport in which he identified areas where the UK had strengths in battery technology and could benefit from linkage through this challenge fund.

The Faraday Challenge forms 1 of 6 key challenge areas that the government, together with business and academia, has identified through its flagship [Industrial Strategy Challenge Fund \(ISCF\)](#) as being one of the UK's core industrial challenges, where research and innovation can help unlock markets and industries of the future in which the UK can become world-leading.

Ruth McKernan, Innovate UK Chief Executive said:

By any scale, the Faraday Challenge is a game changing investment in the UK and will make people around the globe take notice of what the UK is doing in terms of battery development for the automotive sector.

The competitions opening this week present huge opportunities for

UK businesses, helping to generate further jobs and growth in the UK's low carbon economy.

Professor Philip Nelson, Chief Executive of the Engineering and Physical Sciences Research Council (EPSRC), said:

Batteries will form a cornerstone of a low carbon economy, whether in cars, aircraft, consumer electronics, district or grid storage. To deliver the UK's low carbon economy we must consolidate and grow our capabilities in novel battery technology. EPSRC's previous research investments mean we are in a world-leading position.

The Faraday Challenge is a new way of working. It will bring together the best minds in the field, draw on others from different disciplines, and link intimately with industry, innovators and other funders, such as InnovateUK, to ensure we maintain that our world leading position and keep the pipeline of fundamental science to innovation flowing.

Richard Parry-Jones, newly appointed Chair of the Faraday Challenge Advisory Board said:

The power of the Faraday Challenge derives from the joining-up of all 3 stages of research from the brilliant research in the university base, through innovation in commercial applications to scaling up for production. It will focus our best minds on the critical industrial challenges that are needed to establish the UK as one of the world leaders in advanced battery technologies and associated manufacturing capability.

In April, the government announced £1 billion of investment through the fund in cutting-edge technologies to create jobs and raise living standards. Other areas receiving government support through the ISCF in 2017 to 2018 include cutting edge healthcare and medicine, robotics and artificial intelligence, and satellite and space technology.

Richard Scudamore, Premier League Executive Chairman, welcomes the opportunity for business to work with government to shape policy:

Even economically successful sectors could contribute more to the UK's economic growth in the right public policy environment, especially as we approach Brexit. Elite sport is one of the UK's great international success stories but its economic impact has often been under-estimated. That is why the Premier League welcomes the Industrial Strategy as an important opportunity for enterprises like us to help shape government policy.

Simon Gillespie, Chief Executive of the British Heart Foundation (BHF) welcomes the government's commitment to a modern Industrial Strategy:

We are pleased to see the government recognising the importance of scientific research as part of the Industrial Strategy. This research has not only boosted the UK economy but has also led to the development of treatments and technologies that have transformed millions of lives around the world.

Medical research charities play a particularly important part in this success: the BHF funds more than half the UK's independent research into heart and circulatory diseases. We look forward to continuing to work with government to deliver an Industrial Strategy that supports world-leading research that improves the lives of patients across the UK and globally.

The Business Secretary will also be confirming today the launch of the third Connected Autonomous Vehicles research and development competition, with £25 million of funding being made available to new projects.

For the first time the government is making funding available to off-road driverless innovation, with investments earmarked for cutting-edge projects that will grow the commercial potential of off-road driverless technology and develop technologies that will increase productivity and improve mobility in a range of sectors including construction, farming and mining.

Government has already invested more than £100 million of research and development funding in over 50 connected and autonomous vehicle projects across the country to help UK businesses and Universities take advantage of the huge commercial opportunities in this area.

Press release: Tax credit renewal – one week to go

With one week until the 31 July renewal deadline, HMRC is urging the remaining 960,000 customers to renew now or risk having their payments stopped.

The online renewals system is now easier and more accessible. It allows customers to track the process of their renewal, receive email confirmation once submitted, and removes the need to scan or type in the barcode number from the back of the renewals pack.

Last year 410,000 customers had their payments stopped or altered because

they missed the deadline to inform HMRC of changes to their circumstances. These include changes to working hours, income and childcare costs and can be done through GOV.UK or via the HMRC app.

Rachel McLean, HMRC's interim Director General of Customer Services, said:

We've made some really helpful improvements this year to our online and app services to support our customers. We know life can be hectic so the start and stop feature allows customers to begin and complete their renewal on a day and time convenient for them.

It's fantastic that 32,000 have used our app and 733,000 customers have already renewed their tax credits online. I urge customers who have yet to renew their tax credits to do so as soon as possible, thereby avoiding having their payments stopped. The 31 July deadline is fast approaching.

Online help and information on renewing tax credits is available on GOV.UK and via HMRC's customer service Twitter feed @HMRCcustomers. Support is also available on the tax credits helpline.

1. The deadline for people to renew their tax credits is 31 July 2017. Failure to renew before the deadline will mean payments are stopped and customers may have to repay the money they have received since April.
2. Claimants can get help and information on renewing tax credits:
 - On [GOV.UK](https://www.gov.uk)
 - By tweeting [@HMRCcustomers](https://twitter.com/HMRCcustomers) or posting on our Facebook page with general queries
 - Using HMRC's app, which is available on the App Store or Google Play Store
 - Through HMRC's webchat help service
 - By calling the tax credits helpline: 0345 300 3900
3. A video clip, suitable for broadcast TV and web, is available for download at [here](#). Please display 'Clare Merrills, HM Revenue and Customs'. No credit necessary.
4. An audio clip, suitable for radio, is available for download [here](#). The speaker is Clare Merrills of HM Revenue and Customs
5. Follow HMRC's Press Office on Twitter [@HMRCpressoffice](https://twitter.com/HMRCpressoffice)
6. HMRC's Flickr channel can be found [here](#).

[News story: Status update for record breaking UK-Algeria CubeSat mission](#)

AlSat Nano

Launched on September 26 2016 the UK Space Agency funded nanosatellite, delivered in collaboration with the Algerian Space Agency, met its core mission objectives back in February and is on track to complete even more advanced objectives within its first year of operations.

Status summary:

- Stable, healthy spacecraft platform
- All subsystems functional – over 15,000 ground to space commands successfully sent
- Strong communications link – over 1000 files downloaded so far
- Low spin rate
- Longest uptime: 27.4 days
- On board Attitude Determination Control System verified and activated
- Regular datasets returned for Thin Film Solar Cell payload
- Multiple image capture and download for all three C3D2 payload cameras – 105 image files downloaded in total so far, including 16 full size images
- AstroTube Boom payload deployed and stowed multiple times, incl. full 1.5 metre length, captured with dedicated C3D2 camera

World Firsts and World Records

AlSat Nano has provided Oxford Space Systems with the first flight of its innovative flexible carbon fibre composite boom payload, the AstroTube Boom, which is believed to have set a world first as the longest ever retractable CubeSat boom in orbit at 1.5 metres. Oxford Space Systems also believe they have set the space industry's fastest full cycle hardware development; material design to in orbit demonstration in under 30 months.

This has been enabled by AlSat Nano's rapid development programme, just 18 months between spacecraft design and flight readiness. This has allowed industrial and academic mission partners to stay ahead of the curve in the increasingly competitive global nanosatellite market.

The Thin Film Solar Cell test payload, led by Swansea University, is the first solar cell deposited directly onto cover glass to be deployed in space and successfully return data. The ultra-thin (just 1/10th of a millimetre thick) cover glass, developed by industrial partners Qioptiq Ltd, allows for extremely high power to weight ratio which is crucial for saving costs in spaceflight. Flight data returned so far show extremely promising performance, and with proven materials heritage there are now clear routes to secure further funding and eventually commercialise the payload.

Mission impact

The flight opportunity is providing major benefits to those involved already. Below is a snap shot of some of the highlights captured so far by mission partners, which they view as directly attributable to their role in AlSat Nano:

Additional contracts and competitiveness

- Surrey Space Centre's (University of Surrey) role as mission prime has led to successful bids in a range of technology development and international collaboration projects. Knowledge and experience from leading the mission has fed directly in to other ongoing projects
- Oxford Space Systems negotiating approx. £5.6 million export contracts across US, Europe and Israel, plus further enquiries from NASA and Asia, for derivatives of its AstroTube Boom payload and antenna systems based on its proprietary flexible composites
- Open University's industrial partners XCAM Ltd are bidding/negotiating contracts worth approx. £1.1 million following on from its payload role, and Teledyne e2v Ltd, which provided the sensor hardware, are using C3D2 heritage as inputs in to bids worth £2 million+
- Surrey Space Centre industrial partner SSTL secured €12 million contract with Algerian Space Agency

Increased Knowledge and Experience

AlSat Nano was delivered to Algerian Space Agency as its first nanosatellite mission. The programme has seen direct involvement from Algerian staff and students throughout its development:

- The UK Space Agency sponsored five Algerian post graduate students to study at Surrey Space Centre and gain invaluable experience by taking on roles to help develop the AlSat Nano platform
- Surrey Space Centre also provided training and consultation to Algerian Space Agency engineers and spacecraft operators, to help build its new ground station facility in Oran, which is being used to operate AlSat Nano
- The flight data returned from the satellite is feeding directly into the Algerian students' academic courses. These contain specific modules to study how small satellite technology can be applied to address real world problems. The qualifications and real life mission experience will build long term technological capability in the country's developing space sector

New partnerships and collaborations

- Surrey Space Centre and Oxford Space Systems have now teamed up for the RemoveDebris mission, due for launch in late 2017
- Surrey Space Centre and University of Swansea are working on further Thin Film Solar Cell development * AlSat Nano has facilitated Algerian interaction with a wide range of UK academic and industrial mission partners, acting as a firm basis for potential future collaborations

- XCAM Ltd are now working with 6 other industrial-academic partners for Innovate UK funded cold atom CubeSat mission CASPA
- Oxford Space Systems have partnered with Sen to provide camera deployment boom for high-resolution video from orbit
- Surrey Space Centre is working with the Algerian Space Agency on a large scope follow up proposal with the objectives of setting up a local education and research centre, built using Surrey Space Centre as a blueprint, and deploying a CubeSat constellation for monitoring atmospheric pollution

Job Creation and Value

- As the first in orbit flight demonstration for Oxford Space Systems, AlSat Nano has helped grow the SME company's staff size by approximately 50% and achieved significant global profile raising. The successful mission role has provided excellent credibility when talking with potential domestic and overseas customers, and proven very valuable in investment negotiations with the venture capital community
- Within Surrey Space Centre (University of Surrey), the AlSat Nano programme has led to the creation of 5 jobs, two of which are permanent positions, while the others are on renewable contracts to be funded by further missions

Internal investment

- Surrey Space Centre internal investment of approx. £125,000 to upgrade environmental test facilities, which will now be available to commercial customers
- The Open University has invested approx. £35,000 in a UHF/VHF Ground Station for the OpenSTEMLab to enable practical satellite communications activities for distance learning students and enable new research opportunities
- XCAM Ltd internal investment of approx. £20,000 in thermal cycling test chamber

Scientific papers and publications

14 science and technology papers and articles by academic mission partners (Open University, Surrey Space Centre and Swansea University), published or shortly to be published, with more planned in the future as further data is returned from the satellite.

Technological Advances

- The AlSat Nano flight opportunity has driven the AstroTube Boom payload through the full scale of technology maturity, from initial concept to flight proven; permitting the on orbit verification of deployment mechanism, control electronics and kinetic verification of proprietary composite material
- Surrey Space Centre's new transceiver antennae design has advanced from prototype to flight proven having been deployed successfully and spent over 9 months so far transmitting and receiving data

- Open University's C3D2 camera suite payload is a fully flight proven instrument having captured and returned well over 100 images so far
- Thin Film Solar Cell has demonstrated its prototype's core materials ability to survive in space and be measured remotely, paving the way for development of a fully power generating model
- Flight and mission control software developed by Surrey Space Centre for AlSat Nano is acting as the baseline for further upcoming missions

C3D2 Images

The Open University's C3D2 (Compact CMOS Camera Demonstrator 2) payload has been busy snapping since November. Its suite of three cameras has captured a range of different continents and islands, interesting geographical features and weather systems. C3D2 is acting as a pilot remote experiment through the University's OpenSTEM labs and will open up a new experience for Open University distance learning students who will be able to interact with a live space instrument. The Oxford Space Systems AstroTube Boom payload can be seen in the foreground of several of the images, with one of the cameras positioned specifically to image the deployment in stages, offering great publicity for the product on its first flight.

Below is a selection of our favourite images captured since launch.

Taken in February 2017, this wintry scene was captured over the Sea of Okhotsk, just north of Japan, and shows mountains with snow, frozen sea, and ice sheets which have broken away. Image credit: AlSat Nano mission, Open University

This image was captured in January 2017 over New Caledonia in the South Pacific. The main island is to the right of the image with low level cloud cutting across it and bright sunlight reflecting off the surrounding ocean. Atoll lagoons can be seen at the bottom right of the image and the Vanuatu island chain to the upper left. Ground resolution at the bottom of the image is approximately 380m per pixel. Image credit: AlSat Nano mission, Open University

Taken in May 2017, this image shows a large weather system over Alaska and the Bering Sea

AlSat Nano's first full size colour image, taken in December 2016 above the Arkhangelsk Oblast region on the North West coast of Russia. It was captured under twilight conditions at dawn, showing the coastline to the top, and a brief winter sunrise over the arctic region with a deep red-brown hue. Through the cloud cover there is evidence of hills and snow on mountains, and mist in the river valleys.

You can find out more mission background here: bit.ly/2d4w9Uk

News story: 1 Million Subscribers to Update Service

The Disclosure and Barring Service (DBS) has now had over 1 million subscribers to its Update Service.

The Update Service, which was launched in June 2013, puts applicants in greater control of their information, and allows subscribers to reuse a DBS certificate when applying for similar roles within the same workforce.

Adele Downey, chief executive officer at DBS, said: "We're delighted to reach 1 million subscribers to our Update Service. Joining the Update Service allows your employer to go online, with your consent, and carry out a free [status check](#) to find out if the information on your DBS certificate is current and up-to-date. This reduces the need for an applicant to apply for multiple checks when moving from one job to another in the same workforce or when required to complete a re-check, saving time and money. The vast majority of customers who use the Update Service have told us that they felt the Update Service improves safeguarding, which remains a priority for DBS and for government."

You need to register to use the update service. Registration costs £13 per year (payable by debit or credit card only). There's no charge if you're a volunteer.

For more information about the Update Service, and to sign up, visit: <https://www.gov.uk/dbs-update-service>