

# REACH *for the* SKY

APRIL 2022



## READY FOR THE FUTURE

Inspiring the next generation



INSIDE: WHY STEM IS VITAL - AVIATION MINISTER ROBERT COURTS •  
THE REACH FOR THE SKY PROGRAMME • HOW RESTORATION CAN HELP



# The aviation industry is looking for talented people like you

Beyond the more well-known careers paths - such as pilots, cabin crew and aircraft maintenance engineers – there are lots of opportunities in aviation.

There are currently vacancies in flight and ground operations, airworthiness, and in more typically office-based roles such as finance, HR, marketing, and IT.

Interested in starting a career in aviation? Talentview Aviation is the place to find apprenticeships, placements, graduate roles, entry-level jobs and other exciting opportunities, including training courses.

Check out Talentview Aviation at [www.talentview.org/aviation](http://www.talentview.org/aviation)

If you already have experience in the sector, the Aviation Skills Retention Platform (ASRP) can help you to find your next role. Designed to help people with relevant skills and experience find new roles, the ASRP helps people to showcase their skills to employers within the aviation industry that are actively recruiting for a range of jobs.

Find out more at [trs-system.co.uk/aviation](http://trs-system.co.uk/aviation)

**Talentview**  
Aviation

**TRS** AVIATION  
SKILLS  
RETENTION  
PLATFORM

# REACH for the SKY

## Publication content

Unless expressly stated as CAA policy, the views expressed in Reach for the Sky do not necessarily reflect the policy of the Civil Aviation Authority. Articles are intended to stimulate discussion.

Reach for the Sky is distributed widely free across the UK and at selected GA events.

## Copyright

Reproduction in whole or in part of any item in Reach for the Sky other than material shown to be from other sources or named authors, is freely permitted, providing it is intended solely for the purpose of promoting safe aviation and providing acknowledgement is given to Reach for the Sky.

## Design

[loungedesign.co.uk](http://loungedesign.co.uk)

## Publisher

Civil Aviation Authority  
Aviation House  
Beehive Ringroad  
Crawley  
West Sussex  
RH6 0YR  
0330 022 1500  
[infoservices@caa.co.uk](mailto:infoservices@caa.co.uk)

## Find us at:

[caa.co.uk](http://caa.co.uk)  
[Twitter @UK\\_CAA](https://twitter.com/UK_CAA)



Department  
for Transport



# Choices, options and access

How STEM can help  
the young pursue a  
career in aerospace



**T**he world of aviation and aerospace is changing at an increasingly fast pace and the UK most definitely doesn't want to get left behind — indeed it wants to have a leading, thriving future in the sector.

In just a few years we've seen Remotely Piloted Aircraft Systems come of age, plans realised for 'spaceports' in Scotland and Cornwall, air taxis and personal flying vehicles advancing to the point of undergoing flight testing, and commercial aircraft going through a fundamental rethink to deliver zero-emission transatlantic flights within a generation — it's an exciting time and the UK needs to be ready for that future.

For that to happen it needs different talents, ideas and values, and more than anything that means inspiring today's young people, whatever their background, to be excited by the sector and be supported early on to help them make the right educational and career choices for their future careers.

As Aviation Minister Robert Courts says: "What's crucial to all of this is STEM — Science, Technology, Engineering and Mathematics and inspiring the next generation, because it's that next generation that's going to make sure we have a vital thriving aviation sector for the future."

The Minister was speaking during a visit to the Lincolnshire Aviation Centre at East Kirkby Airfield where he met a group of University of Lincoln students together with Tetyana Shevchenko, an historic jet pilot and an Aviation Ambassador for the Department for Transport who is closely involved with promoting STEM to the young.



**The Minister discovers the restoration challenges and speaks with some of the students (top left)**

Speaking to the students in front of the iconic Second World War Lancaster bomber *'Just Jane'* as the busy sounds of aircraft restoration echoed around the hangar, he said: "Here you can see the breadth of careers that are available; you have mechanics and you have people who understand the way the aircraft works, so there's a huge amount of support and groundwork available.

"And that's increasingly the case now because now we have technology available to us that was as yet unheard of to the people who built designed and flew this aircraft — they simply wouldn't have been able to anticipate the extraordinary opportunities we have out there today.

"In the digital world we now have, STEM education is absolutely vital for that next generation of aerospace engineers and pilots — the importance of this is absolutely critical.

"It's very important that we start getting the awareness of aviation, and of STEM more generally, really ingrained

in people at a young age, because it's at that young age that people start thinking about what they might want to do; not only in the subjects that they choose, but also the passions and interests that they have outside school as well because so much of that comes in terms of forming the person that you're going to be.

"I know that's true of me, I was really young when I started getting involved and interested in aviation and that's grown up to a lifelong passion. People often think about aviation as being a pilot, and that's vital because we need more pilots, but even for those who can't fly there are other brilliant aviation careers available as well."

One of the ways the Department for Transport aims to highlight aviation opportunities to the young is through its Reach for the Sky programme which includes the Aviation Ambassadors Group, both of which are designed to help the Department and local educational organisations to raise the profile of aviation, create new and improved career



pathways, develop enhanced outreach activities and make training more financially accessible.

“The group is something we’re really pleased to have as part of the Department for Transport,” says the Minister. “We have some wonderful examples among the Aviation Ambassadors, and in the wider aviation world, that show how that can happen and Tetyana is a wonderful example.

“They are intended to share their

enthusiasm and how they got into aviation, making clear that it’s something open to everybody, wherever you come from, whatever background you have, there’s something here for you.

“And that’s what our Reach for the Sky programme is all about, broadening and diversifying the reach of the aviation sector. It’s intended to make clear to people if, perhaps, they come from a background that wouldn’t traditionally think of going

into aviation, that this is something they can do — and you do that by introducing them to people who have been successful in the past.”

It’s a fact that aviation is naturally exciting and attractive to the young, and it’s generally acknowledged that aviation heritage has an important part to play in inspiring them to take up technical interests, especially as it is geographically dispersed, and in the form of air displays

## **REACH FOR THE SKY**

The Reach for the Sky programme is aimed at working with industry partners and other government departments to make aviation diverse, inclusive and accessible to all.

It’s recognised that there are significant diversity issues in the aviation sector, by gender, age and other under-represented groups. For example, around 95% of pilots are male.

To tackle this the aviation skills team at the Department for Transport is seeking to promote diversity and inclusion by attracting these under-represented groups, and particularly young people, to careers in aviation by addressing financial and wider social barriers and creating new opportunities in the sector.

The team has already established significant industry engagement groups and delivered an initial set of funding with outreach partners, that are already having a really positive impact on young people, women, and BAME groups, and their awareness and opportunities of careers in aviation and aerospace.

A set of Aviation Ambassadors has been established (see page 11) with the aim of actively promoting this work and carrying out significant outreach activities, together with the programme team, the CAA, outreach partners and industry. The aim is to:

### **RAISE THE PROFILE OF THE AVIATION INDUSTRY**

To inspire the next generation of aviation professionals, champion the sector and act as role models for young people.

#### **Outreach programmes**

Educating young people about the sector in formal and informal educational settings. This includes providing practical experience for young people to solve current and future challenges in the industry.

#### **Career pathways**

Showcasing the varied job opportunities in aviation, including roles using transferable skills of established aviation professionals. This encompasses less visible roles that new entrants and experienced individuals may not have considered in their future career aspirations.

#### **Skills and training**

Supporting established professionals when pivoting their career within aviation so the industry benefits from a skilled workforce with diverse experiences.

This also includes supporting the learning and development opportunities for young people from different backgrounds, ensuring training is inclusive and accessible for all and retaining aviation professionals from diverse and minority backgrounds enabling skilled and diverse teams to thrive in the sector.



Centre Manager Andrew Panton with the Minister and Phillip Panton with the Lancaster's hangar behind



A moment for reflection - a tree planted in memory of the Minister's great-uncle, Basil Newitt, who served on Lancasters during the Second World War.

and 'living museums' it comes as entertainment. There are some 150 aviation museums, aircraft collections and historic aviation sites around the UK, housing a huge array of exhibits.

"Living history places," adds the Minister, "such as here at East Kirkby, a heritage aviation centre where they're restoring the beautiful iconic mighty Avro Lancaster 'Just Jane' to flying condition, are what inspire people; it inspired me, I know it inspires my children already and it'll be inspiring hundreds of thousands all over the world.

"It's a living memorial to the 55,000 bomber command aircrew who sadly did not return while they were fighting evil during the Second World War and, for me, there's a particularly personal link as my grandfather and my great-uncle served on Lancasters in Bomber Command.

"I remember him telling me about flying missions in this aircraft. He was the second pilot so when he wasn't in the front gunner's position he would have to be able to fly as well."

While the Lancaster might at first sight seem just an impressive, inspirational part of history there's much more than that to what's going on at East Kirkby — aircraft restoration maintains engineering technical skills, knowledge and solutions which can be passed on to the young before they are lost.

It's also a reminder that back then when aircraft such as 'Just Jane' were designed the UK was at the cutting edge of aviation, and that's an area where the country

***“Aviation and aerospace needs to be ready for the future and we need different talent, ideas and values to make that happen. We need talented people. We are committed to supporting the ambitions and interests of everyone to create opportunities which are inclusive and engaging for all.”***

Richard Moriarty, CEO,  
Civil Aviation Authority.

wants to be going forward, which comes back to STEM and the crucial choices the young need to make because it's the next generation who will ensure we have a thriving aviation sector going into the future.

As the Minister points out: "We vitally want the UK to be the best country in the world for general aviation, we want the UK to remain the aviation nation with a huge ambition for what we can achieve and for what we are — that's never been more the case than now as you start seeing incredible new challenges such as decarbonisation, and there are also huge opportunities as well with new technologies.

"I want everyone to realise that the UK is a real world leader and whatever your skill set, whatever your interest, there's a great career waiting for you in aviation."



To see a video of the Minister explaining the importance of STEM and heritage – [click here](#)

# Lessons from the past

How heritage is giving students and others hands-on experience



The Minister and Tetyana address the students



Andrew Panton of the Lincolnshire Aviation Heritage Centre explains the engineering challenges during the tour





# Back to the sky

It takes time and money, but '*Just Jane*' is being prepared to take off again

**J**ust Jane', Lancaster NX611, is being restored to airworthy condition at the family-run Lincolnshire Aviation Heritage Centre, set up more than 20 years ago by brothers, Fred and Harold Panton.

Originally, the centre was planned to be a tribute to their eldest brother Christopher who was shot down and killed on a bombing raid over Nuremberg on 30/31 March, 1944, and also as a living memorial to the 55,500 men of Bomber Command who lost their lives during the Second World War.

Based at the old wartime airfield of RAF East Kirkby, Lincolnshire, it continues to expand every year, and the brothers' ambition is to rebuild it fully as a complete original wartime airfield, preserving the memory of Bomber Command for many years to come.

The original 1940s control tower has been retained and a new main hangar has been built on the original wartime hangar base. The centrepiece of the operation is, of course, the wonderful 'Just Jane'.

One of only three working Lancasters worldwide, she was bought by Fred and Harold in 1983 and, four years later, after completing an agreed total of ten years as gate guardian at RAF Scampton, she was brought to East Kirkby.

The brothers had planned to keep her for their private collection, however it was suggested that they should make living museum for the public and it was set up with the Lancaster and control tower as the centre pieces.

Of course the ideal would be for 'Jane' to be more than just a static exhibit, so in 1993 work started (using the skills of two ex-RAF engineers) to restore one of her four Rolls-Royce Merlin 24 engines.

They began work on the No. 3 engine. Although it had been idle for 22 years, they were confident they could bring it back to life. Spare parts were organised as necessary, the engine rotated to ensure it would still turn and it was in reasonable working order. Then the propeller was removed, stripped down and examined and — apart from having to adjust the blade



**Maintenance takes place during the winter**



settings — everything proved to be in order so it was rebuilt.

Local contractors checked the wiring and make good where necessary. That alone was a ten-day job. The engine's starter motor, magnetos, fuel booster pump and ignition harness were removed and checked, the fuel tank was pressurised and the fuel jettison system reset.

When the throttle controls between the cockpit lever and the engine were uncovered, it was discovered that almost a third of the small control rods would need to be replaced; despite that, the work carried on.

It took some 700 hours at a cost of around £7,000 but the engine was finally ready and it ran successfully. With that proving job done, there was confidence that the other three engines could also run again bringing 'Just Jane' back to life

and they are now at a fully operational taxiing standard.

With the engines sorted and the whole aircraft up to taxiing standard 'Just Jane' provides 'taxy trips', which are booked months in advance, for visitors during the spring and summer to help fund the restoration. You can get a feel for these in the videos on the museum's website, [lincsaviation.co.uk/gallery/videos/](http://lincsaviation.co.uk/gallery/videos/).

The work currently going on at the centre to restore 'Just Jane' to flying condition is intense, but here's the conundrum — how do you restore such a large aircraft to flying condition with all the time that entails when you need it to be available to give 'taxy rides' to help fund that restoration?

The answer is to carry out normal maintenance work during the winter, but where more advanced, complex restoration is required to use borrowed parts



**A tale of two halves – how the restoration is happening**

temporarily, a sort of ‘swapsy’ if you like.

Stepping into the hangar this year at winter maintenance time *‘Just Jane’* is an impressive sight, looming high above with the engine covers off and the port inner engine removed. The Number 1 port and starboard fuel tanks are also being overhauled.

While that’s all ‘relatively’ straightforward, the major issue comes with restoring the larger parts such as the wings which require time-consuming work to return them to flying condition rather than ‘just’ for taxiing.

Given that most of the staff here are volunteers, it was estimated at the outset that getting *‘Just Jane’* airworthy would take around ten years. That goal is still some six years away, but the timeline is clearly mapped out and there’s some clever thought and collaboration going on.

For example, the rear fuselage needs to be thoroughly overhauled to be airworthy, so the centre has been working together with the South Yorkshire Air Museum which has the rear fuselage of Avro Lancaster KB976. The Lincolnshire centre has come to an agreement to restore that fuselage section to taxiing condition so that it can be fitted to *‘Just Jane’* for a season allowing the original rear fuselage to be removed for a complete restoration of the whole section before it is refitted

and the ‘borrowed’ section is returned to Yorkshire.

In France the preservation society Les Ailes Anciennes at le Bourget have Lancaster NX664 currently under restoration. It’s also a Mk7 like *‘Just Jane’* and was built at Longbridge, Birmingham, just a few places on the assembly line after *‘Just Jane’*, so Ailes Anciennes is ‘lending’ its outer wings to the Lincolnshire centre in a plan that helps both.

As Ailes Anciennes have yet to restore their wings, the Lincolnshire centre is borrowing the outer sections one at a time to restore them to a taxiing condition. Once the first, the port wing, is restored it will be fitted to *‘Just Jane’* allowing taxiing runs to continue while the original is restored to an airworthy condition.

When the original is finished it will be swapped back to *‘Just Jane’* and the port wing of NX664 will be taken back to le Bourget and the starboard section to be brought to LAHC where the process will start again.

It’s estimated that all of this work will cost in the region of £250,000 and the whole restoration is expected to cost some £4 million. To comply with CAA regulations the centre’s engineering team has set up the ‘Lancaster Restoration Company and you can read more about the work that’s taking place [here](#).



### THE VALUE OF HERITAGE

Aviation museums make up a country-wide network of opportunities for STEM engagement and inspiration for the young. As with the Aviation Minister, youngsters are often engaged by grandparents’ stories.

While museums vary considerably in size, it’s been estimated that there are more than 2.5million visits a year, generating more than £40million a year.

Many museums such as the Lincolnshire Aviation Heritage Centre are dependent on significant numbers of volunteers to look after their exhibits and act as guides. Long-term volunteers are now getting older, but play a vital part. So the heritage sector provides a constructive activity for experienced adults, and work experience opportunities for the young in a structured environment. Plus, a continuing programme of skills transfer is necessary to ensure skills in heritage technologies are not lost.

# Who are the Aviation Ambassadors?

The Group is made up of 12 volunteers and works with the Department for Transport (DfT) to help deliver a skilled, diverse and sustainable aviation workforce fit to seize the opportunities of the future. It helps local educational organisations to raise the profile of aviation, create new and improved career pathways, develop enhanced outreach activities and make training more financially accessible.

*The 2021 to 2022 aviation ambassadors are:*

## **TETYANA SHEVCHENKO**

Tetyana got into aviation after seeing a B-52 Stratofortress at Duxford. Three years later she achieved her private pilot's licence and AOPA basic aerobatics certificate and then became involved in preserving and flying a former military Jet Provost. She is the only civilian woman flying a vintage jet within the UK. As a certified STEM Ambassador, she works with her team of dedicated aviation professionals to organise hands-on STEM events with her aircraft and inspire young people.

## **MIKE MILLER-SMITH**

Mike Miller-Smith is the CEO of Aerobility, a charity that offers disabled people the opportunity to fly an aircraft. Mike became disabled in his 20s with muscular dystrophy and he permanently uses an electric wheelchair. Despite this, he continues to work, drive and fly. He has been awarded an MBE for his services to disability within aviation.

## **CAROL ANDERSON**

Carol is an aviation lawyer and stands on the Advisory Board for the International Aviation Women's Association (IAWA) and has served on the Air Law Group committee at the Royal Aeronautical Society (RAeS). Carol is keen to promote aviation as a diverse sector with varied roles and opportunities for the next generation.

## **AMY WHITEWICK**

Amy obtained her NPPL(M) licence in 2018 and PPL(A) in 2019. Ever since, she has been striving to do the 'never done before' as an 'aerial artist' in her Cessna 150 Aerobat – in 2021, she became the first-ever pilot to illustrate the portrait of a man via aircraft and GPS.

## **IVANA ALVARES-MARSHALL**

Ivana, from Malawi, is a commercial pilot, founder and governor of the African Section Ninety Nines International Organisation of Women Pilots. She has been promoting aviation through STEM education and is an advocate for mental health in aviation.

## **TIM BRIDGE**

Tim is the founder and technical director of Nuncats CIC, a social enterprise developing affordable and robust electric bush planes for humanitarian operations across the globe. His career has spanned the global energy, renewable technologies and aerospace. Through his diverse career, he has been driven by the need to bring technology to bear on the most pressing social and environmental needs of our time.

## **KANCHANA GAMAGE**

As the founder of the Aviatrix Project, Kanchana leads initiatives to encourage women and girls and those from disadvantaged backgrounds to consider a career in aviation and aerospace. Having been a headteacher and a senior lecturer in education, she combines this experience with her passion as a private pilot to help schools and young people understand the breadth of opportunity around STEM careers and provide employers with the resources and training they need.

## **KATHERINE MOLONEY**

Katherine discovered her passion for aviation (particularly general aviation) after a trial helicopter lesson while working at Transair Flight Equipment. Since then, she has achieved her PPL(H) and is now completing her PPL(A). She has built up a social media platform to share her aviation journey and promote general aviation.

## **MANDY HICKSON**

Mandy has more than 30 years' experience in aviation. She joined the RAF in 1994 and flew the Tornado GR4 in hostile environments, including patrolling the no-fly zone over Iraq. Since leaving the RAF, she has retrained as a facilitator and coach in human performance factors.

## **STEVEN TISSEYRE**

Steven is an ex-electronics engineer recently retired after 30-years in the police. Since 2014, he has specialised in counter-terrorism for the Metropolitan Police on the National Counter Drone team. Engineering and innovation have always been his motivation and he has formed a long-term passion for sUAS (drones). As a certified STEM Ambassador, he is passionate about inspiring the next generation of aeronautical enthusiasts.

## **SUZANNE (SUZY) MORGAN**

Suzanne had her first flight in a vintage glider which ignited her love of aviation. She is now a captain on the Boeing 777 while being on the recruitment team. Trying to increase diversity in the industry, she gives virtual talks to schools and is a mentor to students on BA's Speedbird Z platform giving support and information to aspiring pilots.

## **TRAVIS LUDLOW**

Travis started flying gliders at the age of 12, going solo on his 14th birthday. He then went on to complete his Private Pilot Licence at 16 and his instrument rating at 17. His most recent accomplishment was becoming the youngest pilot to circumnavigate the globe in a single-engine aircraft. His goal now is to share his experiences and to show what can be done if you dream big.

# THE SKYWAY CODE

“As an aerobatic display pilot I really value the accessibility and helpful reminders of the SkyWay Code; it is a one-stop shop for everything you need to consider before you brief and head out to your aircraft to go flying. I encourage all pilots to take the time to read through this free online document.”

**Kirsty Murphy**

Blades Aerobatic Display Pilot and former Red Arrow pilot

The SkyWay Code provides practical guidance for GA pilots, students and flight instructors on operational, safety and regulatory issues relevant to their flying.

Download your copy at: [www.caa.co.uk/skywaycode](http://www.caa.co.uk/skywaycode)

