

Name: Lucy Bulkeley **Title:** Women in Aviation

D.O.B: 04/07/1996

Address: 23 Sherbourne Avenue, Bradley, Wrexham, LL11 4AZ

Aviation and those big birds that fill our skies every second: I can't say it was an industry I could have predicted being in when I was younger. Ask my younger, 10 year old self, and I think I wanted to be a vet at that point. With me barely being able to sit through an episode of Casualty, that idea was quickly put aside.

So how did I end up in the aviation industry as an Aero-Structures apprentice?
Engineering is a man's world isn't it?

Honestly, that's what I initially thought but I don't know how much longer that will be the case. The more you look into engineering and aviation as industries, the more women you will find paving the way for future generations. Those future generation who will take aviation far beyond what we know it as now. These women may not be may not be in the limelight, but they're there making a difference. Pushing the industry forward.

Whilst not aviation specific, Leena Gade, is possibly one of the biggest inspirations for me when it came to showing I could find success in a career in engineering. When F1 came onto Leena's radar at a young age, engineering quickly became the industry she wanted to enter. On completing a degree in Aerospace Engineering and Materials Science, she gained experience in the Motorsport industry by working at races during her weekends. The biggest jump of her career was joining Audi Sport in 2007 as an Assistant Engineer, but then became Race Engineer at Audi Sport Team Joest in 2010.

In her job role, Leena was tasked with:

- Coordinating Support Engineers, Mechanics and Drivers
 - Coordinating race strategy and performance on race day
- All to maximise the team and car's performance during a race weekend.

Her 'First Lady of Le Mans' status came when in 2011 she took Audi Sport Team Joest to victory at the infamous Le Mans 24 Hour race; a race that is at the pinnacle of any endurance team's race season. She obtained various awards and took her team onto a further 2 victories in 2012 and 2014.

My reason for bringing Leena up is how she found success in a role rarely taken up by a female before. Showing women we are capable of it, we might just need a nudge in the right direction to take the jump.

Leena has previously mentioned one of her biggest worries when starting out was being seen as a woman first and not as an engineer. On two occasions she let cars she was in charge of run out of fuel during an endurance race. The person who was the most annoyed about the situation was herself, but she acknowledged she was at fault, as she never asked for help. Going forward she said one of the most important things in engineering was to ask for help when you need it. Instead of thinking you should already know what you, need help with.

So there's women breaking down the barriers people perceive to exist for women entering engineering and aviation, but what about the next generation? How do we catch their attention?

During my time in education, there were plenty of career days where companies would come in and show us what they do on a day-to-day basis. I vaguely remember speaking to someone from the RAF and eagerly going home to tell me parents I wanted to be an RAF Pilot. It didn't go down well.

I'd have teachers offering me advice on what they think I should do. Whilst advice can be extremely valuable, I don't think my eyes were truly opened to what is possible. What fields of work are out there? What opportunities are out there?

The two main pathways into the engineering side of aviation are through an apprenticeship or going to University, yet I was told the only way I'd find success is if I did my A-Levels and went to University. It wasn't until after I left education I realised the opportunities that are out there. Even now, during my apprenticeship I am becoming aware of even more opportunities that exist.

I did my A-Levels, but not University. I worked for a few years, and then decided to apply for an Airbus Craft Apprenticeship, but what made me apply?

I was lucky enough to have family of engineering backgrounds. My Grandpa even worked at Airbus when it was known as British Aerospace. I was surrounded by it.

I grew up with an older brother who would forever have Lego or cars spread across the living room floor. When it was the two of us building houses or racetracks it would be like a Lego explosion in there! I'd pick up a book or go to ballet class as much as I played with Lego, or scuffed my knees on my bike. I guess I sort of just fell into that way of thinking. Of dimension and being curious of how things work. Wanting to create things. There was never any, I couldn't play with Lego because I was a girl.

There's a point in the past few years I don't think I'll forget. For a bit more background information, I ride bikes. Mountain bikes, road bikes...I've tried them all. Although, not a unicycle, I doubt that would end well. I was out on a ride in Llandegla Forest, not far from here, and my friend's chain jammed on her bike. She tried to free it, but of to no avail. I took one look at it and knew to slacken the chain a certain way, to move the cranks amongst other things. Not the most complicated task in the world looking back, but at the time my experience fixing things was minimal. (Not Lego related anyway!) Despite me never being told directly only boys fix things, I'd done something a boy could do! Somehow, that moment triggered my ambition to become an engineer. I started to think maybe my curiosity could become useful. The aviation part of that career path came from a trip to RAF Valley and feeling the vibrations under my feet of the engines of the Hawks on training exercises.

But what if the next generation are not surrounded by people who work in engineering? How will they know what it's about? What if they don't have that turning point of thinking maybe I could do this?

Yet the struggle is now children often spend more time in front of a screen than they do on those days out in the forests like I had. They're growing up surrounded by technology and are using it on a day-to-day basis. By high school age, social media is part of their day-to-day lives. Those with a big presence on social media easily influence them. Blog writers and the new trend of 'vlogging' (documenting your life through video which is later put on the likes of YouTube) all have the power to influence the decisions teenagers make on where they want to go in life.

So why not try and catch their eye on something they use every day?

Social Media.

You can have big social media campaigns, but I'm going along the lines of showing them what they could really do. Where a career in aviation could take them. Highlight those people in their dream job in aviation and what their day-to-day life is all about. That they go to work each day with projects to complete or problems to solve. Travelling around the world. Helping get aircraft air born again following maintenance. Social media provides a window into lives most of us dream about. Fancy holidays, picturesque views, or from the viewpoint of a teenage girl, what clothes are coming into fashion next season. What if they followed the lives of engineers and pilots as intently as they do fashion trends?

So you've caught their eye by shining a light on a lifestyle and not just a career, so what sparks their interest in engineering? What makes them ask questions like 'how does this work' or 'how is that built'?

Education provides such a little bubble; children are almost oblivious to the real world. And yes they deserve to have fun like the rest of us did. I'm not saying they should be only focusing on their studies, but just help them grow their inquisitive side. Fascinate them with the world around them and how engineering keeps it running.

By Year 9, youngsters are expected to choose their option subjects they would like to take at GCSE, as well as the compulsory ones. What if we could capture their imaginations then, so they're in the best possible position to chase their dreams? Even if their options subjects do not have a big influence on what they go on to do after school, what if we could show how maths and science is used in the real world? TV Programmes and YouTube are great for this already, but couldn't we give them the opportunity to speak to people in the industry and demonstrate job roles they may not hear about otherwise.

You hear of youngsters wanting to be lawyers or teachers. To them, those long maths lessons seem boring and meaningless, but to a Stress Engineer or Aerodynamicist the maths will be quite the opposite. I use to hate maths, but as soon as engineering came onto my radar as a potential career choice, my view on maths changed quite a bit.

When I started thinking about engineering, I realised Math's wasn't a strong point of mine. It was blatantly obvious with my test results in school. Yet, I realised I could work on it. That work turned into my strongest A-Level results out of the three A-Levels I took. What if I had let my teacher's lack of encouragement in Maths dictate my career choice? What would I be doing right now? If you're not considered an academic student from the offset, teachers could be diminishing ambitions before they've even surfaced.

It's not only opening their eyes to what they could do, but how they go about putting their ambitions into action. That if they want something badly enough they can work at it to make it a reality.

Do they need to do maths and physics at A-Level? Do they need to even do A-Levels at all, could they go onto do an apprenticeship? If an apprenticeship is the direction they want to go down, what's the best one out there for them? There are so many options out there, I imagine for a 16-year-old, male or female, choosing a career path could seem quite daunting.

Teachers and other figures within mainstream education know plenty about going to University, or career paths that are more common. I had some advice on going into engineering in general, but there are so many job roles out there you don't even hear of. The idea of riveting and drilling may not seem that appealing to a 16 year old and where their strengths lie, but maybe they have the ability to go into a field such as becoming a Stress Engineer.

I suppose what the majority of what I've been saying could be applicable to both young men and women. How do we tackle those uncertainties of women still thinking engineering is a man's world?

With social media being the useful tool it is, you've caught their attention. Yet social media can also be the devil too. Young girls are under such a lot of pressure as social media and its uses grow everyday. Pressures to look a certain way, or be in a particular job role leading a desirable lifestyle. Since engineering can be seen as a man's world, they may not see it as a desirable industry to be in. If they're a big lover of clothes and fashion, despite having strong abilities in maths and science, they may even question if they'll get taken seriously if they entered the industry. Women can still be feminine and have a career in engineering, although painted nails might not last very long!

Despite what I've said about the uses of social media, maybe it is even just breaking down the stereotypes young girls may have in their head on following a career in aviation or engineering. It brings me back to those questions a 16 year old might have.

Can they still have a career in the engineering industry despite not being a straight A student?

What is there to do in aviation apart from a flight crew attendant? To those in the industry will know of female pilots and female engineers, but do the rest of society know that? Do the young girls growing up feeling unsure on whether they should be playing with dolls or Lego know that?