7th July – Speech Abstract

Challenges and Expectations for the Aluminium Industry Sector towards a viable UK Manufacturing Base – An Aerospace Perspective

Abstract

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History – Lessons Learnt

This year we celebrate 100 years of the aviation industry in Bristol, and the use of Aluminum has been the material of choice since canvas and wood. Providing the key ingredient of performance to weight, it has quite simply been the benchmark.

But the world is changing.

Cast your minds back to the Le Bourget air show in 2003. A defining moment for our industry. Composites were announced as being the 'new' material of choice. Many questions, why, how? Then denial, it can't be done!

At the time the projected requirement for the carbon fibre was four times the world's then production capacity. But, the weight reduction opportunities were compelling, and Airbus took the decision to extend its application to the include fuselage sections in addition to the wings and tail section for the A350XWB.

Once committed to, the rate of learning associated with carbon composite technology has accelerated. The 'new order' drivers of eco-efficiency are pushing the development of evermore higher performing designs. This really is a 'win-win'. Lower fuel burn per passenger not only reduces the cost of operation but importantly also reduces CO_2 emissions. Lower weight, improved aerodynamics and more efficient engines are combining to help the A350XWB deliver up to a 25% improvement in operating costs when compared to the best in the current in-service fleet.

So has Aluminium had its day?

I think not, sometimes industry needs a catalyst to push itself to new heights.

The next aircraft platform to be replaced will be the single aisle A320 family. Currently being built at a rate of 34 per month and increasing to 36 per month, that's more than one aircraft per day, making this the most successful product in the Airbus stable. The projected market size for this class of aircraft over the next 20 years is 16,620.

Naturally when making the decisions to replace your best selling product, timing and technical choices are critical.

All technologies are under consideration, composites, titanium, steels, as well as aluminium alloys. Here are the opportunities for the Aluminium and Airframe manufacturers to work together for the future of our UK manufacturing base. The material selection will be based on performance, life cost, ability to form the shapes necessary for the components and operational reliability. Indeed, today, we recognise that some materials and technologies are simply unknown to us.

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Real opportunities exist for the Aluminium industry in the UK Aerospace sector, but the industry must come forward with these world beating ideas for material technologies and product opportunities.

In your response to your aerospace and Airbus customers, the aluminium material industries must provide material solutions that meet the following key aircraft performance parameters, not just weight and cost, but also

- Industrial inspection
- Aero-drag
- Maintenance
- Corrosion resistance
- Industrial process robustness
- Environmental aspects

There is no single company that will be able to deliver all of this on its own. The future success will be enabled by 'networked' solutions. Metal machining, forming, fabricating and surface generating techniques will be required to deliver the structures and aerodynamic shapes that the latest aircraft architectures demand.

This 'networked' approach will also require imaginative business relationships and models to secure success. That success will be in the context of the 'network' not just the individual organisations.

Technology investment in the UK is a vital to protect our manufacturing future. In 2009, Airbus invested £494m in R&D making it the No.1 Aerospace company in the UK for Technology Investment. Today, I give you the same challenge and commitment that I have given the research community across Airbus in the UK. Propose new technology solutions, and we will work with you to realise their full potential, and whenever possible fly your ideas.

In the UK we enjoy having some of the best Universities in the world. Universities that have understood the need for closer ties to industry so that new ideas may be fully exploited and not wither and die in the 'Valley of Death'. This is the maturity transition from the laboratories to fully scale manufacturing environment which is so often the failure point in the adoption of good ideas.

For our part, Airbus recognises that we must articulate our needs with greater clarity. To work closer with the supply chain earlier in new product definition, and not put the supply chain in the position of having to second guess our thoughts. Please be patient with us, we are learning as much as you are.

On a more immediate practical note, the major product opportunities looking forward, as we see them today, are:

- Wing Skins, including surface feature generation
- Wing Stringer Extrusions
- Wing Spar / Rib Forging Alloys
- Fuselage Skin Sheet
- New Sheet Alloys
- Extrusion Alloys for Floor Beams

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It is impossible, in 8 minutes, to do justice to the more detailed discussions required on these topics, so in closing I offer you the opportunity for focused meetings with our engineers and technologists.

Let's move forward, TOGETHER.