MR. IAN DOOLEY

TEST ENGINEER

MERCEDES AMG HIGH PERFORMANCE POWERTRAINS (FORMULA 1 RACING ENGINES)

BRIXWORTH, NORTHAMPTONSHIRE UNITED KINGDOM
www.mercedes-amg-hpp.com

Education and Training

- B. Eng. (Hons) Aeronautical Eng, University of Limerick, Ireland, 2004

Current Position

Title	Dates	Employer
Test Engineer	Jan 2008 - Present	Mercedes AMG High Performance Powertrains Brixworth, Northamptonshire, UK

Previous Positions

Title	Dates	Employer
Project Engineer	2007-2008	Aero Engine Controls, Birmingham, UK
Technical Services Engineer	2004-2007	Aero Engine Controls, Birmingham, UK

"Home" Town(s)/County(s)

Navan, Co Meath
Limerick, Co Limerick
Birmingham, UK
Market Harborough, UK

Please describe your current job

Working for a Formula 1 team presents many varied and interesting challenges on a daily basis. Given the fast paced environment of the sport it requires engineering innovation on a daily basis and the ethos is for constant

improvement in every activity the company carries out. One of the best things about working in this industry is that it allows me to combine my two big interests, sport and engineering!

I work for Mercedes AMG High Performance Powertrains (HPP) who design and manufacture Formula 1 racing engines and Kinetic Energy Recovery Systems (KERS) for the McLaren, Mercedes GP and Force India Formula 1 teams. In my role as a test engineer I am based permanently at the factory HQ in Northampton. There are opportunities to travel in my role but certainly not as much as the guys who work at the track.

As a test engineer I get involved in a whole variety of different projects and get to experience many different engineering disciplines on a daily basis, meaning that no two days are ever the same. Working in a testing environment can be demanding as times scales often get compressed due to delays in other areas of the project but the deadline for testing never moves! However it is a thoroughly enjoyable role as you get to see the end product functioning and get a real understanding for how the technology has evolved.

My first two years at HPP were spent dedicated to the KERS project. This was a huge undertaking for the company as it was a real step change in technology to go from developing racing engines to developing complex electrical recovery systems that required expertise in battery technologies, electric motors and power electronics. While hybrid systems have been around for a few years now, getting one to fit in the tight constraints of an F1 car, which integrates seamlessly with an engine that revs to 18,000rpm, and doesn't have an effect on the driveability of the car, is an altogether different challenge!

It was a challenge that the company was determined to meet head on and was determined to not only get a functioning KERS system (which many other teams could not achieve) but to have the best system on the grid. After much hard work (and late nights!) during the development and testing phase the company succeeded in delivering a fully functioning system to Lewis Hamilton and Heikki Kovalainen for the first GP of the year at Melbourne. More importantly we achieved the first KERS powered victory in F1 when Lewis Hamilton took the chequered flag at the Hungary GP later in the season. By the end of the season our KERS system was acknowledged as the best on the grid and this was vindicated when the system was awarded the Dewar Trophy for technical excellence by the RAC in 2009.

One of the really good aspects of the job is feeling part of a team, and this is reinforced when the racing drivers come to visit the factory and give their feedback on how our products are performing and helping them to be successful in the Formula 1 world championship. Over the last couple of years I have met drivers such as Lewis Hamilton, Jenson Button and Michael Schumacher. Playing a part in the world championship successes of Lewis Hamilton in 2008 and Jenson Button in 2009 particularly stand out.

One of my key responsibilities include the provision of engineering solutions that enable development tests to take place on new components for formula 1 race engine and KERS. Given the rapid rate of product development, no two tests are ever the same and often will involve exploring new methods of testing and advanced measuring techniques. The range of components that get tested is vast but can range from something as simple as a piston ring to more complex items like testing of the engine valve train dynamics and battery storage systems.

Please describe your career path since graduating with your B.Eng. Aeronautical Eng.

Since graduating from UL I have pursued a rewarding career in advanced technology and manufacturing. This has resulted in me working for a large aerospace company, Aero Engine Controls and later for a leading Formula 1 team.

Working for Aero Engine Controls was a thoroughly enjoyable experience and was a great introduction to the aviation industry. The company manufactures both the mechanical and electronic components of the Full Authority Digital Engine Controls (FADEC) for the majority of Rolls Royce large and small engines. I learned the thoroughness of aerospace procedures and the excellence of design that goes into all engineering solutions that one day will become airborne.

During my time in Technical Services I worked on any aftermarket technical issues that arose with our products. This involved working closely with suppliers and customers from all over the globe to get to the bottom of the issue and was a great learning curve for me as a new graduate. These investigations were often initiated from a significant flight event such as an engine shutting down un-commanded during flight and as such required extremely thorough investigations to reach the root cause and ensure the integrity of our products was up to the relevant flight standards.

In this role I got to travel quite a lot in this role and spent lots of time at

various facilities around Europe.

After 2 years of working in the aftermarket field I felt I needed a more technical role to continue my development as an engineer and moved to a project team who were undertaking the redesign of some engine control actuators for a hugely popular engine series (IAE V2500) for the A320 family of aircraft. During my time on this project I led several environmental qualification tests which are required to be completed before any item is deemed suitable for flight use. This was a very interesting project and it was particularly satisfying to know that you have helped to get a new product approved for flight.

After 3 years at Aero Engine Controls an exciting opportunity arose with a leading Formula 1 team to work in their testing department. While I was regretful to be leaving the aerospace industry the challenge of working in the challenging Formula 1 environment was too good to turn down, and presented a great opportunity for me to develop my engineering skills in other areas.

What made you decide to study Aeronautical Engineering at UL?

I was always interested in engineering and particularly in aviation so it was an easy choice for me to study Aeronautical Engineering at UL.

Are you glad you did?

Yes, I thoroughly enjoyed my time at UL, including a great CO-OP at Airbus and it has equipped me with the required skills for a career in engineering.

What did you most enjoy about studying at UL – academically, and also non-academically?

Academically it would be the wide range of interesting modules we undertook, and the quality of the lecturers at UL.

Non-academically I would have to say that it would be all the good times I had with the many friends I made during my time there. The time spent on COOP in France stands out in particular. Also the sports facilities on offer to students in UL are among the best in the country and it was great to have these available on your doorstop.

Where did you do your COOP?

I did my CO OP at Airbus in Toulouse in the south of France. I was based in the Technical Services department that dealt with aftermarket issues that involved the smoke detection, ice protection and engine pneumatic systems. It was a

useful placement as it showed me how large aerospace companies work and I dealt with technical issues from customers around the globe. It was also a great experience to live in a foreign country, something that will most likely be necessary for a career in aviation.

What advice would you give school-goers considering choosing Aeronautical Engineering?

If you are interested in how things work and want to work with new technologies then a degree in Aeronautical Engineering is a great place to start.

What advice would you give future graduates of Aeronautical Engineering?

Don't get too concerned if you are unable to decide which discipline of engineering you want to work in. Get as much experience in as many different disciplines as you can and it will soon become apparent where your interests lie and you can then actively pursue a career along this path.