TASC Talk Clarion article – June/July 2017

Last April TASC was given a facinating talk by Mr Adam Watts who is the BD & Project Manager at Moog UK Westcott Ltd, which is part of Moog Space and defence group (MSDG). MSDG are a large multinational company that provide motion and flow control solutions for space related, military and security industries.

Adam's talk concentrated on the work carried out at their Westcott facilities near Aylesbury where they are one of the few places in the world that design, develop, manufacture and test small to medium power rocket motors which are mainly used in GPS satellites. However, they have also developed rocket motors for NASA's Juno mission to explore Jupiter.

Originally the Westcott Centre was an operational training unit for Wellington Bomber pilots during the WWll and was repurposed in 1946 to test rocket engines utilising captured German rocket scientists, in particular Dr Johannes Schmitt.

Their Westcott site possess three Hotfire test facilities where all their rocket engines are tested. Evidently when they first started test firing rocket engines, the local sheep used to scarper to the other end of their field in panic, now however they don't even bother looking up to see what's going on. The Noise can be pretty loud.

During his talk Adam showed us a number of small positioning liquid fuel thrusters that use two propellants which when combined within the ignition chamber react to provide thrust. Control of the mix rate is provided by specially designed valves positioned near the top end of the exit nozzle. Some of the temperatures reached can be as high as 2500 degrees centigrade, and with some of their LEROS engines, the burn can last for as long as 7 hours continuously. The exhaust nozzles are specially coated to stop the metal they are made of from oxidising and flaking away during a burn. Another interesting fact is that the nozzles are carefully designed to shape the thrust to limit the force produced being wasted when shooting out the back of the nozzle.

On the left is a picture taken during the talk showing one of the larger rocket motors that Adam brought along with him to show us.

All in all it's great to see that GB is leading the world in the development of some of the most incredible and innovative technologies and in all places rural Buckinghamshire. There is a lot going on at the Westcott Venture Park where rockets are concerned, Moog are not the only rocket engine development company located there but also the Falcon Project which carries out major development on solid fuel rocket engines and are developing the hybrid rocket engine that will be, in part, powering the Bloodhound Project's 1000mph car. Also present at Westcott is Reaction Engines who are developing the SABRE (Synergetic Air Breathing Rocket Engine) which is intended for use on horizontal take off and land space planes such as SKYLON, which will be capable of Hypersonic speeds and may eventually shorten the journey from the UK to Australia to around 3 hours – Wow!

Marius Stuart – The Adstock Science Club