

Bill Chrispin's DGEng BUGLE

A Life in Defence Procurement



Bill Chrispin -
One of Bill Moschini's 'Young Blades'

Having been rightly shamed into providing Ted and Malcolm with some riveting material for the DG Eng 'Bugle' newsletter (I have not supported the dynamic duo well in their entirely laudable efforts to keep this band of former colleagues in touch), knowing where to start was the first problem. I'm now in my 40th year with the Civil Service (can't say MOD as I joined the Ministry of Technology in October 1970, as a Student Engineer straight from school), so there's a lot of material to draw on. But given this is the DG Eng band of brothers I'm writing for, I'll start at the beginning and try to maintain an aero-engine 'thread' through my narrative, with many references to DG Eng folk with whom readers will be familiar, to keep up the human interest.

After a year at Farnborough (SETC), 3 years university and 1½ years as a graduate trainee, I joined DG Eng as a raw C2 taking up the post as Ray

Gould's assistant RTO(E) in East Kilbride in late 1975, taking over from Nick Barnett. Within a couple of years of taking up that post, and following transfer of the Phantom Spey Mk 202/3 engine from Derby, we were looking after the overhaul and development of most of the RAF's front-line fixed wing aircraft engines: Avons in the Hunter, Canberra and Lightning; Speys in the Nimrod, Buccaneer (RAF & RN) and Phantom; and even the venerable Griffons in the Shackleton AEWs (that was through Scottish Aviation in Prestwick). Incredible really looking back to see the scale of the activity. I also recall LTCs where we discussed engine overhaul lives of a few hundred hours! How things have changed. When I left East Kilbride in 1980 after 5 years in 'sunny' Scotland, Bill Downey was my boss – Bill was in his last job before retiring, and he gave me far more responsibility than I probably deserved, but it provided an excellent development opportunity that I am grateful to have had. I was very sad to hear of Bill's death a few years later.

Having been promoted in 1978 to C1 *in situ*, I was recruited into a new role in St Giles Court in September 1980 by what we would call these days my 'mentor', the aforementioned Bill Moschini. I joined Mike Smith in helping to manage a growing set of technology demonstrator programmes being introduced into the DG Eng organisation by the formidable Mike Neale. Within a couple of years, we had several contracted programmes running

covering military fixed wing, civil aircraft and helicopter engines with Rolls-Royce in Derby, Bristol and Leavesden. In 1985 I was lucky in picking up promotion to B2 (as it now is) to manage the introduction of new tech demo programmes into DG Eng's programme, working for Derrick Higton. The period from around 1982 to 1988 was a real purple patch for engine technology – I recollect that at its height, we were spending around £40M per annum on technology demonstrators alone (including engine control activity managed elsewhere in DG Eng!) – supporting upgrades of the RB199 (XG20), Gem (HTSTU), RTM322 (RTM321 & ASTEC), EJ200 (HTDU & XG40) and Pegasus (XG15). The long-running HTDU programme had already made significant contributions to RB211 upgrades, funded by DTI and managed by us on their behalf. Towards the end of the decade, the clamps started to come down in terms of opening up these programmes to competition, looking for larger contributions from Industry and the effort began to diminish. I finally took the plunge and moved into an aircraft project office in 1991 when I joined the then Director Helicopter Projects (a former engines man, Dr David Hughes) as the Lynx Development Project Officer. In that role I was, somewhat ironically, responsible for all aspects of the RN and Army Lynx apart from the Gem engine!

There are two episodes from my 11 years working on engine technology demonstrators of which I have particularly vivid memories, summed up as hot gas reingestion (something I seem increasingly prone to as the years go by!) and hot end technology audit.

In 1982, I was introduced to a member of the engineering staff at Rolls-Royce Bristol called Ian Clapham. I suspect there are some

who may be reading this, especially if you worked at NGTE in the early 1980s, who will now be breaking out in a cold sweat. Ian Clapham was a maverick of the highest order. A wheeler-dealer extraordinaire, he was the bane of many experimental officers' lives in Pyestock running engine test programmes. My involvement was in managing a contract on R-R, for which he was the company's project manager, to build a new test facility at the Proof & Experimental Establishment (P&EE) Shoeburyness, and carry out a test programme aimed at measuring the effect of hot gas from the reheated front nozzles of a Pegasus-type VSTOL engine on aircraft structure and engine performance. This activity was in support of the US/UK collaborative ASTOVL programme, where this form of propulsion was one candidate among many to power a future supersonic STOVL fighter, along similar lines to the cancelled P1154 programme. I learned a lot from the experience of hanging on to Mr Clapham's coattails, most of it about what not to do, and it was with some relief that the programme eventually finished and I moved on to other things.

The hot end technology audit in (I think) 1988 was prompted by the US refusal to approve an export licence to allow T800 engine HP turbine components to be manufactured in the UK. They claimed this would transfer critical hot end technology from the US to the UK, whereas we claimed that UK technology was comparable with that in the US, so tech transfer was not an issue. A joint review team was established, the UK members being Austin Seed, Derrick Higton, Dr David Colbourne and yours truly. I remember the two principal US DoD participants were Dr Don Dix and Dean Gissendanner – odd how names stick, but perhaps not when the names are odd! The audit

consisted of visits to companies in the UK and US by the joint team to establish the extent of their respective hot end technology capabilities, looking at combustor and HP turbine blade and disc materials, cooling, aerodynamics and manufacturing, together with demonstrator engine performance, mainly in terms of TET/SOT. I recall one bizarre visit, to Pratt & Whitney in West Palm Beach, where we spent most of the day being given a (very slow) tour of the site whilst our US opposite numbers resolved security issues around a paper they were scheduled to hand over. I remember that when we eventually met, they handed over a document that had so many pieces of information cut out (literally), it resembled a child's paper mobile!

I spent 3 years on Lynx, introducing one new mark (Army Mk 9) and flying in RN and Army versions (Mk 7 & Mk 3 respectively), before undertaking a broadening experience of being seconded in early 1994 to 'Another Government Department', in this case the Office of Science & Technology, then part of the Cabinet Office. I became part of the UK Technology Foresight programme, an exercise launched in 1993 following publication of the 1992 John Major Government's Science White Paper looking at the priorities for UK science and technology over the next 20 years or so in pursuit of "wealth creation and improving quality of life". The work was divided into topics, managed by panels of the great and good from across industry, academia and government. Each panel was supported by a civil servant 'technical secretary', and I got Defence & Aerospace and Transport! The first task was for each panel to consult widely about priorities in their sector then summarise their findings in a report (which the hard-pressed technical secretary had to write) as a lead in to the next phase of

implementing specific programmes of work. I had the opportunity to work with a number of senior figures from across these sectors, but the pace was intense. I remember in the period leading up to publication of the panel reports arriving at work on a Saturday morning and finally leaving for home on the Monday evening, having dozed for 2 nights in my office chair.

Although this secondment was supposed to last 3 years, I got the call to return to MOD(PE) in mid-1995, on promotion to B1, to head up the team managing the Replacement Maritime Patrol Aircraft (RMPA) competition. Those of you who continue to follow defence matters will know that in 1996 this resulted in MOD placing a contract with the then British Aerospace for the (somewhat misnamed) Nimrod 2000, now the notorious Nimrod MRA4. I won't dwell on the well-catalogued delays, technical problems and cutbacks in aircraft numbers that have happened over the last 13 years, but our forecast at the time that ISD would be achieved in 2003 was a little wide of the mark! Again somewhat ironically, one of the aspects on Nimrod MRA4 that has been relatively trouble-free is the propulsion system. An early decision to utilise Rolls-Royce's BR710 civil engine to replace the aging Speys introduced a technically mature engine (albeit into a buried installation rather than the podded installation the engine was generally used in for its civil aircraft applications), requiring some degree of marinisation but otherwise little change, with virtually no development. In terms of engines folk, I worked with Graham Crick and Peter Hardy for a number of years on the Nimrod team (Graham is still there!). I well remember receiving an e-mail from Peter (I think I'd moved on by then) sent on the first 'working day' of his retirement, with an attached photo of Peter in dressing

gown with feet up on the sofa enjoying a cuppa! I have met several other folk over the years, mainly in industry, who joke that they would rather admit to having been in prison rather than having worked on Nimrod – less professionally damaging! I believe that when the aircraft finally gets into service, it will prove to be an awesome and versatile platform. But still a little time to go before that claim will be proven or otherwise!

In 2001 I became Integrated Project Team Leader for the Airborne Stand-Off Radar (ASTOR) project. In 1999 MOD placed a contract with Raytheon for provision of 5 modified Bombardier Global Express (GX) business jet aircraft and ground exploitation stations to deliver a brand new ground surveillance capability. ASTOR delivers radar imagery and moving target intelligence to ground commanders over a wide area of the battlefield, operating at stand off ranges and high altitude. When I joined the project, we were aiming for ISD in September 2005 but technical problems primarily with the radar delayed ISD until November 2008 (something of a pattern developing here, I hear you say!). Shortly after ISD was declared, the first aircraft and ground station were deployed on operations to Afghanistan, and they've been on ops ever since.

I spent a total of 8 years as ASTOR Team Leader, far longer than usual but I was determined to see the project through to ISD and onto operations. Despite the delays and some very difficult times during that period, I have derived deep professional satisfaction from being part of a team that has delivered a major project and seeing it making a difference operationally. When I joined ASTOR, I received great support from another engines stalwart, Tony Ernsting, and we worked together for several years

before he moved on. And the engine connection? The Sentinel aircraft (as it has been formally named by the RAF – see picture below) is powered by 2 BR710 engines!



In August 2009, I finally left ASTOR to take over as team leader of Project Helix, a position I remain in today. Helix is set to replace the Nimrod R1 signal intelligence system with a US-based platform known as Rivet Joint. Still in the Assessment Phase (PD2, I think, for any remaining Downeyites out there!), approval to proceed to the manufacturing phase is expected in the next few weeks, provided MOD resolves remaining Planning Round (formerly LTC) funding issues (I'm not holding my breath on that!). If the project proceeds to the next phase, I'm looking forward (3rd time lucky!) to have the opportunity to deliver a major project on time in 2013, before I start thinking about retirement. On that front, however, divorce (1997) and re-marriage (2003) to a much younger partner with 2 boys now approaching college age, means my retirement plans may have to wait! At this rate, health permitting, I may be approaching 50 years in harness before retirement becomes a viable option!

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