

How changes in technology affected my first post in the RAF by Chris Chinn

As I completed my A levels at the local Technical College I saw an advertisement for an RAF University Cadetship I applied and won one of 30 places being awarded that year. I had already secured a place at Loughborough University of Technology to study Aeronautical Engineering and Design. After graduation I completed a year of training at the RAF College Cranwell before a posting to RAF Stafford where I was primarily concerned with servicing of Ground Support Equipment (GSE) most of which was powered by piston engines and relatively low technology.

My post at Stafford was as a supernumerary however I did get tasked with some interesting projects including the investigation of an industrial accident to one of the civilian technicians, I think I probably did too good a job of that as I always seemed to be first choice to carry out inquiries on all my future postings. 12 months after my arrival at Stafford I was posted out to RAF Bruggen on the German /Dutch border on promotion as the Planning and Project Officer at 431 Maintenance Unit.

At last I was getting some involvement in aircraft engineering, our drawing office was responsible for the design of repair schemes for the aircraft operating in Germany, I also had responsibility for managing the aircraft power units undergoing repair in our workshop. When I arrived in Germany we had Phantoms at Bruggen which we supported by carrying out module changes on the Spey engines and then running the engines on a basic ground test mounted on a wheeled trailer. These tests were very limited and really proved the engine would start and run but there was no facility for testing the performance. The Phantom were very rugged aircraft, designed to operate from aircraft carriers it was immensely strong and able to withstand a bird strike with minimal damage. All this was about to change when the Jaguar replaced the Phantom.

The Jaguar was a very lightly built aircraft, not really suited to the rigours of operating at low level over Europe and we soon started to discover that modern aircraft structures were a lot more difficult to repair compared with the previous generation. The Jaguar had chemically etched surface skins in high stress areas often with additional bonded on reinforcement, our first repairs were based on what we had done before but it was not long before we found these repairs were failing under the stress they were subjected to. The solution was to develop a new repair philosophy using multi piece patches to meet the stress requirements. The most difficult repair was to the side of the fuselage under the wing, this was usually damaged when the under wing drop tank was hit by a bird and shattered with fragments puncturing the skin. The ideal solution would be to replace the complete skin but because of structural

integrity problems we would/could not remove it without stress jacking the aircraft. Our solution was to cut a section from a replacement skin and replace the damaged area with that.

Prior to the Jaguar arriving an Uninstalled Test Facility was built on the unit and an engine overhaul bay set up. Now we could fully test an engine before issuing to a unit for installation this should have resulted in the pilots having more confidence in the engines, however, the Jaguar was initially underpowered particularly when compared to the Phantom, and we often received engines returned as unserviceable due to low power output. The situation was highlighted when the first Squadron deployed to Sardinia on an armament practice camp, loading the Jaguar with 4 off 1000lb bombs resulted in a number of engine rejections. I discussed the problem with a pilot I knew who stated he had little confidence in the engine output and in Sardinia took off with one hand holding the ejection seat operating handle ready to eject if he was likely to run out of runway.

There was considerable pressure to get the Jaguar fully operational so that it could take over the Nuclear Strike role from the Phantom and frequent exercises tested all aspects of the base operations including the Maintenance Unit's support in Battle Damage Repair of aircraft. It was a very stirring site to stand by the taxiway and watch 80 aircraft taxi from their dispersal areas around the airfield and take off one after the other with full reheat.

I mentioned earlier carrying out an accident investigation during my first posting and it was not long before I was recovering the remains of a Jaguar from Northern Germany and then assisting the Air Investigation Branch investigator to sift through the wreckage to find clues as to what happened, it was not easy as not only had the aircraft crashed at high speed into a wooded area but then it had all caught fire (it was July 76). I learnt a lot which was to be very useful on future investigations.

It was not long before modified components for the engine became available and the UETF was working round the clock to clear engines which had been through the workshop for upgrade and get them back into service.

The basic difficulty was that the original Jaguar design, by the French, was as a Fast Jet Trainer operating at altitude with only moderate stress. However when it became the Anglo/ French Project it was re-rolled as a Strike Aircraft operating at low level across Europe a very stressful operating environment which soon revealed the weak areas of the design. Once in service upgrades were introduced which increased the performance and repair schemes designed to repair and strengthen the structure many of the initial doubts were overcome with the aircraft remaining in service until 2007.