In the autumn of 2012, RAF Lossiemouth faced a number of challenges that combined to erode engineering standards and practices, threaten airworthiness, and undermine delivery of the levels of flying required to achieve the task. By way of context, Redundancy and Early Termination (ET) had removed over 270 Trade Group 1 (TG1) technicians in the previous 18 months, approximately 35% of Station TG1 strength. The net effect of this significant outflow of Suitably Qualified and Experienced Personnel (SQEP) was the loss of around 1500 years of Tornado experience – XV(R) Squadron lost 175 years experience at JNCO level just through Tranche 2 Redundancy. The situation was simply unsustainable.
Coincident with the peak outflow of SQEP in the summer of 2012, the Delivery Duty Holder (DDH), Senior Operator and Chief Air Engineer (collectively referred to as the DDH Group) were becoming increasingly concerned with the growing number of reports of maintenance error. A good number of Occurrence Safety Investigations (OSI) had been convened and the associated conclusions and recommendations became a regular subject of discussion at Air Safety Working Groups. However, due to the immaturity of the reporting system (DAEMS rolled out at RAF Lossiemouth in Sept 12), there was not the fidelity of information or the maturity in reporting culture to properly identify organisational issues. It took a step change in reporting, in fact these “3rd Age” reports, to draw attention to our failure to recognise the underlying, bottom of the iceberg, issues that had potential to cause harm to our organisation.

The Chief Air Engineer’s Perspective
This single action - call it whistle-blowing if you wish - served to amplify those weak signals and legitimize the DDH Group’s concerns; it became a catalyst for Station-wide action. The flying task was immediately reduced to allow room for reflection, investigation, and ultimately wholesale improvement through a comprehensive reset plan. The priority throughout was to determine the underlying issues whilst avoiding any temptation to identify the author of the DASOR – the preservation of open reporting and upholding of the Just Culture could not be compromised just at the point that it was beginning to reveal parts of the iceberg below the water line. A series of DDH Group workshops were held with the engineering managers from across the Station, which progressively adjusted in perspective from initial denial and frustration, through to broad acceptance that all areas of the Station were vulnerable to the issues raised in the DASOR, and finally to welcome recognition of the underlying issues.

Most worryingly, the TG1 workforce reported that they had felt the need to cut corners under pressure to deliver aircraft to service the flying programme.
Similarly, the flying task remained largely unchanged despite the haemorrhage of TG1 SQEP, which meant the generation and sustainment of aircraft was becoming ever more difficult. From the aircrew perspective, failure to achieve the monthly crew flying requirement was attracting unwelcome senior attention. Therefore, pressure to deliver was a very real issue - the resultant reset plan was necessarily comprehensive.

A similar DASOR was raised in late October 2012, this time exposing a sorry tale of avoidable problems on the flight line during the course of a see-off. The subsequent OSI called 25 witnesses from across the aircrew and engineering communities, all of whom contributed to the occurrence in some small way. The ORG again revealed pressure, perceived or otherwise, to deliver engineering and flying output as the main causal factor. It was clear to the DDH Group that the actions set in train as a result of the first DASOR were not going to repair underlying cultural issues overnight; equally squadrons were going to have to dedicate significant resource to deliver the required improvements, adding further pressure to an already stretched workforce. On this occasion, the DDH directed that all flying activity ceased for 3 days so that the reset plans could be accelerated. In addition to stopping all engineering and flying activity to provide capacity to purge improvement, the most tangible benefit was realised by better matching flying task to available TG1 resource by reducing both aircraft numbers (engineering task) and aircrew (flying task) on each squadron. The Station also exploited a range of ACOS Manning measures to increase TG1 numbers and create headroom for training; the most productive of which was the temporary detachment through CMLO of 34 Tornado SQEP, the majority of whom deployed from RAF Marham.

**The Squadron Commander’s Perspective**

Following Tranche 2 redundancy and the heavy loss of TG1 personnel through ET, the Squadron’s engineering contingent started to visibly struggle in the latter weeks of September and October 2012, particularly at the Avionics and Mechanical JNCO level. The combined effect of this reduction in SQEP was intrinsically linked to the raising of two DASORs, both of which were of a 3rd age nature (pre-event occurrence). The subsequent decision to stop flying and initiate an OSI following the second DASOR was the Squadron’s only option to ensure sufficient Air Safety margins were maintained.

Whilst several mitigating and corrective actions were in play prior to the raising of the second DASOR, none of those actions were able to arrest the procedural and cultural shortcomings which had been amplified by the swift reduction in SQEP. Indeed, the DASORs provided firm evidence of the pressure the Squadron had been operating under and ultimately provided the opportunity for the Squadron to take a tactical pause, review priorities and develop a get well plan. The very decision to stop immediately served to galvanise the Squadron in a determination to overcome these problems and to tackle the issues which had been worked around for a significant period of time.

The Squadron developed a three stage plan, with several activities designed to overcome internal issues, whilst ACOS Manning and the DDH Group tackled the wider manpower shortfall. Firstly, there was the clear need to restore a sense of pride, which after sustained Operations and following the departure of many key engineering personnel had started to suffer with the net result that the Squadron’s engineering fraternity were needing to work harder and harder to produce the same. This sense of pride was rekindled through a 3Rs set of activities; Refurbishment of the work environment, Rebranding of the team (all of one cloth) and the timely Relaunch of the Squadron (12/12/2012).

Secondly the task was reduced through the reduction in aircraft numbers, with the fleet reduced from 13 to 10 aircraft, and the flying task trimmed back by the temporary reduction of flying crews from 14 to 11 in November and December 2012. This allowed the development of a broader post-DASOR action plan with over 500 individual observations condensed into 109 sets of activity. These ranged from enhancing the training, planning, resourcing and execution processes to increasing the capability of the Squadron Support Cell, bolstering
manpower from 4 to 7 personnel. Additionally, much effort was made to reduce the work load of the pivotal engineering management (WO, Flt Sgts and trade managers), thus increasing their capacity to supervise the shop floor.

Finally, and most crucially, engineering personnel with limited Tornado experience were enrolled in a comprehensive training plan to ensure that the Squadron built a SQEP workforce ready to undertake Op HERRICK in July 2013. This could not have been achieved without the detachment of CML0 manpower which instantly plugged critical gaps in rank and trade and allowed Squadron engineers to undertake the flexible learning packages that the Tornado Maintenance School swiftly developed both on site and at RAF Marham.

Prior to the DAS0Rs the Squadron had continuously tried to grapple with these underlying issues; initiatives included moving the Squadron into Hangar based operations, Continuous Improvement events and open forum discussions, all of which failed to provide the cultural change that was necessary. Ultimately, the difficult decision to stop flying provided the watershed moment, clearly demonstrating that a crossroads had been reached – continue to undertake hand-to-mouth activity or change the entire trajectory of the Squadron. Following this decision there has been a tangible increase in confidence within the Squadron with personnel knowing they are empowered to say stop, and having every confidence that their opinion will be heard. Refreshingly, these 3rd age reports spoke of malpractice - there were no resultant accidents or injuries - but they served to change the focus of the Squadron Commanders and the DDH Group, enabling the Station to identify and tackle cultural, organizational and resource problems. None of this could have happened without the strong recognition that the problems were deeply entrenched and Just Culture must be upheld.

There is no single action that has allowed the Squadron to turn the corner but rather success came from an amalgamation of all of the initiatives deployed. There is now a significant increase in the sense of Squadron unity and pride and whilst there are still several hurdles ahead, the Squadron has a clear vision, a strong and enthusiastic management and a renewed sense of purpose that had hitherto been missing. Cultural change is happening each day and the more the Squadron invests in training, education and communication, whilst accurately matching task to resource, then the more positive and successful the Squadron becomes.

The DDH’s Viewpoint
It is not when things are functioning well that true mettle is tested, it is when things are far from that place. Following a tentative call from an airman concerned that he was in a system where inappropriate standards and practices were being used, the RAF Lossiemouth Air Safety environment faced its sternest challenge. By reacting appropriately, treating the issue as a Station-wide, not Squadron-focussed one and by allowing more personnel the opportunity to open up and say ‘this isn’t right’, it was possible to draw out a number of issues, gain and maintain the trust of a large team and swiftly transition to a safer and more productive place; a place where it is perfectly acceptable to say ‘stop’. It is never easy to admit a failing and by facing the challenge together, the management and shop-floor workers at RAF Lossiemouth have improved together and now operate safer together in an assured Just Culture with an ever-increasing number of ‘below the waterline’, third age reports, filed by respondents secure in the knowledge that they will be listened to in their attempts to move the operation into ever-safer areas.