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Combat Capability

All domain coverage in the wake of the Budget

The future of the Tiger

Airworthiness front and centre

Budget 2016

Highlights and analysis from ADM Editor Katherine Ziesing + ASPI’s Mark Thomson
THE new system replaces a bespoke airworthiness regulation regime that was put in place in the 1990s in response to a spate of serious accidents, but which itself had become regarded as too expensive and unwieldy by the end of the last decade.

DASR is based very closely around current European civil and military airworthiness regulations and only varied where absolutely necessary to meet ADF military operational requirements. With the adoption of DASR Australia is, in some ways, leading the world in the implementation of a modern airworthiness regime.

Overseen by the Director General Technical Airworthiness – Australian Defence Force (DGTA-ADF), the new regulations are being implemented in a two-phased approach, beginning in September this year and rolling out through Defence and defence industry until the end of 2018.

DASR Genesis

In the decade to 1993, the ADF had suffered a spate of major aircraft accidents, including six aircraft alone in 1991, which resulted in a number of significant systematic changes, including the overhaul of military airworthiness regulations.

This overhaul was a major contributor to the step-change in flight safety which has continued to this day, but the bespoke system has become increasingly cumbersome as further ‘band-aid’ type patches were added in response to further problems or deficiencies.

As maintenance and engineering support of military aircraft became increasingly outsourced to industry the ADF gained greater insight into the way the civil system operated and it was realised that the bespoke military airworthiness system was up to 30 per cent more expensive to operate but had no significant safety advantage.
“Around about 2011-12 we realised that the problem was probably within our regulatory suite and that the ‘band aid’ approach of taking contemporary ideas and affixing them to the current regulatory structure wasn’t giving us the benefits that we wanted,” explained Director General of Technical Airworthiness, Air Commodore James Hood.

“We decided that what we needed to was to align ourselves to an industry of some nature and develop a new regulatory suite.”

Adapting the European model
After considering a number of airworthiness models, including the alignment of the ADF with one or other of the US military services, discussions with the International Civil Aviation Organisation prompted consideration of the European Defence Agency (EDA) airworthiness regulations.

Simply put, the EDA had taken the civil European Aviation Safety Agency (EASA) technical regulations and ‘militarised’ them to create European Military Airworthiness Requirements (EMAR), which in ICAO’s opinion were arguably the best in the world at the time. DGTA-ADF has taken EMAR and used them to form the basis for the locally-developed DASR suite.

“EMAR is are set up such that there is a high level of basic regulation and a suite of ‘flat’ implementing regulations. A country can either use those regulations or make sure that their military regulations at least address all the issues,” AIRCDRE Hood continued.

“Because we’re in the process of stepping away from our current regulations, we made a conscious decision to pick up the ‘golden regulations’. The intent of those regulations is identical to ours and so our implementation of the EMAR is in a ‘purer’ form than what has been achieved through negotiation in the European environment.”

DASR recognises that military airworthiness requirements are different to their civilian counterparts and have flexibility built into the suite to cater for unique military operational requirements.

“Our DASR have a flexibility provision built in to them, which allows a commander to operate outside the system of certification.
if required by operational contingency, on a risk-basis,” AIRCDRE Hood continued. The new regulations also allow for a greater level of interoperability and the closely-aligned EMAR suite has already been chosen by a number of military air arms around the world.

Implementing change

The move to DASR was recommended to the Chief of Air Force in 2013 and, after a year of diligence and mapping of requirements, the first draft Defence Aviation Safety Regulations were published at the end of January this year, for comment by stakeholders and to support implementation planning by both Defence and defence industry. Following a readiness review of all ADF platforms, due for completion at the end of July, implementation will begin at the end of September under a two-phase strategy aimed at ensuring the preservation of current safety levels during the transition.

Phase 1 is will take the community across, beginning with organisations within Defence and progressively including commercial organisations, to ensure they are compliant with the new DASR. The initial phase will be implemented by DGTA-ADF and followed by Phase 2, which will be different for each aircraft type and allow each organisation to exploit the benefits at a rate which is comfortable to them. The changeover is expected to be complete and all Defence and commercial organisations complaint by December 30, 2018.

“Managing the pace of change with our two-phase implementation strategy is our key approach. First we will migrate an organisation’s current system over to DASR and then, once it is compliant, it is then able to explore the flexibility inherent in the system, while locking in the current level of safety,” AIRCDRE Hood detailed to ADM. “The risk is not in the final implementation, but in the transition to the new system because, if we don’t manage it carefully and we allow our people to run ahead, they might implement a solution we didn’t envisage. The second risk is that with so much change going on in Defence at the present time, if we allow the change to the DASR to grow larger than it should in the immediacy, some problems might slip through.”

The first aircraft to comply with the DASR will be the RAAF’s Boeing P-8A Poseidon, the first new type to be brought on charge once implementation has begun. The Lockheed Martin F-35 Joint Strike Fighter will be the most obvious example of this potential, with a huge international global supply chain and Australian companies are competing for all manner of work, including design, engineering and maintenance of components and aircraft, from the Asia Pacific region and beyond.

The NZ Defence Force has already agreed to adopt the system and Indonesia has been briefed and will be sending a team to Australia to investigate the potential adoption of DASR. Similarly both Malaysia and Singapore have expressed an interest; South Korea is already considering the closely-related EMAR and Japan has also requested a DASR briefing.

“There’s a lot of interest in the region now and we have been a leader in the region and we can see the US coming on board within a reasonable time, so there would be a European convention mimicked in the Asia-Pacific region, with aspects of it being used by the US across the globe and. NATO is also looking to use the mutual recognition process inherent within the system,” AIRCDRE Hood said.

“So as we step forward, many of these countries are naturally positioned to step forward with us.”

To further the regional and international interest in DASR and EMAR, DGTA-ADF is hosting an International Military Airworthiness Regulation Conference in Melbourne on November 14-15. “We have invited the Europeans and the US to come here and present papers on this emerging convention,” AIRCDRE Hood concluded. “We’ll also have experts from some of the larger industry players presenting on the problems of working with different regulatory systems and we’ll have people presenting on the options of how we might use that global convention to fix some of those problems. We are also inviting several of our regional militaries to attend.”