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Australia's air combat capability 2010 – 2020

an address[1] to the Institute on 27 May 2010 by
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Australia maintains a small, but potent, air combat capability. Here, Air Commodore Hupfeld outlines the current capability and the changes being made to maintain its deterrence and regional competitiveness over the next decade and beyond.

Control of the air is the ability to conduct friendly operations without effective interference from enemy air power and is necessary for the successful completion of any other military activity. The Air Force maintains the capability to conduct counter-air operations to attain control of the air when required to do so.

The Air Force also maintains the capability to conduct precision attack in joint and coalition campaigns, independent of surface force actions and as an integrated part of a joint force. This strike capability allows Australia more scope to determine the pace and location of hostilities, and would impose major defensive costs on an adversary contemplating hostile action against us. Strike forces can provide excellent support to Australian forces deployed abroad, and may also offer a valuable option for contributing to regional coalitions.[3]

Against this background, Australia maintains a small, but potent, air combat capability based on a mix of long-range strike and air superiority aircraft. The strike capability has been provided for the past 40 years by the soon-to-be-replaced F-111C aircraft while control of the air (air-superiority) has been provided by the F/A-18 Hornet. Although only deployed operationally once – to Iraq in 2003 – since the end of the Korean War 57 years ago, the air superiority force served on that occasion with distinction.

Overall, the air combat capability serves to deter aggression against Australia and its interests and contributes to stability in our region. In this paper, I will outline the current air combat capability and the changes we are making to adapt it to our emerging needs so as to maintain its deterrence and regional competitiveness over the next decade and beyond.

Air Combat Group

Within the Australian Defence Force, the raising and training of Air Force personnel and equipments for the air combat capability, their preparation for operational deployment, and their sustainment while on deployment, is the responsibility of Air Command. Air Combat Group is one of six groups within Air Command and is responsible for maintaining what are now referred to as the 'air control' (air superiority/defence) and 'precision strike' (including strategic and tactical strike) capabilities.

Air Combat Group consists of three wings: No. 78 Wing, which is responsible for training; No. 81 Wing, responsible for the air control capability; and No. 82 Wing, responsible for the precision strike capability.

No. 78 Wing

No. 78 Wing trains Air Combat Group's air crew and technicians and is based at RAAF Williamtown just north of Newcastle in the New South Wales Hunter region. It currently has three squadrons (Nos. 76, 79 and 278 Squadrons), one of which (No. 79 Squadron) is based at RAAF Pearce, near Perth in Western Australia. Nos. 76 and 79 Squadrons are equipped with a total of 33 Hawk aircraft for lead-in fighter training; while No. 278 Squadron focuses on technical training. The Wing is currently acquiring radar simulation and radar emulation capabilities for its aircraft.

No. 81 Wing

No. 81 Wing prepares for battlespace control operations (through counter air), and strike/interdiction and offensive air support operations on land. It has three squadrons (Nos. 3, 75 and 77 Squadrons) of F/A-18A Hornet fighters, a total now of 71 aircraft.[4] No. 75 Squadron is based at RAAF Tindal, south of Darwin in the Northern Territory. The remainder of the wing is based at RAAF Williamtown.

RAAF F/A-18B Hornet [Photo: Department of Defence]

[1]Attended by 62 members and guests
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[3]Royal Australian Air Force *Air Power Manual* Volume 5
[4]Four aircraft have been lost since the aircraft came into service.

No. 82 Wing

No. 82 Wing prepares for strike, reconnaissance and forward air control operations – including strike/interdiction and offensive air support on both land and sea. It is based at RAAF Amberley, west of Brisbane in southern Queensland, has two squadrons (Nos. 6 and 4 Squadrons) and one flight (No. 5 Flight).

No. 6 Squadron focuses on maintaining the strike capability and currently consists of 13 F-111C strike aircraft and two RF-111C reconnaissance aircraft. These aircraft will be retired from service at the end of this year and will be replaced as an interim measure by 24 F/A-18F Super Hornet aircraft. No. 1 Squadron, which already has five of these new aircraft, is currently preparing for the Super Hornet transition. When the F-111 has been retired, No. 6 Squadron will be transferred to No. 78 Wing in a training role, and when equipped with F/A-18F Super Hornets, No. 1 Squadron will become the operational squadron within No. 82 Wing in the strike role.

RAAF F-111C strategic strike aircraft
[Photo: Department of Defence]

No. 4 Squadron is responsible for training what are now known internationally as 'Joint Terminal Attack Controllers' (JTAC), but may be better known to readers as forward air controllers, or FACs, responsible for the provision of close air support to ground troops – the Air Force equivalent of artillery forward observers and mortar mobile fire controllers. It trains personnel drawn from both Air Force and Army as JTACs. For the purpose of training JTACs, No. 4 Squadron is equipped with PC-9 trainer aircraft.

No. 5 Flight is equipped with unmanned aerial vehicles (UAVs) or what are increasingly being referred to as remotely-piloted aircraft (RPAs) as they are controlled by pilots, albeit not in the aircraft itself. The Air Force equipment differs from that employed by Army in that the former focuses on medium-altitude and high-altitude, long-endurance (in excess of 18 hours) aircraft of the Predator type suitable for surveillance and higher-level tactical and strategic strike, whereas the Army UAVs are much smaller, low-altitude, shorter-endurance aircraft used for tactical surveillance in support of ground troops. We can anticipate moving more towards RPAs in the future, but there will always be a benefit in having a person over the area of operations to reduce human errors regarding target identification and communication.

A current consideration within Air Combat Group is that once the transition to the Super Hornets has occurred, No. 81 Wing may focus on conventional warfare and No. 82 Wing on irregular warfare.

Super Hornet

The F/A-18F Super Hornet will be Australia's first new combat aircraft in 25 years. It is a very capable aircraft, at least the equal of any other combat aircraft likely to be flown by foreign powers in our region over the next decade. It is an ideal aircraft to bridge the transition from the separate fighters and strike aircraft that we have operated in the past to the multi-role combat aircraft, the F-35 Lightning II Joint Strike Fighter, due to come into service by 2020. While its outward appearance is similar to that of the F/A-18A and B aircraft currently in service, it is a larger aircraft and has much superior onboard equipment. It is as effective as the F-111 that it will replace in the strike role, particularly with its range extended by air-to-air refuelling, and is superior to the F/A-18A and B in the fighter role.

RAAF F/A-18F Super Hornet
[Photo: Department of Defence]

I have been asked, given that the F/A-18F Super Hornet is so capable in the short term and given the rate at which remotely-piloted aircraft technology is improving, will we need to introduce the Joint Strike Fighter in 2020? An alternative approach, of course, would be to rely primarily on cruise missiles for strategic strike and surface-to-air missiles for air defence. This is essentially the strategy that Navy has been developing since its aircraft carriers were retired and it will be fully implemented once the air-defence destroyers enter service within a few years. There are, however, weaknesses in such a strategy that are addressed with the employment of manned multi-role combat aircraft, as they provide a flexibility and capability (of which human-to-human communications is a key component) that missiles and remotely-piloted vehicles cannot yet

match. While the day may come when manned multi-role combat aircraft are no longer needed as part of the Defence Force mix, in my opinion, such a time is at least 30 years away.

Key Activities

The climax of the training undertaken by Air Combat Group is the conduct of exercises to prepare the Group's squadrons for operations. When squadrons and/or other Air Combat Group assets are deployed on operations, they come under command of Joint Operations Command. The Group, however, provides support and sustainment to its forces while on operations, primarily by ensuring that replacement personnel and units are trained and ready to replace those who have completed their tour of duty.

Currently, the principal operation in which elements of the Group are engaged is Operation Slipper in Afghanistan, where elements of No. 5 Flight are operating Heron unmanned aerial vehicles (UAV) in collaboration with the Canadians. The high-resolution intelligence, surveillance and reconnaissance information gathered by the Herons are filling key knowledge gaps and thereby are enhancing the capability of the Australian and Canadian forces operating in Afghanistan. The Heron UAV is a one-tonne aircraft capable of medium-altitude, long-endurance flights. The Herons are being leased by the Defence Materiel Organisation from MacDonald, Dettwiler and Associates Ltd, a Canadian company.

Australian-leased Heron unmanned aerial vehicle in Afghanistan in January 2010
[Photo: Department of Defence]

Key Challenges

Transition to the Joint Strike Fighter

One of the key challenges facing Air Combat Group over the next decade is to prepare for and accept into service the fifth generation F-35 Lightning II Joint Strike Fighter. There is a tight timetable for this transition beginning in 2016 with the standing up of the training unit (No. 2 Operational Conversion Unit, which will become No. 6 Squadron with effect from 2019) and concluding by mid-2020, by which time we expect to have four squadrons of Joint Strike Fighters operational – Nos. 1, 3, 75, and 77 Squadrons.

Prototype F-35 Lightning II Joint Strike Fighter
[Photo: Department of Defence]

There are a number of issues associated with the Joint Strike Fighter that will need to be addressed concurrent with producing operational squadrons. They include:

- retention of air crew and technicians – our people remain our most valuable asset, they are expensive to train and their retention during the inevitable upheavals associated with the transition will be a major priority;
- aircraft noise;
- synchronisation of new capabilities, such as unmanned aircraft systems; and
- management of strike, reconnaissance and joint terminal attack controller (JTAC) operations, including strike/interdiction and offensive air support on both land and sea – we are currently meeting JTAC just-in-time requirements.

Strategic Reform

A key challenge facing Defence is the implementation of the government-imposed Strategic Reform Programme which requires Defence to save $20 billion across its budget over 10 years. At the same time, the Air Force will transition from separate fighter and strike aircraft to a genuine multi-role combat aircraft, the F-35 Lightning II Joint Strike Fighter, a transition both facilitated and complicated by the introduction of a bridging aircraft, the F/A-18F Super Hornet, from 2011. Air Combat Group will also need to explore and learn to utilise the full capabilities of remotely-piloted aircraft. Key aspects of the transition will include:

- cultural[5] change – as we move to multi-role combat aircraft and remotely-piloted aircraft;

[5]An organisation's culture encompasses the organisation's ingrained ethos and *modus operandi*.

- cost consciousness – as we implement the Strategic Reform Programme; and
- *effective* and *efficient* production of air combat capability – which will mean that all of us will have to learn to work smarter.

Conclusion

The decade ahead will be challenging for Air Combat Group as the Air Force transitions to new air combat capabilities (multi-role combat aircraft and remotely-piloted aircraft) and learns how to employ them optimally on operations. At the same time, the Air Force must be ever conscious of the rigorous cost-saving programme that will accompany this transition. I am confident, though, that we will be able to meet these challenges and that our continuing small, but increasingly potent, air combat capability will continue to deter aggression against Australia and its interests and contribute to stability in our region. It will also continue to provide support to land and maritime operations within a joint force context.

The Author: Mel Hupfeld graduated with a Bachelor of Science degree from the Royal Australian Air Force Academy in 1983, winning the flying prize for his year. His early career was spent in various flying positions on Mirage and F/A-18 aircraft, before he qualified as a fighter combat instructor in 1989. Following service as B Flight Commander, No. 3 Squadron, and Executive Officer, No. 2 Operational Conversion Unit, he attended the Royal Air Force Advanced Staff Course in 1997, graduating as a Master of Arts in Defence Studies. In 2001, he led No. 75 Squadron on operations in Middle East for which service he was awarded the Distinguished Service Cross and his squadron was awarded a Meritorious Unit Citation. Promoted to group captain in 2004, he was appointed Director Aerospace Combat Development, before becoming Officer Commanding No. 81 Wing in 2006. Promoted to air commodore in 2007, he became Director of the Combined Air Operations Centre in the Middle East Area of Operations, before returning to Australia in 2008 as the Director-General Air Command Operations. He became Commander Air Combat Group in December 2009. [Photo of Air Commodore Hupfeld: Department of Defence]