

Australia's F/A-18 Hornet Aircraft—Implications of Use in Iraq

Introduction

In January 2003, the Australian government commenced the pre-deployment of ADF forces to the Persian Gulf in preparation for a likely military conflict in Iraq. Unexpectedly, the Australian contingent includes 14 F/A-18 Hornet aircraft from the RAAF's 75th Squadron based in Tindal.

The decision to deploy fighter aircraft to Iraq was surprising given the historical reluctance of Australian governments to send these expensive military capabilities in harm's way. Indeed, not a single Australian fighter aircraft, of any type, has been used in anger since the 1950-53 Korean War.¹

Furthermore, these aircraft suffer from a number of shortcomings that makes their participation in high-intensity operations an expensive and dangerous enterprise. These will be discussed later in this brief.

The Australian F/A-18

The F/A-18 had its origins on 13 January 1975 when the US Secretary of the Air Force announced that the F-16 had been accepted as the new US lightweight fighter. The losing design by Northrop (then known as the YF-17) was transformed by McDonnell-Douglas into a capable and lightweight alternative to the US Navy's F-14 Tomcat. This new F/A-18 had its first flight on 18 November 1978.²

At about the same time, Australia was in the process of selecting a replacement for its Mirage fighter aircraft which were rapidly running

out of serviceable life. Three US options were considered which included the F-15A Eagle, the F-16 Falcon, and the then brand new F/A-18 Hornet. The F-15 was discounted because the version offered did not have a ground-attack capability. The F-16 was deemed unsuitable largely on the basis of its having only one engine. Consequently, Australia signed a contract in October 1981 for the provision of 75 F/A-18 aircraft, of which 18 were two-seater versions. The first two aircraft were produced in the US, with the remainder being assembled in Australia. Delivery took place between February 1985 and May 1990.

The main original differences between the Australian and US Navy's standard F/A-18 are:

- the deletion of the nose wheel tie bar (used to engage the steam catapults on aircraft carriers)
- the addition of a high frequency radio
- an Australian fatigue data analysis system
- an improved video and voice recorder
- a different seat harness, and
- the use of ILS/VOR (Instrument Landing System/Very High Frequency Omnidirectional Range) instead of the carrier landing system.

Also, 23 of the Australian Hornets have wiring for a reconnaissance pod that replaces the gun pack in the front fuselage of the plane. Since delivery, ongoing upgrades have brought them up to the operational equivalent of the more

modern F/A-18 C/D models. These include:

- the capability to fire the AIM-120 AMRAAM air-to-air missile
- the ability to integrate a Northrop AN/ALQ-162 radar jammer, and
- to carry the new Loral AN/AAS-38 Nite Hawk FLIR (Forward Looking Infrared) Pod equipped with laser target designator/ranging equipment, thus making it possible for the Hornets to do their own target marking for precision delivery of laser-guided weapons.

Some of the Australian two-seater Hornets were provided with night-attack capability, quite similar to the US Marine Corps night attack aircraft.

Four Hornets were lost in crashes in the period 1987 to 1992.

Current and Planned Upgrades

Upgrades to the Australian F/A-18 have been taking place through Project AIR5376 (Hornet Upgrade Program, or HUG).³ Relevant phases (and sub-phases) of the HUG Program are:

- Phase 1. Improve the aircraft's communications anti-jamming capability, provide an interim upgrade to its radar warning receiver, improve navigation and situational awareness as well as target identification. Delivery of these upgrades is complete.
- Phase 2.1. Improve fire control radar (APG-73).

- Phase 2.2. Install a secure and jamming-resistant LINK-16 data-link; a colour upgrade for the cockpit displays; a helmet-mounted cueing system; and an upgrade to the Counter Measures Dispensing System.
- Phase 2.3. Install a new Electronic Warfare Self Protection (EWSP) System, including replacement of the Radio Frequency Jammers and Radar Warning Receivers. This phase has been deferred to later in the decade.
- Phase 3. Incorporate some major structural refurbishment to the Hornet. This phase is planned for the closing years of this decade.

Implications for Operations in Iraq

Electronic Warfare Self Protection (EWSP). While the capabilities of the aircraft in this regard were adequate when first acquired, they have not been maintained. Consequently, there is now a concern that they do not provide the required protection in high-threat environments such as that likely to prevail in Iraq. This perceived shortcoming will influence how and where—and maybe even if—the aircraft is used in combat operations.

LINK-16. This is a secure, jamming resistant datalink, intended to be a communications, navigation,

and identification system. It is designed to exchange surveillance and command and control (C2) information among various C2 platforms (like the AEW&C Airborne Early Warning and Control aircraft) and weapons platforms such as the F/A-18. Current plans are to incorporate this system into the Hornet fleet in 2005–06. Without this system, the aircraft will only have a restricted capacity to exchange data with other aircraft, in particular with any electronic warfare aircraft escorting the F/A-18 on their missions. This restricts the roles and missions that the aircraft can undertake to ground-attack missions in peripheral areas with low threat levels.

Airframe Lifespan. This is an issue that may become critical over the next five years. The major area of concern is the middle part of the aircraft—known as the 'centre barrel'—which serves as the attachment point for the wings and main landing gear. The US Navy has been forced to put roughly half its fleet of F/A-18 aircraft through a centre barrel replacement program so as to enable the aircraft to reach its planned life of type in 2019–20. This is both expensive and time consuming (a minimum of 10 000 hours of work per aircraft). At this stage, the ADF has decided not to undertake this modification, choosing instead to manage its fleet

in ways that reduce airframe fatigue and minimise excessive G-force manoeuvres. It is likely that the use of F/A-18 in combat operations over Iraq could exacerbate this problem and reduce the lifespan of the aircraft. As around one-quarter of the operational fleet is involved, it may compromise the ability of the RAAF to keep this aircraft operational until the introduction of the F-35 Joint Strike Fighter in the period 2015–20.

1. During the 1963–66 Confrontation with Indonesia, F-86 Sabre aircraft from the RAAF 77th Squadron were deployed to Butterworth Air Base in Malaysia. From August 1964 onwards these aircraft responded several times to incursions by Indonesian MIG-21 fighter jets. However, the Indonesian aircraft always turned back before crossing the international boundary. See Air Vice Marshal R.V. Richardson 'Confrontation in Malaysia 1963–1966' in South-East Asian Commitments 1950–65: The Proceedings of the 1997 RAAF History Conference, ed., J. Mordike, Air Power Studies Centre, Canberra, 1997.
2. http://www.csd.uwo.ca/~pettypi/elevon/baughner_us/f018.html
3. Defence Capability Plan 2001–2010, pp. 23–30.



Photo source: Royal Australian Air Force

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