

# PATHFINDER

AIR POWER DEVELOPMENT CENTRE BULLETIN



Issue 128, February 2010

## MANNED ISR: THE RF-111C

In December 2010 the Royal Australian Air Force's F-111C and RF-111C aircraft will be retired, after principally meeting Australia's needs for strike and photographic reconnaissance—or to use the current term, ISR (Intelligence, Surveillance and Reconnaissance)—for the last four decades. The F-111 will be replaced by F/A-18F Super Hornets in the strike role, but not in an ISR role. Although the Super Hornet has some inherent ISR capability, and the United States Navy is fielding the Shared Reconnaissance Pod (SHARP) on many of its Super Hornets (a capability that comprises electro-optical and infra red sensors that can downlink imagery to a ground station), a dedicated ISR version of this aircraft is not being developed. So, how and why was the RF-111 reconnaissance aircraft placed into the RAAF order of battle and what will replace it?

During both world wars, Australian flying units conducted photographic reconnaissance missions using aircraft dedicated to the role. Between the wars and immediately afterwards, however, ISR capability was allowed to languish because of resource constraints. During the early 1960s, when the search began for a replacement for the Canberra bomber, the photographic reconnaissance role was reinstated. The choice was narrowed to the British Tactical Strike Reconnaissance 2 (TSR 2) and the American F-111A (see *Pathfinder* No 72), both of which were planned to have a tactical reconnaissance version. In 1965, Australia contracted to buy 18 F-111A strike and six RF-111A reconnaissance aircraft, but six strike aircraft were later accepted in lieu of the reconnaissance variant, with a plan to retrofit six aircraft with a reconnaissance pallet in the aircraft's weapon bay.

By 1971, it was clear that the USAF was no longer interested in a reconnaissance version of the F-111. They were willing, however, to sell the design of the reconnaissance pallet for US\$3m—an offer too good to refuse. About this time, the number of aircraft to be

modified was reduced from six to four. The 24 strike aircraft were finally accepted in 1973 and put into service with Nos 1 and 6 Squadrons.

In October 1978, F-111C A8-126 was flown to the General Dynamics plant at Fort Worth, Texas, for modification. The first RF-111C was rolled out on 18 April 1979 and commenced a four-month flight test program. After returning to Amberley in August 1979, the aircraft deployed to Darwin for tropical flight trials. The remaining three aircraft were converted at No 3 Aircraft Depot at Amberley during 1980, using kits supplied by General Dynamics. Once these aircraft were in service, and following acquisitions that allowed the setting up of a photographic processing and interpretation facility on the ground, the RAAF had its first dedicated processing, exploitation and dissemination (PED) system.



*Loading cameras into the RF-111 sensor bay*

The RF-111C gives the RAAF an outstanding capability, with the aircraft capable of a 1000 nautical mile (1850 km) radius of action including 400 nautical miles (740 kms) at low level. Fitted with a range of sensors, the RF-111C can take high and low altitude, vertical, oblique

and panoramic imagery. In addition, it was until recently fitted with an infra-red line scanner that could image at night or in low visibility conditions. In short, the aircraft can take detailed imagery of the smallest of targets in one high-speed, low or high level pass by day or night. Due to its speed and defensive aids, the aircraft can also survive in a wide range of threat environments.

In April 1983, the RF-111C hit the headlines in a totally unexpected way. The Federal Government was preparing a submission to the High Court to stop the building of the Franklin River dam in southwest Tasmania. Staff in the office of the Attorney General, Senator Gareth Evans, requested HQ Operational Command to task an aircraft to photograph the dam site, to confirm that a court injunction to halt construction work was being obeyed.

Because an RF-111C was not immediately available, a photo-reconnaissance Mirage flew to the area on 7 April and made several low passes. The next day an RF-111 was tasked and took further photos from high level, without attracting notice. The story hit the papers within days, and was raised in Parliament. The Commonwealth was accused of 'spying' on the States. The Prime Minister, the Chief Defence Force Staff, and the Chief of Air Staff had not been briefed about the flights and were furious that RAAF involvement in such a sensitive issue could occur without proper approval. Subsequently, Defence Instructions were amended to provide for a more rigorous approval before similar tasks could be accepted.



*RF-111 image of the Franklin River dam site*

In the lead up to the Gulf War in 1990-91, American planners realised that their tactical reconnaissance capability was limited. The USAF recognised that the RAAF RF-111s were the best tactical reconnaissance aircraft in the western world and made approaches to the Australian Government for their deployment to the Middle East. After consideration of the risks involved, the Hawke Government chose to send RAN ships, a medical team and clearance divers, but not RF-111s. In July 1996, the RF-111C aircraft and the reconnaissance capability were transferred from No 6 Squadron to No 1 Squadron.

In June 1999, civil unrest broke out in East Timor. When militia gangs later threatened United Nations staff and Australian nationals as well as the East Timorese, Australian peacekeeping troops were inserted under Operation SPITFIRE. With tensions building, six aircraft (both F-111s and RF-111s) from Nos 1 and 6 Squadrons deployed to RAAF Tindal if called upon. When

INTERFET forces arrived in Dili on 20 September, the situation on the ground was volatile. Requests for RF-111 overflights of East Timor were initially refused by the Indonesian Air Commander, but after Indonesian forces withdrew in late October overflights were permitted. RF-111 missions began on 5 November and continued until four days later. These flights over East Timor were the only operational employment of the RAAF F-111 fleet.

The ISR capability provided by the RF-111C has provided Australia with the capacity to conduct effective independent strike operations. Although satellites and Unmanned Aerial Vehicles (UAVs) can provide some elements of the ISR required, they cannot provide all of the required capabilities. While UAVs are persistent, they are not survivable in high threat environments. Satellites are also limited by orbital mechanics and weather to a greater degree than manned aircraft. There is still a requirement for ISR capabilities exhibiting the inherent air power characteristics of perspective, reach, penetration, responsiveness and flexibility. As the ISR capability the RF-111C represents is not being replaced under current acquisition plans, there would appear to be a gap in the ADF's future ISR capability.

- *Australian forces used reconnaissance aircraft to gather intelligence in both World Wars.*
- *INTERFET operations in East Timor were the only time the F-111 fleet flew operational missions.*
- *The RF-111C provides an ISR capability to the ADF that is survivable, flexible and responsive in threat environments—a capability that is not identified in future acquisition plans.*

*'Australia's geography and breadth of our national interests create a requirement for the Air Force to own and operate surveillance and reconnaissance capabilities that can reach and operate over distant and wide areas, and operate in the maritime, land and air domains.'*

AAP 1000-D—The Air Power Manual



**Air Power Development Centre**  
Level 3, 205 Anketell Street  
TUGGERANONG ACT 2900

Ph: 02 6266 1355 Fax: 02 6266 1041  
Email: [airpower@defence.gov.au](mailto:airpower@defence.gov.au)  
Web: [www.raf.gov.au/airpower](http://www.raf.gov.au/airpower)

