



Swing wing

The F-111's technological leap for the RAAF

Soon after WW2 a new Cold War descended and Australia's regional geostrategic environment rapidly deteriorated, especially after 1949 when Mao Zedong's Chinese Communist Party established its rule over mainland China. The deterioration continued with the Korean War (1950-53), the defeat of the French by the Viet Minh in Indo-China in 1954, and the rise of the communist insurgency in Malaya from 1948.

Closer to Australia, the newly-independent Indonesia lurched in an increasingly uncertain direction under President Sukarno who had assumed largely autocratic power and whose relationship with the Indonesian Communist Party was causing great concern in Australia.

At a time when Australia's population was less than eight million (1949), and just nudging 10 million (1959), it was not surprising Australia sought to augment its combat power with a long-range strike capability, with the English Electric Canberra coming into RAAF service in 1953. It was also not surprising that, for some time, Australia seriously considered acquiring a nuclear strike option.

The nuclear option did not eventuate but with the Canberra bomber lacking a radar and electronic warfare capability – possessing only a Doppler navigation set – the lack of a credible strike capability continued to weigh on government and Air Force. Thus with hindsight, it is easy to understand the train of argument leading to Prime Minister Menzies, on October 24 1963, announcing the acquisition of two squadrons of the General Dynamics TFX as a replacement for the Canberra – aided no doubt by the imminent federal election and some criticism of Australia's lack of defence preparedness.

Aviation occasionally experiences technological leaps, and the TFX, later the F-111, was one such leap. Its combination of a variable-geometry

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• Readers with an interest are referred to *Going Solo – The Royal Australian Air Force; 1946-1971* by Alan Stephens, and *From Controversy to Cutting Edge* by Mark Lax, for two comprehensive accounts of the F-111 acquisition. DEFENCE

wing, an afterburning turbofan, a high fuel fraction and a comprehensive suite of radar, navigation and electronic warfare equipment, produced a new long-range, low-level, all-weather strike capability able to penetrate air defences of the day. Although conceived by US Secretary of Defence, Robert McNamara, as a strike-fighter to serve the US Air Force and US Navy, the F-111 was also a unique solution to Australia's need for strategic reach. It was also to be the greatest step-change in capability the RAAF has ever undergone.

A contract for 24 F-111A aircraft was soon signed with Australia planning to take delivery of its first aircraft in July 1968. But as the program evolved, a myriad of problems emerged including a range deficiency which caused the RAAF to add the longer wing and heavier undercarriage from the USN F-111B – giving rise to the Australian F-111C variant. The first contingent of RAAF personnel (two pilots, two navigators and an aircrew simulator specialist) arrived in the US in July 1967, to serve as line instructors at the USAF 4527 Combat Crew Training Squadron. A RAAF test pilot followed, and RAAF maintenance personnel were sent to various USAF bases and to General Dynamics.

By early 1968, the first cohort of six operational crews had arrived in the US for conversion and for the ferry of the initial six F-111C to Australia, with the RAAF having already thoughtfully provided the Sabre pilots

with a Canberra conversion and the Canberra pilots a Sabre conversion.

But serious concerns about the maturity and airworthiness of the F-111 surfaced. As well, the longevity of its airframe was in doubt, especially regarding the wing carry-through box and the swing-wing pivot pins constructed of D6ac steel. These concerns led Australia to defer the hand-over ceremony to September 4 1968, and then, prompted by two further F-111 accidents, place the acceptance of the F-111C on hold.

It was then the sizeable investment made by the RAAF in developing a strong uniformed Technical Branch paid dividends, with the Air Force engineering expertise – augmented by the specialist aircraft metal fatigue knowledge resident in the Aeronautical Research Laboratories – played a key role in recovering the F-111C program. The subsequent, inspect and repair as necessary program, as agreed by the Australian and US defence ministers (the Fraser-Laird Agreement) was not quick, taking until June 1973. But the delay proved an astute decision, as when the F-111C finally arrived it came with a redesigned wing carry-through box, a Cold Proof Load Testing regimen, and the inclusion of numerous engineering change proposals. The RAAF had finally acquired the long-range strike capability it had long sought.

The F-111 represented a technological watershed for the RAAF with huge implications for capability, doctrine, personnel, logistics and industry. It was a seminal event in the history of the RAAF. ▣

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