The Douglas Skyhawk

Fleet Air Arm Association of Australia
HERITAGE FEATURE

Image: Jack Mayfield

The McDonnell Douglas Skyhawk was only in the Fleet Air Arm's inventory for 17 years, but it was a quantum leap forward from the Sea Venoms that preceded it, and proved to be one of best-loved and most successful aircraft of our time.

Kim Dunstan looks at this part of our heritage.

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In 1960, with an unstable security situation in South-East Asia and concerns about the spread of communist insurgencies in Vietnam, Laos and Cambodia, the Australian Government agreed that the RAN Fleet Air Arm needed new fixed-wing aircraft to replace the ageing De Havilland Sea Venom FAW53s and AS-1 Fairey Gannets. But the problem was that a larger aircraft carrier would be needed for the new generation naval aircraft – at a huge cost.

This prompted a search for aircraft capable of operating from the light-fleet carrier HMAS *Melbourne*. Of the aircraft available two US Navy types were short-listed – the Douglas A-4 Skyhawk fighter-bomber and the S-2E Grumman Tracker. Following proving trials on *Melbourne* both were selected, both for their qualities and ready availability.

In 1965 an order was placed with McDonnell-Douglas for 10 new A4G Skyhawk attack fighter-bombers at a cost of $18.4m. At the time the Skyhawks had the best all-round attack and fighter capabilities and were capable of operating from *Melbourne*. Earlier an order had been placed with Grumman for 14 new S-2E Trackers to replace the Navy's Fairy Gannet AS-1 aircraft.

The Sturdy Skyhawk

The RAN A4G Skyhawk was a variant of the highly successful A-4 Skyhawk jet designed by Douglas' chief engineer, Ed Heinemann, as a carrier-borne fighter-bomber for the US Navy . The USN endorsed the plan and a prototype XA4D-1 first flew on 22 June 1954 – it was designed as a tough high-performance

ground-attack aircraft, or as a fighter able to operate from ASW carriers. The Skyhawks continued to operate with the US Navy from 1956 until 1975 (and TA-4s until 2003). Production finally ceased in 1979 by which time 2,960 Skyhawks had been built, including 555 trainers.

When McDonnell and Douglas amalgamated they continued to build A-4 variants, including the A4G type ordered by the RAN, which were based on the A-4F fighter-bomber and TA-4F dual trainer. The RAN Skyhawks primary role was air defence, designated A4G and TA4G (the hyphen was not used in RAN nomenclature). The A4Gs featured a J52-P8A turbojet, nose wheel steering, upper wing spoilers, the Douglas designed zero-zero Escapac 1-C3 ejection seat and a navigation radar. Unlike earlier A-4s they carried up to four AIM-9B Sidewinder air-to-air missiles.

The RAN Skyhawks

The first RAN A4G was flown on 19 July 1967 by Douglas test pilot, Jim Stegman, with the TA4G trainer tested two days later. Delivery of the first ten Skyhawks – eight A4Gs and two TA4Gs – began on 26 July 1967, embarking on *Melbourne* at San Diego over the period 27-30 October 1967. They were disembarked in Jervis Bay on 22 November for transportation by road to NAS Nowra. A second consignment of A4Gs and TA4Gs was embarked on HMAS *Sydney* at San Diego on 08 July 1971. In total 16 A4Gs and four TA4Gs were delivered to the RAN.

The RAN Skyhawk A4G was single seat delta-wing aircraft with a single Pratt and Whitney J52-P8A engine, capable of 586 Knots (Mach 0.88) at sea level. It had combat radius of 625 nm or 1,317 nm with external tanks, and a service ceiling of 40,000 ft. The A4G had considerable strike power for attack and defence, with five hard points, two under each wing and one centred, capable of carrying a wide variety of munitions including 127mm Zuni rockets, or FFAR rocket pods. The two 20mm Colt Mk12 cannons, one in each wing stub, provided extra sting.

The two-seat TA4G trainers never operated from *Melbourne* as they had a different centre of gravity which affected flight characteristics. Because of this they were deemed unsafe in the event of a 'bolter' off the carrier's relatively short angle deck.

Tough & Versatile

The major role for the RAN A4Gs was fleet defence, so they were wired to carry up to four AIM-9 Sidewinder air-to-air missiles (one on each of the four underwing pylons). This was an advance on the two Sidewinders carried on the A-4s at the time – but some variants were retro-fitted later.

The A4G Skyhawks were versatile aircraft capable of performing in-flight refuelling when fitted with the large centre-mounted D-704 refuelling pod. The receiving aircraft would connect to the tanker's drogue via a front-mounted refuelling probe, positioned on the starboard side of the Skyhawks nose. This system offered numerous operational advantages as it dramatically extended the A4G's range.

The Skyhawks low delta-wings, powerful engine and robust airframe enabled it to cruise at high sub-sonic speeds with large external loads, yet remain highly manoeuvrable. The tricycle undercarriage and drop-down leading-edge slats were a great benefit with deck landings. The A4Gs had the AN/APG-53A radar and a suite of avionics which added to the package. All in all, the Skyhawks were compact, tough, nimble, and popular with pilots and ground crews.

Skyhawk Training Begins

The decision to re-equip the RAN FAA with the Skyhawks reversed the Government's 1959 policy to disband the FAA. This meant a significant ramp-up in training effort to achieve the number of pilots and maintainers required.

In 1967 two RAN FAA officers, LCDR Da Costa and LEUT King (both experienced Sea Venom pilots) were posted to NAS Lemoore in California, the US Navy's west coast master jet base. There they began a five-month course of Skyhawk A-4 training with USN Attack Squadron VA125. On completion they returned to Australia to establish 805 Squadron for the Skyhawks (later VF805 Squadron), and the Skyhawk Operational

What Model?

As one of the most successful small jet fighters of the century, the A4 progressed and developed throughout its life. The first model was the A4D-1 (re-designated the A-4A in 1962), of which 146 were built. The A-4B version followed, featuring improved electronics and provision for in-flight refuelling, with 542 being produced. The A-4C, which flew in August 1959, introduced a new ejection seat, terrain clearance radar in the nose and an improved autopilot and gyro system. Production of 638 of this model made it the most numerous of Skyhawk variants.

The A-4E was introduced in 1961, featuring the more powerful J52P-6A turbojet with 8200 lbs of thrust. It had provision for five external pylons capable of carrying up to 8200 lb of stores.

The Australians ordered 10 A-4E Skyhawks in October of 1965. The procurement was, however, overtaken in August 1966 by the first flight of the next Skyhawk model, the A-4F. This variant introduced 9300 lb of thrust from its J52-P-8A turbojet. In addition it added a steerable nosewheel, wing spoilers and a zero-zero ejection seat. It was the first variant to be fitted with the distinctive dorsal avionics pack that became a feature of the later Skyhawks. Some A-4Fs were subsequently modified with the 11,000 lb J52-P-401 engines with enlarged air intakes.

The A4-F was the aircraft purchased by the RAN, but they were not fitted with the dorsal hump. Instead, they had specified avionics which led to the designation A4G (the hyphen was dropped for simplicity). The first two aircraft, a single seat and the dual TA4G trainer, were accepted at the Douglas Long Beach plant in California on 26 July 1967. All 10 were loaded aboard HMAS Melbourne in October of that year, arriving in Jervis Bay on 22 Nov 1967.✈

***Upper**. VADM Allen M. Shinn hands over the aircraft log packs to RADM G.J.Crabb CBE DFC RAN, whilst mr Donald W. Douglas looks on. **Lower.** Melbourne slipped into Jervis Bay where the Skyhawks were carefully loaded onto barges and taken to HMAS Creswell, before being towed to Albatross. (RAN images).*

The first of the RAN's new Skyhawks, still in its protective coating, being towed through the front gate under the watch of two of its ancestors – a Hawker Sea Fury and Fairey Firefly. (RAN image).

Flying School (OFS). You can read John Da Costa's account of the training later in this document.

NAS Lemoore, where Da Costa and King did their training, had opened in 1961 to support the US Pacific Fleet. The size and scope of the facilities were impressive, with 13,500 ft concrete runways and masses of aircraft and USN student pilots training – many preparing for Vietnam. Their training provided an excellent program covering most of the needs of the RAN FAA – including on the ground-attack role, which the Skyhawk was designed for. As both pilots had lengthy experience in air defence with the Sea Venoms they quickly converted to the new aircraft.

The five-month course included special air-to-air gunnery and Sidewinder 'fighter' exercises at Yuma, Arizona, and day and night carrier qualifications on USS *Kearsarge*, off San Diego. This provided an excellent foundation for the establishment of an Operational Flying School (OFS) at NAS Nowra. The first OFS class started at Nowra on 13 December 1967 with Lt. Mike Gump USN assisting with the early Skyhawk conversions. No other pilots (aside from USN exchange ones) were ever trained in the United States.

Maintainer Training

Air Engineering Officer LEUT Jim Lamb and a team of maintainers were also attached to VA125 for technical training and hands-on experience with the Skyhawks. Other maintainers were posted to the US Navy Air Station at Pensacola for training. As the Skyhawk servicing differed from the British pattern of aircraft maintenance used in the RAN FAA there was a lot to learn. In addition to new technical equipment the stores ordering system was different, requiring careful attention. The RAN personnel considered the training to be thorough and the friendliness and assistance provided by the USN and contractors was appreciated. Much of the goodwill appeared to be connected to the knowledge that Australia was a longstanding ally paying its way.

The RAN Skyhawk Squadron

From the beginning the A4G Skyhawks were a success. The RAN FAA's main base was at HMAS *Albatross,* at Nowra, south of Sydney, where two Squadrons operated Skyhawks. 805 Squadron was the front-line unit, re-commissioned at Nowra on 10 January 1968. The Squadron rotated between NAS Nowra and embarked on the *Melbourne* when the ship was operating at sea. Skyhawks were also assigned to 724 Squadron, the fixed-wing jet training squadron.

Immediately after the delivery of the Skyhawks and Trackers, *Melbourne* underwent a major refit. This gave 805 (changed to VF805 in 1969) time to work-up to full operational standard, including the opportunity to operate on the RN carrier HMS *Hermes* during its operational visit to Australia to refresh flight-deck skills.

Some logistical problems surfaced at this time due to a shortage of ground equipment and spare parts, owing to a misunderstanding by the RAN of the USN stock ordering system. This was further complicated by the demands of USN squadrons operating in Vietnam, which had priority. Once the problem was identified the US authorities moved quickly to resolve the matter, allowing VF805 to resume flying.

After her modifications *Melbourne* put to sea early in 1969. VF805 pilots immediately began re-qualifying doing 'touch and goes,' arrested landings and catapulted take-offs. The Squadron then embarked on *Melbourne* together with the VS816 Squadron Trackers and HS817 Wessex ASW helicopters. *Melbourne* then resumed her operational training duties in home waters, and engaged in exercises with allied navies in South East Asia and the Pacific.

Skyhawk Training & OFS

In 1968 the Skyhawks joined 724 Squadron, the fixed wing training squadron based at RANAS Nowra, which until then operated DH Sea Venom and Vampire jet trainers. Adopting the USN squadron prefixes, 724 Squadron was designated VC724 the following year. Besides providing training for pilots converting to the Skyhawks, VC724 Squadron also took over the running of the Skyhawk Operational Flying School (OFS); but the Squadron did not embark on *Melbourne.*

A Skyhawk jet conversion course took six-months to complete. Pilots began by flying in a Skyhawk TA4G two-seat trainer with an instructor. After five hours tuition, pilots would generally fly solo thereafter. However, a further 25 hours of flying the A4G solo was required before the conversion to type was accomplished.

The next step was to complete the Operational Flying School course. This involved a further 85 hours of intensive training, including navigation and attack exercises, bombing, interceptions, air-to-air refuelling. Preparation for carrier deck landings began at Nowra with Mirror-Assisted Dummy Deck Landings (MADDLs). At least 100 MADDLs were practised before attempting a landing on *Melbourne*, starting with 'touch-and-goes' (deck hook up) then daylight arrested landings (hook down) followed by catapult launches from the flight-deck. After that night-time operations began.

The OFS training focussed on advanced flying techniques, developing the pilot's skills to fly and fight the Skyhawk during daylight or at night in all weather conditions.

VC724 Squadron also operated the Fleet Requirements Unit (FRU). This involved training with other RAN units, assisting with radar and radio calibrations, target towing during gunnery exercises as well as assisting the Australian Army or Air Force during exercises. VF805 also operated a Skyhawk aerobatic team for a while in the 70s, called the 'Checkmates'.

Multi-National Exercises

In 1969 VF805 Squadron joined *Melbourne* (with VS816 Trackers and HS817 Westland Wessex ASW helicopters) to participate in international exercises. Since the mid-1950s HMAS *Melbourne* had participated in the Far East Strategic Reserve (FESR) together with the South-East Asia Treaty Organisation (SEATO) the aim being to stem communist expansion. In 1969 a period of détente began to emerge in the 'Cold War,' but there was no relaxation in vigilance as the war in Vietnam had escalated and communist guerrilla activity in the region continued. On 8 July 1971 HMAS *Sydney* embarked ten additional (ex USN) Skyhawks at San Diego, upgraded to A4G standard. They were off-loaded in Jervis Bay on 12 August for transport by road to NAS Nowra. (See our History in Photos pages below for an explanation why ten additional aircraft were bought).

Although the RAN Skyhawks were never involved in action they played a vital role in protecting sea lanes and defending the fleet against the likelihood of hostile acts. The FESR retained an ongoing presence in South East Asia until 1971 when it was replaced by the Five Power Defence Arrangement. The annual SEATO joint exercises with allied naval forces ensured that collective security remained strong. During this period *Melbourne* provided a robust ASW focus with Trackers and helicopters, with the Skyhawks adding a valuable strike capability.

A Time of Change

Following the phasing-out of SEATO in 1973, the biennial Rim of the Pacific (RIMPAC) exercises continued to build cooperation among Pacific rim countries, promoting regional stability and safe, secure sea lanes. The first RIMPAC exercise was conducted in 1971, with Australia, New Zealand, Canada, the UK, and the USA taking part, since then other countries have joined. Meanwhile, the Skyhawks continued to be used in exercises in foreign and regional waters throughout the 1970s. The Skyhawks final RIMPAC exercise was in 1980.

In September 1980 the government announced it would replace *Melbourne* with a carrier suitable for ASW helicopters and Short Take Off and Vertical Landing (STOVL) aircraft. But the intended purchase of the RN carrier HMS *Invincible* was abandoned when the Falklands War intervened. Difficulties with *Melbourne's* catapult meant VF805 Squadron did not embark on *Melbourne* in 1981, but the Skyhawks continued to operate from NAS Nowra and do 'touch and goes' whenever the ship was within reach.

But the winds of political change were blowing. Security in South East Asia had stabilised and the need for fixed-wing aircraft was questioned. The alternative use of helicopters in the fleet, and the proposed purchase of LHD-style ships with helicopters and amphibious capabilities became the favoured option.

***Below**. Pilots like nothing better than 'beating up' ships, as can be seen in this shot of two Skyhawks passing down the side of Melbourne at deck height. The exact date is unknown, but it must have been before May '79 as one of the featured aircraft went to Davy Jones' locker then. (Navy Image via FAAM).*

Skyhawk Attrition

By the end of their service in the RAN, exactly half of the 20 Skyhawks delivered had been lost in accidents. The Skyhawks were worked hard during their service life and the accident rate for operating high performance aircraft from a small carrier was always greater than land-based operations. Two pilots were killed in accidents.

Four Skyhawks were lost through engine failure, two through catapult failure, one when an arrestor wire broke, one lost overboard during heavy seas, one during a mock attack on *Melbourne* when LEUT Ralph McMillan lost his life, and another following a mid-air collision in which SBLT Malcolm McCoy died. Histories of every Skyhawk airframe can be found via the last page in this document.

Farewell the Skyhawks

In 1981 *Melbourne's* planned refit was cancelled and she was decommissioned on 30 June the following year. Whilst options for her replacement were considered, the RAN's two front-line fixed wing squadrons, VF805 (Skyhawks) and VS816 (Trackers) were disbanded, with each aircraft type going to their respective training Squadrons. The Skyhawk was still a very potent weapon system though, and they continued to operate from Nowra on FRU duties and other exercises.

In March 1983 the axe fell. The incoming Labor government announced that *Melbourne* would not be replaced and the fixed-wing element of the FAA would be disbanded. VC724 Squadron was decommissioned at Nowra on 30 June 1984, and the Skyhawks were sold to New Zealand and flown to RNZAF Ohakea in July of that year.

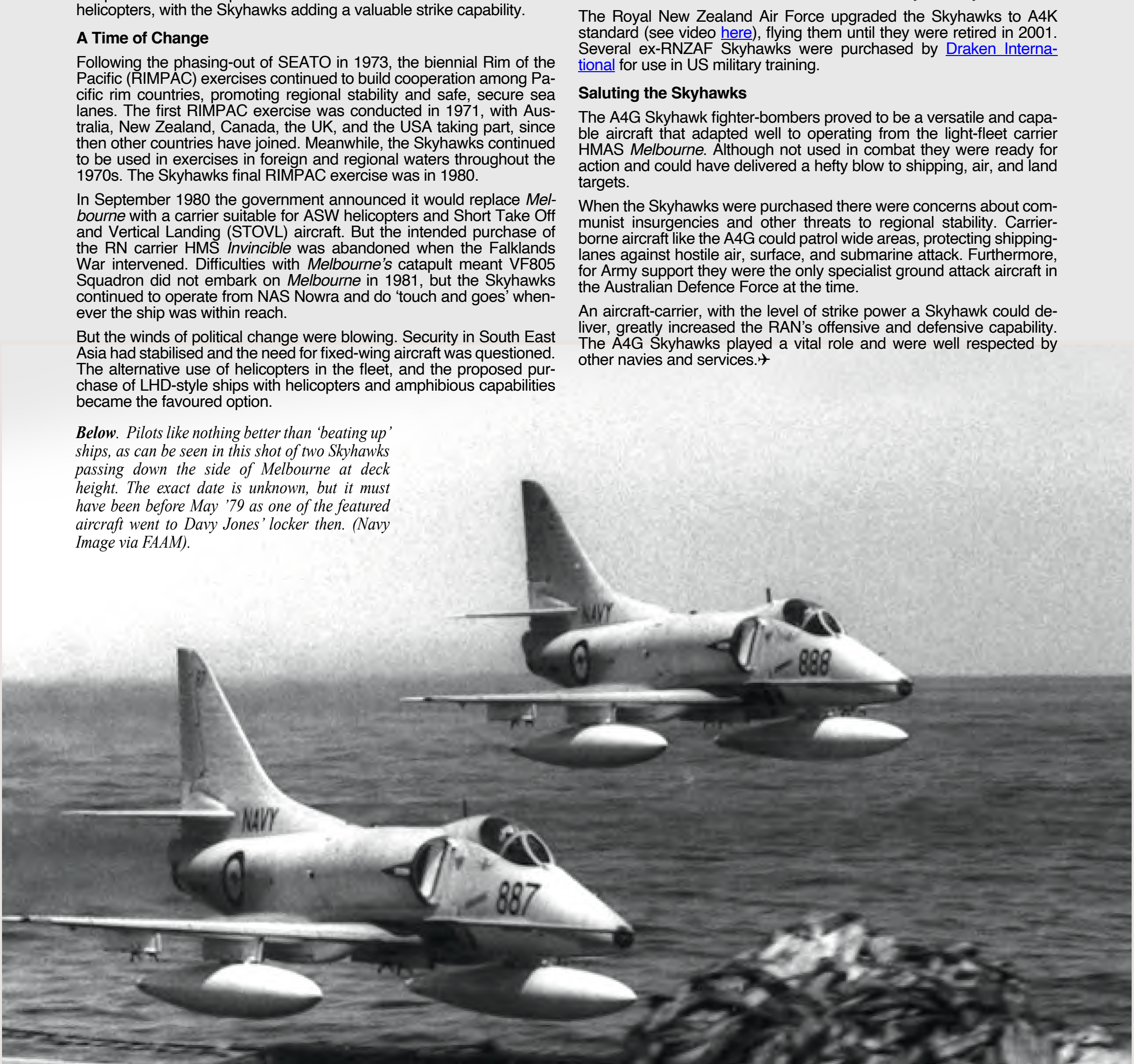
The Royal New Zealand Air Force upgraded the Skyhawks to A4K standard (see video here), flying them until they were retired in 2001. Several ex-RNZAF Skyhawks were purchased by Draken International for use in US military training.

Saluting the Skyhawks

The A4G Skyhawk fighter-bombers proved to be a versatile and capable aircraft that adapted well to operating from the light-fleet carrier HMAS *Melbourne*. Although not used in combat they were ready for action and could have delivered a hefty blow to shipping, air, and land targets.

When the Skyhawks were purchased there were concerns about communist insurgencies and other threats to regional stability. Carrier-borne aircraft like the A4G could patrol wide areas, protecting shipping-lanes against hostile air, surface, and submarine attack. Furthermore, for Army support they were the only specialist ground attack aircraft in the Australian Defence Force at the time.

An aircraft-carrier, with the level of strike power a Skyhawk could deliver, greatly increased the RAN's offensive and defensive capability. The A4G Skyhawks played a vital role and were well respected by other navies and services.✈



Design & Build

Ed Heinemann, responsible for the design of the A4

In 1952, Douglas Aircraft turned its mind to the replacement of the USN's Skyraiders – one of the largest propeller driven fighter-bombers ever built.

The US Navy's specifications, following the concept of 'bigger is better', called for a jet aircraft capable of operating from carriers, costing no more than one million dollars each. It could weigh as much as 30,000 lbs in order to carry all the ordnance they wanted.

The Douglas Aircraft Corporation (later to become McDonnell-Douglas) gave the task to their best designer, Ed Heinemann, who had been responsible for a long and distinguished list of successful designs including the SBD Dauntless, the B-26 Invader and the AD Skyraider. Heinemann did not share the view the philosophy that successive generations of aircraft needed to be bigger, heavier or more complex. He carefully studied the type of fighting the Navy had been engaged in in Korea and, with his analysis of state of the art jet engine development, resolved to break the 'creeping size' mould.

His design philosophy was disciplined: he made a list of the features required of a new aircraft and then ruthlessly deleted everything that wasn't absolutely necessary to achieve its mission. The resulting design astonished those who were involved, as it could meet the specified payload, range and performance requirements at no more than half of the allowable maximum weight. This was achieved by innovative thinking and design excellence.

Built around one of the new Wright turbojet engines, it carried only enough internal fuel to return from a target: fuel for getting there was carried externally on jettison able tanks. There was no internal bomb-bay: all ordnance was attached to hard points under the wings, made easier by the rigid delta wing design. Similarly, the undercarriage did not penetrate the main wing spar, being mounted so that when retracted only the wheel itself was inside the wing, whilst the undercarriage struts were housed in a fairing below the lower wing surface. This meant that the wing structure itself could be lighter for the same overall strength, and combined with the lack of a (heavy) wing fold mechanism even more weight was saved.

Radar sets in 1952 were large, heavy and mostly unreliable, so Heinemann made do with a simple optical gun sight. The delta wing design was efficient at the cruise speed of the aircraft, and automatic slats to improve handling at lower landing speeds were simple and effective.

The little Skyhawk soon earned the nicknames "Scooter", "Bantam Bomber", "Tink" and, because of its nimble performance, "Heinemann's Hot-Rod"; but for all its size the Skyhawk packed a mean punch: it had a 20mm cannon in each wing root and could carry an astonishing range of bombs, rockets and missiles.

The A-4 also pioneered the concept of "buddy" air-to-air refuelling, whereby the aircraft could be used as a tanker for others of the same type, removing the need for entirely different tanker aircraft. One A4 was designated a tanker aircraft, with a centre-mounted external fuel tank with a hose reel in the aft section and an extensible drogue type refuelling bucket. It was a simple system that allowed aircraft to extend their range without the need for very expensive dedicated tankers.

The Navy issued a contract for the type on June 12 1952, and the first prototype first flew on June 22, 1954. Deliveries to Navy and U.S. Marine Corps squadrons commenced in late 1956. The Skyhawk remained in production until 1975, with a total of 2,960 aircraft built, including 555 two-seat trainers, giving it the longest production run of any tactical aircraft in the history of aviation.✈

Building the A4 - 1

Below: Beautifully designed and engineered, the Skyhawk employed a modular construction, as can be seen from this sequence of four photographs (courtesy of Phil Thompson).

Building the A4 - 2

The principal metal used is called Primary 70-75, an aluminium alloy. PR-1422 is the critical sealing compound. Since the Skyhawk's wing is, in effect, a fuel tank, the implications of a poor seal during manufacture are obvious.

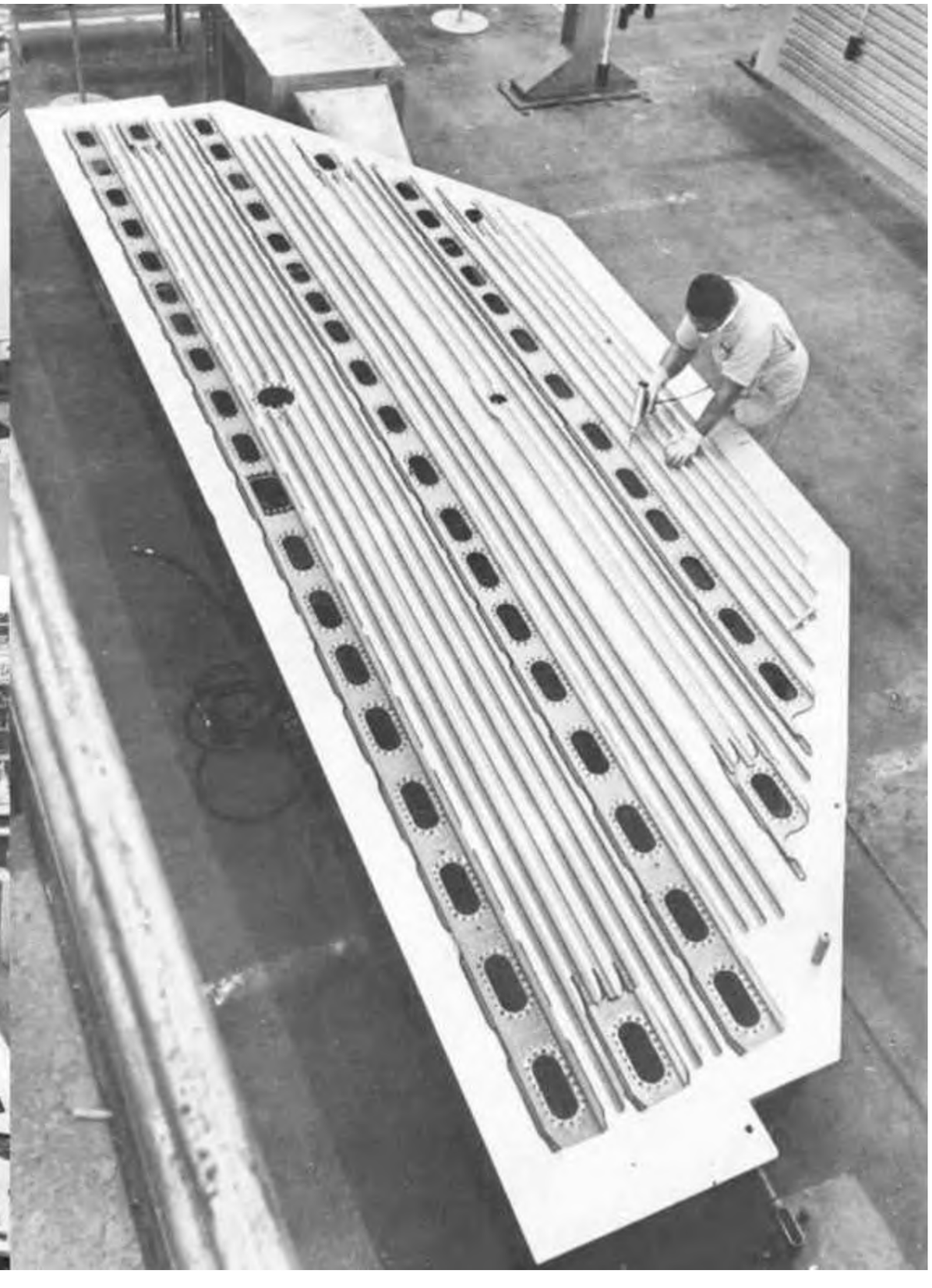
The race-track shaped holes are access ports which could be opened for repair action during the plane's lifetime. After one slab of wing skin is reinforced with bulkheads, spares and longerons, it is hoisted to the vertical position by a bridge train. The other half of the A is then connected, creating the integral wing.

In increments, as components are attached, the structure becomes a composite, gathering strength and rigidity. A TV camera enables technicians to monitor the self-sealing action of rivets as they are pressed into the metal surface.

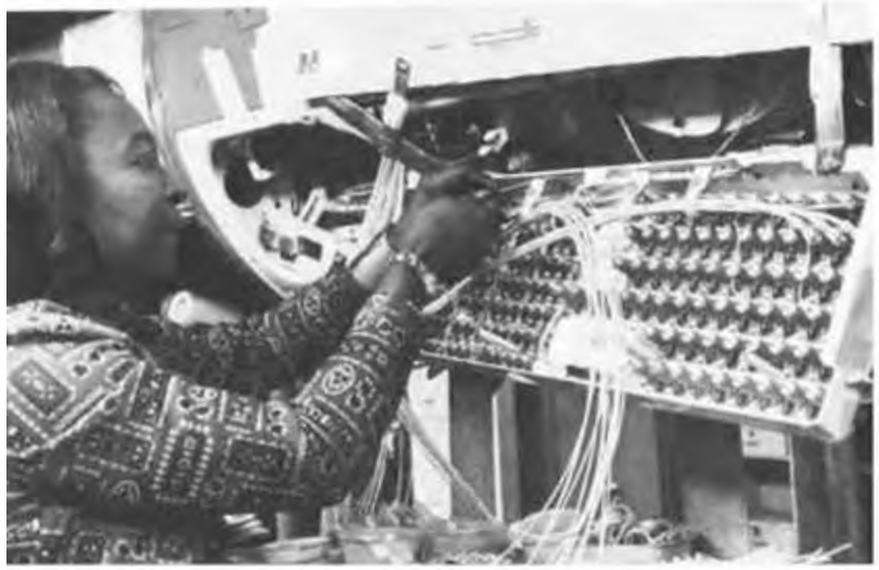
Sealing compound is quick-cured in the wing by a heavy duty heater. Although the sealant never completely hardens, it is firmly affixed. The wing is then liberally coated with a liquid soap mixture and six pounds of air pressure applied. Any bubble area reveals a leak, much like the process used in detecting a minuscule opening in a flat tyre.

After this, the wing goes outside to a satellite enclosure where 200 gallons of additional sealant compound are pumped into it. Suspended in a framework, it is rotated many times, like a chicken on a spit. This slosh action thoroughly coasts the interior with the sealant.

The excess is then drained away, and the wing is returned.



Building the A4 - 3



Fuel transfer and gauge systems are partially installed followed by the aerodynamically tapered wing leading edges. These are attached, like the wing tips, outboard of the tank boundary and are not part of the ‘wet’ wing.

Douglas aircraft assemblers, as the technicians are called, must progress through a demanding training and apprenticeship program, often requiring years of labour and study. Their personal inspection stamps are inscribed in key areas as a sort of quality control signature of their work.

Integrating electrical wires into the forward fuselage section, rigging harnesses and fuse panels are but a few of the finely detailed, laborious chores which the assemblers must undertaken. There are more than 9,000 termination points in the wiring complex, for example. FACT TWO, the Flexible Automatic Circuit Tester, is a computerised device which checks resistance, continuity and isolates electrical faults so that they can be repaired. About 50 squawks, or discrepancies, are discovered on an average plane: not a bad percentage compared to the number of circuits. This electrical test evolution usually takes a week per aircraft.

The nose wheel and strut are added about the time the elaborate wiring evolution is under way. A rectangular shaped hole in the deck accommodates the drop check procedure.

After basic assembly of the cockpit, it is painted black and pressurised to check for leaks. The Skyhawk is about six months in the making at this point.

Building the A4 - 4

Vans transported the wing and forward fuselage from Long Beach to Palmdale where they met the remaining components. Off-loaded at one end of the line, they moved along accordingly over a period of three months.

On the second level of the Palmdate factory, separate test and assembly activities occurred for black-box type gear, like radios and navigation computers. Bomb rack wiring harnesses, intricate in design, were put together upstairs. Life-size charts were used which allowed the technicians to place actual wires directly onto the route depicted on the diagram. Much of this topside gear was government furnished equipment which was carefully serviced before installation down below.

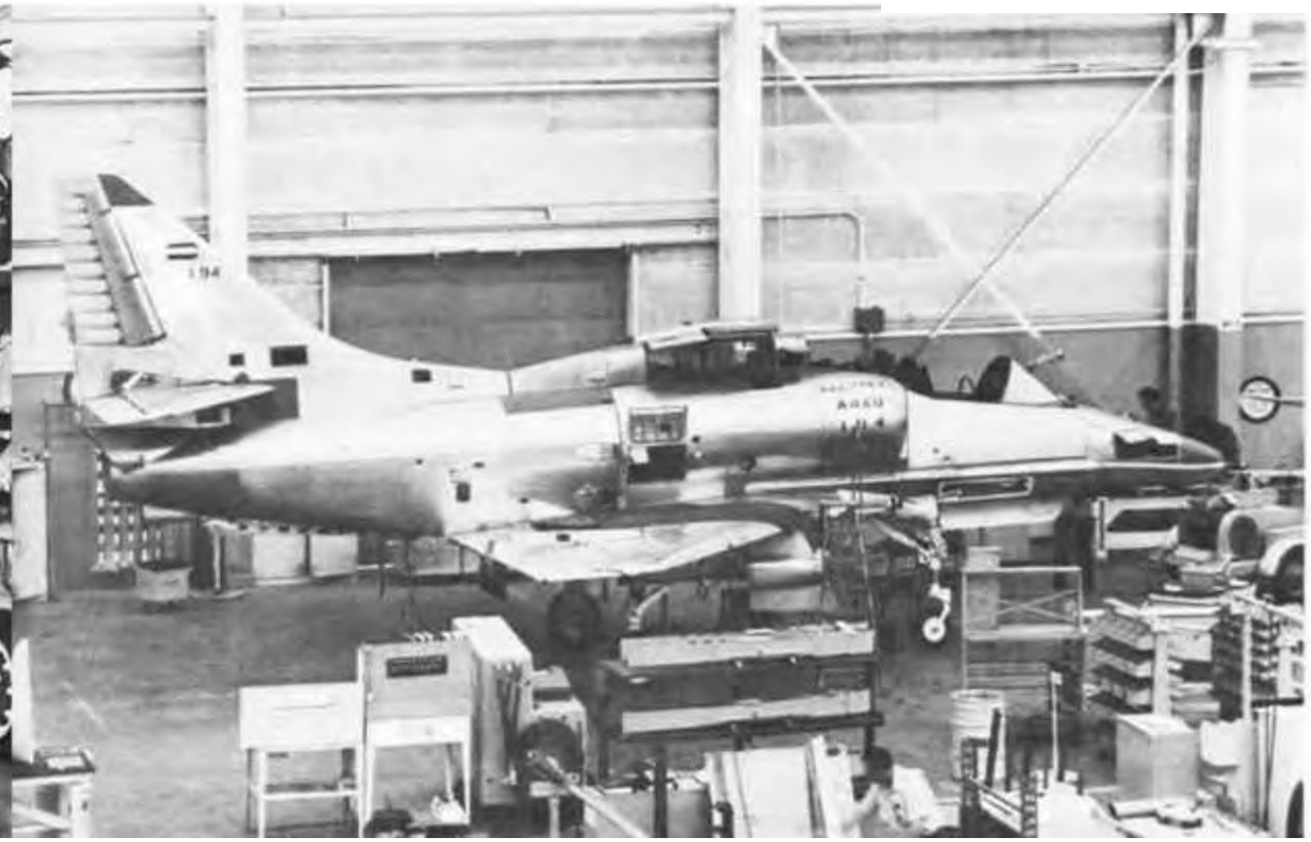
The cockpit was built up and the ejection seat lowered into the machine and secured. More plumbing and wiring coincided with this action. Flight controls, including spoilers and ailerons were hinged to the main wing. The tail hook, refuelling probe and guns were incorporated. The main landing gears were affixed and drop-checked. Sub-assembly of the tail package was completed and the power plant was inserted. The A4 assumed its familiar profile when the tail section was slid forward, enveloping the engine, as the forward portion of the aircraft was connected to the aft.

Before this stage, which marked the aircraft's entry into final assembly preparations, the wing was mounted onto what was simply called a wing post. This post supported the wing, along with the two main landing gear, whilst the forward fuselage section was mated onto it. In the photo, Harry Gann, Manager Aircraft Information Douglas Aviation (and prominent aerial photographer who contributed significantly to *Naval Aviation News*), examines the post with Doug Gerber, Branch Manager at Palmdale. A basic support device, unpretentious to the eye but fortress like in strength, the post shared a measure of the Skyhawk heritage. Every single A4, from the very first one, rested atop this same post on its way to the sky.

These A-4KUs were the latest production aircraft, slated for the Kuwait Air Force. An engine was about to the installed in one which already wore the Kuwait camouflage paint scheme. It was undergoing some retrofit maintenance when the photo was taken.

Normally, when a plane reaches the final assembly, its skin is as bare as in the A-4KU below. Painting follows along with a battery of static ground tests.

About 9 months from the beginning, when the aircraft was nothing more than stacks of metal, piles of rivets and an immense collection of different parts, it was ready to take to the sky and earn its wings.



First Pilot Training

John Da Costa remembers the Training Detachment to the States in 1966.

Following the reversal, in the early 1960s, of an earlier Australian Government decision to disband the RAN Fleet Air Arm and to pay-off the carrier HMAS *Melbourne*, a Navy Office search commenced to identify replacements for the RAN's ageing fixed-wing aircraft. In the case of the Sea Venom All Weather and Night Fighter, the choice narrowed down to the A4 Skyhawk aircraft, used by the US Navy (USN) predominantly in the Air-to-Ground "Attack" role, but also in limited numbers as a "fighter" when operating from the USN's Anti-Submarine Warfare carriers of the Modified Essex class. Out of all naval aircraft then available and capable of operating from a Light Fleet Carrier, the Skyhawk undoubtedly had the best all-round capability in both the attack and fighter roles. The doubts expressed by some aviation "experts" in Defence as to the ability of *Melbourne* to operate these aircraft were dismissed when, in May 1965, a USN Skyhawk successfully carried out an arrested landing on *Melbourne*, followed by a catapult launch.

The A4G model Skyhawk to be purchased for the RAN was, apart from certain Electronic Warfare equipment that the RAN was not purchasing, to be built to the same specifications as the latest USN A4F model. It had the current USN avionics, radar and weapons delivery systems and the J52-P8A engine. Additionally, unlike its USN counterpart, it was wired to carry up to four AIM9B Sidewinder AAMs on wing stations, interchangeable with the normal attack weapons fit.

In 1967, the CO and Senior Pilot (designates) of the RANs yet-to-be-recommissioned 805 Squadron were posted to the US Navy's Attack Squadron 125 (VA125) at NAS Lemoore, California, for 5 months of A4 Skyhawk training in preparation for returning to Australia to conduct the first RAN Skyhawk Operational Flying School (OFS). At the time, the Vietnam War was placing great demands on USN Carrier Air Groups. To keep up the demand for A4 Skyhawk pilots, the very large VA125 was running a continuous Replacement Air Group (RAG) training programme with a syllabus which, fortuitously, met most of the RAN's requirements.

The two RAN pilots were experienced in carrier operations in the RAN's 1950s era Hawker de-Havilland Sea Venom subsonic all-weather day/night fighter in the primary role of air defence (4x20mm cannon) and limited secondary role of air to surface attack (cannon and un-guided 3-inch Air-to-Ground rockets). One pilot was a graduate of the Royal Navy's Air Warfare Instructors Course (LCDR Da-Costa) and the other was a Qualified Flying Instructor and Instrument Rating Examiner (LEUT King). Neither had much experience as "attack" pilots; rather, their training had been more in the fighter/air defence role.

Perhaps the greatest difference that they experienced was that they were coming from a relatively small naval aviation community, quite at home with one aircraft carrier and a Naval Air Station and having Naval Air Squadrons of 6 to 10 aircraft, commanded by officers of LCDR rank. By contrast, at NAS Lemoore, California, the VA125 flight line had a line-up of 100 Skyhawks each morning, ranging from the "ancient" A4B (by then relegated to the In-flight Refuelling Tanker role) right through to the latest version (TA4F). Pilots almost needed a map to find their allocated aircraft on the flight line. The airfield had parallel 14,500 ft. concrete runways. The CO VA125 was a four-ring Captain and both the XO and Operations Officer were Commanders. There was an enormous A4 RAG student population ranging from Ensigns straight out of the USNs Pensacola Flight School, to ex-ASW (and other) pilots of Commander's rank, just busting to get to Vietnam!

The "culture shock" of this huge difference in aviation circumstances was reduced to negligible proportions by the hospitality and courtesy extended to the RAN pilots (and also to the team of maintainers who were attached to VA125 for technical training/experience on Skyhawk aircraft and equipment). Apart from the innate friendliness of individual USN personnel, RAN personnel felt that their reception had quite a lot to do with the fact that they were not seen as just another group of US "aid recipients". Not only was Australia doing its share in the Vietnam War, but the Australian Government was paying for the Skyhawk purchase and for all associated training being carried out in the USA. These facts seemed to be well known to VA125 personnel and it seemed to have generated an enormous degree of good-will. There seemed to be a determination that, so far as training was concerned, the Australians were not going to be 'short-changed' in any way.

The A4 RAG syllabus was entirely attack orientated and fully met that aspect of the RAN's requirements. Highlights were the "Sandblower" low level navigation and attack exercises over much of the Nevada and Arizona deserts. There was no "fighter" phase of the USN's A4 training so special arrangements were made for RAN pilots to carry out a one week deployment to MCAS Yuma, Arizona, for air-to-air gun attacks on towed banner targets, Ground Controlled Interception training and Sidewinder firings against parachute flare targets.

Having had considerable air-to-air experience in the RAN using a gyroscopic lead-predicting gun-sight, the RAN pilots were somewhat deflated to find that they were now in a similar position to much-earlier World War I fighter pilots as they tried to get shells to hit the towed banner using the Skyhawk's "fixed" bombing gun-sight! They also had a problem getting adequate ranging information when firing Sidewinders against a stationary flare target. (Sidewinder ranging proved less of a problem later because, after training using "captive" Sidewinder missiles, the A4's in-built terrain avoidance APG53A radar and visual air-to-air ranging, Squadron pilots became proficient at getting themselves into the Sidewinder firing position. "Live firings" were also conducted against the TONIC heat-source target towed by a JINDIVIK drone at the Jervis Bay Missile Range).

An impressive USN professional concept was literally dumped in RAN pilots' laps with the introduction to them of the 5 to 6 cms. thick A4 NATOPS Manual. Until then, RAN pilots had only known the British-style "Pilot's Notes"- a small notebook sized publication containing essential aircraft operating details, check lists and emergency proce-

NAVY PILOTS FOR TRAINING COURSES

Two R.A.N. fighter pilots left Australia on January 5 to undergo Skyhawk conversion courses in the United States.

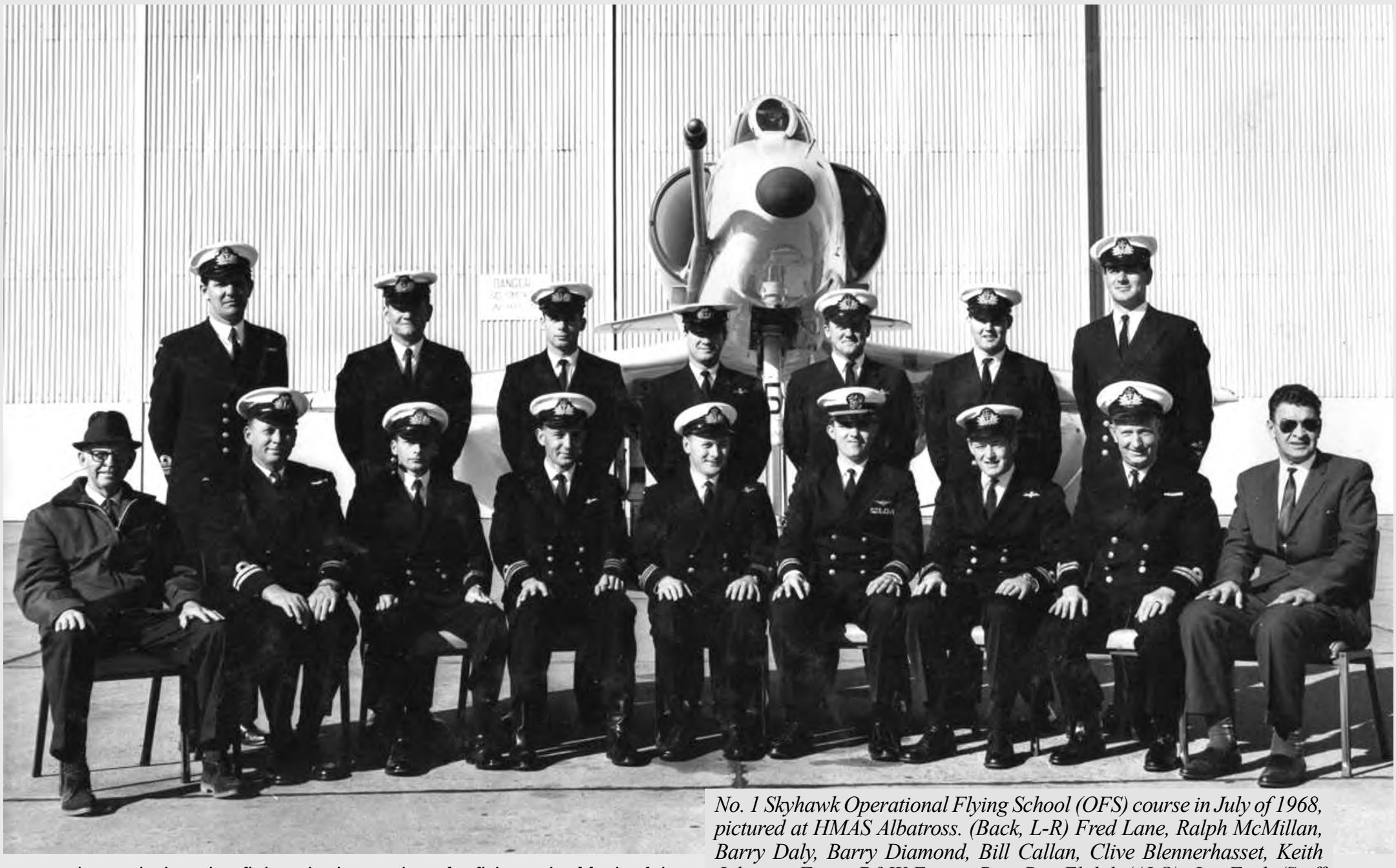
The officers, Lt./Cdr. John Dacosta and Lt. Graham King, will undertake the conversion courses at the United States Naval Air Station at Lemoore, near Fresno in California.

They will be attached to the United States Navy for five months, during which time they will become thoroughly familiar with Skyhawk operations ashore and afloat.

On return to Australia they will assist in the training of R.A.N. pilots selected to fly the Skyhawk.

The R.A.N. has 10 Skyhawk aircraft on order from the United States and it is expected that delivery will be taken later this year.

● On this page we publish some pictures of our "birdie" boys training in the U.S.A.



No. 1 Skyhawk Operational Flying School (OFS) course in July of 1968, pictured at HMAS Albatross. (Back, L-R) Fred Lane, Ralph McMillan, Barry Daly, Barry Diamond, Bill Callan, Clive Blennerhasset, Keith Johnson. Front. P&W Engine Rep, Reg Elphik (ALO), Jim Firth (Staff Officer), Dusty King, John Da Costa, Mike Gump (USN), Brian Dutch, Jim Lamb (AEO), Douglas Rep. (Navy Photo courtesy of John Da Costa).

dures, designed to fit into the leg pocket of a flying suit. Much of the technical material conveniently brought together for aviators in the NATOPS Manual had only been available for earlier British-type aircraft by researching the maintenance manuals for the aircraft type. NATOPS was a great tool for improving a pilot's knowledge of aircraft operations and systems and was adopted into the RAN with the American naval aircraft. It did come with a small supplement which could be carried in the aircraft.

Day and night carrier qualifications (CARQUALS) were carried out by RAN pilots and the rest of the Skyhawk RAG in the designated "Duty Carrier" (USS Kearsage), off San Diego. This final part of the training programme (re-)introduced the RAN to the use of a Landing Signals Officer (LSO), previously known in the straight-deck carrier age as the "Batsman", a deck-landing "aid" which had not been used in the RAN since the introduction of the angled flight deck and Mirror Landing Aid. After CARQUALS, the RAN pilots strongly recommended the re-introduction of the "batsman" concept for Skyhawk operations from HMAS *Melbourne*, mainly because of the enhanced safety factor, especially at night, when recovering an aircraft that had an approach speed some 10 knots faster than the aircraft it was to replace.

In summary, the Skyhawk training with the USN entirely met RAN needs and set up pilots well to plan and conduct RAN Skyhawk courses in Australia.

The RAN's Skyhawks were delivered to NAS Nowra in late 1967. The first flight in Australia took place on 13th December 1967 (TA4G Skyhawk 911) and 805 Squadron was recommissioned on 10th January 1968 as the Skyhawk Operational Flying School.

The first OFS got off to a bad start despite the enthusiasm of Squadron aircrew and maintainers. The problem was that there was a serious shortage of support equipment and spare parts, due to an initial lack of understanding by RAN logisticians of the USN Federal Stock Number (FSN) system.

The RAN belatedly appreciated that with previous aircraft purchases from the United Kingdom, British Admiralty staff, in motherhood mode, had ensured that an appropriate initial outfit of spares and ground equipment where provided at the same time as the aircraft. The US Department of Defense, quite understandably, did not feel under any obligation to do the same thing in what to them was a purely commercial transaction. Since the Australian Government was funding the Skyhawk programme in instalments, the US authorities merely ran down the parts list, in FSN order, until the monetary value of each instalment ran out, and then forwarded those items to Australia. Since the FSN sequence of items was quite arbitrary, the RAN had received, for example, spare Skyhawk mainplanes that were not expected to be needed for years, but not the ladders that aircrew and maintenance personnel needed to climb up and into the aircraft. There were many, more serious, shortages, so in order to rectify the logistics problem, Navy Office set up an experienced team to identify the most needed equipment for initial operations and to liaise with US authorities to resolve the supply priorities. In the meantime, the first OFS Course was postponed and did not really commence until July 1968.

Once under way, however, the first OFS progressed most satisfactorily and was completed in December 1968. The pilots on that Course were fortunate in that whilst HMAS Melbourne was still undergoing a major refit and modification in preparation for the embarkation of the new generation of aircraft, the Royal Navy's HMS *Hermes* had paid an operational visit to Australia and kindly made its deck available for RAN pilots to gain deck-landing experience.

That first group of pilots to complete the Skyhawk OFS formed the first Front Line Skyhawk Squadron and eventually embarked in HMAS *Melbourne* as 805 Squadron (later VF805). The OFS Squadron at NAS Nowra was re-labelled as 724 Squadron (later VC724) and continued with subsequent Skyhawk OFS training.

So began a most successful period of Skyhawk operations in the Fleet, prematurely brought to an end by the "paying off", without replacement, of HMAS Melbourne in the early 1980s.✈

RAN FAA A-4G OFS (Operational Flying School) list plus other pilots known to have flown A-4G Skyhawk

OFS No.1 1967–68
L–R: (back row) Lcdr Fred Lane; Leut Ralph McMillan; Barrie Daly; Barry Diamond; Lcdr Bill Callan; Leut Clive Blennerhassett; Keith Johnson; **(front row)** ALO; Leut Peter Firth (O); **(Instructors)** Lcdr Dusty King; John Da Costa; Leut Mike Gump USN; Brian Dutch SAWI; AEO

OFS No.2 1969
L–R: (back row) Sblt Ken Palmer; Gary Northern; Midn Peter Cox **(front row)** Leut Errol Kavanagh; Dave Collingridge

OFS No.3 — start Feb '70
L–R: Leut Barrie Daly **(first course interrupted by UK AWI training)** Lcdr Col Patterson; Leut Pete McNair; Aslt Phil Thompson; John Hamilton

OFS No.4 late in 1970?
L–R: Leut Charlie Rex; Rick Symons; Sblt Murray Smythe

OFS No.5 1971
L–R: (back) Sblt Graham Donovan; Tony Der Kinderen; **(front row)** Leut George Heron; Tom Supple

OFS No.6 — June 1972
L–R: Leut Graham Winterflood; Aslt John Siebert; Leut Jack Mayfield plus Leut Pete Clark **(injured in a Macchi ejection earlier — finished course later — perhaps OFS No.7?)**

OFS No.8 1973
L–R: Aslt Jerry Clark; Barry Evans; John McCauley

OFS No.9 mid-1973
L–R: Leut Dave Ramsay; Sblt Ian Shepherd; Leigh Costain **(did not finish — broken leg football injury)**; Andy Sinclair; Neville French

OFS No.10 1975
L–R: Sblt Ian Shepherd & Andy Sinclair **(both restarted OFS — defence cutbacks)**; Midn Kim Baddams; Mal McCoy

OFS No.11 1976
L–R: Midn Mike Maher; Sblt Colin Tomlinson; Leut Pete Greenfield

OFS No.12 1977?
L–R: Aslt M. Measday; Leut Allan Clark; Murray Coppins; Sblt Allan Bradtke

OFS No.13 1978?
L–R: Sblt Gary Osmond; Ray France

OFS No.14 1980
L–R: Midn Paul Kalade; Dave Baddams; Aslt Eamon Lines; Midn Mark Binskin; Leut Rob Bradshaw RN **(exchange)**

OFS No.15 — (start July 1981)
L–R: Aslt Dave Coote; Aslt Mark Boast; Leut John Bartels

OFS No.16 (1982)
L–R: Ray Whitman; Adrian Wilson; Mark Pearsall; Gary Standen RAAF **(exchange)**

Pilots known to have flown A-4G but not having formal OFS training:
Cmdr N.E. Lee; Lcdr Peter Marshall; Mike Astbury; Leut Mick Flynn; Graham Quick; Mick Curry;
(many vacancies.....)

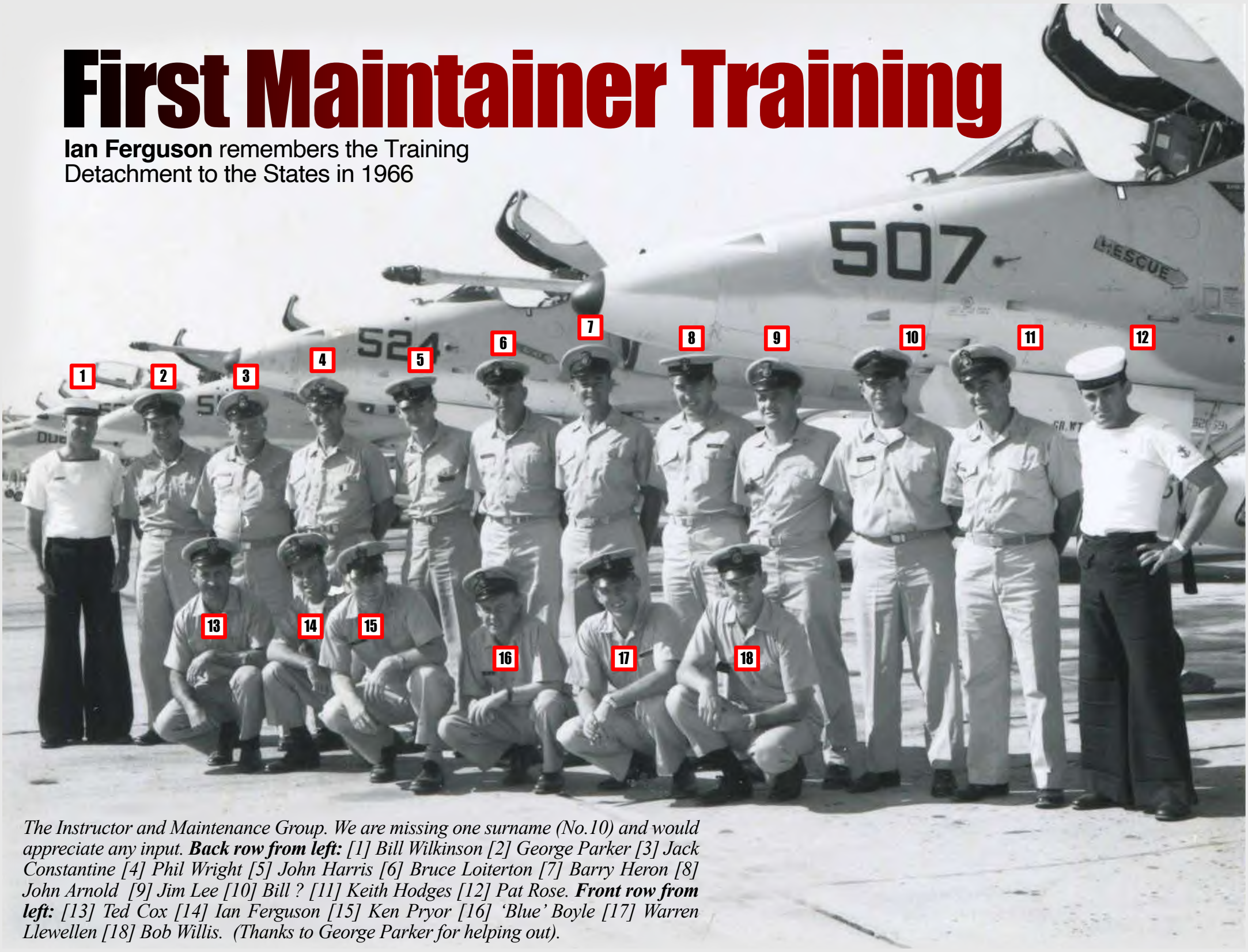
Leut Chris Olsson was on an OFS sometime or maybe a quick special one in early 1970s - maybe did part of OFS No.4 or No.5? he did a quick one to get to sea with 805 as Senior Pilot.

AMAFTU test pilots in early 70s. Lcdr Larry O'Day; Peter McIntyre;

USN/USMC exchange pilots:
Leut Mike Gump; Leut/Lcdr John Park; Leut Mike Nordeen; Tom LaMay; John Hershberger; Bob Stumpf; Paul O'Brien; Kev Finan; Robert Hanner; Capt Tom White USMC; Chuck Smith USMC;

First Maintainer Training

Ian Ferguson remembers the Training Detachment to the States in 1966



The Instructor and Maintenance Group. We are missing one surname (No.10) and would appreciate any input. ***Back row from left:*** *[1] Bill Wilkinson [2] George Parker [3] Jack Constantine [4] Phil Wright [5] John Harris [6] Bruce Loiterton [7] Barry Heron [8] John Arnold [9] Jim Lee [10] Bill ? [11] Keith Hodges [12] Pat Rose.* ***Front row from left:*** *[13] Ted Cox [14] Ian Ferguson [15] Ken Pryor [16] 'Blue' Boyle [17] Warren Llewellen [18] Bob Willis. (Thanks to George Parker for helping out).*

The members of RAN Instructor Group for the A4 Skyhawk to the USA were advised they were leaving Australia in early January 1966. It was a volunteer group whose names had been submitted in early December 1965. The Group consisted of Aircraft Mechanicians 1st Class A/E Jim Lee and Bob Willis, Chief Electrician Air Barry Herron, Petty Officers Radio Electrical AirGeorge Parker and John Harris, and Chief Aircraft Mechanician Weapons Ian Ferguson.

During the month before departure we, together with our wives and seventeen children, had to get Passports, Visas, inoculations etc.Then try and arrange banking in the US. Very little information was available on what was allowed in the way of accommodation allowances and the like, plus the short notice did not allow us to forward any household items such as bedlinen and cutlery etc. We were allowed an extra 100 pound baggage allowance which helped. The group departed Sydney on the evening of the 7th February 1966 (one week before decimal currency) again it was at the last moment we learnt we were headed for the Marine Corp Air Station (MCAS) El Toro on the southern outskirts of Los Angeles.

We arrived in LA about 8.30pm and travelled by Bus to El Toro where we were accommodated in motel-like accomodation for transit personnel, kids starving and very little in the way of a place to eat. Remember the thermostat was about 60ºF - stifling and no control. We met our boss-to-be Major Charles "Chuck" Chester the next morning, who escorted us to a complex where we all settled for apartments which suited us for the six months we were to be there. An A4E Familiarisation

Right*: Two press cuttings from the newspapers of the day. The captions read: (****Upper****): 'CHIEFS ARRIVE. Six Royal Australian Navy Chiefs make a preliminary inspection of the Sky Hawk's J-52 engine. Beginning an eight week course at Naval Air Maintenance Training Detachment are (L to R) B.S. Herron, J.Lee, J.F.Harris, R.W.Willis, I.J.Ferguson and G.E. Parker.' (****Lower****). 'Australian Trio watches as Lt.Cmdr. Paul Barrish of VA-125 goes through final check[s] prior to taking off in a Skyhawk jet. The three (from left) are Jim Lee, Bob Willis and Barry Herron. They are part of a group of 20 from the Australian Navy studying maintenance and operation of the Skyhawk.'*

Despite good training, things sometimes went wrong, as per the story received below from an ex-A4G maintainer:

In July 1970, I had just finished a Skyhawk course (Peter Welsh, Ben Link, and others) on the Friday and joined VC 724 SQN on the Monday as a young Artificer 3rdClass, (a Tiffy 3, a LS equivalent). I had a head full of knowledge but as yet no real practical skills – a typical MOBI but not brash or full of myself. As I entered the J Hangar after lunch I was summonsed by a Tiffy 2 (PO) who was in need of help to get an engine out of a Skyhawk. He was by himself and I knew from last weeks course that we needed to have at least 4 others (approx 6 all up) to perform the task successfully. To my "We need more people" was met by his "It's all right, I have done this before" I went to my position that of the person who would the engine out using the extraction frame onto the transport dolly. I was to use the speed brace attached to a chain that pulled the engine out. "What do you want me to do" asked I to his "Just wind it out and tell me if it gets hard to wind". What could go wrong with that?

So, I start to wind and almost immediately "Its hard to wind" says I. With that he darts between both fuselage side ports, to the underside of the engine to the hell hole at the back under the engine. "It's Ok he says "Keep winding as it must be misaligned a bit" he says. I wind half a turn and tell him "It's still tight". He again does the inspection of all access points and finds nothing wrong and tells me "Keep winding" which I do. "Its still tight" repeats I to his "Keep winding" and as I do there is an almighty bang and winding becoming extremely easy.

Next day (perhaps day 2 on the SQN, the memory is a little dim here) as I'm standing in front of a row of Commanders, LTCDRs, Leuts and none of them wearing a happy face, I tell my story of what happened. It seems that while the hydraulic line could withstand 3000 psi of internal pressure it couldn't withstand the mechanical advantage I had over it. Also there were some electrical wires that resisted my mechanical advantage for a while then there was the slight matter of the Constant Speed Drive (CSD) that was bolted to the front of the engine. The CSD was cunningly hidden behind a close fitting door that had managed to fall down from its propped open position and close itself during the engine extraction process. The CSD door locking mechanism managed to get itself embedded in the oil tank of the CSD until my mechanical advantage overcame it tearing a hole in the CSD. All these things appeared to happen all at once with the bang that was heard throughout the hangar.

The offending Tiffy 2 was taken off the squadron and I'm not sure what happened to him but he may have been retrained as an X-Ray machine technician in his post RAN career.✈

Course was conducted for the whole group, followed by all the individual courses we needed.

Courses were on the A4E since the A4F was just going into production. We were fortunate to visit the Douglas factory for a whole day and see the complete production line for the aircraft. We also were able to meet Factory Reps who would be in Australia, Charlie Lundstrom was particularly helpful in solving any problems we had in the differences between the USN A4F and our A4G. I had a little problem since the A4 could handle anything in the USN Inventory, but the powers that be hadn't let me know what we were purchasing in the way of weapons. Thus I had no idea what launchers etc. I needed. Leut John Selby who was in San Diego helped with Washington in this regard.

June saw us move house to the Naval Air Station (NAS) Lemoore, just thirty miles south of Fresno. We were all very shortly happily housed in three and four bedroom houses. We were allocated to VA125 which was the Training Squadron for the Air Station, and we split or time between the Naval Air Training Detachment, where we Instructed USN personnel doing courses on the A4E and the soon to be inservice A4F.

LEUT John Selby joined us in NAS Lemoore later in June, having spent the first six months in San Diego learning Tracker. VA 125 had some 120 aircraft all A4Es with about ten TA4Es. Some twenty of the Squadron's aircraft were permanently stationed at NAS Yuma, which was a weapons training station. All aircrew went there to qualify while Armourers had a great time working like slaves all day every day.

All of us were able to take a flight in an TA4 before we left for home. Mine was called a Sandblower, since it was a low level Navex through the Nevada Desert; I recall the Instructor I was with telling a student we were following he was too high at 400 feet, we then sideslipped under him."✈

***Below**. A story in 'The Hanford Sentinel", one of the local US magazines, about the Aussie Families on exchange and how they found the US "much like home". Page 2 (not shown here) noted that the families thought the cost of living in the States was about twice what it was at home, despite the advantageous exchange rate of AU$1 – US$1.11. How things have changed!*

The Hanford Sentinel Magazine

SATURDAY, AUGUST 13, 1966

Aussies Find U.S. Much Like Home

CHECKING COCKPIT of A4C Skyhawk are three petty officers from Australian Navy. Seated in cockpit is Barry Herron, kneeling at right is Bob Willis and looking on from top is Jim Lee.

By JOE BUCHANAN

GEORGE BROWN, Hanford's "Mr. Track," recently commented on the striking similarities between the American and Australian people during a conversation with a friend. He noted the similarities while attending the International Games at Los Angeles in which the Australian track team competed.

Brown dined with members of the Aussie cinder squad and found the occasion to be not only an enjoyable experience, but one marked by a free and comfortable association between the Australians and the Americans.

"They're a heck of a lot like us," Brown observed. "I guess they're more like the Americans than just about any other people."

Whether the Australians appreciate the comparison or not, many other people in the Hanford area who have had a chance to meet the folk from Down Under living here now agree with Brown's observation.

The first group of six families which included chiefs and senior petty officers from the Royal Australian Navy, arrived in this area a little over a month ago and took up residence in Hanford. They quickly blended into the various residential areas with little fuss and feathers. Two other groups arrived earlier this month and they, too, have easily become a part of the communities in which they live.

THE 20 AUSSIE Navy men and their families will be here for a year while the men are learning the fine points of maintenance and operation of the A4F Skyhawk. The Australian Navy has purchased a quantity of the Skyhawks from the United States and the training group will be at Lemoore Naval Air Station in classes and in the field learning about the aircraft.

Total count of persons in the Australian families was 76, but climbed to 77 when one family was blessed with a new addition. Their baby was born at the base hospital.

The Australian servicemen are getting along just fine and have found the natives very friendly. We asked one who lives right across the street from our home on Fairmont Drive, CPO Bob Willis, if his neighbors had dropped by to introduce themselves. Yes, he said, they had and he called them off by name.

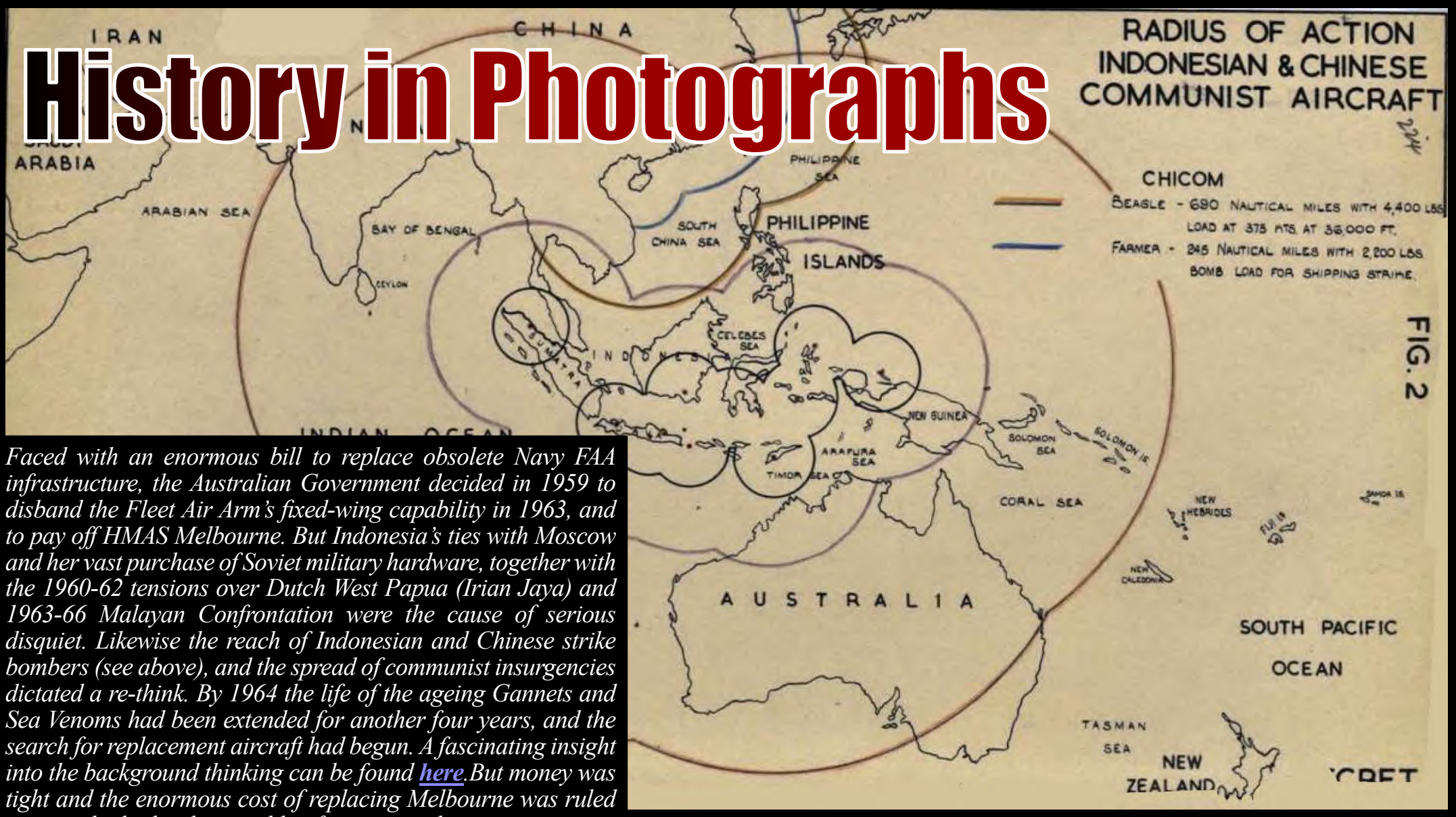
None in the group had ever visited this country before, but all seem to feel pretty much at home. As for the wives, Willis said his wife Wendy sums up her impressions of America with what he said was a typical Australian expression. Somehow it seems typically American:

"She says, 'It's a beaut!' " smiled Willis.

Lt. John Selby, head of the Australian contingent, said that the wives are particularly impressed with the stores and markets, especially the wide range of food stuffs and the reasonable cost. The packaging, especially frozen items, is much appreciated by the wives.

THE MEN are pleased with

History in Photographs



Faced with an enormous bill to replace obsolete Navy FAA infrastructure, the Australian Government decided in 1959 to disband the Fleet Air Arm's fixed-wing capability in 1963, and to pay off HMAS Melbourne. But Indonesia's ties with Moscow and her vast purchase of Soviet military hardware, together with the 1960-62 tensions over Dutch West Papua (Irian Jaya) and 1963-66 Malayan Confrontation were the cause of serious disquiet. Likewise the reach of Indonesian and Chinese strike bombers (see above), and the spread of communist insurgencies dictated a re-think. By 1964 the life of the ageing Gannets and Sea Venoms had been extended for another four years, and the search for replacement aircraft had begun. A fascinating insight into the background thinking can be found here.But money was tight and the enormous cost of replacing Melbourne was ruled out: so she had to be capable of operating the new generation of aircraft.

The Government was not prepared to order any aircraft until proving trials had been done. Accordingly, in May of 1958 an S2 Tracker from the USS Philippine Sea operated aboard Melbourne. Further trials were undertaken by two Trackers from Subic Bay in July 1964, and an order was subsequently placed with Grumman for 14 aircraft (plus two instructional airframes). The Skyhawk trial aboard Melbourne occurred on 20 May 1965, when LCDR Charles Ward Jr USN did several touch and goes before arresting aboard (below). His aircraft was from the USS Bennington and confirmed the Skyhawk was able to operate successfully from the small carrier. You can see the YouTube video of the visit here. (Photo Noel Dennett).

REDS SEND BOMBERS TO SUKARNO

DJAKARTA, WEDNESDAY

Russia will soon supply Indonesia with several giant Antonov 12 bombers and MI6 helicopters as part of arms deliveries for Indonesia's crush-Malaysia campaign.

Indonesian Air Commodore Budiardjo, announced this yesterday after returning from an arms-buying mission to Moscow and Eastern Europe.

Soviet technicians would come out to instal mobile radar stations in Indonesia, Budiardjo said. Other Soviet arms and equipment would be sent soon but he did not specifyquantity or type.

The Commodore said Indonesia's air attache in London has been ordered to file suit against the British Decca Corporation for cancelling a contract to build a radar system in Indonesia.

Soviet equipment expected soon would eliminate the need for Indonesian aircraft to be repaired in Hong Kong, a British Crown colony, he said.

Czechoslovakia, which Budiardjo also visited will provide Indonesia with Hi Dophin training aircraft to replace the American-built Mentor training aircraft now in use.

United Press International

MALAYSIAN security forces took these weapons from Indonesian guerrillas in a skirmish near the Sarawak border. Included in the arsenal are pistols, rifles and automatic weapons.

***Above**. The media of the time was full of articles reflecting the Government's concern about the spread of Communism in the region, either directly though insurgency, or by support to regimes such as Sukano's Indonesia. The list of aircraft that Australia might buy was quickly narrowed to just two types: the Douglas A4 Skyhawk to provide fighter/bomber capability, and the Grumman Tracker for surveillance and Anti Submarine Warfare. Both were suitable, readily available and relatively cheap – but would they be able to operate from such a small flight deck?*

***Left**: Petty Officer Ronald M Forbes paints a kangaroo motif onto the fuselage of the USN fighter during its trial visit to Melbourne, while Naval Airman Joe Galea assists. 'Branding' of visiting aircraft was a regular practice. The Skyhawk, from VA113 Squadron, was conducting cross-deck operations trials from USS Bennington during SEATO exercise Sea Horse. Years later this A4 was seen in the Arizona 'boneyard' and the kangaroo was still there. (Image AWM).*

LCDR Chas Ward immediately after making his arrested landing on HMAS Melbourne. Bennington, his mother ship, was itself regarded as a small carrier by USN standards but was still significantly bigger than the Melbourne. It would have been an interesting conversation to listen to, when he returned home.

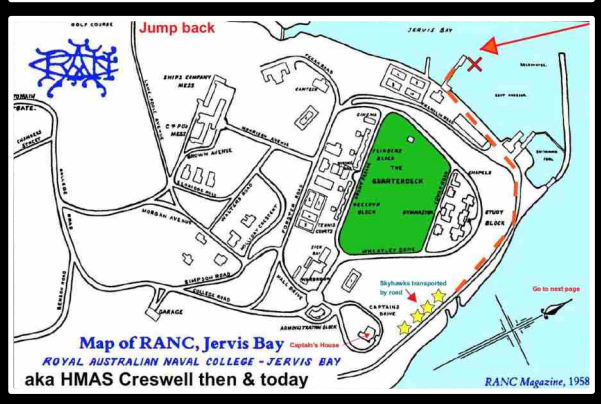
DELIVERY AND TRAINING

***Left**. VADM Allen M. Shinn USN presenting aircraft log packs to RADM G.J. Crabb CBE DFC RAN whilst Mr Donald W. Douglas looks on, as the first two RAN Skyhawks were handed over on 26July67 at the Douglas plant at Long Beach, California. Crabb was Head of the Australian Joint Staff in Washington from Jan '66 to Mar '68, so was ideally placed to accept the documentation. You can see a short video **here**, unfortunately without sound.*

The RAN ordered ten brand new A4s, originally to be built as "E" model variants, early in 1964 (see letter above). The finished "G" model lacked the avionics of the USN A4-F, but was fitted to carry up to four Sidewinder missiles. Eight of the ten were single seat fighter-bombers and the remaining two the TA4G training variant, with two seats. The total project cost was reported as $18.4m – relatively cheap for an aircraft of that capability.

The winding back of the FAA in the early 60's had depleted the number of pilots required for the new aircraft and innovative steps were taken to ramp the numbers up again. This included using a civilian flying club in Victoria for initial assessment and elementary training, and a program at Pensacola (USA) where both fixed and rotary wing pilots were trained. In the meantime, two experienced pilots were sent to Lemoore in California for specific A4 training. On return to Australia they became the new CO and Senior Pilot of 805 Squadron (newly commissioned for the Skyhawks arrival), and set up the Australian A4 training program to qualify additional aircrew. You can read about both the aircrew and maintainer training earlier in this document.

***Below Left.** One of the new Skyhawks being craned aboard Melbourne in San Diego in October of 1967. (see video **here**). In addition to the A4s she was to carry 14 Grumman Trackers, two Weapon System Trainers and some 800 tons of stores: enough to fill up both the hangar and flight decks. She cast off on Tuesday 31 October and after brief visits to Pearl Harbor and Suva before shaping course for Jervis Bay. The A4s were lowered to barges in JB (main photo left) and thence craned aboard low-loaders at HMAS Creswell, before proceeding by road to Albatross (see map of route, below left) You can see a video of the unloading **here**.*



Although she had delivered them, Melbourne was unable to operate her new aircraft: for that, she needed extensive work.

On 27Nov67, after unloading the S2s & stores in Sydney, she de-ammunitioned and prepared for a major refit. She would not to go to sea again for another 15 months.

Deck-landing exercises for RAN pilots and new aircraft

The Royal Navy aircraft carrier HERMES last week gave Australia's Fleet Air Arm pilots their first deck landings in Skyhawks and Tracker aircraft.

The versatile jets, effective in Vietnam, were brought to Australia from America, last year.

HERMES, latest of Britain's aircraft-carriers, recently participated in a large scale Navy-RAAF-Army exercise off Queensland.

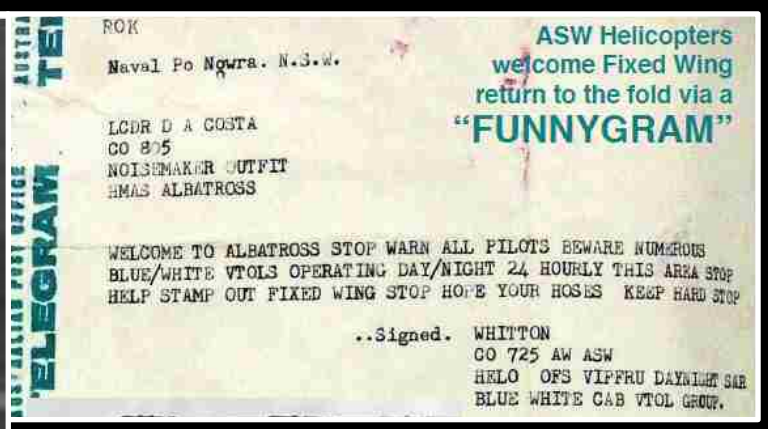
RAN pilots were elated at the chance to try their skill in handling the fast fighters and the Trackers.

The fighters landed on the carrier, the Tracker aircraft made "touch" landings.

The Skyhawks and Trackers will go aboard the Australian aircraft carrier HMAS MELBOURNE when the ship completes her $7 million works refit.

HERMES finished her exercises with the Australian aircraft on November 4 and left for the Far East with other units of the Royal Navy which came to Australia for Exercise "Coral Sands".

Navy News 08 Nov 1968



While the aircraft were in transit from the States, the VF805 Squadron Advance Party had been formed under the command of LCDR (P) John Da Costa. The Squadron Diary for that period reported HMAS Melbourne's arrival in Jervis Bay on 22nd November 1967 and engine and ground runs commencing on 5th December of that year after de-preservation of the aircraft. On 13th December the CO and SP (LCDR King) test flew N13-154911 TA4G. A Sonic Boom, clearly audible at HMAS Albatross, '...marked the beginning of a new era for the Fleet Air Arm'. The telegram (above) was received by the new Skyhawk CO about then, from Al Whitton – the Commanding Officer of 725 Squadron with his blue and white Westland Wessex "VTOLs".

Above Left. *The Navy News of 08 Nov 68 reports that LCDR John Da Costa, the Commanding Officer of VF805 Squadron, had made the first catapult launch from HMAS Hermes earlier that month. You can see a video of S2s and A4s doing 'bolters' on Hermes here. Right. In the meantime, Skyhawk pilot training continued apace, although the first OFT was bedevilled by poor serviceability caused by a lack of spares. By December 1968 the first course (photo right) had qualified, however, and were able to carry out some deck landings by the fortunate arrival of HMS Hermes in Australian waters.*

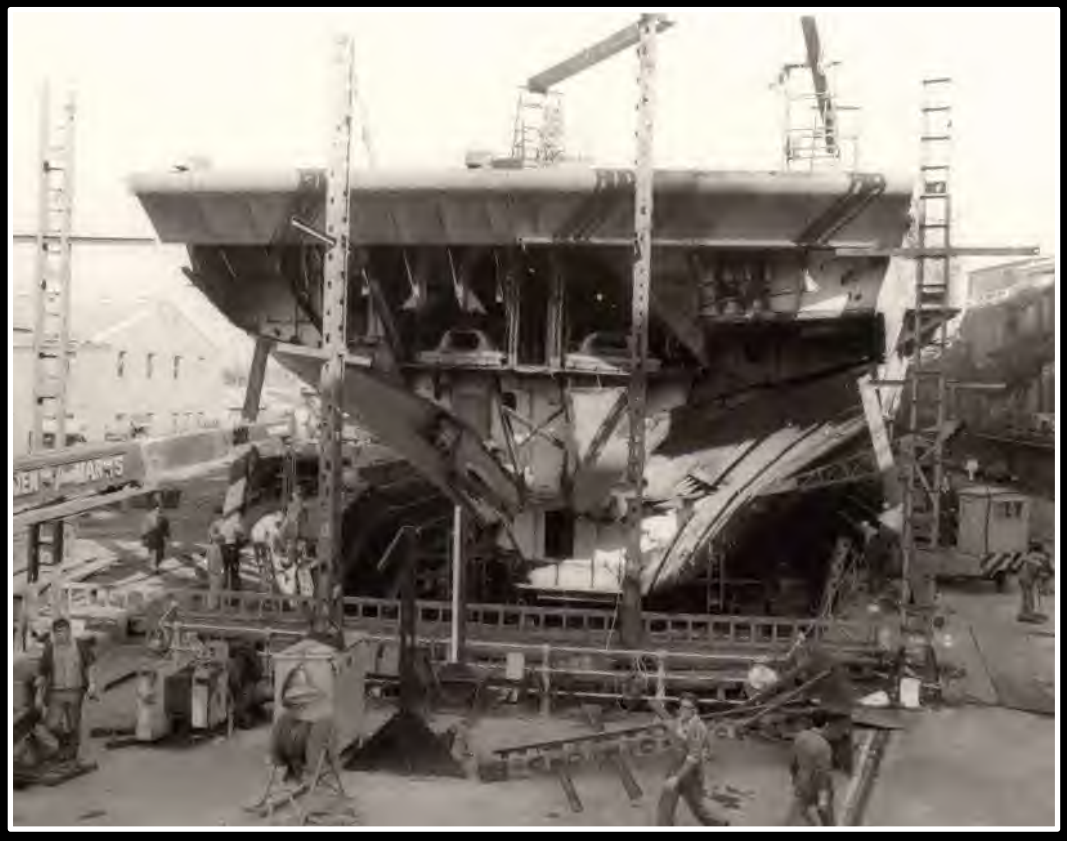
Below*. In the meantime, HMAS Melbourne continued in refit. It was extensive: the catapult was rebuilt and upgraded, the mainmast rebuilt to cope with new radars and EW equipment; living spaces were improved (including fitting air-conditioning), machinery overhauled and additional water distilling capacity fitted. Interestingly, stowage for AVGAS was also installed as the ship would be operating piston-engined aircraft for the first time in her career. She slipped from Woolloomooloo on 06 February 1969 and, under the command of CAPT J.P. Stevenson, proceeded to Jervis Bay for work up and calibration of her new radar and electronics. The ship's ROP reports that the sea trial that gave the most satisfaction was the successful landing and launching of each aircraft type on 11 February 1969. Melbourne was back in the aviation business, although lingering problems with the catapult, aircraft bridles and other critical infrastructure impeded a smooth work up.*

SMH photographer George Lipman never relaxed his concentration for a moment when he made the most of the opportunity afforded to newspaper representatives to fly in an RAN Skyhawk over Sydney on Feb 14. Mr Lipman and other Sydney photographers journeyed to the Naval Air Station at Nowra, where they joined the Skyhawks which, with Tracker and Helicopters, stirred Sydney with a spectacular flypast to mark the return to service of HMAS Melbourne. (Image: George Lipman, Sydney Morning Herald).

Melbourne Operational

By the end of April '69 many of the post-refit teething problems had been ironed out and over 1000 fixed wing deck landings completed since refit – an extraordinary figure in such as short space of time (Below right). Early in May she slipped moorings in Sydney for a Far East deployment. It was, regrettably, to be tragically cut short.

***Right**. One of the few photographs we have seen taken during the ill-fated first tour. Two Skyhawks conduct close formation with a RAF Hawker Hunter out of Tengah (Singapore) in June of 1969. The two A4s had been disembarked from Melbourne by barge to enable essential flying training/continuation to occur whilst the ship undertook emergency repairs following the Frank E. Evans collision of 03Jun69. They were subsequently recovered aboard on 27 June as Melbourne made its way back to Australia for more permanent repairs to the bow. She didn't leave the dockyard until mid October 1969. Interestingly, the Hunter is now preserved in Brisbane having served in the SAF for a while. After her emergency repairs in Singapore, Melbourne abandoned her Far East deployment to return to Sydney for more permanent repairs. Her Air Group disembarked back to NAS Nowra.*



***Above and Right.** Melbourne's damaged bow under repair in Sydney. At the same time a new catapult bridle arrester 'horn' was fitted, which enabled expensive launching bridles to be captured and used again. She slipped from the dockyard in October and once again entered a workup regime before securing alongside for Christmas. She finally embarked on her Far East tour in March of 1970.*

RAN JETS NON-STOP ACROSS AUSTRALIA

Two Royal Australian Navy Skyhawk jets landed on the aircraft carrier HMAS Melbourne on November 10, after a 5-hour flight from Australia's east coast to the carrier on operations west of Perth.

The jets, flown by LCDR C. J. Patterson and LEUT K. S. Palmer from 805 Squadron, were on a mission to prove whether they could be deployed for action in the Indian Ocean without requiring the carrier to return to eastern waters to embark them.

During the five-hour flight, the aircraft were refuelled in the air by two other Navy Skyhawks starting at Edinburgh, the RAAF base in South Australia, finishing eight minutes later over Cleve, Eyre Peninsula.

En route to HMAS Melbourne the aircraft maintained communications with a Dakota and Tracker which were in South Australia and Western Australia.

The main phase of Swan Lake between November 9 and 16 consists of a series of maritime exercises designed to increase further the efficiency of the fleet deployed from the east coast and ships from other areas in the Indian Ocean.

The ships participating in the exercises are HMAS Melbourne the guided missile destroyer HMAS Brisbane, destroyer escort HMAS Swan, the frigates HM ships Charybdis, Minerva, Lynx

NON-STOP FLIGHT WEST. Making a final route check before leaving HMAS Albatross, the Naval Air Station at Nowra, for their proving flight across Australia to the aircraft carrier HMAS Melbourne, on operations west of Perth, are LCDR C. J. Patterson (left), 38, from Sarina, near Mackay and LEUT K. S. Palmer, 26, from Girraween, Sydney. Both are attached to 805 Squadron at Nowra.

***Above**. Perhaps testing a plan to be able to embark additional Skyhawks at short notice and in any locality, 805 Squadron dispatched two of them from Nowra to HMAS Melbourne on 10 November 1970, whilst the ship was steaming off Fremantle. The flight, which lasted over five hours, broke several records for single-engine jet transits in Australia.* ***Below left:** The second batch of Skyhawks is loaded aboard HMAS Melbourne in San Diego, which was there to collect Trackers to replace those lost in the disastrous hangar fire.*

More Skyhawks for the RAN

Why Ten More?

The purchase of the initial ten A4s was driven by Government concern over the world geopolitical situation and in particular, by instability in SE Asia and a heightened 'conflict risk factor' emerging in the latter half of the '60s.

By 1969 Melbourne was operational with its Skyhawk, Tracker and ASW helicopters, but the instability in our regional area remained. It was decided that, in the event of conflict and the need to engage, Melbourne could swiftly become an attack carrier simply by reducing its ASW aircraft component and boosting the number of Skyhawks. The bargain-basement price for ten second-hand USN airframes helped the decision, many of which had served in Vietnam. The procurement cost was funded by reducing the RAN's order for British Oberon-class submarines from eight to six.

In the event, the contingency was never used – but it was exercised on at least one occasion when additional A4s from 724 Squadron were embarked for an exercise in the Hervey Bay area off Queensland.

When the second ten airframes arrived (in '71) none of the original batch had been lost – so the RAN had 20 Skyhawks on strength for a while. But from 1973 numbers were gradually whittled away by accidents and by the time the capability was axed, only ten airframes remained.

HMAS Melbourne transported the new Skyhawks to Jervis Bay where they were barged ashore and carefully lifted onto waiting trucks before being taken to HMAS Albatross. The purchase mirrored the previous buy – eight single seat and two dual-seat trainers, but they were second-hand airframes refurbished to A4G standard. Many were from the Vietnam era and had suffered various scars. Interestingly, all four A4G losses attributable to engine failure came from this batch, but the sample is too small to draw firm conclusions.

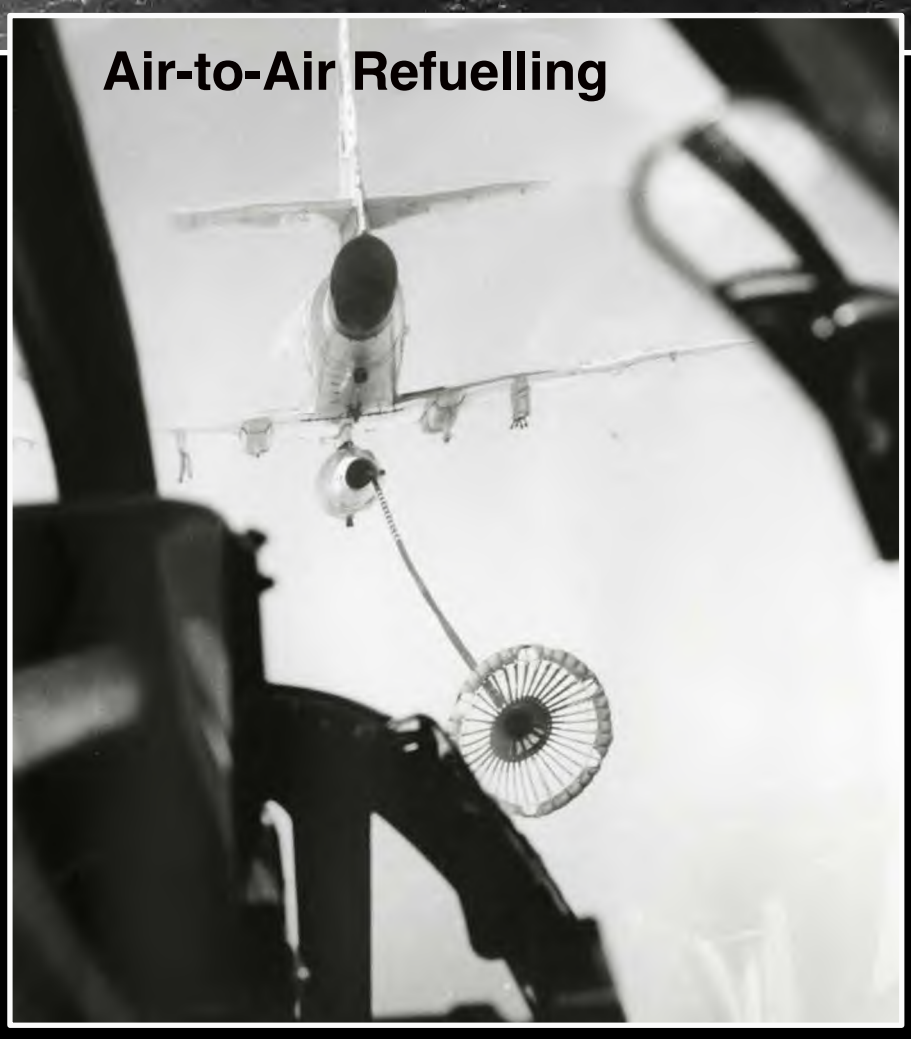
***Left**. The date of this photograph by Jack Mayfield isn't known, but it would have been after 1971 as two of the aircraft shown (874 and 877) were of the second batch of A4 deliveries. Remarkably, all four survived both their RAN and (subsequent) RNZAF service and would go on to lead another life with Draken, many years later. It would be one of the few formation photographs we have seen where that could be said.*

First Skyhawk Lost

In June of 1973 the RAN lost its first Skyhawk, when SBLT Tony Der Kinderen experienced 'loud engine noises' and flames emitting from his jet pipe. It was the first A4 ejection of the RAN. The aircraft crashed into the sea and was not recovered, but the BOI surmised that 873 had most probably suffered from a shroud failure. (A shroud is essentially the casing around the turbine blades that constrains the hot gases). Der Kinderin was picked up by a Newcastle based RAAF Helicopter and returned to the ship the following day. You can read a little more about 873's demise here.

***Left**: Tony Der Kinderin talking to CAPT Clark and his Squadron CO, LCDR Callan (Navy image).*

Air-to-Air Refuelling



The A4G came ready fitted for Air to Air Refuelling (ARF). The first refuelling probes were straight and extended well beyond the nose of the aircraft, but they were later changed to 'bent' probes to minimise the risk of fuel ingestion into the starboard engine intake.

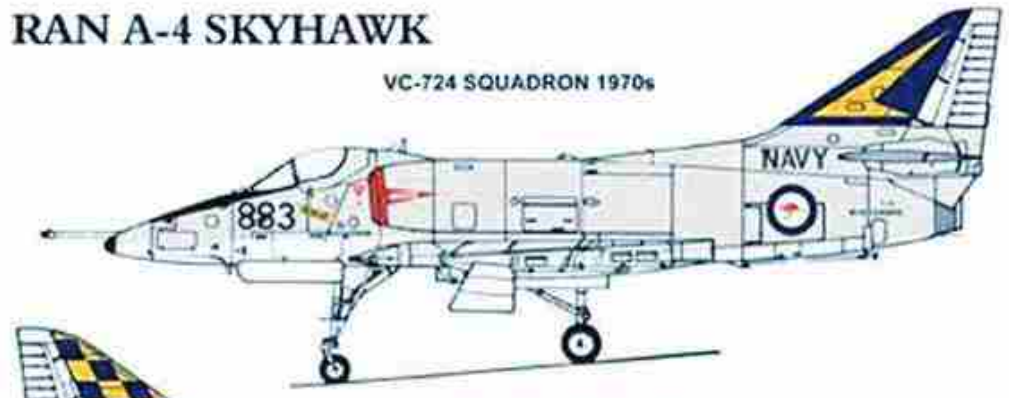
***Far Left:** A pilot's eye view of ARF. With the straight probes it was easy – all pilots had to do was drive the probe into the basket, which was flying in clean air. The bent probes made it more difficult as the pressure wave generated by the aircraft nose tended to push the basket out of the way, which could result in 'basket chasing'. Instructor doctrine was to line up on a suitable part of the tanker aircraft and only use peripheral vision to watch the basket. (Navy Image).*

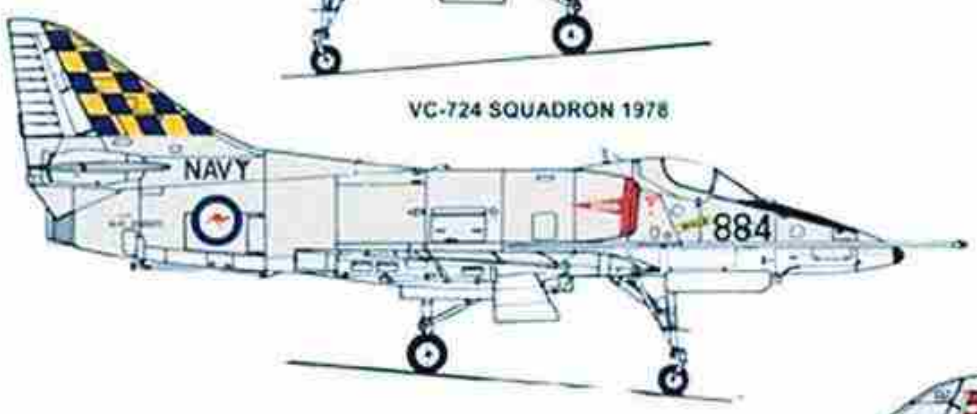
Arming

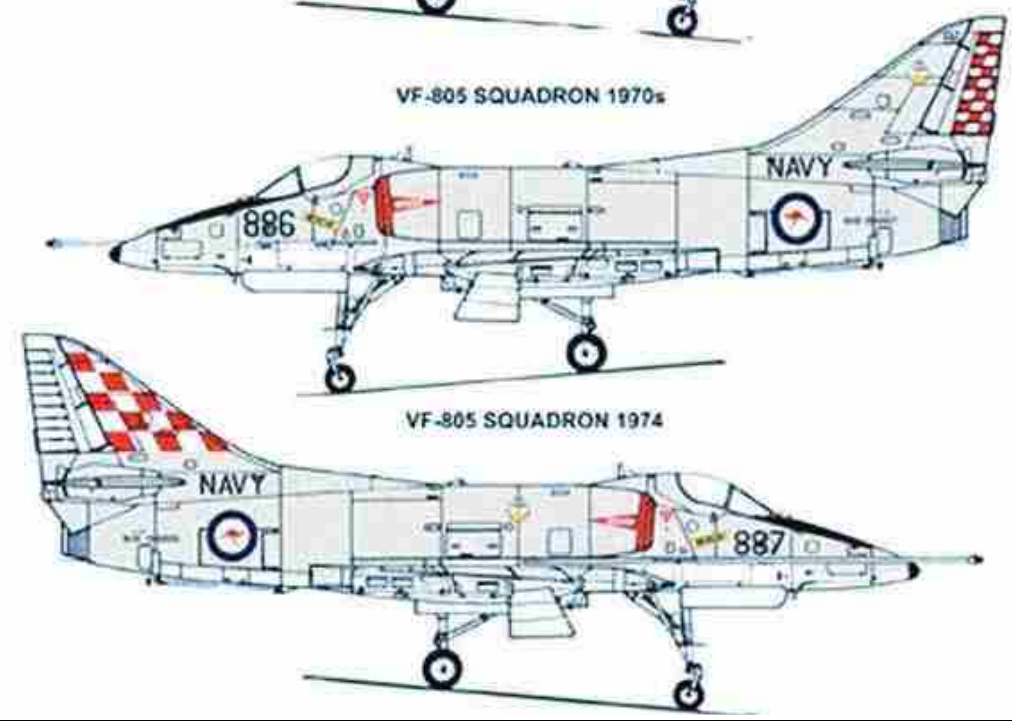
***Centre**: 'Hot' refuels were a common practice, although not so much on the deck of Melbourne, as shown here. The only way to hot refuel was to plug the fuel hose into the ARF probe, using a fork-lift truck to support it. In this image the ladder next to the aircraft suggests a pilot change was conducted at the same time.*

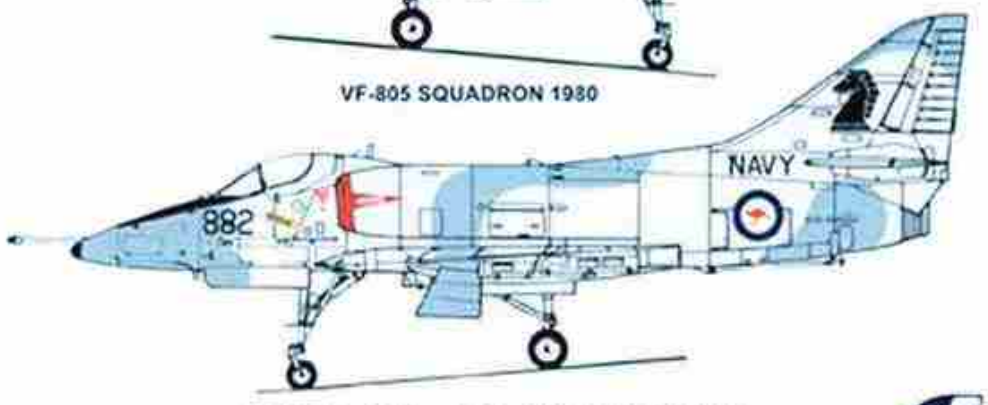
***Left inset:** Two armourers load, colour coded, live 20mm ammunition into one of the A4G's ammunition tanks. Left: Armourers checking the six 13kg practice bombs on a PMBR (Practice Multiple Bomb Rack). The bombs were solid steel with fins and a smoke/flash cartridge in the nose, their trajectory was similar to larger bombs.*

RAN A-4 SKYHAWK









RAN TA-4G SKYHAWK

***Above**. In the sixteen years (ish) of its service, the A4G naturally underwent some paint and decal changes, as shown by the graphic above. Of particular note the light grey paint scheme of the first and second deliveries gave way to a mottled camouflage design in the mid '70s but there were many relatively minor changes en route. (Image via Phil Thompson).*

***Left**. Another excellent shot by John Bartels of an A4G. Note the 'bent' refuelling probe, which was changed from the straight one in 1974 to minimise the risk of fuel entering the engine's starboard intake in the event of a coupling leak. (John Bartels).*

***Below Left.** A Skyhawk launches and the 'bridle' that tows the aircraft down the catapult, is lost. Right. The fitting of the Bridle Recovery horn on HMAS Melbourne at the end of '69 saved an expensive bridle on every launch. The wire strop shown in the photo below, attached to the main bridle and trailing aft at 45°, were part of that recovery system. The strop could not be fitted when there was any soft-skinned store or ordnance on the centre rack, to prevent fouling on launch.*

***Left**. Oops! Around '81 this 724 Squadron Skyhawk had a problem with a mis-adjusted nose-gear micro switch. Under normal circumstances the aircraft would be jacked up and the gear recycled to allow the switch to be adjusted. On this occasion one member of the maintenance team climbed into the cockpit and selected "Gear Up" – but unfortunately the nose gear jack had been removed and the aircraft settled onto its nose. An investigation revealed that some miscreant had borrowed the highly visible yellow undercarriage jack for a job on another aircraft, and the maintenance crew hadn't noticed its absence. (Advice from David Prest. RAN image).*

***Above**. A Skyhawk keeps a watching eye on a Jindivik target, under the lens of SBLT Phil Thompson. The Jindiviks were to outlast the A4s as they were not phased out until 1998 – but ironically, not so in the case of these two aircraft. The Jindivik (N11-648) was to crash in March of 1983, and the Skyhawk was the last to remain flying in the RAN – before grounding in June of 1984 prior to being sold to the Royal New Zealand Air Force. You can read the full story of the RAN's Jindiviks **here**.*

***Far Left.** A close up of the suppressor on the 20mm cannon of this American A4, which was also fitted to RAN Skyhawks. It was designed primarily to reduce the sooty deposit on the aircraft and was apparently quite effective, although not completely so.*

***Left**. Melbourne during RIMPAC '73 with her full 'normal' complement of eight A4G Skyhawks. The additional A4 airframes bought in 1971 were to allow a surge to 14 embarked A4s, although we don't believe this was ever fully exercised. To carry and operate this number some GrummanTrackers and/or Wessex helicopters would have had to be removed.*

***Below**. The RAN's Skyhawks featured front and centre in 1976 when 'The Don Lane Show' was filmed aboard HMAS Melbourne. Don Lane, who was a prominent TV compère in the 70s, can be seen on the left above the Applause sign, and comedian Ugly Dave Gray is singing on the right – although the low quality image isn't clear enough to see what rank he is trying to impersonate. The show ran for 90 minutes in prime time and featured many interviews with ship's personnel. It was widely regarded as a PR scoop for the ship and, more particularly, to advertise the Fleet Air Arm. (Navy News 10Sep76).*

Left. *An unusual visitor for HMAS Melbourne in the form of a Hawker Siddeley Sea Harrier. The lack of a 'normal' serial number or any other identification (other than a laconic "VTOL") suggests it was a pre-production or experimental airframe. This may be so, as the first production Sea Harriers were not operational until 1979. We know the image was taken prior to January 1979 as Skyhawk 870, featured in it, was lost in that month. We also know it was sometime after the mid 70's as the Skyhawks have modified refuelling probes. Our guess was that the image was snapped during Melbourne's visit to the UK in 1977, which turned out to be correct: it was actually taken on 30 June of that year in the Portland Exercise Areas. (Images via FAAM)*

Left and Below. *The minimalist approach of the Skyhawk design and fit inevitably required compromises. One was the requirement for external power and air, shown here, for starting – the power (115v) for ignition and the air for turning the engine. Later, a very few Skyhawks were modified (in civilian life) to enable internal self-start, as the requirement for ground plant was a disadvantage for their operation.*

Above: *We would love to hear from any maintenance personnel what was going on with this suspended Skyhawk: Weight and balance? Undercarriage maintenance? 879 was apparently always slower than the other A4s, and one reader has suggested that water was found in the fin. Use the 'Contact Us' box at the foot of the page to offer comment or other suggestions.* ***Left***: *Finding good quality images of Skyhawks under maintenance or even just stowed in the hangar deck of Melbourne has been surprisingly difficult. The Skyhawk was small – but so was the carrier, and space was at a premium. Even towing the aircraft required care, as crews were to find out to their cost when an aircraft was lost over the side in September 1979 when it was being moved in heavy weather.*

***Left**. In between the serious stuff there was time for fun! Pilots like nothing better than low flying, especially if there's an unwitting victim to pick on. Phil Thompson (with the beard) and his companion were the subject of this 1973(?) photo of an A4 sneaking up behind them. It wasn't a new trick, as the photos (above) from other Services and other times show – but it was always a good one! (By way of digression, check out this different video of a Vulcan setting off car alarms in the UK…surely one of the most graceful aircraft of the 70s – but LOUD!!*

By the middle of '79 six Skyhawks had been lost to accidents, including 888 featured in the photo above. You can see a synopsis of these events towards the end of this document. The loss of 888 was a particularly expensive day for Navy with both the A4 and a Sea King being lost, as depicted by 817 Squadron's Line Book entry below. Another four Skyhawks were to succumb to accidents in the next 17 months, to bring the total attrition to ten…exactly half of the inventory.

'It's been a bad day for the Navy'

Jet fighter, helicopter sink in ocean

The Royal Australian Navy lost a Skyhawk jet fighter bomber and a Sea King anti-submarine helicopter in two separate accidents yesterday during exercises off the aircraft carrier, HMAS Melbourne.

An RAN spokesman said later: "It's been a bad day for the Navy."

The $1 million Skyhawk and the $1.6 million helicopter sank in 2,000 metres, 80 km east of Jervis Bay. They cannot be recovered. All the crews were rescued.

The Skyhawk, piloted by Lieut-Commander Kevin Finan, 32, a US Navy pilot from Pittsburgh on exchange duty with the RAN, crashed into the sea over the port side of the Melbourne as it attempted a landing.

Winched to safety

The pilot ejected before the Skyhawk hit the water and was winched to safety by a [illegible] rescue helicopter within minutes. He was unhurt.

Three hours later the Sea King, with four aboard plunged into the water on the starboard side of the Melbourne when an engine apparently malfunctioned as the helicopter was coming in to land.

A launch from the Melbourne rescued the crew from the helicopter seconds before it sank, then another Sea King winched them on to the flight deck of the Melbourne.

The helicopter pilot, Lieut-Commander V. Battese, married, of Nowra and his crew Lieutenant M. Wright, married, of Nowra, Sublieutenant M. Ogden, single, of Sydney and Leading Seaman M. Skewes, married, of Nowra, were taken to the carrier's sick bay.

All were suffering from immersion and shock. Lieutenant Wright and Leading Seaman Skewes were also treated for minor abrasions.

Separate boards of inquiry into the two accidents have begun.

Lieut-Commander Finan

The Skyhawk crash is the sixth since 20 were bought from the United States 12 years ago. The Sea King helicopter was the fourth lost since 10 were bought from Britain in 1975.

HMAS Melbourne, the RAN'S flagship, was on the first day of its working-up exercises after an eight-month refit at Garden Island.

Navy jet, helicopter go down

A NAVY jet fighter-bomber and an anti-submarine helicopter carrying top secret sonar equipment crashed in the sea yesterday in separate accidents 80km off the NSW coast.

The aircraft, worth a combined $2.6 million, were both trying to land on the aircraft carrier HMAS Melbourne, before they plunged 4000m to the sea bed.

The pilot of the Skyhawk jet escaped unhurt, but the crew of four aboard the Sea King helicopter all suffered minor injuries.

The two accidents occured within three hours of each other, a short distance from the spot where the Melbourne collided with the destroyer HMAS Voyager in February, 1964.

The first crash happened as the jet touched down on Melbourne's flight deck.

The arrester-gear failed to stop the plane which continued to speed across the flight deck before plunging into the sea.

Seconds before the crash the pilot, Lieutenant-Commander Kevin Finan, 32, on exchange from the U.S. Navy, fired his ejector seat and landed safely in the sea.

He was picked up within minutes by helicopter. Three hours later the Sea King hit trouble.

The pilot, Lieutenant-Commander V. Battese, radioed that he had engine trouble and was ordered back to the carrier.

But with only metres to go before reaching the flight deck the engine cut out.

The Skyhawk jet that Lieut-Commander Finan was flying.

2 navy aircraft down in sea

An R.A.N. Skyhawk jet fighter bomber and a Sea King anti-submarine helicopter crashed and sank in separate accidents yesterday.

Both planes were operating with the aircraft carrier HMAS Melbourne off the NSW coast.

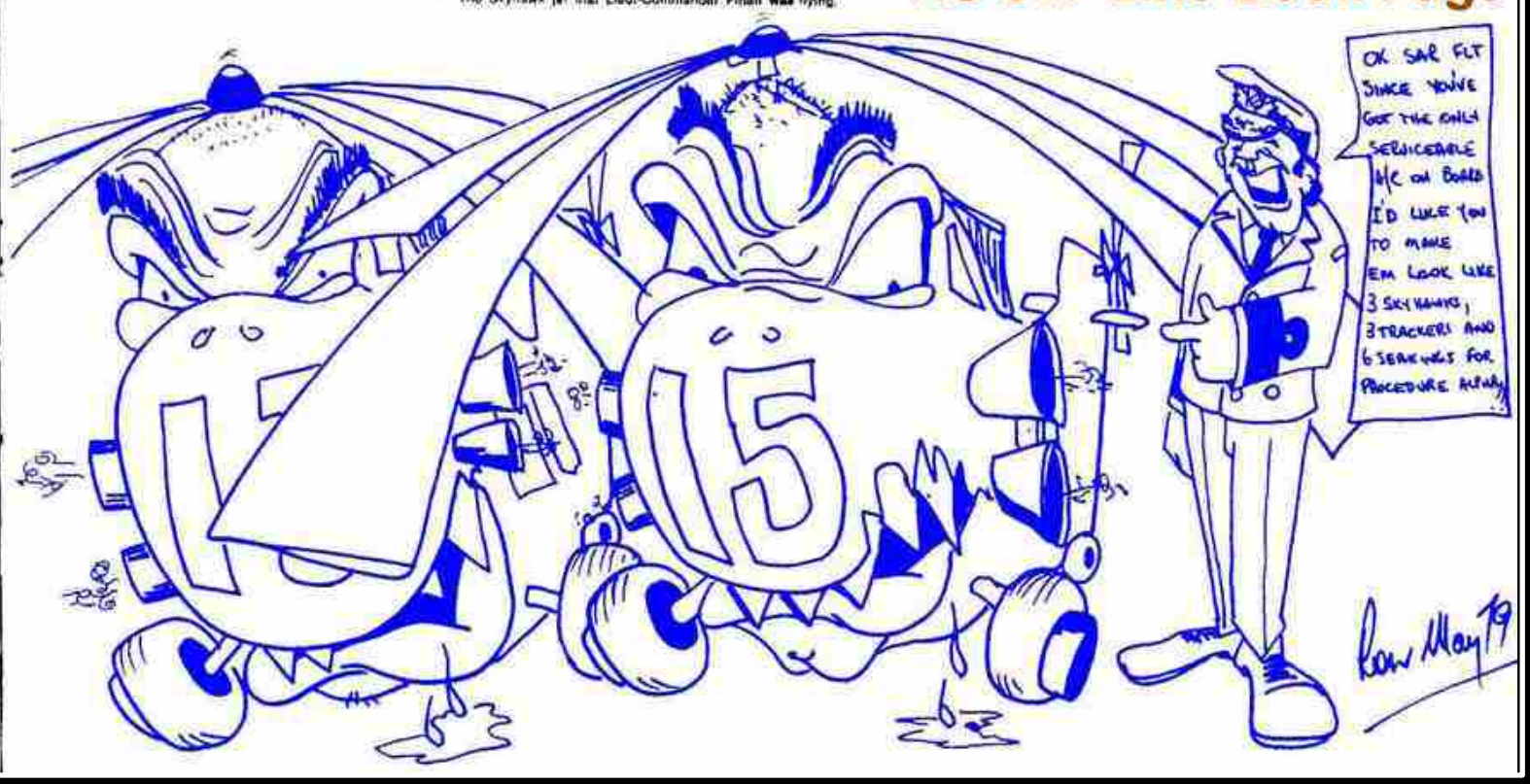
The Skyhawk pilot ejected safely and was uninjured but the four crew members of the helicopter suffered minor injuries.

The Skyhawk piloted by Lt-Cdr Kevin Finan, of Nowra, a U.S. Navy pilot on exchange duty with the R.A.N., crashed over the port side of the carrier about 50 miles east of Jervis Bay.

Both aircraft, valued at several million dollars, sank immediately.

The helicopter crew, pilot Lt-Cdr V. Battese, married of Nowra, Lt M. Wright, married of Nowra, Sub-Lt M. Ogden, single, of Sydney, and Leading Seaman M. Skewes, married, of Nowra, were in a satisfactory condition in HMAS Melbourne's sick bay last night.

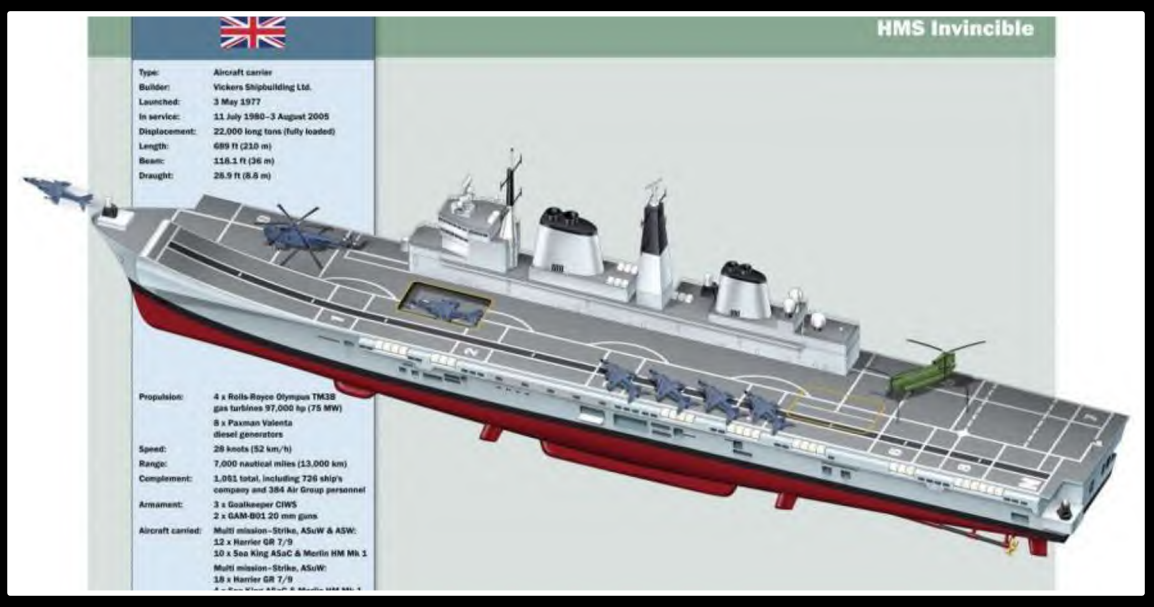
HS-817 Line Book Page



***Right:**. Alone over a sunlit sea, this A4 is taking part in Exercise Sandgroper 1982. By then, HMAS Melbourne had been placed in contingency reserve, ending the speculation about her future, so the aircraft must have been shore based. It is one of the last photographs we have of a Skyhawk engaged in a major exercise. (Image via FAAM).*

The End of the Line

*By the end of 1981 Melbourne was due for an extended refit. By then she was 26 years old and her machinery was temperamental: Commander (E) recalls it was 103 vertical steps from the Control Platform in the FMS to the Bridge, which he traversed many times to report Main Engines to the CO. In the time it took to make that journey he always wondered if the machinery state was still the same when he arrived on the bridge as it was when he departed the FMS! After languishing in harbour for three months the refit was cancelled, however, and the ship was decommissioned at the end of June 1982. She was eventually sold to the Chinese and towed away (**right**) to be turned into razor blades, and the hunt was on to find a replacement carrier for the RAN.*



*In July 1981 the British offered HMS Invincible (left) to the RAN for the 'bargain' price of A$285 million. The class had been previously considered and rejected, but its price and ready availability prompted the Australian government to announce its intention to purchase Invincible on 25 February 1982 and to close the carrier acquisition program. It was to be re-named HMAS Australia and operated as a helicopter carrier, pending a future decision on replacement fixed wing aircraft. Click **here** for an article on some of the questions the pending acquisition raised.*

In the meantime Navy had wasted no time in decommissioning 805 Squadron, which, with no carrier to fly to, was arguably unable to perform its front-line responsibilities. By the end of July 1982 its aircraft had been transferred to 724 Squadron in a training capacity, whilst the carrier replacement decision played out. Many saw it as another nail in the FAA fixed wing coffin, but the decision to purchase Invincible had given some hope of a resurrection. But it was not to be, as the Falklands War caused Britain to reconsider its force structure needs. In July of 1982 both parties withdrew from the proposed deal, and the question of a replacement carrier was back on the table. On 11 March 1983 Bob Hawke was sworn in as the new Prime Minister in a landslide victory for his Labour Government. One of the first decisions of the new administration was to kill any hope of a replacement carrier. The final nail was hammered home, and the fate of the RAN's fixed wing force was sealed.

What Do We Do With The People?

***Left**: A Navy News clipping from 08April83 reports on a visit by Gordon Scholes, Minister for Defence, to HMAS Albatross. It gives an indication of just how much the Government's decision rocked the Fleet Air Arm – including questions about the ongoing viability of HMAS Albatross and the FAA's helicopter force. Whilst leaving some questions on the table, Scholes did give assurances about employability of RAN personnel, including a guarantee that anyone transferring to the Army or Air Force would retain their rank and seniority – a promise that must have caused the Personnel areas of those services some headaches! By then, the exodus had begun: many paid off, whilst others did indeed transfer – mainly to the RAAF as the newspaper clipping below shows. (Navy News July 1984). Also, see **here** for the "60 Minutes" segment of the time.*

At Amberley RAAF Base Queensland, home of Australia's F111 Strike Force aircraft, Squadron Leader John McCauley, right, is pictured in front of one of them, with his navigator Flying Officer Glen Holtz, 22, of Perth, holding colour patches indicating John's job switch . . . from NAVY pilot to RAAF pilot.

By 30 June 1983 six of the ten remaining Skyhawks were decommissioned. The remaining four were permitted to fly for another year, performing Fleet Support duties, before the final axe on 30 June 84.

ALBATROSS' FUTURE DISCUSSED

He said any alterations to existing structures would be carried out in an "orderly and efficient manner" and details would be made known "as soon as practicable."

He added that the carrier decision would have no substantial effect on the Navy's helicopeter operations in the shorter term.

Mr Scholes continued: "In the longer term, an expansion is envisaged both in numbers and the capability of the Navy's helicopter force as new helicopters are introduced later in the '80s to operate from the FFGs and naval support vessels.

"By the end of the 1980's the Navy should be operating around 40 helicopters."

He said the decision on the carrier was final and there was no question of its being reviewed.

Personnel serving in areas affected by the new arrangements would be offered opportunities elsewhere in the RAN or other sections of the Defence Force where their skills were needed.

Personnel who transferred to the RAAF or the ARMY would do so without detriment to their pay, benefits, rank and seniority.

Further training or retraining would be offered to assist in relocation.

The base at Nowra would continue under the Navy's administration.

The Government was examining ways in which its facilities could be efficiently employed.

No personnel who were affected by the new arrangements would be discharged against their wishes.

Re-engagement of any personnel affected would be under the same conditions as applied to all Servicemen, Mr Scholes said.

He emphasised that the whole question of the future of valuable trained personnel was being carefully studied.

There would be no hasty decisions.

Adjustments would be made over a period with the "maximum concern for the individual Serviceman's well-being, consistent with the Services' needs."

The Minister was accompanied on his visit to HMAS ALBATROSS by the Chief of Defence Force Staff, Air Chief Marshal Sir Neville McNamara, and the Chief of Naval Staff, Vice-Admiral D. W. Leach.

They were met by the Naval Support Commander, Rear Admiral K. Vonthetoff and the Commanding Officer of HMAS ALBATROSS, Commodore T. A. Dadswell.

MEETING THE MEN OF THE FLEET AIR ARM . . . Defence Minister, Mr Gordon Scholes, in deep discussion with (L-R) WO Warner, CPO Carey and WO Gererding.

CAPTAIN IN A4's FIRST AND LAST

The June 30 end of A4 Skyhawk and Grumman Tracker aircraft operations in the RAN was also a sad day for first commanding officer of 724 squadron, Captain John Da Costa.

Captain Da Costa with wife, Pam, prior to the historic last flight.

He was the first RAN pilot to fly the Douglas A4 Skyhawk aircraft – and the last!

As befitting the occasion, June 30 produced a cold, grey day but did not deter the 5000 people who flocked to the Naval Air Station at HMAS ALBATROSS to witness the final RAN flights of our fixed wing aircraft.

The air and ground displays, as always, were spectacular.

CAPT Da Costa, now Director of Naval Personnel Services, accompanied current CO of 724 squadron (LCDR John Hamilton) in "TA4 880" on the last flight.

During his flying career CAPT Da Costa has flown Sycamore helicopters, Sea Furies, Fireflys, Vampires, Sea Venoms and Skyhawks.

He has been posted to 724 Sqdn on 10 separate occasions – twice as senior pilot and once as commanding officer.

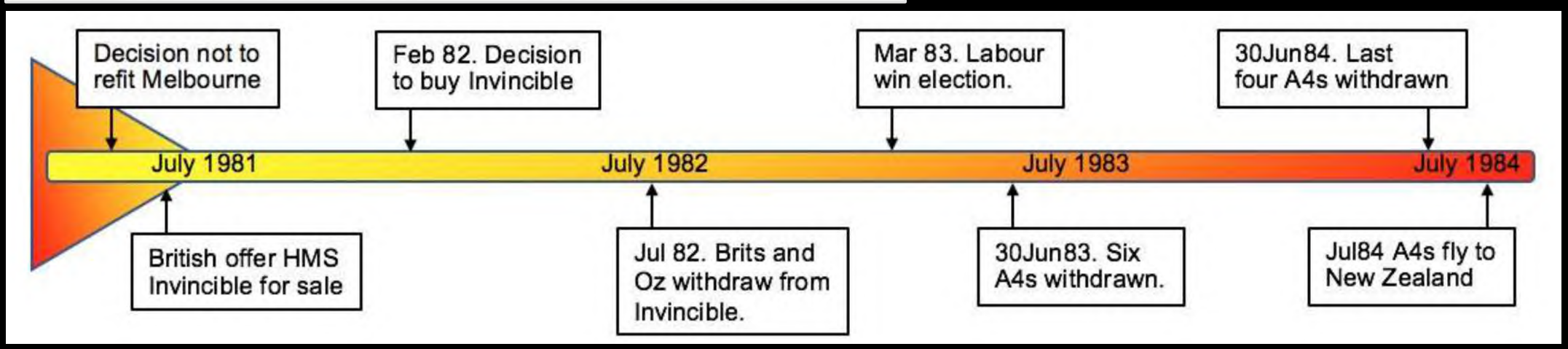
□ *Picture and story from Cameron Martin.*

Skyhawk pilots SBLT David Coote and LEUT Danny Griffin consoled by Nicole Storm and Vicki Gibson after their last flight.

Four Douglas A4G Skyhawks in formation

Navy News of June 1984 reported on that final flight (left), when John Da Costa, who had been at the helm of the Skyhawk story from the very beginning, was invited back to participate. Other snippets appeared too, such as (below right) the final flight of CMDR Pete Clarke (and a gratuitous hosing down) a little while earlier.

By mid 1984 the Skyhawks were in storage with "For Sale" signs on the door, and it looked like the end of the line. Nobody could have guessed at the quirk of fate – and some would say the political incompetence – that would see them returned to Australian skies within a few years, however.

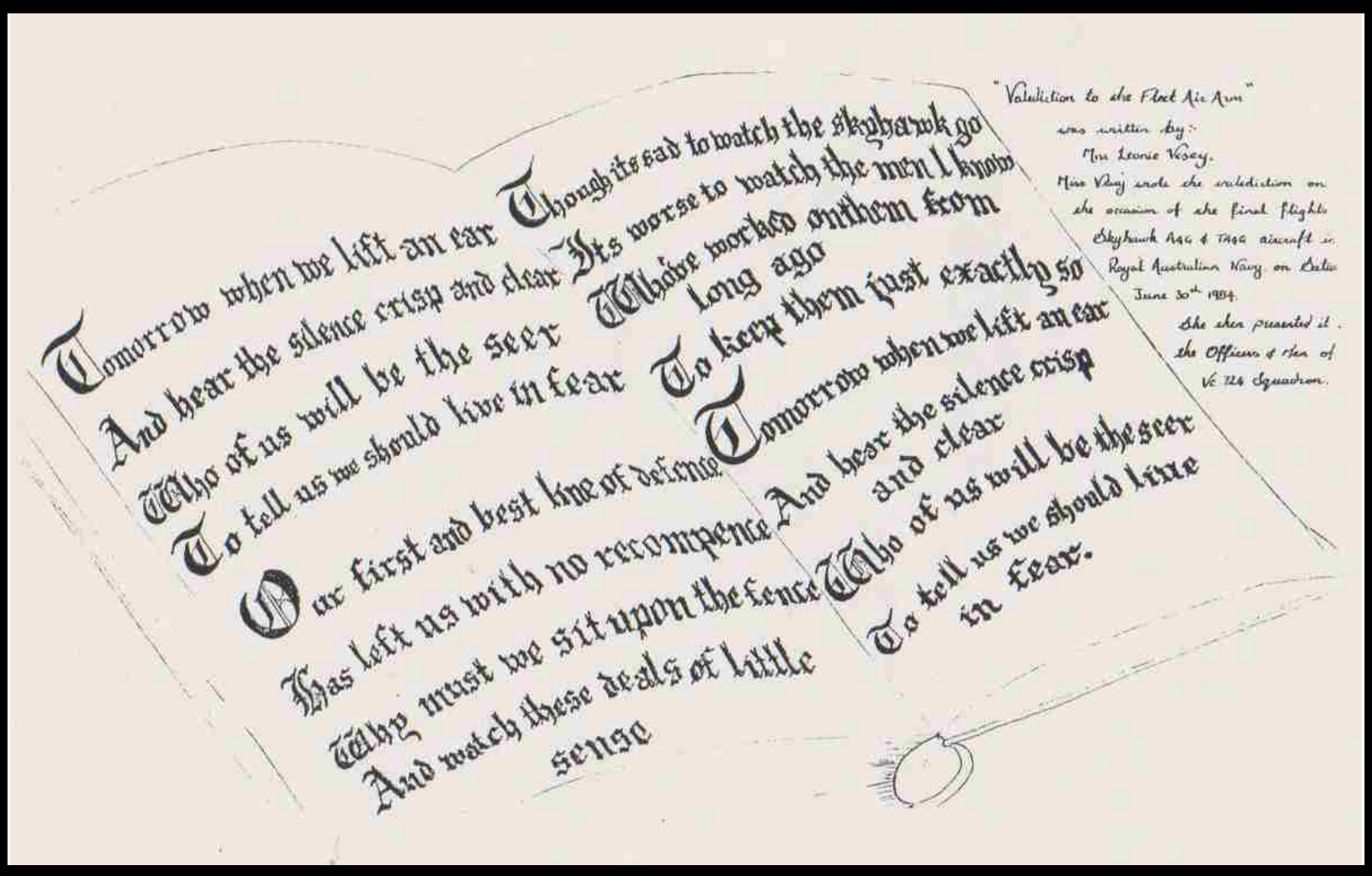


The decision to scrap Melbourne was the death knell for the fixed wing element of the Fleet Air Arm and caused much anger in that elite force. ***Left****: An Ode to the loss, penned by an unknown author.*

The ten surviving Skyhawks were put on the market where they languished for many months, and the highly trained personnel of 805 and 724 Squadrons drifted away - some to civilian jobs, some to the RAAF and a few - not many - to ground jobs in the Navy.

It seemed that was the end of the Skyhawk in Australian skies. Eventually, a buyer would be found and they would be shipped offshore.

But fate was to have another outcome. See the next page for the new chapter in the RAN's Skyhawk jets, and how they returned to fly with us again.



"Valediction to the Fleet Air Arm"
was written by:
Mrs Leonie Vesey.
Mrs Vesey made the valediction on the occasion of the final flights Skyhawk A4G & TA4G aircraft in Royal Australian Navy on Saturday June 30th 1984.
She then presented it to the Officers & Men of VF 724 Squadron.

Tomorrow when we lift an ear
Though its sad to watch the skyhawk go
And hear the silence crisp and clear
Its worse to watch the men I know
Who of us will be the seer
Who've worked on them from long ago
To tell us we should live in fear
To keep them just exactly so

Our first and best line of defence
Tomorrow when we lift an ear
Has left us with no recompence
And hear the silence crisp and clear
Why must we sit upon the fence
Who of us will be the seer
And watch these deals of little sense
To tell us we should live in fear.

Going…Going….Gone!

After negotiations, the ten RAN airframes and all their spares and support equipment were sold to the New Zealand government for the bargain basement price of AU$28.2m. The aircraft were ferried in three batches from NAS NOWRA to RNZAF Base OHAKEA in July 1984 where they would be modified before entering service with No. 2 and 75 Squadrons – to join the existing fleet of A4-K. Some relatively minor minor updates were incorporated, such as braking 'chutes and VHF comms, but they retained their RAN colours at least until the entire Kiwi fleet were upgraded to Project KAHU standard (see below).

*See the OpOrder for two of the three Kiwi ferry flights **here**.*

BACKGROUND TO THE RNZAF SKYHAWKS

Read the RAF's 'Air Power' Article of 2001 which gives a good background to why the New Zealanders bought their A4s, how they operated them and some of the stories during their 30-year lives in the service of their country.Click **here** to read.

***Right**. Two newly-purchased RNZAF Skyhawks prepare to depart from Nowra. Note the aft-facing Kiwi on the roundel. The maintainer who painted it insisted that it was simply a mistake, but many saw it as a final act of defiance. Image: Pinterest.*

RNZAF Overhaul Ex-Australian A-4s

words and pics by Greg Meggs

'One man's loss is another man's gain', so it is said, and this was certainly the case in the middle of 1984 when the ten surviving Royal Australian Navy A-4G and TA-4G Skyhawks were whisked off to New Zealand to serve with the RNZAF.

Our Navy lost part of its sharp end, but at least the aircraft went to a close ally which will put the Skyhawks to good use. For the RNZAF the buy of our ex Navy aircraft is only a medium term stop gap and is expected to put off the very hard decision on acquiring totally new aircraft types as replacements for the Skyhawks only until the early 1990s.

Below: The RNZAF has put some of the former RAN Skyhawks into service and others are undergoing heavy maintenance at Ohakea.

Economic conditions in New Zealand worked against possible new replacements, so that by early 1984 it was necessary to allocate monies for re-sparing and overall refurbishment of the existing A-4Ks. Also included in the defence 'White Paper' of early 1984 was an indication of willingness to purchase additional A-4 aircraft as attrition replacements and to increase the overall number of on-line aircraft available to the RNZAF. The natural choice, which was anticipated at the time even if not stated as such, were the soon to be surplus to requirements RAN Skyhawks. Initially the price asked by the Australian Government for the ten aircraft was considered by the RNZAF to have been ridiculously high and the offer was turned down. Finally though, a price agreement satisfactory to both Governments was arrived at and the aircraft were sold for $A28 million.

Included in the deal was the entire RAN inventory of spares for the Skyhawk. In fact, the quantity of spares was so large that one shipment was stated to have been the most expensive single cargo to have transited through the port of Nelson in New Zealand. Included with the spares were 15 spare engines. Most parts not immediately required for service aircraft have gone to the RNZAF stores depot at Te Rapa.

Although all aircraft were ferried across the Tasman uneventfully, on arrival in New Zealand they were not considered ready for service until a maintenance schedule was implemented.

***Left and next page:.** Phil Thompson, an ex-A4G pilot, has amassed an incredible record of the RAN Fleet Air Arm generally, and the A4 in RAN and RNZAF hands in particular. His collages, two of which are shown here, generally capture an image or two, superimposed with comment and information that would otherwise be lost. Here, he talks about the early days of the ex-RAN Skyhawks, which were initially kept as 'G' models although with some modifications such as braking 'chutes. The RNZAF pilots didn't like the G model much, which had had a much harder life than their K models as a result of carrier operations – it took a long time to iron out their bugs.*

Differences between G & K Skyhawks in RNZAF service:

"...this whole subject is very confusing so I'm not surprised people are confused. Pre Kahu they were always distinguished as either Gs or Ks because of the avionics differences between them. After we received the Gs in July 1984 they all went through a 'G to K conversion' at Woodbourne which including fitting a drag chute, air mix Oxygen regulator, ARC-182 VHF/UHF radio and new IFF with the squared off fin. However even after this conversion there were still quite a few differences both operationally and for maintenance so they remained marked as either Gs or Ks even after being repainted in the new 3 tone wrap-around Euro scheme.

Photo by Wal Nelowkin at
RAAF Richmond RAAF 50th Anniversary Air Show 1991

'My summation of the situation is: Pre Kahu they were Gs (even after the G to K conversion). Post Kahu they were Ks, but individual aircraft markings didn't initially reflect this because they didn't get repainted as part of the Kahu update so they came out of the Kahu update with the same paint job and markings as where on them before the update. In the final one green colour scheme there was no TA/A-4K/G, just the Tail No. NZ62XX.'

WHAT WAS THE QUESTION?

'When visiting No 2 Squadron, RNZAF at Nowra in February 1993 to fly an air-to-air photo mission with them, their CO told me that the former RAN aircraft were still officially designated as A-4Gs and TA-4Gs, even though they'd gone through Project "Kahu" with the original A-4Ks and TA-4Ks. I had previously visited No 75 Squadron at Ohakea and their engineering officer told me the same thing.

However, many books and magazine articles say they were all designated as K models in RNZAF service, even before "Kahu". Does anyone have the official, definitive, for-sure, no-kidding info about this?'

Post Kahu there were still some very minor airframe and Avionics differences between the K and G aircraft. The original RAN Gs (i.e. not the second batch of ex USN A-4Fs) had different hydraulic plumbing (brazed I think it was) which was the most significant difference. Aircraft markings post Kahu were a bit confusing as some of the Gs were marked as Ks and others as Gs depending on when the last paint job was done! In the final one green colour scheme I think they were all unmarked [as Ks]. Of course the other big difference between the Gs and Ks was the airframe hours. The Gs were very low compared to the Ks and remain so to this day."

SKYHAWKS ARRIVE AT ALBATROSS

The long awaited Royal New Zealand Airforce Skyhawk aircraft arrived at NAS Nowra at 3 p.m. February 26, with an impressive flypast.

The six A4's have begun a five year deployment supporting the Australian Defence Force, which will have important benefits for Australia and New Zealand, enhancing the co-operation, contact and exchange of information, between the two armed forces.

The Skyhawks are expected to be involved in air operations on both the east and west coasts of Australia, including maritime strike, combat air patrol and close air support.

The New Zealand Air Force is expected to carry out conversion training for pilots at NOWRA.

Major advantages of the A4's to Australia include the savings in flying costs - A4's being less than a third the price of the RAAF F/A 18's (which cost about $6,000 per hour), and the improved training for RAN ships.

For the New Zealanders, Australia represents an opportunity to experience operations over a larger area, with a great diversity of terrain and climatic conditions, and of course, an additional, much coveted overseas posting.

The RNZAF will provide up to 800 flying hours on task per year for ADF air defence support flying - all costs related to transit and tasking will be shared.

HMAS ALBATROSS welcomes the arrival of the 53 RNZAF personnel and their families and looks forward to working with them over the next five years.

• Maintenance crews and pilots inspect the Royal New Zealand Air Force A4 Skyhawks, after they landed at H.M.A.S. Albatross on the first day of their planned five year stay.

• Four Royal New Zealand Air Force fighter pilots talk casually, after arriving at H.M.A.S. Albatross with their A4 Skyhawk aircraft.

The RNZAF Brings its Skyhawks Back to Nowra

Australia's connection to its A4s was not to end with their departure to New Zealand. In 1990 Defence signed a contract with the RNZAF to provide six Skyhawks for Air Defence Support, a move that rubbed salt into the wounds of those who bitterly resented the decision to phase them out in the first place. Skyhawks appeared in Nowra's skies again, however, and continued to do so until 2001.

Early 1991 New Zealand and Australia signed "The Nowra Agreement", which based RNZAF Skyhawks at HMAS Albatross in Nowra to provide Fleet Support for the Royal Australian Navy. Under the terms of the Agreement each country shared costs for 400 flying hours/annum. The concept of hiring back the very aircraft we had sold for a song only a few years previously brought howls of protest from many parties – see an excerpt from a current affairs program of the time. ***Below****. Navy News 29 March 1991.*

Agreement signed at ALBATROSS

Late last year a meeting was convened at HMAS ALBATROSS for senior Defence representatives from Australia and New Zealand.

Purpose of the meeting was to discuss the continued exchange of Defence support between the two Defence Forces.

It included the continued presence of 2 Squadron at HMAS ALBATROSS.

An agreement was signed at this meeting which was of great significance to both Defence Forces as it set in place the cost sharing arrangements for services exchanged.

ABOVE: Rear Admiral Walls and Commodore Leonard congratulate each other following the signing of the agreement. Also in the picture are standing (l-r): Doctor Lance Beath, Mr Daniel Eaton, Mr Paul Sinclair, Colonel Peter Bernard, Colonel Paul Tys, Captain Keith Eames (former CO HS 817 Squadron), Brigadier Graham Birch, Mr Mike Palairet, Mr Don Smith and Ms Judy Lackele.

Sale of 17 air force jets to US trainer gets nod

By SHANE COWLISHAW

SOLD – New Zealand's mothballed Skyhawks are bound for the US where they would probably be used for training roles within the Defence Department.

AIRCRAFT from New Zealand's mothballed Air Combat Wing could be dogfighting with United States jets before the end of the year after finally receiving sale approval.

The air force's fleet of Skyhawks have been collecting dust since they were grounded more than 10 years ago.

It was announced in November that United States company JDI Holdings had signed a bargain deal worth $7.9 million for the eight remaining aircraft that have not been given to museums.

But the deal, including spare parts and engines, relied on approval from the US State Department. A previous deal with US aviation training provider Tactical Air Services fell through late in 2010 because of a delay in similar approval.

Draken International, an operating arm of JDI Holdings, confirmed it had received approval to buy not only the Skyhawks, but also nine of New Zealand's Aermacchi jet training aircraft.

The Aermacchis were also decommissioned in 2001 but were regularly flown to keep them operational.

Draken chief executive Jared Isaacman, one of the few civilian-trained pilots in the US authorised to fly Skyhawks, said the company received State Department approval a few months ago.

He told *The Dominion Post* the company had also bid for the Aermacchis earlier this year in competition with several other firms.

A team had been in New Zealand for two months working with the Aermacchis and would soon shift focus to the Skyhawks.

It was hoped the aircraft would be in the US and operational by the end of the year, and would probably be used for training roles within the Defence Department.

He would not comment on the price paid for the Aermacchis, but said he was thrilled to have picked up the aircraft, especially the Skyhawks. "I can't tell you how much everyone at Draken International appreciates and respects the history of this aircraft in New Zealand. The Skyhawk has a very proud history in aviation in general, but the New Zealand version, the K model, is the pinnacle of this fleet and we just feel very fortunate we'll have the opportunity to fly them again."

Defence Minister Jonathan Coleman confirmed Draken as the winning bidder for the Aermacchis, but said he could not officially announce the deal as details regarding the export process were still being finalised.

"There is currently a process under way to receive all the appropriate approvals and licences to export the aircraft. Only when that process has been completed will the Government be in a position to announce the final disposal of the air combat force."

Figures provided under the Official Information Act show the air combat force has cost $37.4m to maintain and operate since it was disbanded in 2001.

This includes a $6.9m payment to Airways Corporation after the cancellation of radar surveillance contracts and the closure of the Ohakea air traffic control centre.

Eight Skyhawks have been delivered to museums around the country, and one has been sent to a museum in Australia.

The Defence Force spent $380,000 delivering the aircraft to the museums, including $133,000 to send the Skyhawk to the Royal Australian Navy Fleet Arm Museum in Nowra.

The remaining Aermacchis have also been given to museums.

Left. In what was to be one of the final chapters in the Australian/New Zealand Skyhawk story, this newspaper cutting tells of the approval of the US State Department for their sale to JDI Holdings (USA), which had Draken International as one of its operating arms. The article, which appeared in "The New Zealander" of 15 August 2012, reported that eight Skyhawks and nine Aermacchis were to be purchased. Of the eight A4s, six were ex-RAN. The remaining nine airframes were donated to museums, including one TA-4 to the Fleet Air Arm Museum in Nowra.

Read the Story of the A4s in their new role with Draken International here.

Nine of the Kiwi A4s were donated to Museums, all in New Zealand, with the exception of N13-154911. This was the only survivor of the four TA-4 trainers originally purchased by the RAN. It arrived back in country in April 2004 and was repainted in 724 Squadron livery. The aircraft occupies pride of place in the Fleet Air Arm Museum at Nowra, NSW. (RAN image).

***Above**. Three Skyhawks of the RNZAF make a low pass abeam HMAS Melbourne. The Kiwis operated to a "Hard Deck" of 50 ft (with newly qualified pilots limited to now below 100ft). One problem was the seeker heads of the training version of the Maverick missiles became encrusted with salt spray, which obscured the picture on the cockpit display. (RAAF Hornets were limited to 250ft, or "way up in the stratosphere' as the NZ pilots used to say).*

***Above**. The Kiwis operated the A4 in a number of liveries, often at the same time as illustrated by the four different paint jobs above. These included the "Early Scheme" of late 1970 when the RNZAF adopted the Kiwi Roundel; the "Maritime Scheme" of 1984 (two known aircraft), which replaced the camouflage tan with a dark grey; and the "Mono Scheme" of 1997 to make savings by moving away from the mish-mash of colours in the fleet. The first Mono Scheme was an overall dark green with mottled light green markings, but it was reported as "too effective" and was altered to return to the black markings of the previous Maritime Scheme superimposed on the one colour (dark green) paint scheme.*

The End of the Line for Kiwi Air Strike Power

In 2001 the new Clark Government in NZ not only axed the proposed purchase of F-16s, but killed the RNZAF's entire Air Combat Capability. The decision was the death-knell for the Skyhawks, including those deployed at Nowra. The Aussie detachment returned to New Zealand and their aircraft, together with the RNZAF's other Skyhawks and Macchi trainers, were placed in storage with 'For Sale' signs on them. This included six of the ex-RAN machines.

***Below**. With an initial price tag of NZ$155m, some trouble was expended on storing the mothballed aircraft, but as time dragged on without a sale they were moved from a hangar to sit in the weather (below right). Mothballed Skyhawks at RNZAF Woodbourne. The aircraft were covered in a latex skin to protect them, but storage in the wind and rain didn't help, as reported by a New Zealand news channel in 2008..*

Airframes & Attrition

Royal Australian Navy A4G Skyhawks – Synopsis of Airframe History

Build No.	Type	SideNo	Batch	Aircraft History
N13-155060	A4G	873	2nd	05/06/73 Crashed 20nm E RAAF Williamstown NSW. Turbine shroud failure. SBLT Der Kinderin.
N13-154910	A4G	889	1st	08/11/73 Ditched HMAS Melbourne. Catapult failure near Singapore. LEUT Evans.
N13-154648	TA4G	879	2nd	16/05/74 Crashed into sea 64km NE of Nowra. Possible pilot disorientation/disablement. LEUT McMillan.
N13-155055	A4G	872	2nd	17/07/75 Crashed Beecroft Head, Nowra. Mid Air Collision SBLT McCoy.
N13-155051	A4G	870	2nd	23/01/79 Crashed 24km SE Braidwood NSW. Engine fire. SBLT Tomlinson.
N13-154909	A4G	888	1st	23/05/79 Crashed over side HMAS Melbourne 90km E Jervis Bay. Arrestor Wire failure. LCDR Finan.
N13-154907	A4G	886	1st	24/09/79 Rolled off deck HMAS Melbourne during storm 355km East of Australia. Handling failure.
N13-154647	TA4G	878	2nd	28/04/80 Crashed 5km South of Nowra. Engine failure LEUT Sinclair.
N13-155062	A4G	875	2nd	02/10/80 Ditched off HMAS Melbourne in Andaman Sea. Engine failure on launch. LCDR C. Blennerhasset.
N13-154906	A4G	885	1st	21/10/80 Ditched off HMAS Melbourne 200km SW Colombo. Catapult failure. LEUT Baddams.
N13-154903	A4G	882	1st	To RNZAF 07/84 as NZ6211. Crashed Nowra 16/02/2001 during Air Show rehearsal.
N13-154912	TA4G	881	1st	To RNZAF 07/84 as NZ6256. Crashed into sea off Perth WA 23/03/01. LEUT Barnes.
N13-154911	TA4G	880	1st	To RNZAF 07/84 as NZ6255. Donated by RNZAF to RAN Fleet Air Arm Museum, Nowra.
N13-155061	A4G	874	2nd	To RNZAF 07/84 as NZ6216. Now displayed at Omaka Museum, NZ
N13-154904	A4G	883	1st	To RNZAF 07/84 as NZ6212. Sold to Draken International in 2012. Registered as N142EM
N13-154905	A4G	884	1st	To RNZAF 07/84 as NZ6213. Sold to Draken International in 2012. Registered as N143EM
N13-154908	A4G	887	1st	To RNZAF 07/84 as NZ6214. Sold to Draken International in 2012. Registered as N144EM
N13-155052	A4G	871	2nd	To RNZAF 07/84 as NZ6215. Sold to Draken International in 2012. Registered as N145EM
N13-155063	A4G	876	2nd	To RNZAF 07/84 as NZ6217. Sold to Draken International in 2012. Registered as N146EM
N13-155069	A4G	877	2nd	To RNZAF 07/84 as NZ6218. Sold to Draken International in 2012. Registered as N147EM

The table above shows all 20 RAN FAA Skyhawks and a brief synopsis of what happened to each one during their lifetime. Note they are in chronological order of their demise. First batch was acquired in 1967. Second batch in 1971.

There is an individual page for each airframe with a chart of links on the next page of this document. ✈

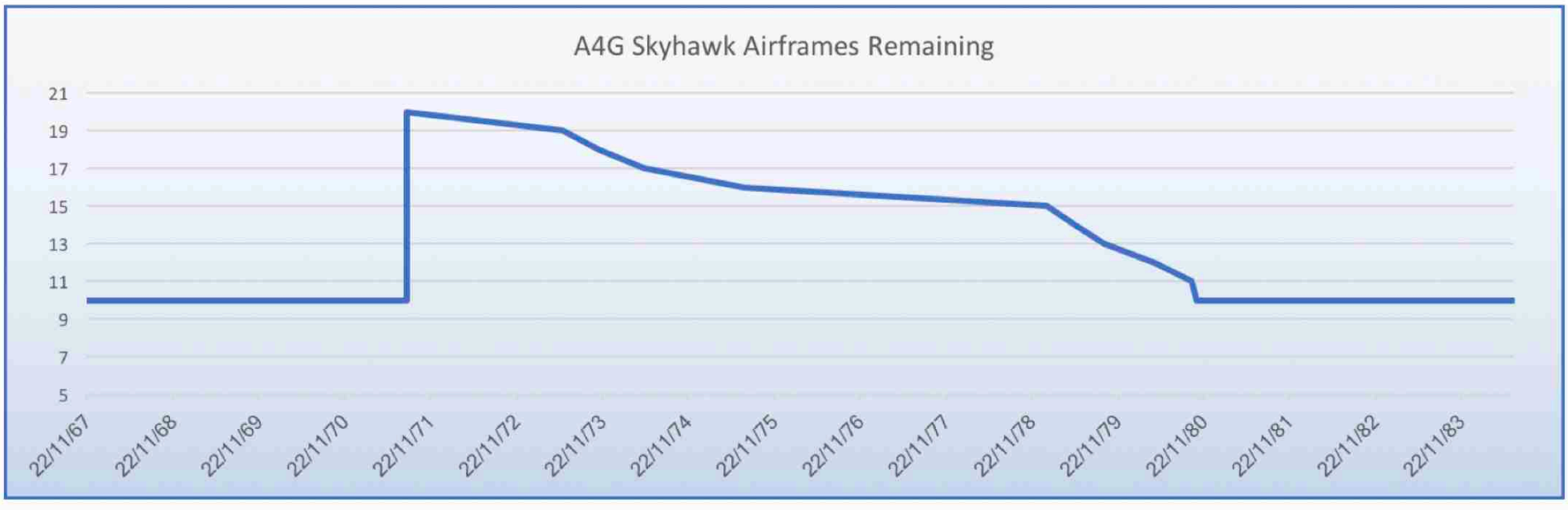
ATTRITION STATISTICS

The graph below shows the number of Skyhawks on the Navy's books over time, as accidents whittled their numbers away from their initial delivery (Nov67) to service withdrawal (Jun84).

Of note, none were lost until Sub Lieutenant Tony Der Kinderin suffered a turbine shroud failure in 873 on 5Jun73 (note by then we had 20 Skyhawks on the ORBAT as the second batch had been delivered).

Over the remaining ten years we lost a further nine, mostly though engine failures or deck malfunctions aboard Melbourne. The relatively short period between Jan '79 and Oct '80 was the most expensive, with no less than six Skyhawks lost.

The ten surviving airframes were sold to the RNZAF in July of 1984, of which eight survived – two for Museums (one either side of the Tasman), and six to Draken International to fly another day.✈



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ANL Trove.✈

Editing and Typesetting by Marcus Peake.

Check Out Individual Aircraft Histories

Click on any button below to see that aircraft's individual page. These pages contain other links, where available, to reports, BOI investigations etc. relevant to that particular airframe.

SKYHAWK SIDE NUMBERS

870	875	880	885
871	876	881	886
872	877	882	887
873	878	883	888
874	879	884	889