



ADF Serials Telegraph News

News for those interested in Australian Military Aircraft History and Serials

Volume 9: Issue 2: Winter 2019: *Editors and contributing Authors: John Bennett and Gordon R Birkett*

News Briefs: from various sources. John Bennett & Gordon Birkett @2019

Story: No 3 SQUADRON A.F.C. PART IV – THE HINDENBURG LINE AND VICTORY by John Bennett @2018

Story: RAAF AIRCRAFT MARKINGS SINCE 1950 SQUADRON MARKINGS – PART 12 by John Bennett 2019

Story: RAAF Reconnaissance Development: Part 2 by Gordon R Birkett @2019

Curtiss Wright Corner: P-40M-5 A29-356 by Gordon Birkett @2018

Odd Shots: Select Spitfire MkVc Aircraft and pictures by Gordon R Birkett @2019

Odd Stories: Pearl Harbor; the hidden truths of Japanese Raid #2, with a review of Japanese coastal reconnaissance flights and bombing raids over Australia's East Coast by Gordon Birkett @2019

Corrections: Summer 2018/2019 Supplement Newsletter Articles.

Message Traffic: Please address any questions to:

question@adf-serials.com.au or <https://www.facebook.com/groups/233552413412953/>

News Briefs

AIR 7003 Reapers

28 February 2019: General Atomics Aeronautical Systems, Inc. (GA-ASI) – a leading manufacturer of Remotely Piloted Aircraft (RPA) systems, radars, electro-optic and related mission systems – has outlined progress of “Team Reaper Australia” towards achieving the Australian Industry Content requirements for Project AIR 7003. In NOV 2018, the Australian Government named GA-ASI to provide the Reaper armed-RPA system under AIR 7003, with the specific variant (either the MQ-9A or advanced MQ-9B Reaper) to be selected during 2019. As mentioned in our Christmas 2018 edition, the Defence Minister confirmed acquisition of 12 to 16 Reapers, probably the MQ-9B Type-Certifiable Predator B, ‘Certifiable’ indicating the aircraft will be cleared to operate in controlled airspace. GA-ASI has displayed models and publicity of the aircraft before marked as A99-007, but the relevant serial allocation might well be A58-.



Wedgetails for UK

22 March 2019: UK Defence Secretary Williamson has signed a \$1.98bn contract to purchase five E-7 aircraft. The E-7 fleet will replace the current E-3D Sentry AEW.1 aircraft of 8SQN RAF and ensure a continued UK Airborne Early Warning & Control (AEW&C) capability. He said: “The E-7 provides a technological edge in an increasingly complex battle space, allowing our ships and aircraft to track and target adversaries more effectively than ever. This deal also strengthens our vital military partnership with Australia. We will operate state-of-the-art F-35 jets and world-class Type-26 warships, and this announcement will help us work even more closely together to tackle the global threats we face.” The E-7 is based on a standard Boeing 737-700NG airliner (RAAF’s are designated 737-7ES) modified with a Northrop Grumman active electronically-scanned radar, which can cover four million square kilometres over a 10-hour period. Modification of the aircraft will be carried out in the UK, sustaining over 200 jobs at Marshall Aerospace and Defence Group in Cambridge, with opportunities for British suppliers to be involved with future training and support arrangements. E-7 is a proven aircraft that is currently in service with the RAAF and has been used on operations in the battle against Daesh in Iraq and Syria.



Mocked-up image of an E-7A over Lincoln Cathedral, close to the proposed base at RAF Waddington

But there is concern by observers in UK about any change proposed to the design to meet “UK requirements”, or “modification”, as well as the involvement of Marshalls of Cambridge. Although reports claimed the first two airframes would be modified ex-airliners, they are apparently new-build ‘white-tails’. The next three will be new production aircraft, but may suffer the usual UK preference to rip out all the perfectly good equipment and then pay significantly for an integrated mix of untested gear for the proper level of UK content. Plus there is the poor track record of Marshalls of Cambridge in modifying aircraft (after problems previously with the Tristar tankers). In addition, the acquisition is for only five aircraft. If UK is buying the platform as a Foreign Military Sale (FMS) like the P-8s, this gives some protection by contractually not being able to rip anything out.

However, if ‘white tails’ are being used with British modifications then this may likely be a commercial procurement. It is unknown whether the RAAF name ‘Wedgetail’ will be retained – this came from the original Australian name in the AEW&C project.

Some scary UK differences:

- The UK specs are reportedly changed from the 737-700 to be built into the longer 737-800 variant, and possibly the 737-800ERX on which the P-8A is based.
- It has been discussed that the flight deck be extended to incorporate a navigator and flight engineer.

- Proven E-7 avionics would probably be changed for British equipment, meeting UK content requirements. The avionics and capabilities of the Australian specification *Wedgetail* (not Turkish *Peace Eagle* or the South Korean *Peace Eye*), have been impressive. While there are slight differences between the variants, including some Australian only and developed technology, currently both the UAE and Italians have looked at the Australian specific *Wedgetail*.

These differences from the effective and proven *Wedgetail* will probably lead to delays in the RAF program.

Seahawk Retirement

March 2019: Skyline Aviation has bought eleven S-70Bs of the RAN's 16 S-70B-2 Seahawks, with basing at Lake Macquarie airfield, NSW, for future use as a fire-fighting fleet. The first RAN S-70B-2 to be withdrawn from service was N24-015/884 in DEC 2012. The final flight of the S-70B-2 was by N24-003/872 for the national Australian War Memorial in DEC 2017. The AWM has also acquired RAN Squirrel RAN N22-017/865.

Of the 16 Seahawks, most of the remaining five have found Museum homes:

- **N24-001/870** to FAA Museum HMAS Albatross, Nowra JUL 2016
- **N24-003/872** to AWM Canberra DEC 2017
- **N24-006/875** WFS NOV 2018 and allocated to National Maritime Museum Sydney
- **N24-009/878** WFS JUL 2016 and now gate guard HMAS Albatross
- **N24-013/882** to DSTG JUL 2016.



Retired Seahawks at stored Avalon



N24-014/883 at Skyline's Lake Macquarie airfield MAR 2019

25 March 2019 – GBAD System Contract awarded. The Norwegian-US designed National Advanced Surface to Air Missile System has been ordered, along with Australia’s CEA AESA Radar, mounted on a Hawkei vehicle chassis, to replace the in service RBS-70 System in the Army’s 16th Air Land Regiment.



Dassault Falcon 7X

29 March 2019: The RAAF has leased three new Dassault Falcon 7X jets to replace the three ageing Bombardier Challenger 604s. Falcon 7X A56-001 (msn 283) used callsign “Aussy 303” from the factory at Bordeaux to Little Rock, USA (the site of completion centre) on 29 MAR 2019.

The completion centre is owned by the Dassault Falcon Jet Corp. The three-engine Falcon 7X carries up to eight passengers with three crewmembers, and can fly non-stop on routes such as Sydney to Mumbai, or with a single stop from Australia to London or New York. Defence put out a tender for new aircraft in 2015 as the leased Challengers have been flying with 34SQN since 2003.

The two Boeing 737-BBJs have evidently had their leases extended and will be reconfigured for regional operations.

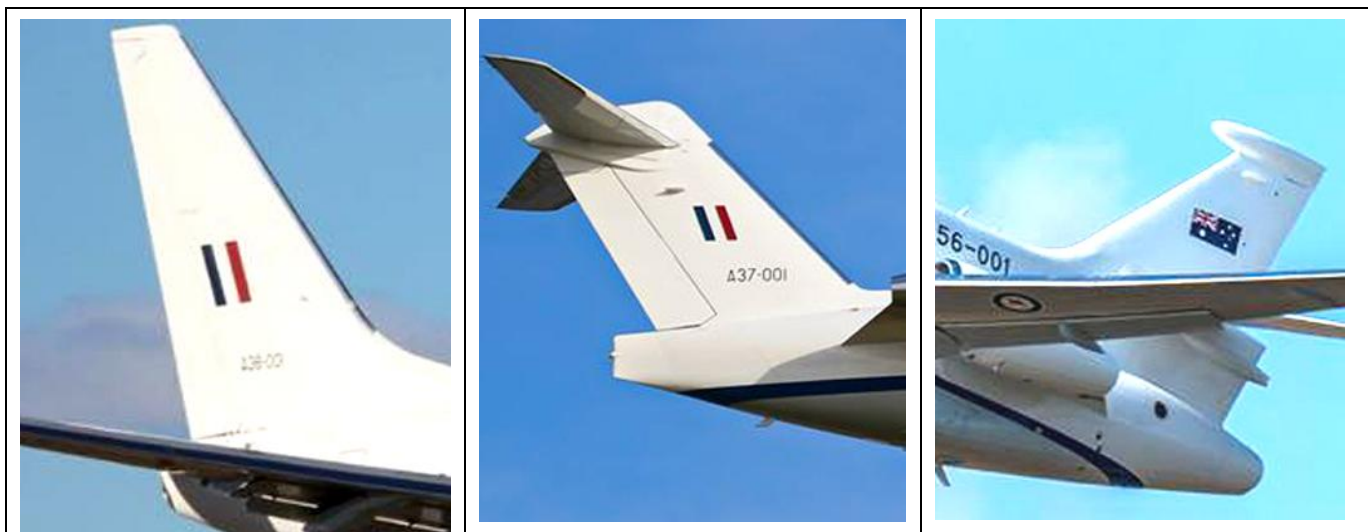
The long-haul special transport role will be fulfilled by the seventh Airbus KC-30A (A39-007) multi-role tanker transport (MRTT), which has now completed installation of a VIP cabin in the forward fuselage (retaining its full air-to-air refuelling AAR capability), and reportedly left Spain on 16 MAY. A56-001 arrived in Australia on 16 APR 2019.



Falcons are back in town – Dassault Falcon 7X A56-001 departing Bordeaux for the US, and on arrival in Australia

...and farewell to the Tail Tri-colour (at last!!)

March 2019: After decades of being mistaken for the French flag (particularly on the C-130), finally it appears the RAAF has retired the red-white-blue fin flash. The adoption of camouflaged C-130Hs (in 1978) then toned-down grey in the 1990s saw the loss of the tricolour across the RAAF combat fleet, then gradually reducing to just the bright and shiny VIP squadron. The appearance of Falcon 7X A56-001 (above) shows a far more sensible approach to the fin National Marking – the use of the Australian flag. Below are the recent ‘last hurrahs’ of the tricolour fin flash.



A36-001 737-BBJ fin flash

A37-001 CL-604 fin flash

A56-001 Falcon 7X – fin flash has gone

The Challenger CL-604s are being retired, but the 737-BBJs will be retained. We may therefore see the BBJ fin flash replaced by the Australian flag for consistency across the VIP fleet with the new Falcon 7X.

16 April 2019: After a short turnaround in the US at the Little Rock completion centre, our first Falcon 7X A56-001 arrived at its new home in Canberra on 16 APR. Over this past month A56-001 had been involved in crew conversions to the new type, operating through the capital cities and regional airports. We can expect A56-002 and A56-003 over the coming months.

F-35A Lightning II Deliveries

April 2019: After the report in our last issue of the first ten RAAF F-35s, the next two – **A35-011 and A35-012**, Lot 11 aircraft – made their maiden flights on 25 January 2019, and joined the US-based F-35s at Luke AFB in February, then ferried to Williamtown to arrive on 7 APR 2019. The RAAF’s first two home-based F-35s – A35-009 and A35-010 from Lot 10 – had previously arrived at RAAF Williamtown for welcoming celebrations on 10 DEC 2018, and have been joined by a further two. A further delivery update with the FMS FY17-serials is provided below.



F-35A A35-014 at Fort Worth on 15 MAR 2019

[pics F-16.net]

RAAF Serial	USAF Serial	msn	First Flight	Details
LRIP Lot 6				
A35-001	12-5060	AU-01	29 SEP 2014	61FS Luke AFB, del DEC 2014, 2OCU mkgs
A35-002	12-5061	AU-02	1 OCT 2014	61FS Luke AFB, del DEC 2014, 2OCU mkgs
LRIP Lot 10				
A35-003	15-5211	AU-03	DEC 2017	61FS Luke AFB, del DEC 2017, 3SQN mkgs
A35-004	15-5212	AU-04	12 DEC 2017	61FS Luke AFB, del DEC 2017, 2OCU mkgs
A35-005	15-5213	AU-05	JAN 2018	61FS Luke AFB, del 2018, 2OCU mkgs
A35-006	15-5214	AU-06	MAR 2018	61FS Luke AFB, del 2018, 2OCU mgs
A35-007	15-5215	AU-07	2 JUL 2018	61FS Luke AFB, del 2018, 3SQN mkgs
A35-008	15-5216	AU-08	16 JUL 2018	61FS Luke AFB, del 2018, 3SQN mkgs
A35-009	15-5217	AU-09	15 AUG 2018	del SEP 2018, 3 SQN Williamtown 10 DEC 2018
A35-010	15-5218	AU-10	16 AUG 2018	del SEP 2018, 3 SQN Williamtown 10 DEC 2018
LRIP Lot 11				
A35-011	17-5294	AU-11	25 JAN 2019	61FS Luke AFB FEB 2019, arrived 3 SQN Williamtown 7 APR 2019
A35-012	17-5295	AU-12	25 JAN 2019	61FS Luke AFB FEB 2019, arrived 3 SQN Williamtown 7 APR 2019
A35-013	17-5296	AU-13	MAR 2019	61FS Luke AFB, 2OCU markings
A35-014	17-5297	AU-14	15 MAR 2019	61FS Luke AFB, 2OCU markings
A35-015	17-5298	AU-15	MAY 2019	3SQN markings?
A35-016	17-5299	AU-16	MAY2019	3SQN markings?
A35-017	17-5300	AU-17	JUL 2019	3SQN markings?
A35-018	17-5301	AU-18	JUL 2019	3SQN markings?

Estimated data provided in red.

Lockheed Martin low-rate initial production (LRIP) is divided into FY “Lots”.

For the RAAF’s final batches of 62 aircraft, ordered under Project AIR 6000 Phase 2A/B, will be Lot 11 to Lot 15:

- **FY2017 serials:** in 2019 to finalise 3SQN requirements, there will be eight **Lot 11** (A35-011/A35-018), with FY17 USAF serials. Known USAF deliveries have been 17-5237 to 17-5286
 - after these USAF deliveries was Italian 17-5287 (as MM7361);
 - then six Lot 11 for Norway – 17-5288 to 17-5293 (RNoAF 5288 to 5293);
 - RAAF aircraft 17-5294 to 17-5301 (A35-011 to A35-018);
 - Dutch aircraft 17-5302 to 17-5309 (F-003 to F-010);
 - Turkey 17-5310 to 17-5313 (18-0003 to 18-0006);
 - South Korea 17-5314 to 17-5323 (007 to 016);
 - Israel 17-5324 to 17-5329 (925, to possibly 930); and
 - Japan 17-5330 to 17-5335 (89-8711 to 89-8716).
- Then deliveries will gain further momentum for the RAAF with 15 **Lot 12** scheduled for delivery in calendar year 2020 (A35-019/A35-033), with FY18 serials (some sources state 20 aircraft); and
- **Lot 13** FY19 and **Lot 14** FY20 to be delivered in 2021 and 2022 respectively, then presumably **Lot 15** FY21 in 2023.

3SQN are now conducting a two-year verification and validation (V&V) period with the F-35. The V&V will be the major effort in order to achieve an initial operational capability (IOC), and will validate the F-35’s capabilities in an Australian operational and maintenance environment, i.e. *operational effectiveness* and *operational supportability*.

In the meantime in the US, Australia will continue to [build its cadre of F-35 pilots](#) with the USAF 61st Fighter Squadron's (61FS) multi-national Integrated Training Center (sic, ITC) at Luke AFB. Further known RAAF milestones are:

- **late 2019**, **3SQN** should have its full complement of aircraft at Williamtown, IOC in DEC 2020;
- **early 2020**, the next RAAF unit, **20CU**, is scheduled to start bringing its F-35s home;
- **2021** next to re-equip will be **77SQN**, then **75SQN** will commence in 2022; and
- **2023**, all the RAAF's 72 F-35As are due in Australia.



March 2019: F-35A A35-013 20CU markings

[pics F-16.net]

7 April 2019: F-35A's A35-011 (17-5294)(pictured) and A35-012 (17-5295), arrived at Williamtown AFB



Here is a copy of the USAF Acquisition Annual Report 2018:

https://www.af.mil/Portals/1/documents/5/FY18_AQReport.pdf

The report provides F-35 production over the next four years, from 48 in FY2020 to 54 each for the following three years, with some details on the AIM-120D AMRAAM, of which Australia and UK are listed as the *only* foreign customers.

Lightning II | F-35A

GLOBAL POWER

COST
2020 - 2024 President's Budget \$31.4 Billion
2020 \$6.5 Billion

ORIGINAL UNIT COST*
(2012 - Program Recertification): \$146.5 Million

CURRENT UNIT COST*
\$143.3 Million (2.2% decrease)
*Combined F-35A/B/C Costs

F-35 PRODUCTION

FY2020	48	FY2022	54
FY2021	54	FY2023	54

SCHEDULE
The Air Force declared initial operational capability in August 2016, which was five years behind the original schedule of June 2011. The program is currently on track to start full-rate production in April 2019.

CONTRACTING
F-35 contracting is accomplished through a mix of cost-plus and fixed-price-incentive-firm vehicles.

- Development Cost-Plus-Award-Fee
- Low-Rate Initial Production (Lot 4+ Production)
- Fixed-Price-Incentive-Firm (LRIP Lot II contract awarded on September 25, 2018)

BASING STRATEGY
LOCKHEED MARTIN Fort Worth, Texas

F-35As are currently based at HIB Air Force Base, Utah; Eglin AFB, Florida; Luke AFB, Arizona; Nellis AFB, Nevada; and Edwards AFB, California. Burlington Air Guard Station, Vermont, and Eielson AFB, Alaska, have been selected as future locations for the beddown of F-35As. Naval Air Station Joint Reserve Base, Fort Worth, Texas; Truxev Field ANG Base, Wisconsin; and Dannelly Field ANG, Alabama, have been selected as potential locations.

Overseas Locations: Royal Air Force Lakenheath, England

The F-35 program is managed by a joint program office under the Office of the Secretary of Defense.

The F-35A is the centerpiece of our future fighter precision attack capability—serving in both conventional and nuclear capacities for the U.S. and partner nations. Its primary missions will include air interdiction, offensive and defensive counter-air, close air support, strategic attack, and suppression of enemy air defenses.

The program of record includes 2,456 U.S. production aircraft, 1,763 F-35A conventional takeoff and landing aircraft for the Air Force, 693 F-35B short take-off and vertical landing aircraft, and F-35C carrier variant aircraft for the Navy and Marine Corps. Partners and foreign military sales countries expect to buy approximately 720 aircraft.

The Air Force fielded Block 3F capable aircraft in 2018. The F-35's next development effort centers on a Continuous Capability Development and Delivery process that delivers upgraded Block 4 capabilities in smaller incremental drops on an expedited timeline.

“
We are implementing agile practices to expedite F-35 software modernization, enhancements and improvements. We are working with coders, testers and the warfighters to shorten delivery timelines and outpace current and future threats.
”

Vice Admiral Mathias Winter,
Joint Strike Fighter
Program Executive Officer

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**Advanced
Medium-
Range
Air-to-Air
Missile**

AIM-120D



**GLOBAL
POWER**

COST

2020 – 2024
President's Budget
\$2.46 Billion

2020
**\$369
Million**

ORIGINAL UNIT COST
\$1.47 Million

CURRENT UNIT COST
\$1.48 Million
(less than 1% increase)

The AIM-120D Advanced Medium-Range Air-to-Air Missile (AMRAAM) is an Air Force-led, joint Acquisition Category I program. The AIM-120D is the Air Force's and Navy's premier beyond-visual-range missile and the next evolution of AMRAAM.

This new version of the AMRAAM incorporates both software and hardware improvements, including GPS-aided navigation, an enhanced two-way data link, increased kinematic range, improved high-off-boresight capabilities and improved targeting accuracy. Two variants of the weapon are currently in production: the AIM-120D for the Air Force, Navy, Australia, and United Kingdom and the AIM-120C-7 for other foreign military sales.

The Navy declared AIM-120D initial operational capability in January 2015, followed by the Air Force in July 2015. The AIM-120D's capability against emerging threats is continually upgraded using the system improvement program for the AIM-120D and the advanced electronic protection improvement program for the AIM-120C7.

The AMRAAM is integrated on the F-15, F-16, F/A-18, F-22, F-35, and AV/8B. The AIM-120D program is buying more than 3,000 AIM-120Ds in full-rate production for the next five years, as well as supporting sustainment and providing enhanced capabilities through software upgrades.

SCHEDULE

Raytheon delivered the required AIM-120Ds to the warrighter in May 2012, which was two years behind the original date of May 2010.

CONTRACTING

Research, Development,
Test & Evaluation
Cost-Plus-Incentive-Fee and
Cost-Plus-Fixed-Fee

Production
Fixed-Price-
Incentive-Firm

AMRAAM PRODUCTION

FY2016	610
FY2017	706
FY2018	800
FY2019	828
FY2020	641

RAYTHEON MISSILE SYSTEMS
Tucson, Arizona

The System Program
Office is at Eglin
Air Force Base, Florida.

9 April 2019: Meanwhile, Japan grounded its F-35 fleet after the loss of an aircraft over the Pacific from a four-ship night training mission out of Misawa AB. This was F-35A 79-8705 (15-5138 / AX-05). Japan appears to have 13 F-35As delivered, operated by 302 *Hikotai* (Tactical Fighter Squadron), which only moved to Misawa in MAR 2019.

After a day, the wreckage was found, but the pilot was missing. This is not the first F-35 loss – in SEP 2016 the USMC lost F-35B Bu No 168057 which landed at MCAS Beaufort, after an in-flight fire and declared a write-off in JUN 2018.

P-8A Poseidon Deliveries

April 2019: As previously reported, **A47-008** was still in storage in Renton. The Minister for Defence announced in April that the eighth aircraft would now be delivered in mid-2019. A47-008 had been identified as RAAF's long-term fatigue management aircraft, fitted with diagnostic equipment to allow the RAAF to collect the data to analyse and sustain the life of the aircraft. While there will be no requirement for A47-008 to be on ARDU strength, it would clearly be earmarked as the upgrade and instrumented test vehicle.



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PLANESPOTTERS.NET



[Airliners.net]

Our ninth P-8A A47-009 (msn 64165), line number 7324 and registered as N391DS, flew on 1 MAR 2019

A47-009 through A47-012 will be delivered over the second half of this year, but may be our last for a while, as to whether the further three options are firmed into more formal orders. Meanwhile **A47-010** (64166) has line number 7392 and is registered as N397DS. **A47-011** is msn 64167 N398DS. **A47-012** may be msn 64168 – this is to be confirmed.

RAAF Serial	msn	Line no.	Test Reg	Date of FAA Reg	RAAF Delivery
A47-008	63191	6750	N872DS	27 AUG 2017 *	JUN 2019
A47-009	64165	7324	N391DS	18 SEP 2018	SEP 2019
A47-010	64166	7392	N397DS	24 OCT 2018	OCT 2019
A47-011	64167	7427	N398DS	14 NOV 2018	DEC 2019
A47-012	64168 *				JAN 2020
<p>* A47-008 has been long-term storage and modification at Boeing Renton – FAA Registration cancelled APR 2018, due for delivery to RAAF in mid-JUN 2019.</p> <p>* msn 64168 not yet confirmed for A47-012.</p>					

PC-21 NEWS

4-5 May 2019. The first Roulettes show for the new PC-21s was held at Wings Over Illawarra at Albion Park. Aircraft were A54-020, -021, 022, -023 and 025. **Deliveries to 27 May 2019:**

- After departing Stans on 8 MAR, **A54-031** and **A54-032** arrived at East Sale on **18 MAR**.
- **A54-033** (HB-HWG) arrived solo at East Sale on **8 APR 2019**, after A54-034 had gone U/S at Stans. In the words of wisdom of Martin Edwards: "I suppose with 49 to be delivered, sooner or later there had to be a solo flight."
- But, the next pair became a trio when **A54-034**, **A54-035** and **A54-036** arrived at East Sale on 6 MAY.
- The next pair, **A54-037** and **-038**, departed Stans on 17 MAY, and arrived at East Sale on 27 MAY. **A54-039** and **A54-040**, in flight test at Stans, continue the trend for East Sale-based aircraft to be marked as 'Roulettes'.

RAAF Serial	Ferry Reg	msn	Delivery Details
A54-031	HB-HWE	264	Seen engine runs at Stans 28 NOV 18, (Roulettes), arrived at ESL 18 MAR 2019.
A54-032	HB-HWF	265	Seen at Stans 13 DEC18 (Roulettes), for the last pre-flight tests, arrived at ESL 18 MAR 2019.
A54-033	HB-HWG	266	Seen engine runs at Stans 28 NOV 18, (Roulettes), departed Stans solo on 29 MAR 21019 as A54-034 had defect, arrived at ESL 8 APR 2019.
A54-034	HB-HWH	267	Seen at Stans 13 DEC18 (Roulettes) for the last pre-flight tests. Was due to depart 29 MAR but defect, departed on 26APR, arrived at ESL 6 MAY 2019.
A54-035	HB-HWI	268	Seen engine runs at Stans 28 NOV 18 (Roulettes), departed on 26APR, arrived at ESL 6 MAY 2019.
A54-036	HB-HWJ	269	Seen at Stans 13 DEC18 (Roulettes), for the last pre-flight tests, departed on 26APR, arrived at ESL 6 MAY 2019.
A54-037	HB-HWK	270	First flight at Stans 21 MAR 2019 (Roulettes), "200 th PC-21" marking, departed Stans 17 MAY, arrived ESL 27 MAY 2019.
A54-038	HB-HWL	271	Flying at Stans 3 APR 2019 (Roulettes), another "200 th PC-21" marking, departed Stans 17 MAY, arrived ESL 27 MAY 2019.
A54-039	HB-HWM	272	Assessed first flight at Stan in APR 2019, expect Roulettes markings. ETA ESL JUN 2019.
A54-040	HB-HWN	273	First flight at Stans 1MAY 2019 (Roulettes) ETA ESL JUN 2019.

- So far 22 aircraft (A54-019 to A54-040) have Roulette markings, these are the 22 we were expecting to be based at ESL. ARDU have A54-017 and A54-018 – and although we expected 20 for Pearce, there are apparently 16 allocated to 2FTS, all the first aircraft up to A54-016 (and by 17 MAY, there were evidently eight on strength). Andy Marden reports that he saw **A54-036 to A54-043** all in Roulettes colours on 2 APR at Stans (and probably A54-044 too), and subsequently A54-045 and -046 in grey.
- **A54-045** is at Stans in FAC grey *and* ARDU markings, for FAC stores carriage and release clearances by ARDU, then the final four will go for FAC training duties with 4SQN at WLM, delivered in overall grey – **A54-046 to A54-049**.
- Thanks also to photographers Stephan Widmer at Stans, Nathan Rundle in Adelaide, and reporting by Andy Marden.
- The RAAF's No.258 Pilots Course will be the first to begin all-through pilot training on the PC-21 in JUL 2019.



21 MAR 2019: A54-037 (HB-HWK) msn 270 on first flight on 21 Mar 2019, marked as the '200th PC-21'



A54-034 (HB-HWH) testing in the snow at Stans, was due for APR 2019 delivery but delayed until MAY



1 MAY 2019: A54-040 (HB-HWN) msn 273 preparing for its first flight

A PC-21 query: 3 April 2019: On 19 MAR 2019 A54-037 (HB-HWK) was flying with the special markings "200th PC-21", and then on 3 APR A54-038 (HB-HWL) was flying also with the special markings "200th PC-21"! Thank you, Stephan Widmer in Stans.

Announcement by Pilatus of a second "200th PC-21" made the local Stans hills alive with the sound of... that ancient musical Swiss exclamation: "WTF!!!"



16 MAY 2019, A54-038 (HB-HWL) with A54-037 on the Stans ramp in preparation for the delivery ferry



[Jetphotos]

A54-045 in grey at Stans being prepared for completion as the ARDU testing FAC platform

MC-55A PEREGRINE AISREW



The two MC-55A Airborne Intelligence, Surveillance, Reconnaissance and Electronic Warfare (AISREW) aircraft reported in the last edition, are part of a four/five system acquisition.

In JUN 2018, the US DoD awarded L3 Technologies (Greenville, TX) a US\$83m (A\$112m) contract for the upgrade of two Gulfstream G550 business jets to the MC-55A standard for the RAAF, a contract set to run through to AUG 2021. The aircraft are apparently being acquired in two tranches (2+2) and will be incrementally upgraded to maintain commonality with US-developed systems.

The first two 'green' Gulfstream G550 airframes were ordered in JAN 2016 and have been registered **N540GA** and **N542GD**. The following unclassified details of the known aircraft delivered to L3 for the RAAF modifications have been sourced from the internet. The aircraft are named 'Peregrine' – a falcon bird of prey – coincidentally, a name originally used by Gulfstream in the 1980s for a single-engine business jet. The acquisition of five aircraft had been considered, but this total is now evidently four – and apparently the first of the second tranche is msn 5584.

Possible Serial	RAAF	Ferry Reg	msn	Delivery Details
A51-540 *		N540GA	5540	FAA registration 9 MAY 2016, expiration date 30 NOV 2019. Airworthy 16 MAR 2016, ferried from Gulfstream to L3 Greenville 28 MAR 2016, stored L3.
A51-542		N542GD	5542	FAA registration 20 JUN 2016, expiration date 31 MAR 2020. Airworthy 21 APR 2016, ferried from Gulfstream to L3 Greenville 29 APR 2016, stored L3.
A51-584		N584GA	5584	FAA registration 27 DEC 2018, expiration date 31 DEC 2021. Airworthiness 22 OCT 2018, ferried from Gulfstream to L3 Greenville 1 NOV 1018, under mod at L3.

* These are speculated serial numbers using the 'last three' of the msn – conversely the aircraft could be A51-001 to A51-004.



Italian MC-55 (msn 5429) delivered in 2016 with an Israeli conformal antenna – not fitted to the RAAF MC-55A



The RAAF AISREW variant – MC-55A – would look more like this, no conformal AEW radar and a ventral gondola

The US DoD contracted two ‘green’ Gulfstream G550 aircraft to be converted into special mission platforms for an FMS USD83 million contract to L3 Communications on 21 June 2018, for the procurement of two aircraft.

The contract was awarded the USAF 645th Aeronautical Systems Group (ASG) at Wright-Patterson AFB, Ohio, and is set to run through to August 2021. The 645th ASG, commonly known as ‘Big Safari’, is responsible for the rapid procurement and fielding of new weapons systems, sensors, and platforms for domestic and international operators.

In June 2017 the DoD approved the sale to Australia of up to five G550 aircraft fitted with ISR and EW mission systems, with integration work to be carried out by L3 in Greenville, Texas.

A contract for the procurement of the first two ‘green’ aircraft for conversion was awarded in January 2016, with this latest awarded being for a second two. The total value of the procurement if all the options are exercised is USD1.3 billion.

Possible Future Structure for SRG

Surveillance Response Group (SRG) – which cunningly inherited the Strike Reconnaissance Group “SRG” abbreviation from the F-111 fleet (which had previously morphed into ACG) – encompasses the maritime patrol aircraft (MPA) fleet and the Airborne Early Warning and Control (AEW&C) assets.

With orders for more surveillance aircraft, including some unmanned platforms, the mix of SRG assets could well become as listed below:

2 SQN	E-7A <i>Wedgetail</i> AEW&C (6)
5 SQN	Ex-Heron UAV, possibly to become MQ-9B <i>Predator B</i> UCAV (12-16)
9 SQN	Possibly to become MQ-7C <i>Triton</i> HALE UAV (6-7)
10 SQN	MC-55A <i>Peregrine</i> AISREW (4) replacing AP-3C(EW) <i>Orion</i>
11 SQN	P-8A <i>Poseidon</i> MPA (12-15) has replaced AP-3C

To continue this **speculation**, what we know so far about the RAAF serial identifiers allocated are from mock-ups and models:

- A57 – the Triton mock-up has been marked as A57-001;
- A58 – Predator B has been marked for advertising as “A99-007” !!, but the A58- allocation might well apply;
- Although the MC-55A has been allocated A51-, it could have been A55-, just as A35- was kept vacant for the F-35 JSF.

Trivia: Matching an aircraft serial number identifier like the example of A35 (F-35) has also been implemented in reverse – *life imitating art!* When the RAAF ordered the Hawk as the new LIF in 1996, the serial block A27- was allocated. Then British Aerospace in response adopted the designator Hawk 127 for the RAAF order. *True.*

Hornets to Canada

April 2019: As detailed in the last Newsletter, the first two RAAF F/A-18As were handed over at a formal ceremony at CFB Cold Lake on 17 FEB 2019. These were A21-53 and A21-55. Here is the first picture of A21-53 in its new RCAF colours as 188053.



April 2019: A21-53 now as RCAF 188053 – A21-55 showing its 3SQN fin in the background

NAVY Bell 429 Disposals

March 2019: Navy Bell 429 N49-047 (msn 57047), below, on the wharf in the last week of MAR 2019 ready to go to the NZ Police. Earlier ex-N49-048 (msn 57048) was seen at Nowra during FEB 2019 after having been added to the civil register on 31 JAN 2019 with Raytheon as VH-IWS. But in short time, this was packed for shipping to NZ at the end of FEB and taken off the civil register.



N49-047 (msn 57047) ready for shipping to the NZ Police, MAR 2019

30 April 2019: The last, N49-218/050 (msn 57218), performed at the F1 GP weekend in Melbourne over 16-17 MAR, and was paid off at HMAS *Albatross* on 30 APR 2019.



30 APR 2019: paying off N49-218/050 at Albatross



N49-048 (msn 57048) later packed for shipping to NZ

Ex-Army Kiowa Registrations

2 May 2019: Thanks mainly to Martin Edwards; we have the following details of eight of the ex-Army Kiowas that have come onto the Australian civil register over MAR-MAY 2019.

VH-XKH	A17-047	msn 44547	to Mount Gallipoli P/L, Tyabb, on 26 MAR 2019.
VH-ZDI	A17-046	msn 44546	to Nautilus Aviation P/L, North Cairns, on 26 MAR 2019.
VH-NKH	A17-026	msn 44526	to Nautilus Aviation P/L, North Cairns, on 26 MAR 2019.
VH-NPY	A17-015	msn 44515	to West Coast Seaplanes P/L, Broome, on 1 APR 2019.
VH-LTL	A17-028	msn 44528	to Combo International P/L, Melbourne, on 9 APR 2019.
VH-IKH	A17-029	msn 44529	to I J Smart, Kellyville NSW, on 16 APR 2019.
VH-VJP	A17-011	msn 44511	to Pentridge P/L, Tasmania, on 24 APR 2019.
VH-XKY	A17-032	msn 44532	to Code Black P/L, Mt Eliza Vic, on 2 MAY 2019.



A17-028 to VH-LTL on 9 APR 2019



A17-029 now as VH-IKH from 16 APR 2019

F-111 Swap

18 May 2019: There was a swap by the RAAF F-111 Disposal Team of the aircraft displayed by Adelaide's South Australian Air Museum (SAAM). SAAM released RF-111C A8-134 for display at the AWM Canberra (in recognition of its recce service over East Timor) in a swap to receive ARDU's instrumented F-111C A8-132.



A8-132 is towed into the SAAM hangar 18 MAY 2019, with AWM's A8-134 in the background

Australian Army Tigers deploy to Malaysia

April 24 2019: 36 SQN C-17s transported four Tiger Armed Reconnaissance Helicopters (ARH) and support equipment to Malaysia for their very first overseas deployment. A 'late first', as the helicopters have already been in Army service for some fifteen years. The Australian Army's Tiger fleet only reached its operational status in APR 2016. This process took much longer than expected, due in part to the complexity of the helicopters and a shortage of spares. In 2016, the Australian Defence White Paper stated that the Tigers would be retired early, to be replaced with different aircraft during the mid-2020s. So, if this is still correct, this first deployment could also be the last one! However, a lot can change in five to six years time, so wait and see.



The Tigers were brought to RMAF Subang/Sultan Abdul Aziz Shah, near Kuala Lumpur, Malaysia. They are normally based at Robertson Barracks-Darwin with the 1st AVN Regt, comprising 161 and 162 Recce Sqns, equipped with the 22 Tigers. This ARH deployment exercised with HMAS Canberra during the *Indo Pacific Endeavour Joint Task Force*.

No 3 SQUADRON A.F.C.

PART IV – THE HINDENBURG LINE AND VICTORY

The heavens are their battlefields. They are the cavalry of the clouds. High above the squalor and the mud...their struggles there by day and night are a Miltonic conflict between the winged hosts

- British Prime Minister Lloyd George on the vote of thanks to the Flying Service in House of Commons, November 1919¹

The Hindenburg Line – named after the German Chief of the General Staff, Field Marshal von Hindenburg – had first been discovered by Allied aerial reconnaissance in November 1916, when the beginning of a formidable defensive line was seen far back behind the Somme area. The completed line branched off from the original defences near Arras, ran south-eastwards for 20km towards Quéant and passed then west of Cambrai towards St Quentin.² It was this southern sector from Cambrai to St Quentin that formed the Australian Corps front. German forces had withdrawn to the Hindenburg Line in March 1917 after the Battle of the Somme, so that this impregnable barrier could be defended with a reduced force, while the greatest resources could be deployed to the Eastern front against the Russians.

The Hindenburg Line was constructed along a great canal scheme, connecting the Somme and the Scheldt, which cut through the high country from south to north. The southern section, the St Quentin Canal, was in a deep cutting of typically 15 metres depth. Where the ground was higher, the canal passed through great tunnels. On the Australian Corps front, to the south, was *Le Tronquoy Tunnel*, near St Quentin, and to the north was the *Bellicourt Tunnel*, running six kilometres from Bellicourt to Le Catelet. Ahead of the main Hindenburg Line defences, the Germans had constructed an elaborate system of trenches, known as the Hargicourt Line, generally parallel to and on average two kilometres west of the canal. This outpost line comprised trenches with dug-outs, concrete machine-gun emplacements and underground shelters, all protected by belt after belt of barbed wire entanglements.³ Deep communication trenches led back to the canal banks of the main line. The main line was constructed along the canal and above the tunnels, and comprised a second complete system of trench and wire defences. On the east side of the St Quentin Canal were a further two trench lines: about two kilometres back was the Le Catelet Line, a further three kilometres east was the Beaufeuille Line. Neither was as formidable as the main line, but together constituted the whole Hindenburg defensive system, which generally ran north south and some seven kilometres across. Australian Corps Commander, Lt Gen Sir John Monash, was to record:⁴

I had to decide, in collaboration with the Army Staff and the Corps on my flanks, first, the extent of the resources which would be required, and second, the successive stages which would offer promise of success in overthrowing the last great defensive system of all those which the enemy had created upon the tortured soil of France.

By 2 September, with the Australians across the Somme and the formidable northern Drocourt-Quéant line east of Arras being brilliantly stormed, the enemy was thrown into retreat.⁵ Covering the Australian push east of Péronne, there were several successful aerial combats. Lieutenants McKenna and Heslop (C2535), flying a morning artillery patrol, engaged several enemy two-seaters in separate encounters. North of Doingt, they were successful in driving down an enemy two-seater out of control near Mons.⁶ At the same time, Lieutenants Baillieu and Sewell (C2728), on a contact patrol in the same area, were attacked at low level by a Fokker biplane; the R.E.8 gained the initiative, driving down the enemy scout which forced landed near Aizecourt.⁷

On 3 September, 3 Squadron commenced its move from Flesselles (Villers-Bocage) to its new aerodrome at Proyart (also known as Chuignes), just south of Bray on the Somme. The new airfield, located beyond the Glisy ALG and 12 kilometres east of Villers-Bretonneux, was still shell marked, with the holes having to be filled before becoming useable, preventing the move for a further three days. With bridges being built over the Somme to move forward the artillery, Allied troops made every effort to capture further territory to the east of Péronne and Mont St Quentin to consolidate their positions for the advance over the next 25km to the Hindenburg Line. 3 Squadron's task was to maintain artillery reconnaissance and counter-attack patrols continuously over the line during daylight, with these aircraft keeping under observation all the enemy territory eastwards as far as the line Vermand-Roisel. Under the Allied pressure, on the evening of 4 September the enemy began to retire to the Hindenburg Line's outer defences.

Fine weather on 5 September enabled aerial photography of the front, and observation showed the enemy lines largely deserted and the Germans in full withdrawal. Wireless calls through the CIB system allowed Allied aircraft to engage the enemy and hamper his retreat, and acting on these reports, the infantry was able to advance and cross the Somme. Lieutenants Macdonald and Ellis (C2599), flying an afternoon counter-attack patrol over Tincourt, shot down a Halberstadt two-seater, which forced landed near Roisel.⁸ As the enemy retreated, the Squadron War Diary recorded that the outstanding feature of the day for the R.E.8s was the “amount of machine-gun fired at living targets from low altitudes”.⁹

As the pursuit on the ground continued on 6 September, 3 Squadron operations were uninterrupted as the final move was made to Proyart, with aircraft landing at the new aerodrome as they came off task. During an evening artillery patrol, Lieutenants Hope and Gamble (B6576) engaged an enemy two-seater east of Péronne. Diving at the enemy machine out of the low sun, they were able to send it down out of control to crash at Roisel.¹⁰

The Allied advance east continued over the next day, but the line then generally remained static for the next ten days as the opposing armies became stationary along the Hindenburg Line’s outer defences. The Allies had now recovered all the ground lost during the German offensive during March, and preparations were made for the next push. The Australian front was some eight kilometres long, facing the Hindenburg Line along the St Quentin Canal between Bellicourt and Bellenglise. On 11 September, Lieutenants Baillieu and Sewell (C2728), flying a morning contact patrol, were hit by machine-gun fire over the line. Both crewmen were wounded, and were fortunate to make a good forced landing near Bouvincourt, south-east of Péronne.

While the line had been advancing up to 7 September, the move to Proyart by the Squadron had only been planned as temporary, and plans were already underway to advance further to the east of Bouvincourt. As General Rawlinson prepared the Fourth Army to attack the outer defences of the Hindenburg Line, the Squadron again photographed the line on the 14th, taking vertical and oblique images to a depth of four kilometres. Lieutenants Heathcote and James (B2271), engaged in an evening artillery patrol, attacked three enemy scouts, and forced one Fokker biplane down near St Quentin.¹¹

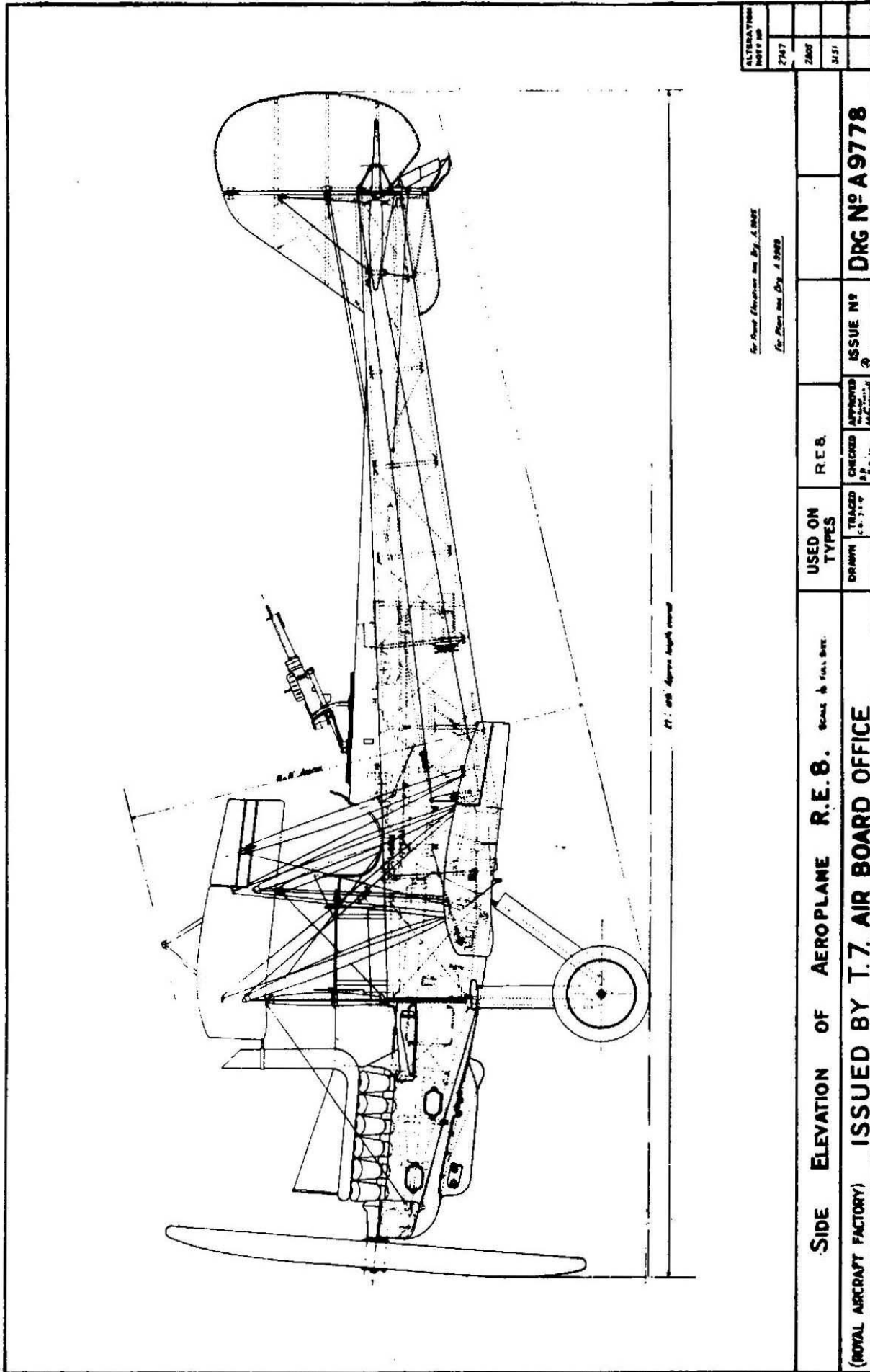
While still flying operations from Proyart, awaiting the line to advance to allow the move forward to the next aerodrome, 3 Squadron was struck by a violent thunderstorm in the early hours of 17 September. The cyclonic gale damaged most of the aircraft: out of 18 machines, only three remained serviceable, as these were pegged down in the open during the storm. The Squadron commander, Major Blake, recorded: “By nightfall – twelve hours later – 15 machines were available for duty, a wonderful effort on the part of the squadron’s equipment and technical department under Captain Ross, and of the mechanics.”¹² ‘B’ Flight Commander, Captain Wackett, recalled:

*We were camped in small tents in the open, and our aeroplanes were in canvas hangars. One night a great storm occurred with hurricane winds and torrential rain. Our tents were blown away and we lay on our stretchers in the rain for several hours until dawn because there was nowhere else to go. When the storm abated at daylight we looked to see what had happened to the hangars. Most were wrecked and all our aeroplanes were damaged.*¹³



[RAAF Museum]

A long-serving 3SQN R.E.8 B2271/G was on strength from DEC 1917 until SEP 1918, damaged by the storm at Proyart



ALTERNATIVE NOTES	
2747	
2805	
3151	

For Final Production use *Dr. A. 2805*
 For Plans use *Dr. A. 2809*

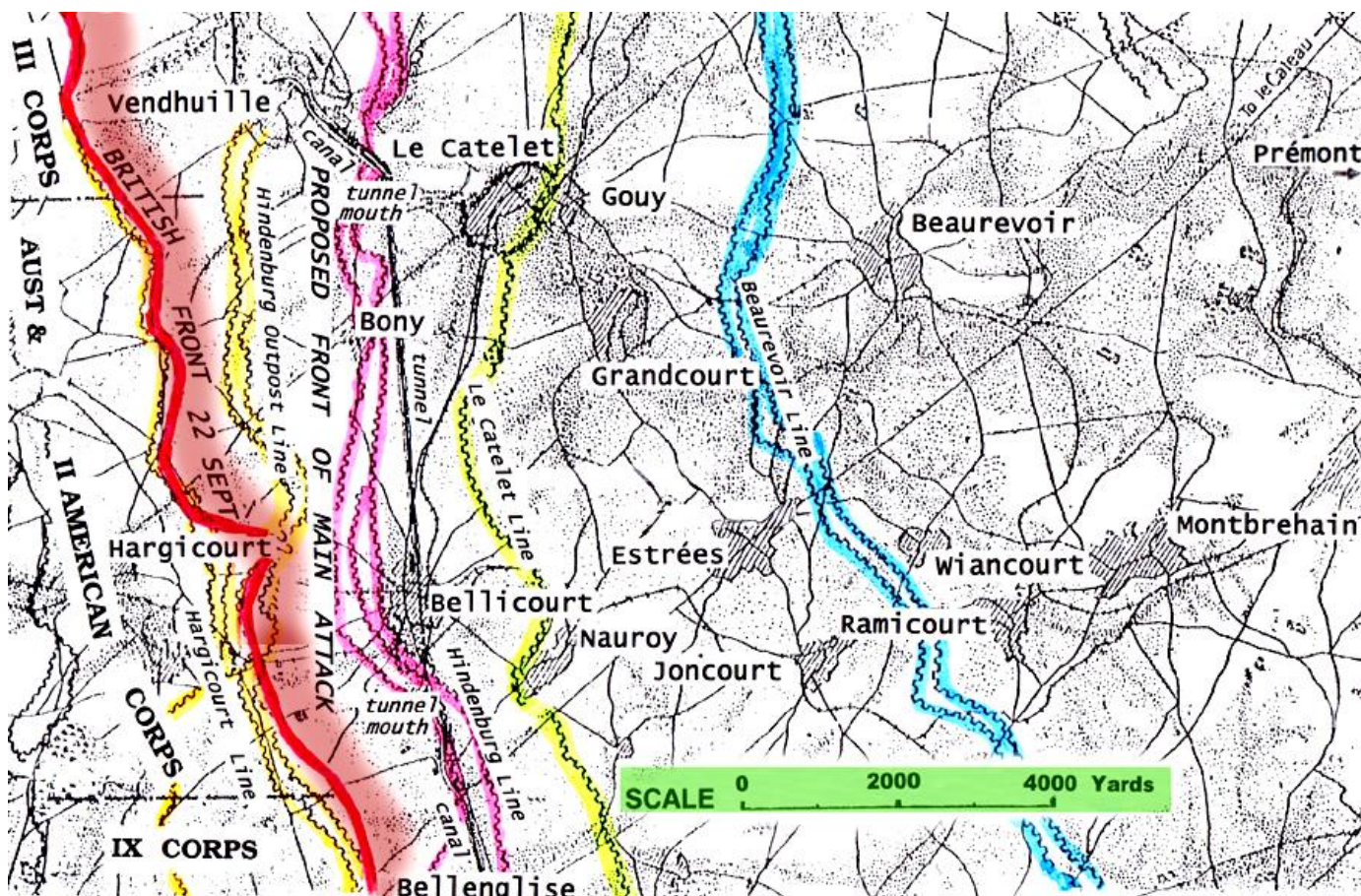
SIDE ELEVATION OF AEROPLANE R.E.8. SCALE 1/4" = 1" ALL DIMS.		USED ON TYPES	R.E.B.	ISSUE NO	DRG NO A9778
(ROYAL AIRCRAFT FACTORY)	ISSUED BY T.7. AIR BOARD OFFICE	DRAWN C.A. 21.7	CHECKED P.B. 10.	APPROVED M.C. 10. (M.C. 10.)	

Original 1917 Factory 'Drawing No.A9778' for the final production R.E.8 Royal Aircraft Establishment

Despite this devastation, it was a remarkable effort in being able to keep at least one machine over the line for the day. As there was to be a general attack the next day, the 18th, on the Australian Corps front against the outpost defences of the Hindenburg Line, known as the Hargicourt Line, arrangements were completed to move the Squadron forward. This move was to Bouvincourt aerodrome, recently vacated by the Germans. Day broke in heavy rain, which interfered with flying operations, and the first R.E.8 was not airborne until 0730. The attack covered the whole front: the British Third Army on the left, the Fourth Army with its Australian Corps in the centre, and the French First Army on the right. The final objective for the Australian 1st and 4th Divisions was to gain a footing in the last of the outpost defences on the Hargicourt Line.¹⁴

On an early contact patrol over the 1st Australian Division, Lieutenants Dimsey and Machin's machine (C2490) was hit by machine-gun fire from the ground near Bellicourt, instantly killing the observer. The next contact aircraft was able to report the Australian advance progressing well, extending the line three kilometres east of Hargicourt. Another aspect of the operation during the day was the laying of smoke-screens with 40-pound phosphorous bombs during the initial stages of the attack, to shield the advancing troops from enemy observation and bombardment. Close support aircraft had demonstrated that this could be quite effective in the right conditions: in one case a 40-pound phosphorous bomb produced a screen lasting 20 minutes over 200 metres of front.¹⁵ Other 3 Squadron aircraft, which were using Bouvincourt as an advanced landing ground, carried out artillery patrols, which reported the enemy batteries were not as active as anticipated, and also photography of the final objective line.¹⁶ The last contact aeroplane of the evening reported Australian troops achieving their objective.

The following day, 19 September, saw a quiet day on the front, with counter-attack patrols reporting no undue enemy movement. The bulk of the enemy's artillery had been withdrawn to the east of the St Quentin Canal, and now the Germans had reached the ground on which they were to make their last stand. The artillery patrols were kept busy with 67 active hostile batteries registered and the appropriate "NF" calls being sent down. Of these calls, 80 percent were transmitted after 1600 hours, showing that the day had been spent by the enemy artillery being withdrawn to new positions and then being engaged immediately they came into action.¹⁷ Unfortunately, the Squadron again had casualties. Lieutenants Peel and Jeffers (E120) were photographing the line of the St Quentin Canal during the late afternoon and did not return. Nothing was subsequently heard concerning their fate.



The Front – 22 September 1918

There was no change to the Australian front for the next few days, and the Squadron photographed up to six kilometres over the line and conducted artillery shoots. One interesting photo reconnaissance sortie was flown on the afternoon of 21 September by Lieutenants Macdonald and Ellis (C2610). The crew took oblique photography of the rear slopes of the line from the enemy's side to show details of the defences not obvious from the Australian lines.¹⁸ 'C' Flight moved up to the new aerodrome at Bouvincourt that day, followed by the other flights two days later.

Just before daybreak on 24 September, eight R.E.8s took off on a bombing raid in support of the British IX Corps, on the right of the Australian front, and attacked an important enemy strongpoint north of Gricourt.¹⁹ The aim of the IX Corps advance was to straighten the line prior to the assault on the Hindenburg Line. Bombs were dropped on the pre-briefed target, and all aircraft returned safely. Many photographs were taken during the day, the bridges along the St Quentin Canal were reconnoitred, and several German heavy batteries were put out of action.

The final offensive on the Western front was the launching of four simultaneous and converging attacks against the enemy. The Americans would strike west of the Meuze towards Mézières, the French west of the Argonne, the British on the St Quentin-Cambrai sector towards Maubeuge, and the Belgians (with other Allied forces in Flanders) towards Ghent. The main and most critical attack would be that delivered by the First, Third and Fourth Armies against the Hindenburg Line, with the main attack allotted to the Fourth Army against the enemy defensive system between Le Tronquoy and Le Catelet.²⁰ The Australian attack would be on the Bellicourt-Catelet tunnel sector, with IX Corps, also of the Fourth Army, to the south on the St Quentin Canal. This had occurred by a side-slip of the front to the north, with the previous Australian Corps front being taken over by IX Corps. This reorganisation of the line was completed by 25 September, with the Australian Corps now comprising three Australian and two American divisions.

For the assault on the Hindenburg Line, the army required oblique photography of the support line, which lay about 15km behind the main defences. 3 Squadron was tasked with photographing this line, for a length of 30km, from a height of no higher than 500 feet to obtain the maximum amount of detail. This information would then assist in determining the most favourable points to attack. To accomplish this task, the Squadron was issued with a fast Bristol F.2B Fighter reconnaissance aircraft. On the afternoon of 25 September, the Bristol Fighter, flown by 'B' Flight's Captain Wackett and Lieutenant Shelley (E2529) took off. Wackett, who would manoeuvre along the line between Joncourt and Villers-Outréaux while Shelley reloaded the camera with magazines of plates, recalled:

The chief risk was from intense machine-gun fire from the ground, as this was the region of the German support troops, and the location of most of their anti-aircraft batteries. We took off and climbed to 9000 feet where we saw many of our fighters proceeding to the rendezvous over the support line. While they continued to climb I started to lose height, using full engine power, and, crossing our lines, started my penetration at a high speed of 160 mph... My penetration was a surprise and I reached my objective and was down to 500 feet without having been fired at by anti-aircraft batteries. I could see the support line winding away to the north and got into position to start taking the photographs, flying at full speed.²¹

The crew now had ten minutes of zigzag flying to complete the 30km of the line, taking a photograph every 20 seconds. Wackett remembered:

I glanced behind me and saw the smoke of hundreds of bursts extending back for five miles or so. I was now zigzagging violently, and the irregularity of the line to be photographed assisted me, because to follow it I had automatically to change direction and this served to make things difficult for the anti-aircraft gunners.²²

Completing the photography, the Bristol Fighter headed for home. Wackett saw that his altimeter had been hit by a bullet, there was a stream of engine oil coming back onto the windscreen, the oil pressure had dropped almost to zero, and water was coming back along the side of the fuselage. Soon the engine was at boiling and making unusual noises. Wackett reduced power, and was able to glide to the airfield, the engine stopping at the edge of the aerodrome. They landed with a stopped propeller. All eight spars of the biplane's wings had been pierced by bullets, two wing struts had been shot through, and both the radiator and the oil tank had been holed, resulting in the engine seizing. It had been an intense 40-minute sortie, and although Bristol Fighter E2529 was initially declared a write-off, it was subsequently repaired at depot and returned to 3 Squadron in October. Obtaining this vital photography had been very successful, and Wackett was awarded an immediate DFC.

The next morning, 26 September, the American and French attack opened south of the Meuse. With the Belgians advancing in Flanders, and the Americans and French to the south, the British attack was prepared towards

Maubeuge.²³ For this, 3 Squadron continued with constant reconnaissance of the Hindenburg main line on the canal. An important aspect of the attack was a complete knowledge of the German defences. Not only did aerial reconnaissance play its part, but additional details were provided by captured German documents and maps. All these details were printed on the Allied maps to provide the full intricacies of the most formidable zone of fortifications of the war.²⁴ That evening, Lieutenants Deans and Prince (C2800) on the last sortie of the day, a counter-attack patrol over Bellenglise, were attacked by three Pfalz scouts.²⁵ During the engagement, the observer was wounded, but continued firing until the arrival of another R.E.8, which caused the enemy to break off the fight.

On the morning of 27 September, the preliminary bombardment began along the front of all three armies prior to the main assault. In an attempt to improve the starting line on the Fourth Army front, an attack by American troops was launched in front of the Hindenburg Line. The 27th and 30th American Divisions, of the II American Corps temporarily attached to the Australian Corps, were supported by 3 Squadron. The aim was to capture the remainder of the outpost line opposite the tunnel sector and to advance the line by another kilometre to be aligned with that achieved by the Australians on 18 September.²⁶ Contact patrols had a difficult time in the haze and fog, and then due to a lack of flares from the advancing infantry. Lieutenants Palstra and Devlin-Hamilton (B4048), on a contact patrol over Bellicourt, spotted an enemy scout, and sent it down smoking and out of control. They lost sight of it in the smoke and could not confirm it having crashed.²⁷

By dusk it was reported that most of the American advanced posts were cut off, and an R.E.8 was despatched to drop orders for the troops to hold until reinforced.²⁸ In addition, Captain Wackett and Lieutenant Shelley (B6730) dropped two boxes of ammunition to advanced posts of American infantry that had become separated from the main forces at Quennemont and Guillemont Farms.²⁹ The Australian ground commander, Monash, records in his book, *The Australian Victories in France in 1918*, the inexperience of the American troops, and that in the confusion of the day "no proper success for the operation could be claimed".³⁰ This was due to the American failure to satisfactorily carry out mopping-up duties. 3 Squadron pilot Henry Wrigley notes in his book, *The Battle Below*, that the earlier report of American positions was incorrect, and that the messages and ammunition were actually dropped on enemy positions.³¹

The main attack on the Hindenburg Line began at 0550 on Sunday 29 September, with the spearhead of the Fourth Army attack being formed by the Australian Corps (incorporating II American Corps) and the British IX Corps. Again in support of the Australian and US troops, 3 Squadron worked in direct cooperation, with 8 Squadron RAF working with the tanks and 9 Squadron supporting IX Corps. In addition to the usual instructions for contact and counter-attack patrols, and for cooperation with the artillery, arrangements were made for smoke screens to be laid by aeroplanes at specified times to deny enemy observation from the high ground.

The 27th and 30th American Divisions were to open the attack. The Australian 3rd and 5th Divisions were to pass through them on the first objective line, a distance of over three kilometres, and then exploit the attack a further four kilometres."³² The Americans broke through the Hindenburg Line between Bellicourt and Vendhuille, but pressed on beyond their objective and were cut off by the Germans to become isolated. Once again, the inexperienced American divisions had neglected to mop-up as the Germans re-emerged from underground behind the Americans, and then held up the Australian advance.³³ Mist and drizzle, and the smoke from the bombardment, made air cooperation almost impossible as the aircraft could not see until after 1000 hours. Later contact patrols were able to report Allied forces as being through the Hindenburg Line and across the canal tunnel.

The low-flying machines were subjected to heavy machine-gun fire from the ground, and one 3 Squadron aircraft was hit. Lieutenants Deamer and Fullerton (C2610) were on an afternoon contact patrol near Bony when they were hit by groundfire near Bony, with the pilot being wounded. Two very successful contact patrols were then flown by 'C' Flight crews Lieutenants Frazer and Ellis (C2696) and Tait and Barrett (C2728) during the afternoon to report the advance of the Australian line. Tait spotted a strong counter-attack developing south of Joncourt, directed towards Nauroy. This concentration was being covered by four enemy Halberstadt two-seaters. Tait was able to transmit details of the counter-attack, before being joined by three S.E.5a scouts to drive the enemy aircraft eastwards, and attack the enemy troop concentrations.³⁴

In general, the results of the fighting on the opening day had been disappointing. In rainstorms on the night of 29 September, IX Corps captured Le Tronquoy and the canal tunnel defences. However, the enemy defences were intricate and formidable, the country was unsuitable for tank action, the Germans stood their ground, and mist and smoke hindered the attacking troops, curtailing air cooperation. The uncertainty of the American positions made it impossible to call in useful artillery fire.³⁵ On the wet dawn of the next morning, the Australian Corps continued

operations. The immediate objectives of the 3rd Division were Bony village, the "Knob" (the high ground south-west of Le Catelet), and the northern entrance of the tunnel. On the right, the 5th Division swung forwards towards Joncourt, coordinated with IX Corps to the south.³⁶ Contact patrols soon located the line west of Bony, running due south-east to south of Joncourt. The Australians moved forward to the north-east to join up with the Americans, who had been isolated or captured the previous day.

Fine weather returned on 1 October. At dawn, the 5th Australian Division pressed forward towards Joncourt and Estrées, while to the north the 3rd Division advanced on the Knob, and the northern entrance of the Bellicourt tunnel. Contact patrols reported the Allied advance moving forward in a north-eastern direction, and by 0930 had reached a line about four kilometres east of the St Quentin Canal. Oblique photography sorties continued, and CIB calls were sent down reporting enemy movement. One call advised the location of enemy transport travelling eastward, enabling a quick response by the low-flying ground attack squadrons.³⁷ To ensure a timely reaction to CIB calls, 3 Squadron's R.E.8s now were all carrying a full load of six bombs, irrespective of their other tasks.³⁸ By evening, all objectives – Joncourt, Bony, the northern tunnel entrance, Le Catelet and the Knob – had been taken, and the 2nd Australian Division was able to relieve the 5th Division. This past four days had completed the final storming of the Hindenburg Line. The following night, the 3rd Division was replaced by the 50th British Division.

At daybreak on 3 October, the 2nd Division attacked the Bearevoir Line, east of Estrées. Over the previous days, reconnaissance aircraft had reported the enemy moving his artillery to the high ground around Bearevoir, so to cover the Allied assault, five 3 Squadron aircraft were tasked with laying a protective smoke screen for the first hour of the advance.³⁹ Among those supporting this operation was an artillery patrol flown by Lieutenants Gould-Taylor and Thomson (E224), with the aircraft unfortunately being hit by an artillery shell near Estrées, with both crewmembers killed in action. This crew had been a very effective aerial reconnaissance team and had also destroyed two enemy aircraft; the pilot had already been awarded the Distinguished Flying Cross.

The infantry pressed on up the high ground between Bearevoir and Montbrehain, and reached the crest by the evening of 4 October. The 2nd Division's front was now four kilometres, running to the east of Wiancourt and Ramicourt.⁴⁰ The next day, Montbrehain was captured and the only Australian division still in the line was withdrawn to rest. For the next fortnight, until 19 October, 3 Squadron would serve as the Corps squadron to II American Corps, which had taken the place of the Australian infantry in the pursuit to Le Cateau. On 7 October, the Squadron had a short move of only eight kilometres to another former German aerodrome, Montigny Farm, on the outskirts of Bernes, north-east of Bouvincourt.

II American Corps held the centre of the Fourth Army front, and was in the next action on the British front in the early morning of Tuesday 8 October. The 30th American Division launched its attack at 0500, and along the 25 kilometres south of Cambrai to Sequehart, east of Bellenglise, the British line sprang into action, coordinated with the French on the right. On the Fourth Army front, the single-seat fighter squadrons had the orders: "It is essential that Corps machines are not interfered with during the operation".⁴¹ During the day, the majority of 3 Squadron's aircraft were engaged in aerial combats, but these were mainly indecisive, the enemy preferring to retire to their own territory when they saw the reconnaissance machines were prepared to fight. But one successful combat that afternoon was when Lieutenants Robertson and Gray (H7265) drove down a Halberstadt two-seater over Marez, north of Prémont.⁴² German resistance was ultimately in vain, and what had been left of the Hindenburg defensive system was captured. The British and American line reached Prémont, and that night the Canadians took Cambrai. By 1700 hours a 3 Squadron contact patrol was able to report that the Americans had gained all their objectives.⁴³

During what was to be the final five weeks of the war, the enemy now had no line of defence left in France, and was thrown into retreat. The next morning, the advance resumed along the whole front, as Lieutenants Palstra and McDougall (E123) flew a contact patrol and established the advance of the American infantry west of Prémont. Spotting a German counter-attack, Palstra attracted the attention of some Camel scouts to attack. The R.E.8 fired 700 rounds at the advancing enemy, and the counter-attack was broken, with the Americans then taking Busigny. Palstra recorded:

Watched an effective bit of cooperation between Infantry, planes and a tank at Butry Farm. At first Yanks were skirmishing through the patches of La Sabière Wood. They would clear out a copse, and the Hun would run for his life to the next. This was the chance for the planes who dived with guns blazing to within a few feet of the ground, inflicting many casualties. I joined in the fun with what ammunition I had left. This continued until the Infantry were held up by a machine gun firing from Butry Farm. The Infantry had to

advance in the open and were at a disadvantage. I next noticed a tank advancing under cover of the wood from west. A few puffs of smoke from its sides and the Huns were running from Butry farm as if it were a plague. Again the planes speeded their departure. The Infantry advanced.⁴⁴

The American 30th Division successfully gained its objectives of Bohain and Busigny, and by nightfall Cambrai was five kilometres inside the British area. The following morning, wet weather kept aircraft on the ground, and as the Americans straightened the line, the harassed German troops found a temporary line along the Selle River.⁴⁵ Here they resisted stubbornly, and during the afternoon Lieutenants Macdonald and Anstiss (C2728) reported that all bridges over the Selle had been destroyed. The Selle was reached in three days, and a number of bridgeheads established. By this stage, the outskirts of Douai were attained, with the American line running directly north-south.

On 17 October, major operations were resumed on the Le Cateau front, when the Fourth Army attacked in conjunction with the French 1st Army on its right. Still in support of the Americans, 3 Squadron moved further east to Prémont, 20km south-east of Cambrai. The Germans were holding the wooded country east of Bohain, as well as the line of the Selle River. The attack opened at 0520, aided by mist which completely screened the Allied advance. Australian contact patrols supporting the American attack reported through the fog the advance of the US line east of St Benin and St Souplet, and also dropped smoke bombs to cover the infantry. Despite stiff resistance, by evening of 19 October, enemy troops had been driven across the Sambre-et-Oise Canal south of Catillon. At this stage, the American Corps was relieved, and 3 Squadron was "without a Corps to work with".⁴⁶ 3 Squadron therefore became a reserve unit attached to the Fourth Army, and continued to be tasked by 15th Wing RAF to provide assistance to the other Corps squadrons.

Along the 400km of the Western Front, the final battles of the War had been approaching a climax. September 1918 – Black September – had seen the most air casualties inflicted on the Allies since Bloody April 1917. But now, air superiority was lost by the Germans due to a lack of resources: they were losing aircraft, pilots and fuel, outnumbered by no similar problems on the Allied side. This had allowed the Allied advance to proceed unmolested from the air. And still innovations were being made to improve army/air cooperation. On the British front during the recent battle, radio telephones were employed, enabling aircrew to make some useful reports by word of mouth on enemy movements.⁴⁷

Monash cited a maxim that in war, morale is to materials as three to one.⁴⁸ The enemy had all the advantages of position, carefully prepared fortifications and highly-organised defences, and detailed knowledge of the lines of approach from the west: all of the tactical benefits of defence. Yet the Australian Corps had stormed and taken such fortress-like positions in just a week. Furthermore, great victories had been won between St Quentin and Cambrai during the last week of September. Since the middle of July to the start of October, the enemy had lost 4,000 guns, 25,000 machine-guns and more than a quarter of a million prisoners.⁴⁹

The Hindenburg Line had been a striking example of the collapse of formidable field works through failure of the morale of the defenders. The attack had been a magnificent success, and now the way was open for the rapid and complete defeat of the enemy.

The closing days of the War were now approaching, and without a dedicated Corps to support, 3 Squadron would still accompany the final British attacks on the retreating enemy as a supporting squadron attached to the Fourth Army. Operating on bombing and photographic sorties from its new aerodrome at Prémont, the Squadron remained as part of the 5th Brigade RAF.

The Allied capture of the Selle positions was followed on 23 October by a larger operation east of Le Cateau to take the Sambre-Oise Canal. The diary of the Fourth Army stated: "A few minutes before zero the enemy put down a heavy counter-preparation in the vicinity of Bazuel, and in the area east of Le Cateau, using a large quantity of gas shell. This considerably interfered with the advance of the infantry..."⁵⁰ As the weather over the previous days had made flying and observation difficult, insufficient counter-battery work had resulted in this success by the enemy artillery.

To support operations, 3 Squadron was once again supplied with two Bristol Fighter reconnaissance aircraft on 23 October.⁵¹ While R.E.8 artillery patrols were maintained over the line the following day, Lieutenants Loftes and Cherry flew one of the new machines (C917) on a long-range reconnaissance. Being a deep penetration of the lines to gain information of enemy movement to the rear, the sortie was flown with an escort of scouts. The

specific target was the important railway junction north of Leval, some 20 kilometres beyond the line. The crew was able to report back the railway traffic, call in artillery fire and observed that all the bridges over the River Sambre between Landrecies and Leval were still intact.⁵² Meanwhile, afternoon R.E.8 photographic sorties were flown by Captain Wrigley and Lieutenant Scrivenor (C2904) and Lieutenants Palstra and Hillier (B4048), reconnoitring and penetrating the line to a depth of four kilometres around Ors and Landrecies. Attracting much anti-aircraft fire, Wrigley's aircraft was damaged near Maroilles.⁵³



3SQN R.E.8s at Prémont on 25 October 1918 – E225/F and Wrigley's C2904/M

[AWM E03677]

On 25 October, a fourth flight of 3 Squadron was formed – ‘O’ Flight – as a separate and self-contained unit.⁵⁴ ‘O’ Flight was an RAF unit and became independent of 3 Squadron, under the command of Captain E J Jones MC DFC, and was part of an RAF plan for special long-range reconnaissance flights and artillery shoots. The flight was manned by 3 Squadron aircrew and maintained by RAF mechanics. Five of these special flights were formed, each equipped with Bristol Fighters, with one flight attached to each Corps Wing of the five RAF brigades supporting the Armies. The organisation was as follows:

‘L’ Flight	1st Brigade RAF	based at Auberchicour
‘M’ Flight	2nd Brigade RAF	based at Menin
‘N’ Flight	3rd Brigade RAF	based at Estourmel
‘O’ Flight	5th Brigade RAF	based at Prémont
‘P’ Flight	10th Brigade RAF	based at Cysoing. ⁵⁵

On 27 October, four bombing sorties were flown by R.E.8s against enemy transport, supply dumps and machine-gun posts.⁵⁶ The next day, ‘O’ Flight attempted to range heavy batteries on the railway centre at Leval, which was now known as “Clapham Junction”, but the Bristol Fighter was turned back by the mist.⁵⁷ This day was also significant in that Major W H Anderson DFC returned to 3 Squadron to take command. Major David Blake, returned to England, after having led the Squadron since its formation at South Carlton.



Bristol Fighter E2529 of ‘O’ Flight, pilot Lieutenant Clarence Loftes, in OCT 1918

AWM A03922

Over the following days, more Bristol Fighters (C995, E2329 and E2351) were received to bring the 'O' Flight to a strength of five aircraft by the end of October, enabling Bristol Fighter activity to increase. 'O' Flight was able to accompany the mobile columns which kept touch with the rapidly retreating enemy in the days leading up to the Armistice. In the last days of October, there was a temporary lull in the advance on the ground. The Fourth Army had established itself along the line of the Sambre-Oise canal and along the western edge of the Mormal Forest. On 30 October, 'O' Flight was tasked with locating an enemy observation post in the middle of that forest, which the Bristol Fighters were able to pinpoint near Locquignol.

As the ground forces prepared for their offensive planned for 4 November, Allied aircraft were encountering the enemy air service flying in large formations. The Germans were attempting to keep open the choke-point of railway communications through Namur and Liège, in order to assist the German withdrawal from Belgium and northern France. However, it was the Allies who held mastery of the air. As if to emphasise this superiority, on 30 October the Allies destroyed 67 German aircraft on the British front.⁵⁸

November began with the return of fine weather. The aerial reconnaissance conducted over the previous days had shown that the enemy was destroying railways and supply and ammunition dumps, indicating an anticipation of a withdrawal from the Sambre-Oise Canal. The aim now was to force the enemy from this line to ensure a disorganised withdrawal. Accordingly, the Squadron was tasked with ground attack missions. The targets included enemy troops across the canal south of La Groise, in Toaillon Wood and in the trenches east of Ors, and against the enemy machine-gun positions on the canal around Catillon.”⁵⁹

The Fourth Army operations, which began on 4 November, were part of the large offensive launched along the 80 kilometres of the British front, from Valenciennes to Guise. This would prove to be the last in the series, which had commenced on 8 August, to break the Hindenburg Line. The period from the Allied advance at Amiens on 8 August until the final victory – referred to as the “battles of the hundred days” – was the great Allied push towards Germany. 3 Squadron was tasked to support the British crossing of the Sambre-Oise Canal at Landrecies, and commenced with the R.E.8s providing a smoke screen across the main advance along the canal. The crossing was a daunting task: the canal was over 20 metres wide bank to bank, and about 12 metres at water level, and all the bridges had been destroyed. 'A' Flight screened the area north-east of Ors, 'B' Flight the area north of Petit Versailles and 'C' Flight the area between Catillon and Ors.⁶⁰ In addition, 'C' Flight was tasked with sending CIB calls on all enemy movement in the rear area.⁶¹ The dawn patrols were hardly over the line when thick fog covered the whole area, necessitating immediate forced landings at the nearest aerodromes. By 0800, IX Corps had achieved a bridgehead and the advance proceeded along the whole Corps front. The fog cleared an hour later, and the air support program was then able to proceed as planned. Lieutenants Dimsey and Hillier (C2748) came across a convoy of ten enemy motor vehicles beyond the Toaillon Wood, which they bombed on the Favril-Prisches road. Between 1530 and 1700 hours, 3 Squadron flew 14 separate bombing sorties.⁶²

Bad weather the next day kept most machines on the ground, but the enemy was reported as retiring along the whole front. It was a withdrawal which became a rout, and in the words of General Rawlinson's Victory Despatch: “The enemy was falling back without coherent plan in widespread disorder and confusion.”⁶³ Weather prevented flying completely over 6-8 November. Limited flying was then possible, but in this final phase, although the RAF squadrons harassed the enemy columns with bombs and machine-gun, the Germans were saved from total slaughter by the unfavourable weather conditions.

On 9 November, 3 Squadron was tasked to confirm the enemy line, but in the confusing hedge-row terrain, the enemy was able to effectively hide their machine-gun positions. As a 3 Squadron Flight Commander at the time, Captain Henry Wrigley, recalled, the only method for the aircraft to pinpoint these positions was by low flying, which drew the enemy machine-gun fire.⁶⁴

The British Armies along a 50km front from Oisy on the Sambre to Valenciennes finally broke German resistance and the enemy armies fell back all along the line.⁶⁵ The destruction of the German Army was only averted by the signing of the Armistice on 11 November. It was, in fact, a capitulation. The Fourth Army commander General Rawlinson attributed the success to “the unity of purpose and whole-hearted cooperation of all concerned”.⁶⁶

When the Armistice was signed there were fifteen R.E.8 squadrons in France: continuously flying and observing, and continuously the objective of heavy anti-aircraft fire.⁶⁷ With the Armistice in 1918, the RAF was the most powerful air force in the world with 22,000 aircraft on charge, of which 3300 represented first-line strength in squadrons. Strength in personnel amounted to 291,000 officers and men. In 1919, the British Government would adopt a policy of retrenchment and by the end of that year the RAF's 188 operational squadrons were reduced to twelve.⁶⁸

The day following the Armistice, 3 Squadron received orders to move with the Allied advance to the German frontier, then north-east to the Rhine at Cologne. The Squadron surveyed a series of aerodromes near the various Australian division headquarters and the Corps headquarters in order to provide an aerial postal service. It had been assumed that the Australian Corps would now advance with the Fourth Army to the Rhine, but ultimately that army did not cross the German frontier, and only the Second Army moved on to occupy the Cologne bridgehead. 3 Squadron remained with the Australian Corps in Belgium and on 18 November, the R.E.8s commenced running an aerial postal service between Fourth Army Headquarters at Namur and Australian Corps Headquarters at Ham-sur-Heure (south of Charleroi), and from the Australian Corps headquarters to the divisions in the Hallencourt area near Abbeville.⁶⁹ On 29 November, the Squadron moved 80km north-east from Prémont to Tarcienne, Belgium. At this aerodrome, some ten kilometres south of Charleroi, 3 Squadron remained to be nearby the Australian Corps Headquarters.



The 3SQN AFC Christmas 1918 card featured R.E.8 C2610/P

On 3 January 1919, Captain Henry Wrigley took temporary command of the Squadron just as plans were in hand to re-equip the whole unit with Bristol Fighters. The Squadron War Diary records on 23 January 1919 that “the whole Squadron is to be re-equipped with Bristol Fighters, with Sunbeam-Arab engines”, and five days later the first two aircraft arrived.⁷⁰ However, there is no further reference to the re-equipment program continuing, and this plan appears to have been overtaken by the Squadron’s withdrawal from France. On 18 February, orders were received that all serviceable machines were to be handed over to the RAF Aircraft Depot at St Omer, and two mornings later the aircraft departed Tarcienne to be returned to the RAF.⁷¹ This finalised the flying log of 3 Squadron, Australian Flying Corps.

By the end of February, the Squadron had handed over its aircraft and prepared to depart for Le Havre, then England. Moving on 22 February to Clairmarais (as part of 91 Wing RAF), and over the next six days all transport and equipment was handed over to the RAF. Staging through the Australian General Base Depot at Le Havre, and on the evening of 3 March 1919 sailed for England. Arriving at the RAF’s 4 Group base at Hurdcott the following day, the Australian airmen remained in England until 6 May, when the seven European-based AFC squadrons sailed for Australia in the HMT *Kaisar-I-Hind*, under the command of the senior AFC officer in Europe, LTCOL Oswald Watt.

Perhaps no better accolade could be bestowed on 3 Squadron than by Major General Sir John Salmond, GOC RAF in France. In August 1918, he had sent a message to the Squadron: “On the anniversary of your arrival in France, I wish to congratulate 3rd Squadron AFC on the splendid work it has continued to carry out. Carry on and the Bosche will go under.”⁷² He obviously assessed the value that the Australian squadron had provided over the trenches, and as the Australians left England he was to remark that 3 Squadron was “the best Corps squadron in France”.⁷³ The war record of 3 Squadron had been impressive: some 10,000 hours of war flying, bringing down 51 enemy aeroplanes, and losing eleven R.E.8s over the line. But the principal achievement had been in the development of army cooperation, and this had been remarkable.

As the Germans had swept into Belgium and northern France in 1914, they had formed the line of their own choosing. Wherever possible, this was on hills and ridges, the high ground giving them commanding views over a great part of the Western front. They were able, through telescopes and field glasses, to compile military information in their own time in comparative safety. The Allies had to gain their information from the air, and only by establishing local air superiority made this observation possible. This fact, together with the Allied need to launch a series of offensives against an enemy defending from strongly fortified positions, had accounted for the continuous offensive air policy.⁷⁴

By 1918, field armies could no longer operate successfully until air superiority had been achieved over the battlefield.⁷⁵ The offensive patrol system kept the air clear to enable the army cooperation aeroplanes to fulfil the tasks upon which the army staffs set such high value. Army-Air cooperation had evolved; the roles were developed to obtain aerial reconnaissance, to clear the battlefield sky of hostile aircraft, and to support the ground forces by the dangerous skills of low-level attack on ground targets as directed by the army. This cooperation with the armies had been the maturing of air power. And to successfully achieve these close support missions in World War I – contact patrols, counter attack patrols, artillery patrols, reconnaissance, resupply and bombing – required air superiority.

In addition, the role of air power in stemming the German thrusts of 1918 had demonstrated an important lesson. In the critical times when a front was ruptured, all available aircraft were required to be committed to the land battle. This demonstrated the need for centralised control of air power: it suited air mobility, and facilitated a rapid concentration at critical times in the land battle. The corollary was, however, that close air support could not easily be used on a battlefield with which pilots were unfamiliar. The consequences were obvious: air staff saw the benefits of centralised control while army staff focussed on its shortcomings. This is a fundamental difference of opinion that has continued to plague the employment of close air support.

While this remained unresolved, what had been determined by the four years of hostilities had been two factors: the need for air superiority and the need for effective communications. Despite these lessons, there was little other maturity about the new independent air forces that would now emerge. Command and control of close air support units would remain a contentious issue, while the skills in ground attack, cooperation with troops and tanks, and fighter sweeps would be mainly lost in the inter-war years. In Britain, this was due to the need to cling obsessively to the concept of the independent bombing force in order to ensure and protect the fledgling Service from re-absorption by the Army and Navy. In Australia, the 1920s and 1930s was a period of jealous inter-service rivalries, which deflected any thinking of air power doctrine. Accordingly, the procedures and techniques – and even the equipment – employed over the inter-war years would differ little from those developed in the 1914-18 War.

BRISTOL F.2B AIRCRAFT of 3 SQUADRON AFC

1918-1919

The Bristol Fighter had been used by the Army reconnaissance squadrons because of its long range and superior performance. The record of the Bristol Fighter's service with 3SQN should be considered in three phases: the first aircraft delivered for the Hindenburg Line reconnaissance in SEP 1918; the formation of 'O' Flight RAF in OCT 1918; and the proposed re-equipment of the Squadron from 1919. The first, E2529, was delivered to 3SQN on 24 SEP, by LT Loftes from Moislains to Bouvincourt, for CAPT Wackett's reconnaissance behind the Hindenburg Line the next day. Subsequently, further aircraft were supplied in late OCT to equip 'O' Flight: at the Armistice, there were five special long-range flights of Bristol Fighters, a flight attached to each of the Corps Wings supporting the five Armies.

RAF Serial	Date On Sqn	Date Off Sqn	Details
C917	23/10/18	13/11/18	From 35 and 9 Sqns RAF, still on 3 Sqn 1/11/18, deployed with 'O' FLT, returned to 35 Sqn RAF, unfit for further service 8/1/19. ⁷⁶
C995	30/10/18	06/11/18	Still on 3 Sqn 30/10/18, deployed with 'O' FLT, destroyed by fire 6/11/18.
C9897	27/11/18	??/02/19	Returned to 59 Sqn RAF.
E2329 ⁷⁷	29/10/18	13/11/18	Still on 3 Sqn 1/11/18, deployed with 'O' FLT, returned to 35 Sqn RAF.
E2351	29/10/18	13/11/18	Still on 3 Sqn 1/11/18, deployed with 'O' FLT, returned to 35 Sqn RAF.
E2529	24/09/18	30/09/18	Damaged by groundfire (Wackett/Shelley) 25/9/18, ⁷⁸ to repair; to 9 Sqn RAF.
	23/10/18	13/11/18	From 9 Sqn, with 'O' FLT, damaged on take-off 10/11/18 (Palstra/Sturgeon) at Flaumont, returned to 35 Sqn RAF.
2 aircraft ⁷⁹	28/1/19	??/02/19	The first pair to re-equip 3AFC - plan was discontinued.



E2529 was the longest serving 3SQN Bristol Fighter, first for Wackett's daring sortie in SEP 1918, then returning after repair for 'O' Flight operations over OCT/NOV 1918.

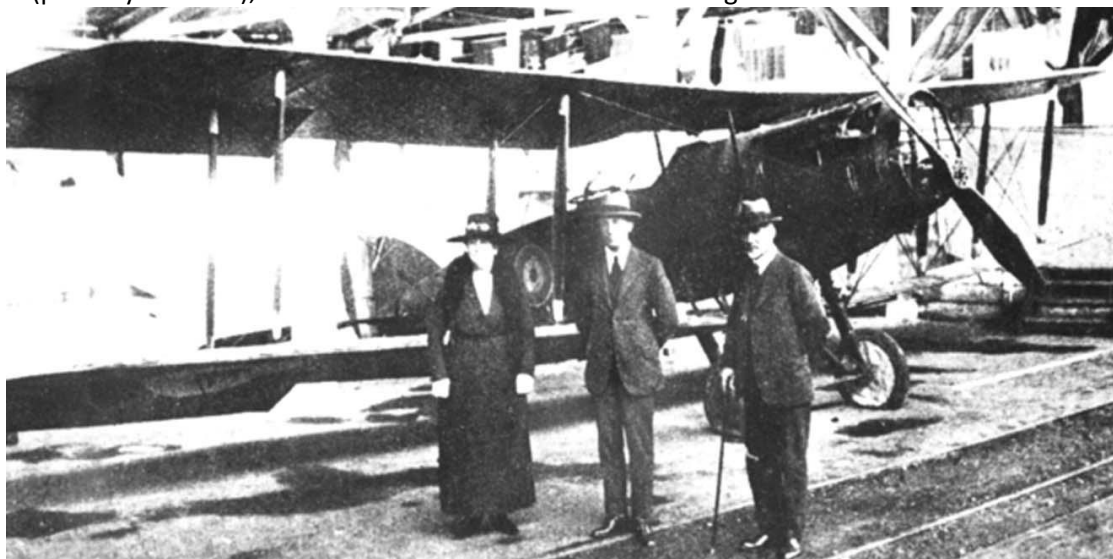


In addition, in JAN 1919, 3SQN was to have been re-equipped with the Sunbeam Arab-engined F.2B (in lieu of the RR Falcon), but it appears only two aircraft were delivered on 28 JAN 1919,⁸⁰ one of which crashed on landing.⁸¹

Ex-AFC BRISTOL F.2B B1229 TO AUSTRALIA

1919

An ex-1AFC F.2B was gifted to Australia by the British Government in 1919. B1229 presentation "**Aus 12 NSW 11 The Macintyre Kayuga Estate**" was stuck off charge by the RAF's 'X' Aircraft Park in Egypt on 17 JUL 1919, and allotted to the Australian War Records Section in Cairo. Shipped to Australia, the F.2B was displayed, but in 1925 was destroyed by the *Australian War Museum* fire in Melbourne, together with the record-holding 3AFC R.E.8 A4397, and a third unidentified (possibly German); 14 German aircraft are listed as arriving here.⁸² A Camel also arrived in Australia.⁸³



[AWM P00355.008]

Bristol Fighter B1229 on postwar display by the Motor Traders Association In Adelaide, OCT 1920



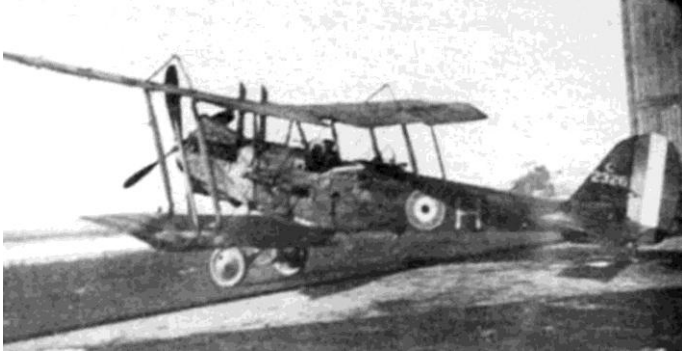
1SQN AFC Bristol Fighter line-up at Ramleh 1918 – B1229 was overall PC10 similar to the first aircraft in line



Flying replica F.2B 'B1229' in Australia

3 SQUADRON R.E.8s STILL ON STRENGTH 1919

With the Armistice on 11 NOV 1918, 3SQN retained its R.E.8s operating a postal service between the various headquarters, and on 29 NOV moved to Tarcienne airfield at Charleroi in Belgium. These aircraft were operated until being handed back to the RAF on 20 FEB 1919.



C2326/H, and with the name "Digger" below the rear cockpit on the port side, at Bickendorf, Germany, in JAN 1919



Posed shot of 3SQN groundcrew as H7042/J is prepared on 19 FEB 1919 for return to 1AD, the RAF's depot at St Omer.



H7265 (previously F6360 and rebuilt) believed to be 'G', served for the closing months of the War until FEB 1919



B4048/S from SEP 1918 until FEB 1919



C2748/O from SEP 1918 to FEB 1919

3 SQUADRON R.E.8s STILL ON STRENGTH 1919



F6016/K "Marjorie" 19 FEB 1919 at Tarcienne

AWM E04320

This image was just as 3SQN's aircraft were about to be handed back to 1AD, and in the background is H7042/J



Addenda:

For Part I of this series, I have subsequently found a further 69SQN B.E.2e:⁸⁴

A1371 69SQN crashed 21 MAR 1917 (Cadet C B Chapple RFC injured)

Also mention has been made of several 69SQN pilots being wounded or injured during their frontline familiarisation attachments to RFC units in France over JUN-AUG 1917, with not all the pilots being able to return to 69SQN:

- LT **George Murray** was shot down and wounded with 53SQN at Bailleul, in R.E.8 (A3260) nr St Eloi on 10 AUG 1917.
- LT **Harold Taylor** crashed badly with 5SQN at Acq, in R.E.8 (A3610) on 25 JUL 1917.
- LT **Frederick Baxter** crashed with 16SQN at Camblain l'Abbe in R.E.8 on 10 AUG 1917, returned to UK hospital, and subsequently seriously injured in a crash with 66TS at Yatesbury in R.E.8 (A3742) on 10 FEB 1918.
- In addition, LT **Victor Norvill**, was wounded flying a Nieuport 17 (B1677) with 29SQN RFC. He had several other crashes with 29SQN Nieuports – in A6658 on 4 JUN 1917, and B1584 on 7 JUN 1917 – but his luck ran out when he was shot down and wounded on 29 JUN 1917, to become a POW.⁸⁵

The 'AWM 4' series of the 69 Squadron RFC / 3 Squadron AFC War Diaries are on line:

<https://www.awm.gov.au/collection/AWM4/8/6/>

AFC Personnel digitised files are available in the NAA B2455 series:

<http://www.naa.gov.au/collection/>

Although this finalises our 3AFC series, a future edition will cover all Australian WWI Presentation aircraft

AIRCRAFT DEPOTS

Squadrons inducted into the BEF would typically fly from 8AAP at Lympe in Kent, then cross to France. In the case of 69SQN, several new aircraft were issued at Lympe. When weather cleared on 9 September,⁸⁶ 69SQN crossed the Channel to St Omer, the home of 1 Aircraft Depot (1AD). The role of the AD was to ensure that each squadron was up to strength for operations – in the case of 69SQN, that meant its full establishment of 18 serviceable R.E.8s.

The policy was for aeroplanes to be repaired on the Squadron if that could be effected within 36 hours, otherwise the machine would be passed to the AD.⁸⁷ If an aircraft was unrepairable, or if lost over the lines or crashed in a forced-landing, the AD would have a pool of aircraft ready for immediate issue, and would be despatched (generally picked up by a Squadron pilot) within the day. Similarly, if the pilot had been wounded or injured, a replacement pilot from the pool would be sent.

Two Aircraft Depots – 1AD at St Omer and 2AD at Candas – had been formed in December 1915 to supply and repair the RFC in France. By October 1917, the volume of new aircraft deliveries (then averaging 400 a month) and the quantity of repair and salvage work had reached a level that necessitated the creation of separate Aeroplane Supply Depots (ASDs) alongside the main AD and responsible solely for aircraft receipt, issues and repairs.⁸⁸ Attached to each Depot was the Pilots' Pool that undertook ferry and flight test duties, as well as being a holding flight for recently arrived pilots, and providing refresher and conversion flying. 1ASD was based at Marquise, moving later St Omer, supporting the two northern British armies; 2ASD initially at Berck-sur-Mer, moved later to Fienvillers (seen below, near Candas), supporting the two southern armies.⁸⁹



Aerial view of 25 MAR 1918 of 2AD Candas at the top, (at the bottom) 2ASD beside the village of Fienvillers



2 Aircraft Depot (2AD) at Candas

3AD was established at Corban in MAR 1918, with 3ASD to service the Independent Force; 4AD was formed at Balinghem (but not completed by the armistice) with 4ASD at Guines to support the RNAS.⁹⁰ The renowned RFC chronicler MAJ Maurice Baring recorded a visit to 3AD at Courban with MAJGEN Trenchard, Commander of the new RAF's Independent Force: "June 12th, 1918. We visited our Depot at Courban. It is a gigantic Depot, bigger than those of St Omer and Candas. It is not yet finished."⁹¹ In Egypt, 'X' AD had been formed in late 1916 at Aboukir as part of Middle East Bde for major engine repairs and allocation of stores; 'X' Aircraft Park was established for allocation of and major repairs to aircraft.⁹²

RAAF AIRCRAFT MARKINGS SINCE 1950 SQUADRON MARKINGS – PART 12

John Bennett 2019

ANTARCTIC AIRCRAFT

This series of articles of silver aircraft from the 1950s has discussed the prevalence of silver finish in the RAAF through the 1950s and the 1960s – similar to our all-grey aircraft today! We have discussed how tactical camouflage and colours were introduced by the RAAF from 1963, and we also have studied the RAAF's flirting, and dislike, with 'dayglo' orange. Now we look at RAAF activity in the 1950s and 1960s in Antarctica.



Auster A11-200 with floats heading south on MV *Kista Dan* JAN54 – in the reddish-orange 'International Orange'

Shades of Antarctic Oranges

Before 'dayglo' applications had been developed in the 1950s – and adopted by some Australian aircraft from 1959 – RAAF second-line aircraft requiring high visibility, such as trainers in the Second World War, were painted in 'Yellow' (K3/185).⁹³ Postwar, trainers had yellow training bands around the fuselage and mainplanes, but these were generally ineffective for their primary purpose of collision avoidance. For target-towing, the last operational Beaufighters displayed a more effective lower surface black/yellow striping, which had been used for several decades for aircraft in that role to advertise their presence – and avoid any unwanted incoming damage.

Other attempts at high visibility finishes were for the RAAF's first serious attempts at operations in the Antarctic. These aircraft were painted brightly, not for collision avoidance but for crew survivability if forced down in the unforgiving terrain. An all-yellow painted Gipsy Moth on floats (A7-55) had sailed south aboard RSS *Discovery II* over 1935/1936.⁹⁴ For the Australian National Antarctic Research Expedition (ANARE) over 1947/1948, a yellow Kingfisher (A48-13)⁹⁵ had sailed aboard HMAS *Wyatt Earp*, also accompanied by a yellow Walrus (HD874).

The Walrus was wrecked in DEC 1947 on Heard Island, and later recovered for restoration at the RAAF Museum. However, it was not until the early 1950s which saw an annual RAAF involvement with ANARE until the early 1960s. These aircraft were initially Auster AOP.6s painted in an all-over high visibility **(1.) International Orange** (designated by FS595a as FS12197).⁹⁶ Next to join the Auster was a DHC-2 Beaver (A95-201) for 1955/1956 in a more RAF-style **(2.) Yellowish**-shade of orange, and with the standing-up kangaroo roundel on fuselage and wings. This yellowish orange was replaced by *International Orange*, and then supplemented by the brighter **(3.) dayglo** – with an even more fluorescent red/orange hue – used on panels of Beavers A95-202 (in 1958) and on Dakota A65-81 (from early 1959); also later on A95-205 (1961-65).

1. *International Orange*




ANARE had first used Auster AOP.6 aircraft on the 1953/1954 expedition to establish Mawson station. These aircraft, **A11-200 and A11-201**, had been refurbished from their previous RAF service. In British service for Antarctic operations these aircraft were *Yellow*, but were finished by 2AD at Richmond in *International Orange*. They were received at Point Cook by the RAAF's Antarctic Flight in OCT 1953, in the orange scheme that was the worldwide standard of the day for high visibility – designated "*International Orange*" # 1205".⁹⁷

This 1950 designation was the precursor to the US Federal Standard FS595a colour identification system, and was specification FS-TT-C-595 – the number "1205" broke down as: the "1" signified a gloss colour, and the "2" specified an orange colour. This policy was later enhanced into the US Federal Standard FS595a system. *International Orange* became designated in the US FS595a as FS12197, and in the British Standard as BS381C-592.

After the Austers, the later RAAF Beavers eventually defaulted to the same colour – and on 27 MAY 1956, **A95-202** emerged in this scheme from the paint shop at DH Bankstown.⁹⁸ *International Orange* is shown below on one of the Austers in FEB 1954.



RAAF Antarctic Flight Austers A11-200 and A11-201 both flew on skis from the ice over 3-11 FEB 1954

<i>International Orange</i>	<i>Golden Yellow</i>	<i>Dayglo</i>
FS12197 / BS381C-592	BS381C-356	FS28913
		
RAAF Austers and Beavers	RAF/RNZAF Austers, then applied by DHC to first RAAF Beaver A95-201	RAAF Antarctic Dakota A65-81 and Beavers A95-202 and A95-205

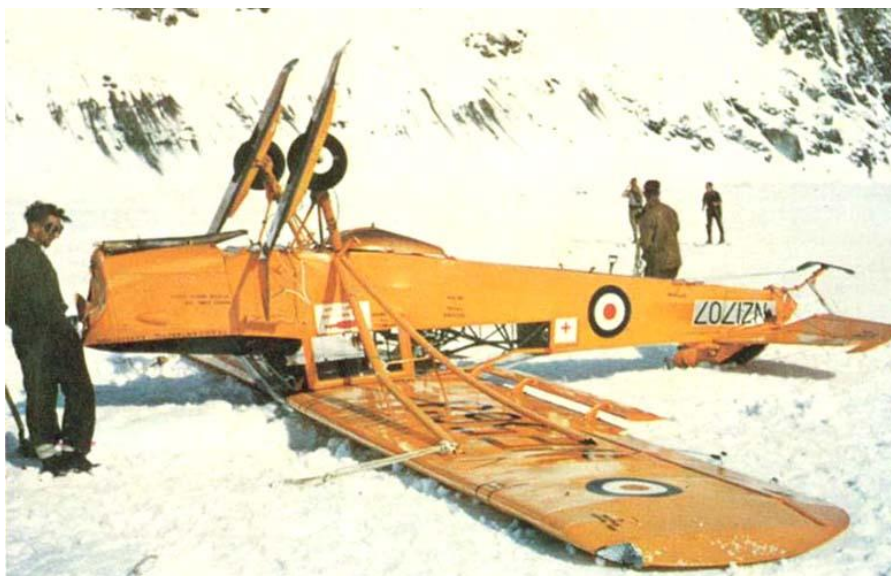
"Antarctic Orange" Applications

2. The Yellowish-Orange (*Golden Yellow*)

This *Golden Yellow* shade used by the RAF, and inherited by the RNZAF, was only used by the RAAF on Beaver **A95-201** for its first tour south for the 1955/1956 expedition (but remained at Mawson until early 1958). The RAF Antarctic Austers were yellow – the RAF colour *Golden Yellow*, as seen below on RAF Auster WE563, which then became NZ1707 with the RNZAF. For the RAAF, *Golden Yellow* was used initially by our first Beaver, applied by de Havilland in Canada, for the delivery of A95-201 in 1955. This may have been due to lack of firm guidance by the RAAF, that we had earlier preferred, in 1953, the *International Orange* on the Austers.



Golden Yellow was used on NZ and RAF Antarctic Auster C.4s, similar to the colour on our first Beaver



Auster C.4 Antarctic WE563 – a variant of the Auster T.7 – was received by the RNZAF in MAY 1956 as NZ1707



A beautiful photograph – hoisting A95-201 from MV *Kista Dan* onto the ice at Mawson 1956

This shows the yellowish-orange *Golden Yellow* unique to A95-201, and the standing kangaroo roundels on the fuselage and mainplane – this is distinctively more yellow hued than the reddish shade of *International Orange*.

3. *Dayglo* Use by the Antarctic Flight

Only Beaver **A95-202** and Dakota **A65-81** initially received *Dayglo* over 1959/1960, and the fate of both aircraft were relatively short-lived.⁹⁹ Later, in 1961, A95-205 – the second VH-PGL – also received dayglo. The image below of ANARE Dakota A65-81 is from “Antarctic Pilot”, in the RAAF Association magazine *Wings* Vol 70 No1, Autumn 2018.¹⁰⁰



[‘Wings’, Air Force Association]

A65-81, the ANARE Dakota in Antarctica in 1960

RAAF *Dayglo*. The RAAF introduction of dayglo in 1959 was to avoid collisions between training aircraft, giving visual deconfliction of nearby traffic. Accordingly, the basic training Winjeel¹⁰¹ at 1BFTS RAAF Point Cook and the advanced training Vampire¹⁰² at 1AFTS RAAF Pearce were among the first aircraft to receive the bright fluorescent orange. These trainer fleets would be the longest serving dayglo aircraft in the RAAF, with the Vampire withdrawn from the training schools by 1969 and the Winjeel by 1975¹⁰³ – although the ARDU calibration Dakotas retained dayglo until

1979.¹⁰⁴ The first large silver aircraft to receive dayglo was C-47B Dakota A65-81, painted with dayglo over APR-MAY 1959 in preparation for the Antarctic 1959/1960 expedition. Nearly all Dakotas adopted this scheme, and the other large transports – the Bristol 170 Freighter, C-130A Hercules, Convair Metropolitans – were covered in our last instalment.¹⁰⁵

What was Dayglo. Bright orange colours were developed in the 1950s into a fluorescent bright colour light-reflective paint. Dayglo's fluorescent pigments absorbed various light frequencies re-emitted them, producing intense visible colors that appeared to glow, even in daylight. With such a bright colour, it was considered that dayglo would be readily visible and would prevent collision. A secondary consideration was that the bright colour could also assist location of an aircraft in the unfortunate event of an accident and aiding crew survival in remote and inhospitable locations.¹⁰⁶ Dayglo was first introduced by the US armed forces during the mid-1950s, but dayglo in the RAAF was relatively short-lived, as it was complex and costly to apply, and faded quickly to a patchy and dull shade of yellow.



A95-202 in *International Orange* with *Dayglo* panels, and (right) **A95-201** in *Golden Yellow*, 1958



A95-201 in *International Orange* later in December 1958 at Pt Cook, with Auster **A11-201** behind

THE DANISH 'DAN' SHIPS

The MV *Kista Dan* was chartered by ANARE until 1957, when it was replaced by the *Thala Dan* and the *Magga Dan* (the 'Dan' indicating the Danish Lauritzen shipping company ownership). ***Nella Dan* was built in 1961 and then** sailed to the Antarctic each of the 26 years it was chartered by ANARE. Aircraft were transported by the 'Dan'ships generally from Melbourne to Mawson.¹⁰⁷



Kista Dan with Beaver A95-201 (Golden Yellow) in JAN 1956

MV KISTA DAN – 1953/1957

1953/1954 sailed 4JAN54 with first two Austers to the south over JAN/MAR 1954.

1955/56 sailed 27DEC55 with two aircraft, A11-201 and A95-201, flown JAN/APR 1956 and then aircraft stored in hangar at Mawson for the next season.

1956/1957 sailed again 17DEC56 with a second Beaver, A95-202.



Thala Dan unloading Daygloed Dakota A65-81 in JAN 1960

MV THALA DAN – 1957/1982

1957/1958 sailed 3JAN58 with A95-203. Departed on return journey 28FEB58 with both A95-201 and A11-201, reaching MELB 19MAR58.

1958/1959 sailed 26DEC58 with A95-201, and returning FEB59 with A95-202.

1959/1960 sailed from Melbourne to Mawson on 8JAN60, with Dakota A65-81.

1961/1962 sailed with VH-PGL(2)/A95-205.

1962/1963 sailed 21DEC62, JAN62 flight VH-PGL, retn MELB 11MAR63 with A95-205.



Magga Dan with Auster A11-201 at Adélie Land JAN 1959

MV MAGGA DAN – 1958/1961

1958/1959 sailed 6JAN59 for Wilkes on relief expedition with Auster A11-201, then returned MELB 2MAR59.

1959/1960 sailed 5JAN60 with VH-PGL(1) to Wilkes, which was handed over to RAAF at Mawson as A95-202 on 3FEB60, returned 11MAR60. A95-202 was destroyed with A65-81 at Rumdoodle in DEC 1960.

1960/1961 sailed Fremantle 24JAN61 in FEB 1961 with VH-PGL(2). This aircraft later became A95-205.



Nella Dan loading VH-PGL(2) / ex-A95-205 in Melbourne DEC 1964

MV NELLA DAN – 1962/1987

***Nella Dan*, named after P G Law's wife Nel, was built in 1961 and then** sailed to the Antarctic every year of the 26 years it was chartered by ANARE.

1964/1965 – as far as we are concerned, its last deployment was for 1964/1965 with Beaver VH-PGL(2) on 22DEC64. VH-PGL fell through the ice while taxiing on 7FEB65.

SUMMARY OF RAAF ANTARCTIC FLIGHT

Expedition	Dates ¹⁰⁸	Senior Pilot	Aircraft	Vessel	Remarks
1953/54	FLT formed 1953 Sailed 4JAN54 Returned Melb 31MAR54 ¹⁰⁹	FLTLT Leckie	A11-200. A11-201. [Both a/c to return]	<i>Kista Dan</i>	Both damaged in storm 12FEB aboard <i>Kista Dan</i> , rebuilt as A11-200; A11-200 then lost overboard 5MAR54
1954/55	19DEC54 – 23MAR55	–	No aircraft available	<i>Kista Dan</i>	
1955/56	FLT formed 4JUL55 ¹¹⁰ Sailed 27DEC55 Returned MELB 26MAR56	SQNLDR Leckie	A11-201. A95-201. [Both aircraft remain]	<i>Kista Dan</i>	Flown 5JAN-APR56, a/c stored in new hangar at Mawson APR56. Accident A11-201 28OCT56 (Seaton).
1956/57	FLT formed 16JUL56 ¹¹¹ Sailed 17DEC56 Returned 12MAR57	SQNLDR Clemence	A95-202. A95-201 and A11-201 left from prev year	<i>Kista Dan</i>	4JAN57 1st Beaver flight; 17APR57 1st Auster flt.
1957/58	FLT formed SEP57 Sailed 3JAN58 Dept'd Mawson 28FEB58 Retn'd MELB 19MAR58	SQNLDR Grove	A95-203. A95-202 left prev year [A11-201 , A95-201 back to Aust overhaul]	<i>Thala Dan</i>	Hangar complete 2MAR58; 1958 winter flying done by A95-202 and A95-203.
1958/59	Sailed 26DEC58 Arr Davis 27JAN59 Dept Mawson 3FEB59 Retn'd MELB 3MAR59 ¹¹²	SQNLDR Sandercock	A95-201. A95-203 left prev year [A95-202 to Aust o'haul as -PGL 3FEB59]	<i>Thala Dan</i>	Both Beavers A95-201 and A95-203 destroyed in cyclone 28DEC59 ¹¹³
	Sailed 6JAN59 24JAN-5FEB 59 Wilkes Retn'd MELB 2MAR59	SQNLDR Leckie	A11-201.	<i>Magga Dan</i> 1 st trip	Wilkes relief expedition
1959/60	Sailed 8JAN60 Arrived Mawson 29JAN60 Retn'd Melb 19MAR60	SQNLDR Kichenside	Dakota A65-81.	<i>Thala Dan</i>	Normal expedition flying in early 1960, Dak with Beaver 202 tethered on Rumdoodle ice plateau above Mawson for 1960 winter; severe blizzard the night of 8/9DEC60 destroyed both a/c. ¹¹⁴
	Sailed 5JAN60 for Wilkes. Returned Melb 11MAR60	Mr Cresswell	VH-PGL(1)/A95-202. VH-PGL handed over to RAAF as A95-202	<i>Magga Dan</i>	Beaver flown for DH by Mr Dick Cresswell, to RAAF Mawson 3FEB60 ¹¹⁵
1960/61	FLT formed 1JUN60 ¹¹⁶ Sailed 5JAN61 without RAAF as FLT disbanded 9JAN61 ¹¹⁷ , not deployed	SQNLDR Batchelor (Ashworth for recce)	No RAAF aircraft available	<i>Thala Dan</i>	Due to loss of a/c in 1960, the FLT did not deploy, vessel back in Melb 22MAR61.
	Sailed from Fremantle 24JAN61, arrived Mawson 8FEB61, arrived Melb 19MAR61	Mr Cresswell	VH-PGL(2). Test flown Mawson on arrival. Also aerial flight to Chick Island.	<i>Magga Dan</i>	Date discrepancies for arrival Mawson as 24FEB61, and return to Mel 19MAR61 ¹¹⁸
1961/62	FLT formed 2OCT61 Sailed 22DEC61 Retn Melb 8MAR62 FLT disbanded 4APR62 ¹¹⁹	SQNLDR Ashworth	VH-PGL(2)/A95-205.	<i>Thala Dan</i>	Changed to A95-205 when it arrived on <i>Thala Dan</i> JAN 1962, possibly changed again to VH-PGL
1962/63	FLT formed 8OCT62 ¹²⁰ Sailed 21DEC62 Retn MELB 11MAR63 FLT disbanded 5APR63	SQNLDR Batchelor	A95-205/VH-PGL(2).	<i>Thala Dan</i>	Wilkes 1st flight 5JAN63, to VH-PGL, back in Melb 11MAR63. Off RAAF charge 19OCT64.
1964/65	Sailed from Melb 22DEC64, retn'd Melb 15MAR65		VH-PGL(2).	<i>Nella Dan</i>	VH-PGL broke through ice taxiing 7FEB65.

Serial Numbering

The changing policy on allocating 'last three' numbers to aircraft over the early 1950s had, by coincidence, seen the same last threes allocated to the two different aircraft types. The Austers were numbered in the **'block'** system, where blocks of numbers were allocated to different variants of the same aircraft type. The Auster AOP.III had been serialised in the block A11-1 to A11-56; the AOP.V for use in Japan were A11-60 and A11-61; the AOP.6 for the Antarctic were A11-200 and A11-201; and the Navy J5G Autocars were A11-300 and A11-301.

Conversely, the Beavers were caught up in the **'century'** system, introduced in 1952, whereby the 'last threes' were allocated in century series, supposedly so an airframe could be identified by its last three without reference to its 'A'-group identifier – e.g. -300s to the P2V-5 Neptune, -400s to the CA-25 Winjeel, etc. But -200 series were allocated to both the Beaver (in 1954) and to the Australian-produced Canberra (in 1953). And by coincidence, two '201s' – the rebuilt Auster A11-201 and first Beaver A95-201 – were both deployed to the Antarctic for the 1955/1956 Expedition.

Serial Number	Serialling Policy ¹²¹	Identity	Aircraft Mark	Details in Antarctica
A11-200 A11-201	'Block'	ex VX126 ex VX127	AOP.6	1953/54 Expedition, both severely damaged 12FEB54, A11-200 reassembled with parts of -201. A11-200 was SOC Remains A11-201 were sold to VH-RCT, and bought back by the RAAF for the 1955/56 and 1958/59 expeditions.
A95-201 A95-202 A95-203	'Century'	c/n 783 c/n 964 c/n 1052	DHC-2	1955/56 A95-201 with A11-201, then remained in new built hangar. 1956/57 new A95-202 with A95-201 (A11-201 returned to Aust). 1957/58 new A95-203 with A95-202 (A59-201 retrnd to Aust). 1958/59 new aircraft, with A97-202 retr'n'd to Aust, while A95-201 and A95-203 stayed for 1959 winter, both to be destroyed in storm 28DEC59. 1959/60 A95-202 and Dak A65-81, both dest'd in blizzard 8/9DEC60.
A65-81	'Consecutive'	ex 44-76341	C-47B	1959/60 Expedition, destroyed in blizzard 8/9DEC60 with A95-202.
A95-205	'Century'	c/n 1430	DHC-2	1960/61 no aircraft available. 1961/62 A95-205 VH-PGL(2) 1962/63 A95-205 VH-PGL (2) 1964/65 VH-PGL(2)



A95-205 on floats offloaded from the *Thala Dan* JAN 1962

National Markings

The Austers A11-200 and A11-201 had deployed aboard *Kista Dan* in JAN 1954, and therefore wore the national markings of the day – ‘target’ style type-D roundels in six positions, together with the national fin tricolour. With the loss of A11-200, only A11-201 returned from that voyage and was refurbished in Victoria. A11-201 departed again in the same type-D markings, with the first Beaver, A95-201, in JAN 1956.

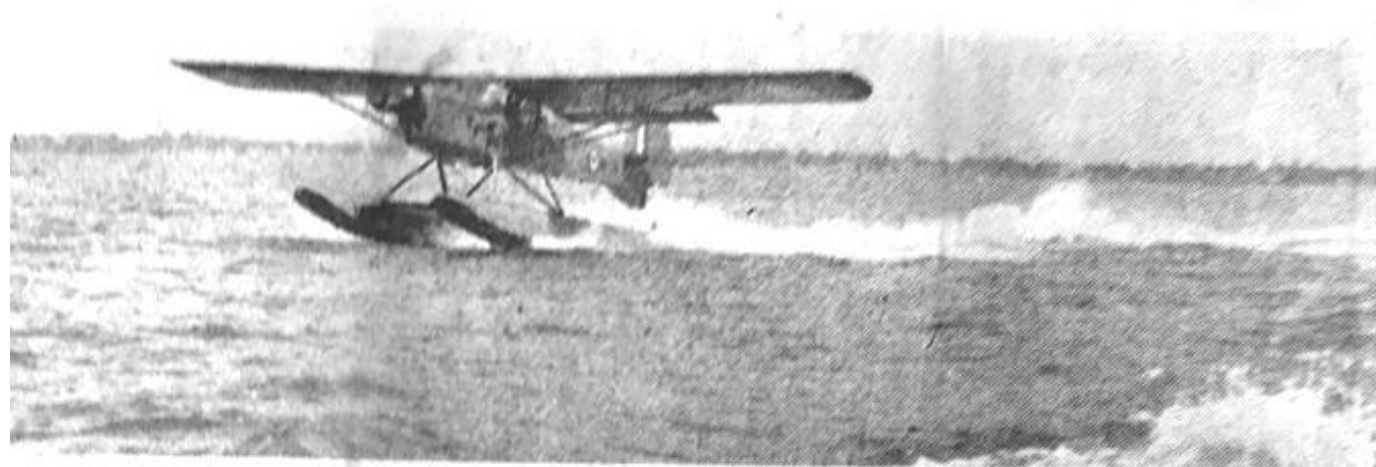


Unloading *Kista Dan* in FEB 1954 onto the ‘fast ice’

For the 1955/1956 expedition, A95-201 departed Melbourne in DEC 1955 marked with the trial ‘standing kangaroo’ roundel in six positions. This roundel was trialled in Australia too in 1956 on a Sabre, before the ‘kangaroo in motion’ roundel was ultimately adopted in JUL 1956. Although this standing kangaroo was relatively short-lived – around nine months – A95-201 did retain it for its whole deployment down south. The site selected for the Australian operations was at Horse Shoe Bay, which became the Mawson base. A hangar was completed here in APR 1956, which enabled both aircraft to remain for the 1956 winter, and also for the 1957 winter. They were brought back aboard *Thala Dan* in MAR 1958. From the deployment of A95-202 in DEC 1956, and all future expeditions, aircraft had the leaping kangaroo on the fuselage that we know today.



Try-Out for Antarctic Expedition Planes

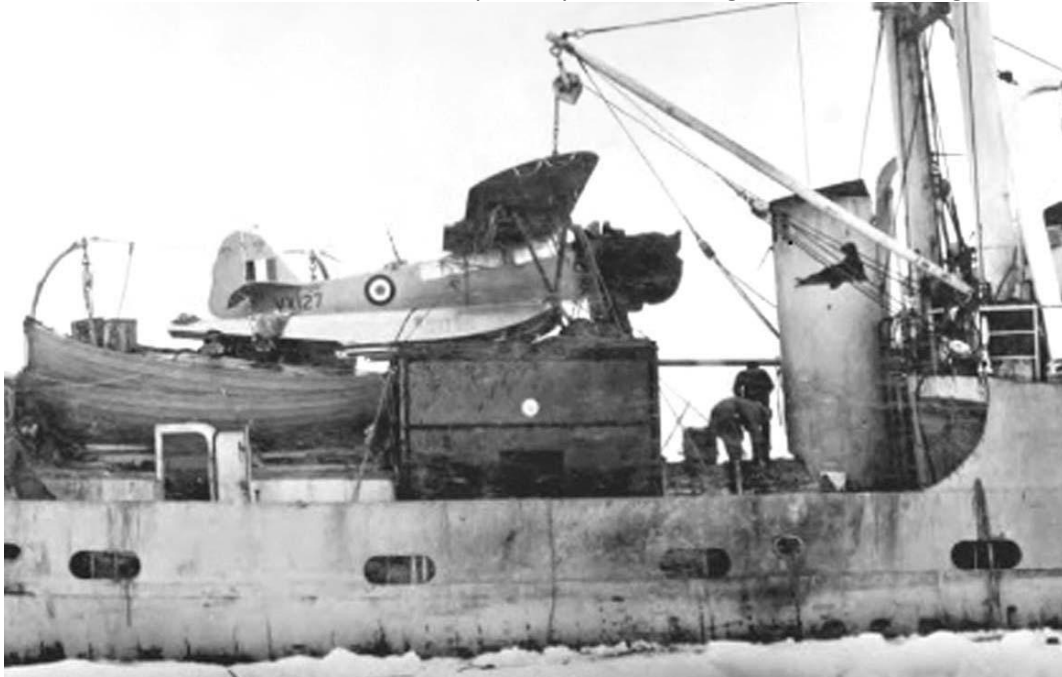


PREPARING for the forthcoming Australian expedition to the Antarctic mainland. TOP: Flight Lieutenant D. W. Leckie makes a test run at Point Cook yesterday with one of the expedition's two Auster aircraft. LOWER: Mr. P. G. Law, Director of the Antarctic Division of the Department of External Affairs, inspecting the controls of the second Auster aircraft. Sergeant Pilot S. R. K. Seaver, the expedition's second pilot, is explaining the instruments.

AUSTER AOP.6



The Auster AOP.6, also known as the Model K, followed other Auster variants in RAAF service – the Mk III (Model F) and the Mk V (Model J).¹²² This model was the first postwar AOP Auster incorporating the lessons of operating under operational conditions, and in 1953, ANARE purchased two Auster AOP.6s that had seen Antarctic service on the Norwegian-British-Swedish Antarctic Expedition of 1949-52.¹²³ The two aircraft, VX126 and VX127, had both been delivered to the RAF in NOV 1949,¹²⁴ and had the adaptability of interchangeable undercarriage with skis and floats.



VX127 (later A11-201) on floats embarked on MV *Norsel* early 1950

VX127, above aboard the MV *Norsel* during the voyage south from Cape Town in late DEC 1949, was one of the two AOP.6s used by the British Antarctic Flight. The aircraft had initially been stored in packing cases and then assembled while in the South African port. Fitted with either floats or skis, both VX126 and VX127 were used to conduct reconnaissance flights as the party approached the Antarctic to locate sites for establishing a base camp for the Expedition. Once the camp had been set up, the aircraft carried out a series of survey flights over Queen Maud Land and also resupplied from the *Norsel*. The Expedition set sail on the return voyage to Cape Town on 20 FEB 1950. Upon arrival in South Africa, VX126 and VX127 were handed over to the local RAF Liaison Office for disposal.¹²⁵



VX127 in use on skis in early 1950

These two Austers, as A11-200 and A11-201, were thoroughly refurbished by 2AD over mid-1953, and transferred to Point Cook for the RAAF Antarctic Flight in OCT 1953.¹²⁶ 2AD had repainted the two Austers in *International Orange* – the RAF Antarctic Austers had been the RAF colour *Golden Yellow*. Both A11-200 and A11-201 operated from the ice on skis in FEB 1954, and were stored aboard *Kista Dan* in Mawson Harbor when both were damaged by a storm on 12 FEB 1954. However, a composite aircraft was rebuilt in the ship's hold using parts from both Austers.¹²⁷ The composite aircraft (A11-200) had 201's starboard mainplane and other components, but no flaps – this then required great skill from the RAAF Antarctic Flight pilots to fly. On the return voyage to Australia on the night of 5 MAR 1954, A11-200 was later lost overboard from the *Kista Dan* during a hurricane. The ANARE signal reported: "Auster 200 on platform aft was crumpled like cardboard then blown overboard. No method of securing could have saved it with wind abeam."¹²⁸

With the loss of both Austers in MAR 1954, no aircraft were available to support the 1954/1955 expedition. However, the surviving Auster A11-201, which had already been cannibalised for parts, was rebuilt by the Royal Victorian Aero Club, and subsequently used by ANARE for reconnaissance photography and field support from 1955 until 1959. But in the meantime, now with no aircraft, in DEC 1954 ANARE and the RAAF proposed that two Beavers be funded by Dept of External Affairs for future expeditions.¹²⁹ One was approved for immediate delivery, and A95-201 arrived in MAR 1955. The second was funded the following year, and A95-202 arrived in APR 1956. Although an Otter and a Beaver had been the preferred solution, it came down primarily to the Beaver's cheaper cost (at C\$ 60,000 each), plus its flexibility with skis and floats, and ruggedness for polar operations.¹³⁰ Other Beavers were acquired due to attrition, largely enabling that two Beavers would be available through to 1958/1959.



A11-201 on skis with *Kista Dan*, during its few days of serviceability on the ice between 3-11 FEB 1954

Attrition – it wasn't just the Austers!

On 28 DEC 1959, blizzards destroyed two Beavers – **A95-201 and A95-203** – stationed on the plateau inland from Mawson, at Gwamm. A95-203 was able to be rebuilt using components from both aircraft, and later went on to have a long civilian career in Australia and Canada, until 1983.

For the ANARE Antarctic 1959/1960 expedition, a Dakota was delivered to Mawson aboard the MV *Thala Dan*. Shortly after being reassembled, it was damaged in a handling mishap but then undertook normal expedition flying during early 1960. The decision was made to leave the aircraft (**A65-81**, and Beaver **A95-202** that had flown across from Wilkes in FEB 1960) tethered on an ice plateau at Mawson for the winter period, so they were repositioned at Rumdoodle in readiness for operations for the following summer. Unfortunately a severe blizzard on 8/9 DEC 1960 completely destroyed both aircraft.¹³¹

AUSSIE AUSTERS



AOP.III A11-45 postwar overall *Foliage Green*



AOP.V A11-60 overall *Aluminium* in Japan



AOP.6 rebuild A11-201 in 1956-57 in overall *International Orange*



Navy J.5G Autocar A11-301 at HMAS *Albatross*



[Britmodeller.com¹³²]

Patchwork quilt Auster hybrid 'A11-200.5' – rebuilt A11-200 with inoperative flaps, and at this stage no serial

A11-200 had flown on 5 FEB 1954 for the first time, with A11-201, from the *Kista Dan* across to the Horse Shoe Bay, the new Mawson base. But after sheltering in Mawson Harbor in the hold of *Kista Dan*, both aircraft were severely damaged by a storm on 12 FEB. Both aircraft had mainplanes and control surfaces damaged, and the aircraft were disentangled with A11-201 lifted off A11-200. The best recovery to maintain some air capability was to make one aircraft out of the two, so A11-200 was rebuilt with components from A11-201, but without flaps. A11-200 test flew on 17 FEB, resembling 'a patchwork quilt'.¹³³ The hybrid was referred to by the *Kista Dan* crew as 'A11-200.5' !!¹³⁴



The rebuilt A11-200, utilising A11-201 components, but still with flap damage

A11-201 reached Melbourne aboard the *Kista Dan* on the 31 MAR 1954 and was struck off RAAF charge next day. It passed to the Dept. External Affairs Antarctic Division, was repaired as civilian VH-RCT, and went back to the Antarctic as A11-201 in DEC 1955. It returned to Australia in MAR 1958 aboard *Thala Dan*, and then a quick trip over JAN-MAR 1959 to the Wilkes base aboard *Maggie Dan*. A11-201 was eventually sold and registered in DEC 1961, again as VH-RCT. It crashed at Cape Baron Island, Tasmania in FEB 1964 and was struck off the register.

AUSTERS ON FLOATS & SKIS



A11-201 at Point Cook with floats in 1958 prior to the 1958/59 Expeditions



Auster floats were used for the transit south, to enable hoisting overboard and launching beside the ship, to assist in navigating the ice pack, delivering mail, and surveying arrival and landing sites.



When arrived at the final location, skis would be fitted to enable ice operation. Austers had skis/wheels undercarriage configuration, but a normal ski fit was as shown below, with no wheels.



A11-201 with skis and no wheels at Wilkes JAN 1959

A11-200 – AUSTER AOP.6 1953/1954



A11-200 on 5FEB54 was flown for the first time (with A11-201) from the *Kista Dan* across to the Horse Shoe Bay at the Mawson base – after major damage to both aircraft aboard the vessel on 12 FEB, A11-200 was rebuilt with components from A11-201, but without flaps, and flew again on 17 FEB, resembling “a patchwork quilt”.¹³⁵



A11-200 type-D Roundel 1953-54



‘Penguin on skis’ nose art



Auster Fin Flash

Roundel sizes, diameter inches (cm): fuselage Auster 18” (45.7cm), mainplanes 36” (91.4cm)

Fin flash: 18” high, 15” wide (5” each colour)



A11-200 beside *Kista Dan* in FEB 1954 after rebuild. The nose art is an emperor penguin on skis holding stocks, and appeared on both sides of the nose, of both aircraft. After storm damage on the return voyage back north to Heard Island in MAR 1954, A11-200 was struck off charge, but subsequently in Australia A11-201 was fully reconditioned.

A11-201 – AUSTER AOP.6 1953/1954



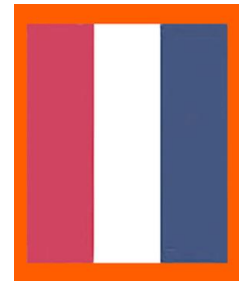
A11-201 beside *Kista Dan* before damage on 12 FEB 1954. Subsequently its components were used to rebuild -200.



Type-D fuselage Roundel until 1956



Penguin Nose Art



Auster Fin Flash

Roundel sizes, diameter inches (cm): fuselage Auster 18" (45.7cm), mainplanes 36" (91.4cm)
Fin flash: 18" high, 15" wide (5" each colour)



A11-201 wreckage which helped rebuild A11-200 in FEB 1954

This was ironic as A11-200 was lost on the return voyage to Australia in MAR 1954, then subsequently A11-201 was itself rebuilt in Australia to undertake several more return visits down to the south.

AUSTER AOP.6 – A11-201 1955/56 and 1958/59

By DEC 1955 A11-201 had been rebuilt and sailed aboard *Kista Dan* with A95-201 for Mawson and stayed for the 1956 winter, returning to Melbourne aboard *Kista Dan* in MAR 1957.



A11-201 (above) in DEC 1958 at Point Cook, beside Beaver A95-201. For the 1958/59 Expedition, A95-201 embarked on *Thala Dan* to join A95-203 at Mawson, while A11-201 embarked on *Magga Dan* for a relief mission to Wilkes base. Resplendant in a new coat of International Orange, both aircraft were marked with kangaroo fuselage roundels, and type-D mainplane. The fin flash is smaller than A11-201 previously carried, at 12" x 12" (4" per colour).



Type-D Roundels



Kangaroo Roundel from 1956



A11-201 Auster Fin Flash



A11-201 at Wilkes in JAN/FEB 1959 resplendant in *International Orange* and fuselage kangaroos





1983 Falkland Islands First Day Cover showing an RAF Antarctic Auster – 200th Anniversary of manned balloon flight



...and the Airfix 1/72nd Auster Antarctic WE600 model, moulded in yellow plastic (but paint orange if you like!!)



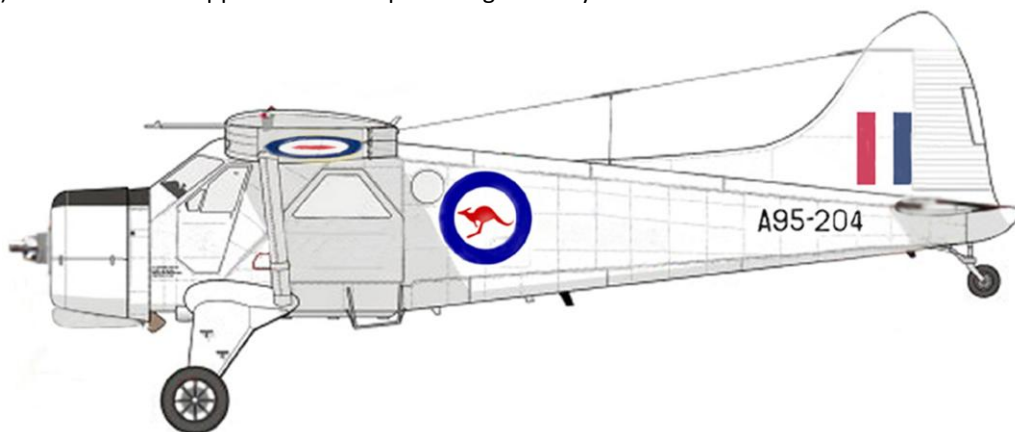
DHC-2 BEAVER



The rugged Canadian DHC-2 Beaver had been recognised in early 1954 as a preferred aircraft for the inhospitable Antarctic operations.¹³⁶ Ultimately, four Beavers flew with the RAAF Antarctic Flight in support of ANARE:

- **A95-201** c/n 783, delivered MAR 1955;
- **A95-202** c/n 964, delivered APR 1956;
- **A95-203** c/n 1052, delivered JUN 1957; and
- **A95-205** c/n 1430, delivered OCT 1961.

However, it should not be forgotten that the RAAF had a fifth RAAF Beaver – **A95-204** (c/n 1125) – which had no Antarctic connections. A95-204 was delivered to Australia in FEB 1958 initially for use by DH as VH-DHJ, and then operated by No 1 Air Trials Unit (1ATU) at Woomera in support of the weapons range activity.



A95-204 was the sole RAAF ATU 'Range Air Taxi Service' Beaver in all-over *White* (a scheme adopted soon afterwards by the two Otters), but was not marked in *Dayglo*. It served at 1ATU over 1959-1961, as the Otters arrived.

The first Antarctic Beaver – A95-201 – had arrived in Australia in MAR 1955, and shown below with ARDU at Laverton in SEP 1955. Here it has the delivery type-D roundels and the initial *Golden Yellow* scheme. Before departure south in DEC 1955, the trial standing kangaroo roundel would be applied in all six positions.



As subsequent Beavers were delivered for ANARE operation, the DHC factory applied RAAF-specified *International Orange* in lieu of the RAF-preferred *Golden Yellow*. Below, side-by-side, are A95-202 and A95-201 for the 1956/1957 expedition in the two schemes. A95-201 is still in the original markings of 1955, as it had been retained at Mawson during the 1956 winter in preparation of the 1956/1957 summer operations.



A good comparison of *International Orange* and *Dayglo* A95-202, and *Golden Yellow* A95-201 in 1958

The harsh environment for Antarctic operation – below: **A95-201** covered with ice awaiting loading onto *Thala Dan*; **A95-202** still with skis attached in JAN 1961, after the devastating storm of 9 DEC 1960 when it was written off together with Dakota A65-81; and **A95-205 as VH-PGL** covered with ice on the southern transit, probably aboard *Thala Dan*.



A95-201 with *Thala Dan* in the background, ready to come home in early 1958



A95-202 in JAN 1961, after DBR by a blizzard with A65-81 in DEC 1960, and VH-PGL/A95-205 covered with ice

BEAVERS ON FLOATS



A95-205 at Point Cook being fitted with floats (note lack of kangaroo roundels c late 1962)



RAAF PR pics of A95-203 with floats in late 1957, before departure from Australia



BEAVERS ON SKIS



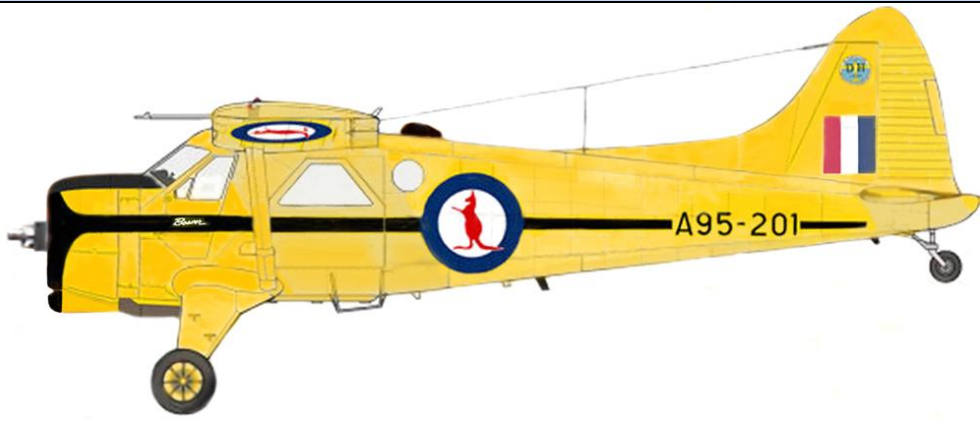
A95-203 at Point Cook fitted with ski undercarriage, 1957



Main undercarriage with skis and tailwheel ski addition



RAAF BEAVERS



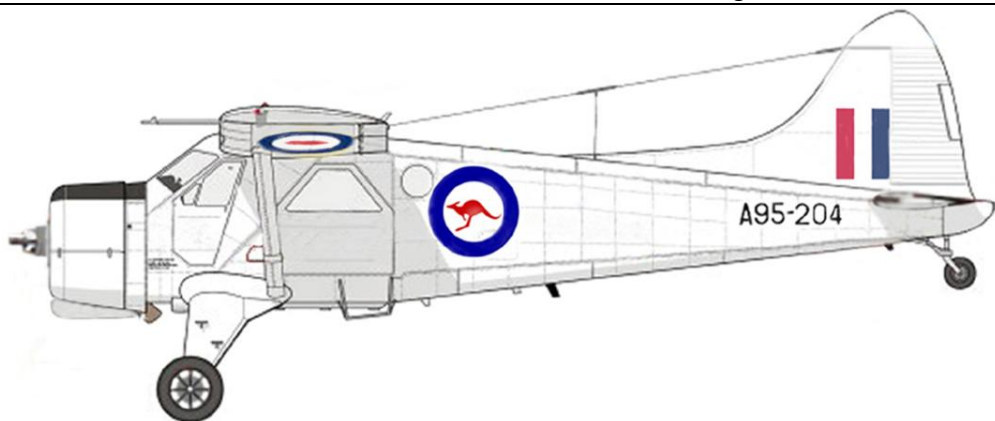
A95-201 overall *Golden Yellow*



A95-202 on skis overall *International Orange and Dayglo*



A95-203 on floats overall *International Orange*



A95-204 overall *White* as the range taxi at 1 Air Trials Unit (1ATU) Woomera 1959-1961 ¹³⁷

BEAVER – A95-201 1955/1958



A95-201¹³⁸ in SEP 1955 with ARDU at Laverton, in the initial *Golden Yellow* scheme, before all Beavers adopted *International Orange*. Before departure in DEC 1955, the standing kangaroo roundel was applied in all six positions.



A95-201 type-D Roundel SEP 1955



A95-201 standing kangaroo 1955/58



Beaver Fin Flash



BEAVER – A95-201 1958/1959



The 'two 201s' – A95-201 at RAAF Point Cook (with a rebuilt Auster A11-201) in late 1958 preparing for its second tour of duty, and looking a lot better in *International Orange* instead of *Yellow*, as well as with the leaping kangaroo.

Roundel sizes, diameter inches (cm): fuselage Beaver 33" (83.8cm), mainplanes 72" (182.9cm)

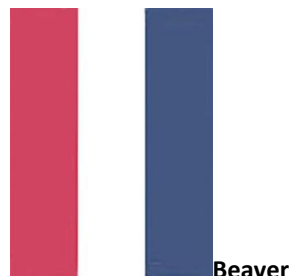
Fin flash: 24" high, 18" wide (6" each colour); DHC fin logo 12" diameter



Type-D Roundels on Mainplanes



Kangaroo Fuselage Roundels



Fin Flash



DHC Logo



A95-201 in 1959 with the normal Mawson base ski and wheels undercarriage configuration

After its repaint in 1958, A95-201 showed the definitive Antarctic Beaver markings of overall *International Orange*, leaping kangaroo fuselage roundels, and the blue DHC logo on the fin. However, -202 and -205 would be daygloed. A95-201 was ultimately destroyed in a cyclone on 28 DEC 1959, with components used to rebuild the A95-203.

BEAVER – A95-202 1958/1960 DAYGLO



A95-202¹³⁹ showing dayglo bands on rear fuselage/fin and over and below the mainplanes – apparently added at Mawson in 1958, becoming the first RAAF aircraft with dayglo.



Kangaroo Roundel on fuselage



Type-D Wing Roundels to 1965



Beaver Fin Flash

Roundel sizes, diameter inches (cm): fuselage Beaver 33" (83.8cm), mainplanes 72" (182.9cm)

Fin flash: 24" high, 18" wide (6" each colour); DHC fin logo 12" diameter



A95-202 with floats and undercarriage removed c1958/59 – the dayglo has severely faded, which may be as it was added in the harsh Antarctic conditions, and outside the temperature specified for applying this high-visibility finish.

BEAVER – A95-202 1958/1960 DAYGLO



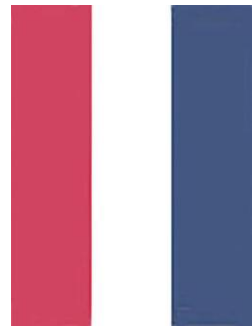
A95-202 on skis with dayglo bands on rear fuselage and forward fin, and around the mainplanes.



Kangaroo Roundel on fuselage



A95-202 DHC Fin Badge



Beaver Fin Flash



A95-202 with *International Orange* (FS12197) dayglo band around the rear fuselage and bands across the mainplanes – the image at right shows severe fading of the dayglo (added at Mawson during 1958).



A95-202 c1957 on its first tour, with ventral tank fitted. Received by De Havilland 17APR56, painted *Intl Orange* #1205 27MAY56, to RAAF 11SEP56, and then accepted by the Antarctic Division 20NOV56.

- Left Melb on 17DEC56 by *Kista Dan* for both 1956/57 and 1957/58 seasons. Departed Mawson FEB 1959.
- Its second tour, registered as the first VH-PGL to P.G. Law (Director of ANARE), sailed on *Magga Dan* in JAN 1960 for Wilkes, then reverted to A95-202 at Mawson on 3 FEB 1960. On this tour it had the large round ANARE blue badge added to the fuselage, with black **ANARE** marked on the upper port wing. A95-202 was written-off in a blizzard the night of 8/9DEC60 with Dakota A65-81, both damaged beyond repair.

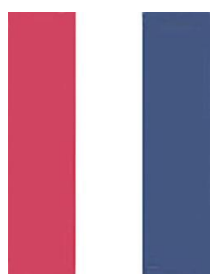
BEAVER – A95-203 1957/1959



A95-203¹⁴⁰ was delivered to the Antarctic Flight at Point Cook in 1957 and trialled with floats at Lake Macquarie



Kangaroo Fuselage Roundel



Beaver Fin Flash



DHC Fin Marking



Beaver Door Logo

Roundel sizes, diameter inches (cm): fuselage Beaver 33" (83.8cm), mainplanes 72" (182.9cm)

Fin flash: 24" high, 18" wide (6" each colour); DHC fin logo 12" diameter



A95-203 in a RAAF PR shot on floats at Lake Macquarie in 1957 – coloured as an *Uncle Toby's* collector card!!



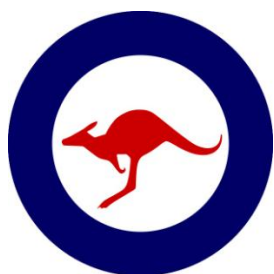
A95-203 on skis at Mawson

A95-203 was rebuilt after a cyclone on 28 DEC 1959, using parts from A95-201. It was later registered as VH-AAV.

BEAVER – A95-205 1961/1962



A95-205¹⁴¹, during 1962 at Point Cook. Originally imported by DH Bankstown in 1960 as **VH-PGL(2)** and served with ANARE from *Magga Dan* over JAN-MAR 1961 flown in Antarctica by Dick Cresswell. After return to Melbourne and servicing by DH Bankstown, VH-PGL sailed on *Thala Dan* in DEC 1961 and again became A95-205 in FEB 1962. Serviced again at Bankstown, contemporary images show the aircraft through 1962 at RAAF East Sale and Point Cook marked as A95-205 but without a kangaroo roundel. Sailing again on *Thala Dan* in DEC 1962, it returned to Melbourne in MAR 1963.



A9-205 Kangaroo Roundel



ANARE Fuselage Logo



A95-205 Fin Flash

Roundel sizes, diameter inches (cm): fuselage Beaver 33" (83.8cm), mainplanes 72" (182.9cm)

A95-205 small fin flash: 15" high, 12" wide (4" each colour)



A95-205 (ex VH-PGL) with kangaroo roundels and the first logo in FEB 1962 – a large circular blue ANARE badge of a map of Antarctica, with Australia's territory marked in red. Fitted with floats being off-loaded from *Thala Dan*.

BEAVER – A95-205 1962/1963



A95-205 at East Sale presumably during 1962. This image is interesting as it has no RAAF fuselage roundels but the ANARE logo, RAAF serial and fin tricolour marked, ANARE marked on the upper port wing, and *dayglo* panels. It's registration cycled through VH-PGL/A95-205 serials over 1962 and 1963, presumably who was operating the aircraft at the time – A95-205 if RAAF Antarctic Flight, or VH-PGL if contracted to DH.¹⁴²



2006 Beaver issue 50c stamp



A95-205 Kangaroo Roundel



ANARE Fuselage Logo



A95-205 Fin Flash

Roundel sizes, diameter inches (cm): fuselage Beaver 33" (83.8cm), mainplanes 72" (182.9cm)
 A95-205 fin flash: 15" high, 12" wide (4" each colour)

BEAVER – VH-PGL (ex A95-205) 1964/1965



A95-205 was handed back as **VH-PGL** to DH Bankstown on 19 OCT 1964 and shown on wheels (above), and on float trials at Rose Bay over OCT/NOV 1964 (below)¹⁴³ for 1964/1965 season - dayglo fin and rudder are very apparent.



VH-PGL reg is 8" on fin, 20" above stbd wing



The later-style ANARE Fuselage Logo



VH-PGL Door Logo



VH-PGL being unloaded from *Nella Dan* for 1964/1965 – it was extensively damaged breaking through the ice while taxiing on 7 FEB 1965. **VH-PGL** was registered in Canada with AirWest Airlines in MAY 1970 as CF-AWA.

DOUGLAS C-47B DAKOTA



After years of operating small aircraft in the form of the Austers and Beavers, the Department of External Affairs bit the bullet and announced in MAR 1959 that a C-47 Dakota would be taken to the Antarctic in 1960. Selected was Dakota A65-81 which was prepared with **A.N.A.R.E.** fuselage titles, and painted at 2AD in *dayglo* over APR-MAY 1959, to become the RAAF's first dayglo Dak.¹⁴⁴

Its abbreviated E/E.88 in *adf-serials* states: "Rec 2AD ex DAP 17/04/59 for preparation for duties in Antarctica. Received Orange dayglo Tail and RATO Fittings. Transferred to Dept of External Affairs (Antarctic Division; ANARE) and sent to de Havilland ex RAAF 25/05/59."

A65-81 was then modified for survey work by de Havilland at Bankstown, including F24 aerial cameras and the fitting of rocket-assisted take-off (RATO) rockets. A65-81 was test flown by ARDU at RAAF Laverton in NOV 1959. Unfortunately the RATO rockets set fire to the dry grass beside the runway.¹⁴⁵ The RAAF Antarctic Flight then received the bad news that the previous season's two Beavers, A95-201 and A95-203, had been destroyed at Mawson in a blizzard on 28 DEC 1959. Although delaying departure slightly, the 1959/1960 expedition departed Melbourne aboard MV *Thala Dan* on 8 JAN 1960. The plan was for A65-81 and Beaver A95-202 to remain at Mawson flying for some of 1960, with both aircraft then to be stored in the open.

After flying through 1960, A65-81 was moved on 6 DEC 1960 to Rumdoodle, 30km inland from Mawson, for the summer. Beaver A95-202 had flown up on 5 DEC. However, on the morning of 9 DEC 1960 the Beaver was found destroyed, its tie down points had come off and it had flipped over on its back, minus the wings. A65-81 had broken from its tie down and blown away – and was found to have skidded 6km across the ice. It was not economic for repair.



Wreckage of A65-81

A65-81 – ANTARCTIC DAKOTA (ANARE) 1959/1960

A65-81 in 1960, with dayglo on fin, tailplane and wing panels – markings applied in MAY 1959 by 2AD at Richmond in preparation for the ANARE 1959/60 Antarctic Expedition.¹⁴⁶ Kangaroo roundels on fuselage moved forward to cargo door to allow installation of F24 oblique camera aft of roundel, type-D roundels on mainplanes, flash on fin, airline style black **A.N.A.R.E.** 18" RAAF-style font characters, with "Ann Cherie" and penguin nose art.



Type-D Wing Roundels



Kangaroo Fuselage Roundel

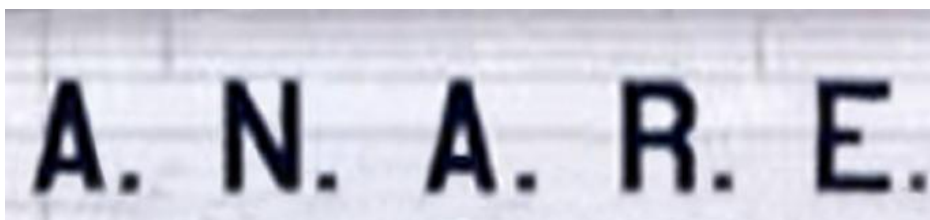


A65-81 Fin Flash

Roundel sizes, diameter inches (cm): fuselage C-47 48" (122cm), mainplanes 66" (168cm)
 Fin flash: 36" wide (12" each colour), 24" high

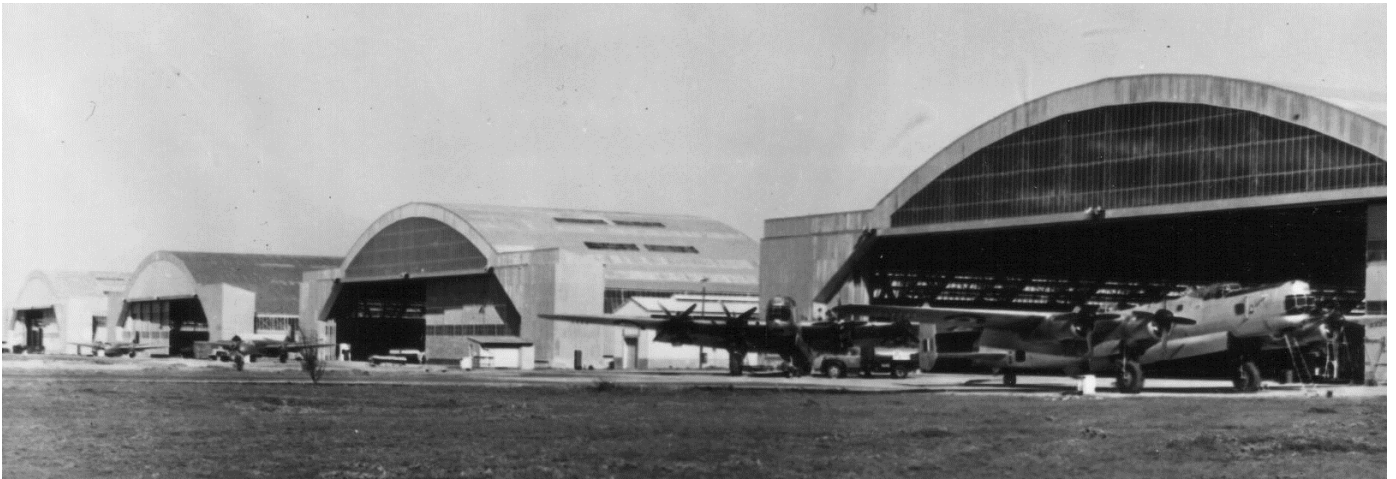


A65-81 unloaded from *MS Thala Dan* in 1960 at Mawson on skis – fin and rudder in dayglo, as are wingtips and tailplane. After the normal expedition flying during early 1960, A65-81 was left tethered for the winter period. Unfortunately a severe blizzard struck on the night of 8 DEC 1960, destroying both A65-81 and Beaver A95-202.¹⁴⁷



A.N.A.R.E. RAAF-style airline fuselage titles, in 18" black characters, and "Ann Cherie" nose art

RAAF Reconnaissance Development: Part 2 @Gordon R Birkett 2018



Bridging the Reconnaissance Capability Gap 1950s to 1980's

Photographic reconnaissance was a highlighted and important requirement in the Korean War from 1950 to 1953 for both the ground and air campaign. No 77 Squadron use of supplied photographic reconnaissance and intelligence material in planning and execution of their assigned missions would not have been possible had not the USAF provided such from its own assets and dedicated Photographic Reconnaissance Units, both Tactical and Strategic.

Getting back the Operational Recce Requirement post Korea

With the introduction of the GAF Canberra B Mk 20, (forty-eight Canberra B20 aircraft on order), it was planned to have one Bomber Squadron of eight Canberra aircraft (6 IE and 2 IR) given the secondary role of Strategic Photographic reconnaissance.



With three operational Squadrons then envisaged, Nos 1, 2 and 6 Squadrons, one of these would be designated with that secondary role. *However it was felt that a separate 82 Wing stand alone Flight would be sent up instead with the six aircraft.*

In wartime, a dedicated Squadron with the main role of Strategic Photo Reconnaissance would be established in addition to these three squadrons, with a secondary bombing role assigned, with eight Canberra aircraft (6 IE and 2 IR).

In the event of War with Indonesia, the new 82 Wing Squadron to operate this force of PR Canberra's would be No 24 Squadron RAAF. This would have left a force for Operational Conversion training, attrition, and reserve, of only twenty aircraft (Including T4/T21 trainers), without any inclusion of peace time attrition up to that time.

To achieve a more economical Peace time PRU tasking force, a further revision in numbers by late 1959, would result in only four IE and two IR Canberra Mk20s converted, split between two Australian based Squadrons (No 1 and No 6 Squadrons RAAF). *No 2 Squadron by this time had been transferred to Malaya.*

Without a dedicated PR Aircraft, the RAAF, having only a limited number of Canberra aircraft in use, had to decide on whether the installation of additional cameras would not have an adverse effect on the aircraft's bombing capability.

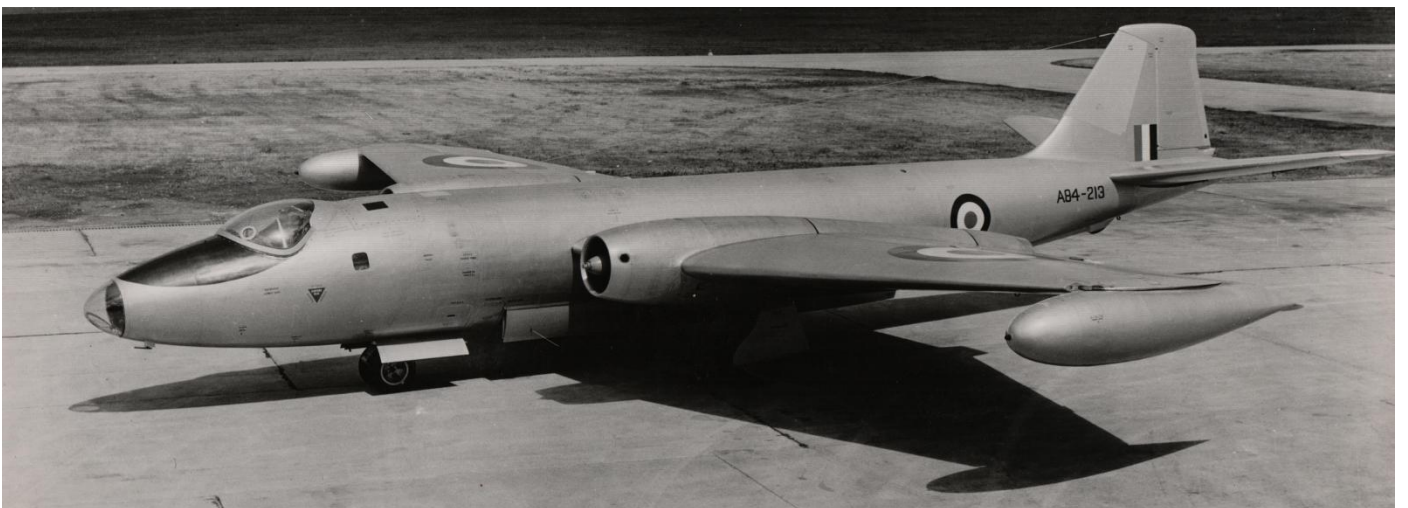
Even discussion on a purposely designed PR Bomb Bay Pack was considered, so it could be fitted to give the Bomber Aircraft the convertibility from bomber to Photographic reconnaissance roles if required.

The RAAF Canberra force at this time was already equipped with a F52 High Level camera (36,000 feet height ceiling and 3,200 feet minimum height for exposures) and a F24 Strike Camera (2,000 feet minimum, or if fitted with prism, 700 feet).



These were basically World War 2 developments and nearly 10 years old by then, with a maximum ground speed to shutter speed being matched and limited to 450 Knot Indicated Air Speed (KIAS).

The RAAF previously in 1956, in a decision of wanting a higher exposure ceiling (up to 48000 feet) and larger magazine fed camera, had ordered some twelve Williamson F96 Cameras, then in development in the United Kingdom. *This system would be more suitable to the Operational Ceiling of the Canberra B20.*



But the order was suspended in 1957 due to development issues for that camera. It was considered a capable War time PR System until the Indonesian Ground Control Intercept ability evolved by the early 1960's, with the infusion of modern Soviet Radar and Aircraft types.

However, after reactivating the project in August 1958, a revised order for only five F96 cameras was made. Again the order was suspended in March 1959.

One was however, despatched to the ARDU in mid-1960 for tests in a Canberra Mk20. ARDU consider that the camera would best fit between frames #28 and #30 in the fuselage.¹⁴⁸

What was lacking in both F52 and F96 camera Systems was the ability to operate at night in a covert way (without flares).

So by 1960, after some years, a final recommendation regarding cancelling the whole F96 Camera Project was made. The RAAF would stick with the F52/F24 Camera System but would investigate an application of an additional night camera fit (a USAF K47 or RAF F61/F91 types) and associated illumination Flares.

These came to naught.

When the Canberra Replacement aircraft, the F-111A, was ordered in 1963 by the RAAF, a commitment was made to order an additional six F-111Rs (A purposed USAF Reconnaissance version that would enter USAF service in 1970) to the then Project total of twenty-four aircraft.



A gap of seven years for a Strategic or even Tactical Reconnaissance aircraft (to 1970) was considered acceptable by the RAAF, with the current F52/F24 system use in the Canberra to soldier on.

Tactical Reconnaissance Resurgence (1959-1970s)



A94-362 during air display in 1961 Photo: Kurt Finger

Using the Canberra Mk20 in a low level Photographic reconnaissance role was considered in 1960 as the then front line fighter, the CAC Avon Sabre, did not have any reconnaissance role aside from the Human Mark 1 Eyeball and binoculars¹⁴⁹.

However, previously an Air Staff Requirement (ASR/Phot 13 Fighter) had been issued in November 1959 which related to Recce equipment for the CAC Avon Sabre in a primary day fighter reconnaissance role.

The photographic camera equipment would be housed externally in an under fuselage pod, heated (from gun bay heating system) for high altitude, followed by a rapid decent (which would cause condensation, requiring demisting) for low level tactical photography. The camera ports were to be optically flat with movable flat covers to prevent degradation of photos by dust, grime or insects, post take off and low level. The camera pods would be jettisonable if required.

Camera equipment would be based on an three camera installation; two Oblique Camera (70mm film), both depressed 15 degrees horizontal, with one facing 90 degrees to the travel of the aircraft, one facing forward in direction of travel, and a Vertical Camera (5 inch Film) for straight and level high speed attitude. Where upon a maximum range sortie to a target is required, inclusive of a fifty mile low level dash to target from high altitude, all four tanks fitted would be dropped.

Further to this, an Audio recording device would have also been added as the equipment fit to allow the Pilot to dictate reconnaissance observations in sync with film exposure, in calibration.

With discussions with CAC Engineers, it was found that the 15 degree depression angle would have to be increased due to the positioning of the inboard and outboard drop tanks.

The non-preferred Reconnaissance Philosophy of “unarmed and unafraid” would have been avoided, with 30mm Aden cannons being loaded at a reduced round load. Sidewinder missiles would not be carried on these missions. However, whilst on the ground, the camera pod would have been required to be removed (timed to take ten minutes) to service the links and ammunition of the 30mm Aden cannons (then a further 15 minutes to reinstall the pod after reloading).

A total of ten camera pods would be manufactured and delivered to the new fourth operational Sabre Squadron who would have been primarily a day fighter reconnaissance role squadron. A unit equipment of sixteen CAC Sabre Mk 32 aircraft modified for the carriage of the reconnaissance pod.

These aircraft were part of the final batch of CAC Sabres to be built from 1959 to 1961, incorporating the ability of carrying four long range fuel tanks and other improved engineering changes. CAC advised that if testing went ahead, it would have too late to incorporate these recce changes to that were in production, thus post built modifications to existing aircraft would be required. Sabre Modification: EMR 27-256 dated 27th July 1960 was issued.

As part of the discussion with CAC, the first off production kit would have been readied and used in tropical trials at Darwin RAAF base between November 1960 and March 1961.

The operational target date for the system would have been June 1961.

The Camera installation also was changed by June 1960, incorporating one forward oblique, two side oblique Vinton F95 Cameras and one vertical Maurer KB-8 Camera.

An earlier story must be inserted here, which later joins up in the piggy back design base for the recce pod.

In mid 1954, the RAAF became involved, on invitation by the UK Ministry of Defence to provide one, later two, CAC Sabres for Blue Jay Infrared Air to Air Missile trials at Woomera. The original aircraft to be used, the RAF Supermarine Swift was considered a failure by 1955.

The RAAF were, by default also interested to provide the CAC Sabre with an Infrared Air to Air Missile to bring down bombers.

The first airborne launch of Blue Jay took place in 1955 from a de Havilland Venom, the target drone (a Fairey Firefly) being destroyed. The Sabre development program began at Woomera in May 1955¹⁵⁰, starting with the standard carry-over flights and the launching of six fixed-fin Blue Jays from pylons fitted under the wings of the two CA-27 Sabre carrier aircraft.



RAAF pilot Squadron Leader H. V. Shearn of ARDU fired most of those from the Sabre, shooting down the first Jindivik destroyed over Range E.

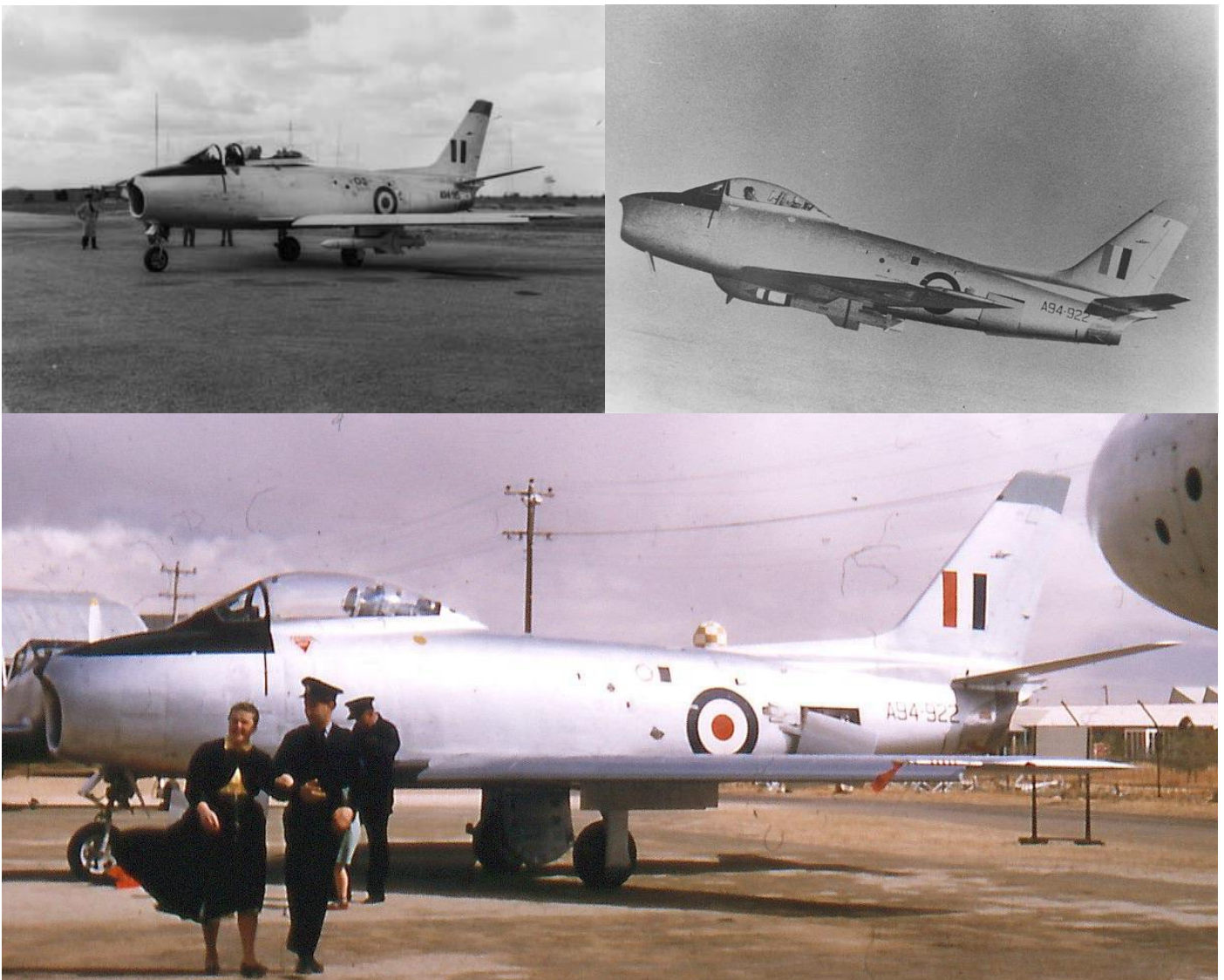
The Blue Jay Mk.1 entered service in 1957 with the RAF, where it was renamed Firestreak. Firestreak was deployed by the Royal Navy and the RAF in August 1958; making it the first effective British air-to-air missile. Blue Jay R&D trials were undertaken from 1955 to 1958.

Eventually the AIM-9B Sidewinder was selected by the RAAF in 1961, making the Blue Jay Pod installation redundant on CAC Sabres, A94-915 and A94-922.

Both of these, originally CA-27 Mk 30s, were modified, sans 30 mm Aden Cannon installation, during the testing phase from 1955 to 1960. A94-915 and A94-922 were sent to 1AD ex 2 Air Trials Unit to have this fitment removed and to have operational equipment, including 30mm Aden Cannon re-installed, from May to October 1960.

By coincidence, having been made redundant, both Blue Jay Pods and handling trolleys were purchased on the 31st May 1960.

By then, both of the original Blue Jay modified aircraft, after modification to CA-27 Mk 31s standard, would be later issued to 81 Wing by June 1962 for standard Squadron service.



In July 1960, it was decided to modify a Sabre aircraft at the ARDU to take the reconnaissance configured Blue Jay Pod and a ventral fin modification.

The latter modification was fitted to A94-915 when fitted with the Blue Jay Pod during later tests, to improve lateral stability in flight.

Research has narrowed down the identity the then three in use CAC Sabre Mk 31/32s used; A94-910/949/362



CA-27 Sabre Mk32 A94-362 pictured on right ARDU during 1961. Photo Rod Farquhar

By virtual fact only one CA-27 Sabre Mk32 was on strength during the period January 1961 to November 1961, for vibration tests, it would be fair to say that these were conducted on A94-362.

These trials, the fitting a Blue Jay Pod, still with 30mm Aden cannon installed, with a longitudinal extra fin installed were conducted successfully.

With the forthcoming procurement decision on the Mirage coming, the ASR was suspended in October 1960 and finally cancelled in February 1963.

The Mirage IIIO Reconnaissance aircraft

However, the Joint Intelligence Committee and Army disagreed, so a further RAAF study (Air Staff Requirement Phot/13) in providing a Tactical Reconnaissance aircraft was initiated in January 1964. This centred on the purchase of a minimum force of eight Mirage Reconnaissance aircraft, in addition of fifty Fighter Mirage IIIO(F) and fifty Ground attack Mirage IIIO(A), then on order.



Alternatively, due to Project costs, consideration was given for the last eight of the Mirage IIIO (A) production lot, **A3-93 to A3-100**, to be built as Mirage IIIO(R) variants; with one fuselage supplied directly overseas by France's GAMM, and the balance at GAF Fishermans Bend. The first delivery could be made by July 1965.

From a 1964 prospective, forward operational basing and the scarcity of suitable airstrips and operating bases other than from the Continent of Australia (range limited) precluded the basing of a Mirage IIIR type unless well forward in say PNG and islands in the vicinity in relation to Indonesia.

Those base infrastructures did not exist at that time in PNG for the then sophisticated Mirage IIIO(R). The Mirage IIIO(R) production lot of eight was then soon dismissed as too expensive and limited.

During 1964, Computing Devices of Canada, (CDC), presented and discussed with the RAAF details on the VICOM Tactical Reconnaissance Pod (To be used on CF-104Gs) that could be fitted to the Mirage IIIO(A).



Its drawbacks included no night capability, no image motion compensation in the Vinten Cameras, and the lack of standardisation with US systems since the film was 70mm rather than the new 1962 standardised 5 inch film AS used in the USAF/USN Services.

Air Staff Project Paper No 3/66, for a Tactical Reconnaissance Capability for Mirage IIIO (A) Aircraft was put forward on the 22nd March 1966, which would be later approved and based on the 530mm longer Mirage V Nose cone, modified and fitted for reconnaissance payloads. It would provide full night capability and a greater variation of camera positions and focal lengths than the VICOM pod system.

Eight nose recon cones were to be manufactured and fitted with Fairchild KA-56 Panoramic camera systems (Its use listed as 40000feet maximum) from 1968.



Air portable processing and interpretation cabins, (Under construction at 1AD at Laverton) along with staffing (two Photographers, two photographic interpreters and one Air Photo Plotter), were to equip each of those designated squadron.

This Air Staff Establishment would not be realised by No 3 Squadron until after March 1971.

By the end of 1967, it was planned to have a day reconnaissance capability in both No 77 Squadron RAAF based at Williamtown NSW, and in No 3 Squadron RAAF, which would be later based at Butterworth, Malaysia. Each

Squadron would have a flight of four configured Recce Mirages. In parallel, in 1968 the title of 82 (Bomber) Wing was changed to 82 (Strike Reconnaissance) Wing, perhaps an inkling that reconnaissance would now be afforded more priority.

No 75 and No 76 Squadrons RAAF concentrated on Mirage III O (F) all-weather air defence as they were equipped with the Cyrano IIA Radar, but without Doppler and a Radar Altimeter.

Some of No 3 Squadron RAAF Mirage III O (A) had been previously ferried to GAF during 1968 for fitment of associated Recce Cockpit Modification fitment and wiring harnesses, which would allow these particular nominated aircraft to be fitted with the Recce Nose cone as required.

By April 1969, it was decided to retain some seven of the planned nose cones with No 77 Squadron RAAF within "C" Flight and develop techniques and Standard Operation Procedures before transferring the remaining three nose cones later to No 3 Squadron RAAF, then in Butterworth.



On the 28th November 1969, 77 Sqn RAAF carried out its first photo reconnaissance mission, using the KA56B camera. This mission was flown by SQNLDR Treadwell in A3-79 above.

FAC Delta



However, the use of the Squadron's Dual Seater above, A3-107, on a few Tactical Reconnaissance Missions during May 1970 has to be mentioned. These include arriving before Dive Bombing Single seaters at bombing range MSD42 to warn fishing vessels to vacate area, before remaining overhead to observe and record bomb plots with Mark One Eyeballs and Binoculars by the back seater ¹⁵¹.

The first "tactical" use of the recce nose came during Exercise Caster Oil, at RAAF Tindal (then a bare bones Base) in January 1970. At this time, "C" Flight had just two Mirage III O (A) fitted with Recce noses and just four pilots.

It wasn't until July 1971 that No 77 Squadron's Fighter Reconnaissance Flight had completed the introductory phase of its introduction (including a successful deployment with its Photographic Processing and Interpretation Facility) to Amberley in support of Exercise "Grand Storm". Two conversion courses had been completed by then. Thereafter, and a few minor exercises, the Fighter Reconnaissance Flight was considered operationally ready for deployments.



By mid-1971, No 2 Squadron Canberras had returned from Vietnam, and the unit changed from bombing to photographic roles and fighter target support. This involved WG CDR Klaffer from Operational Command (an ex-RF-4C pilot) running a tactical reconnaissance course for No 2 Squadron aircrew (assisted by No 77 Squadron) at Amberley.

This was still using oblique F24 cameras, but a forward oblique F95 was also trialled. This tactical low-level photography continued over 1972, but then any hope of retaining the leased F-4Es for converting some into recon was given up, with the imminent arrival of the F-111C in 1973. Any photography now concentrated on survey work, and four Canberras were converted from 1973 to carry the Wild RC.10 survey camera in the bomb bay, with the NF.2 sight protruding below the cockpit.

From February 1972, No 77 Squadron RAAF reduced its three flights reduced to two flights: "A" Flight remaining in the Fighter/Ground attack role, with "B" Flight becoming the Fighter Reconnaissance Flight. *Squadron strength of eighteen Pilots remained the same, with In-use Establishment of twelve aircraft.*



In the mid 1970s, a locally-developed modification supplemented the KA-56 installation with a further two cameras.

With two Vinton F-95 split vertical cameras installed in a specially modified gun bay tank, this now provided a medium altitude photographic ability to the Mirage, though at the expense of not now having any use of the Gun Bay tank for its intended role, fuel to extend its range.

Known Recce Mirages were A3-55/57/59/61/69/74/79/80/81/83/84/85/87/88/94/97/98/99/100 (19 Aircraft) of which records show they had recce mods (Incorporated during Mod Program No 4 and Mods 556/564/642) and seemingly Recce noses fitted at one time or another. Confirmed by Photos is exemplified below, with A3-55 fitted during service and without later when retired.



With the passing out of the Mirage planned in the mid 1980's with the introduction of the F/A-18A as the RAAF's Multirole aircraft, consideration in the late seventies in maintaining a limited Tactical Reconnaissance was included in the decision in making of its purchase. That will be covered in Part 3 along with the RF-111C

References:

- NAA: A.S.R. Phot 13 Fighter Reconnaissance Capability Technical Aspects Part I -Sabre
- NAA: A703,571/3/1 P1 Photo Reconnaissance – Policy
- Aircraft Research and Development Unit (ARDU) - RAAF] - Laverton - Flight test report - Mirage photo reconnaissance nose cone - Test Schedule 1588/3/35 Contents date range Jun 1968 - Jun 1968
- Aircraft Research and Development Unit (ARDU) - RAAF] - Laverton - Engineering report - Mirage photoreconnaissance aircraft - installation of tape recorder Contents date range Nov 1971 - Nov 1971
- A50 History Sheets for No 3 and No 77Sqn RAAF 1960-1980's





Curtiss Corner: P-40M-5 A29-356



P -40M-5-CU USAAF FY 43-5654 was ordered under USAAF W535-AC30491, diverted to Australia as part of RAAF Case 126 Indent 2012A RFDA-322A, Diversion 172-A.

Numbered on the shipping order as part of Case 126 Indent 2012A RFDA-322A, Diversion 172-A, P-40M-5 Aus 3 #25, as one 35 sent of this allotment (260 P-40M-5s were built by Curtiss Wright).

These were also the first to be fitted with carburettor bypass grill filters on the forward cowl forward of exhaust bank. It was the 25th P-40M-5 allotted to the RAAF per their second shipment to Australia.

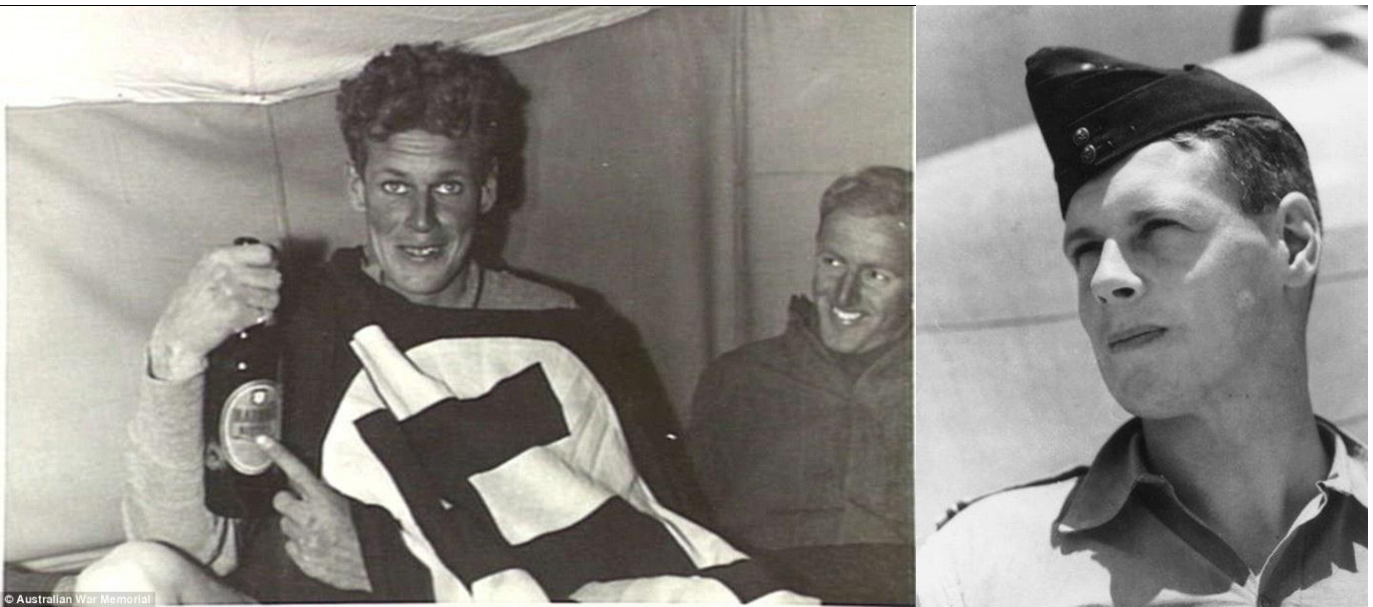
Earlier, another four RAAF P-40M-1s (43-5409 Aus 2 #2 /43-5421 Aus 2 #10 /43-5433 Aus 2 #19/43-5436 Aus 2 #22) never made it to Australia, as they were sunk on route in the Caribbean Sea by a German U-Boat .

Received at 2AD Richmond ex USA on the 17/04/43 and was numbered in the RAAF Stores Category "A" as A29-356. It was then allotted and received by No 76 Sqn RAAF, ex 2AD, on 13/05/43. Coded: SV-V.

The aircraft was flown almost exclusively by Wg Cdr Wilfred Stanley Arthur Serv# 565, who after commanding No 75 Sqn RAAF earlier, was appointed as, Wing leader (Pilot), at No 71 Wing from 14th June 1943 which was based at Kiriwina.

The Commanding Officer of No 71 Wing was Wg Cdr Gordon Steege, who normally flew any available P-40M. He was noted to fly P-40M's A29-341 SV-L/A29-342 SV-G/A29-364 SV-B etc, during November 1943 alone.

Both of these pilots had previously served in No 3 Sqn RAAF in the Middle East during all of 1941, flying Hurricanes and later Tomahawks.



© Australian War Memorial

Hard to believe it's the same man, picture of F/O Arthur when with No 3 Sqn RAAF earlier in mid 1941, and later right as F/Lt Arthur who on his return to Australia wore DSO, DFC and MID decorations.



On 31/10/43 Wg Cdr Wilfred "Wilf" Arthur was detailed as Lead (Red 1) of an offensive fighter patrol of two four aircraft flights (Call Sign "Easter", Red and Blue Sections) at Cape Oxford. The detail took off from Kiriwina at 1225hrs local. Off Cape Jacquinot, a barge was located and strafed by Blue Section.

On reforming Blue Section, at 1440hrs local, a green painted Betty was sighted and attacked by Red section, in pairs. With the port engine smoking, the Betty was seen entering cloud and disappeared. Meanwhile whilst these attacks were going on, Blue Section noticed a flight of two Hamps nearby, but did not engage.

A further flight of six Hamps were noticed on the reforming of Red Section after their attack on the Betty. Despite Blue Section engaging and expending munitions, no aircraft on either side were damaged.

On return to Base, the G4M Betty was claimed as a probably destroyed by Wg Cdr Arthur, over the Jacquinot Bay area of New Britain, some 15 miles SW of Cape Oxford in this aircraft.

Five days later on the 05/11/43, at 0605hrs and accident took place when 79 Sqn RAAF Spitfire JG884 (A58-177) UP-K, as lead aircraft of a section of four Spitfires taking off from Kiriwina was hit from behind by A29-356, piloted by W/C Wilfred Stanley Arthur.

The Pilot of Spitfire, F/Sgt Ian Hope Callister Ser#408963 was killed.



The wreck of Spitfire MkVc A58-177

A29-356 exploded into flames, and with nose and wing separating from forward of pilot's seat pan and cockpit panel areas.

After the wreckage had stopped, Arthur had been severely burned on his face, arms and hands. He would be evacuated to Darwin RAAF Station within days to undergo burns treatment.

The wreck of A29-356 was received by 26 Repair and Salvage Unit ex 76 Sqn RAAF on the 17/11/43. AMSE Approval to write off per File# 9/16/1201 dated 09/11/43 which included writing off Allison V1710-81 Engine #19770 that was installed at the time.



The wreck of A29-356 SV-V

A29-361 replaced in 76 Sqn RAAF service as SV-V within days, after returning from 26RSU after repairs from a belly landing some weeks before.

Eventually W/C Arthur after his recovery from plastic surgery and a spell at 2 OTU would resume Combat flying duties as CO of 81 Wing in 1944 and later CO of 78 Wing in 1945.

By War's end, this Citizen Air Force Pilot, who had joined the RAAF on the 3rd September 1939 straight from Boarding School from Warwick, had been awarded the Distinguish Service Order (23rd March 1943) whilst CO of 75 Sqn RAAF), the Distinguish Flying Cross (26th January 1942: shooting down four enemy aircraft on one sortie over Bir El Gobi Area) and two Mentioned in Dispatches (1st January 1942 and 16th June 1944).

He was also credited with ten enemy aircraft officially, though unofficially, he was in fact credited with the destruction of a total of nineteen and a half aircraft per claims submitted.

Earlier in late 1941, he had met his future wife, 20 year old Lucie Petraki, a Greek national whilst he visited Cairo on leave whilst assigned to No 71 Operational Training Unit, RAF from No 3 Squadron RAAF converting to Kittyhawk Mk1s. He married her in Alexander, Egypt on the 24th December 1941. A story after the war was spun how on return from the Middle East, she was stowed aboard their ship and dressed up as a member of the 2nd AIF in order to get her home. A legend of a story, but whether it was true only they know.

Post War, in 1946, he was demobilised and resided in Darwin at first. Later he had a successful career in the 50 and 60's as a Consultant Australian School of Pacific Administration, and under the Colombo Plan established a Dairy Farm in South Vietnam. As stories go, he, his wife and their four children resided at Ben Cat, in the highlands (War Zone D) on a Dairy Farm in 1961.

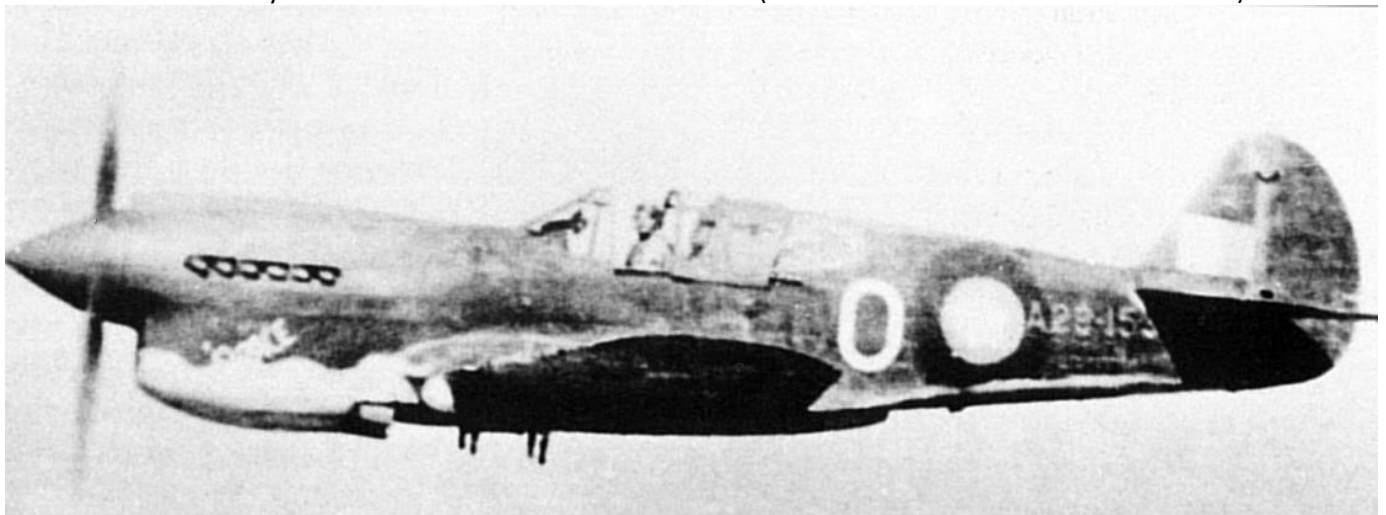
He was captured by the Viet Cong at this time, and was released after a ransom was paid by fellow Agriculture Consultant, Laurence Crozier. The ransom paid? It was not cash, but rather an Olivetti Typewriter.

Wilf, famous for driving about in his Pale blue Pontiac, remained there for some years up to 1966 running another highly profitable business, providing duck feathers for Life Vests for the United States Navy. Returning to Australia by 1967, he became an administration manager for Geopeko, the exploration unit responsible for discovering the Ranger uranium deposit at Jabiru, Northern Territory.

Wilf Arthur died on the 23rd December 2000, at the age of 81.

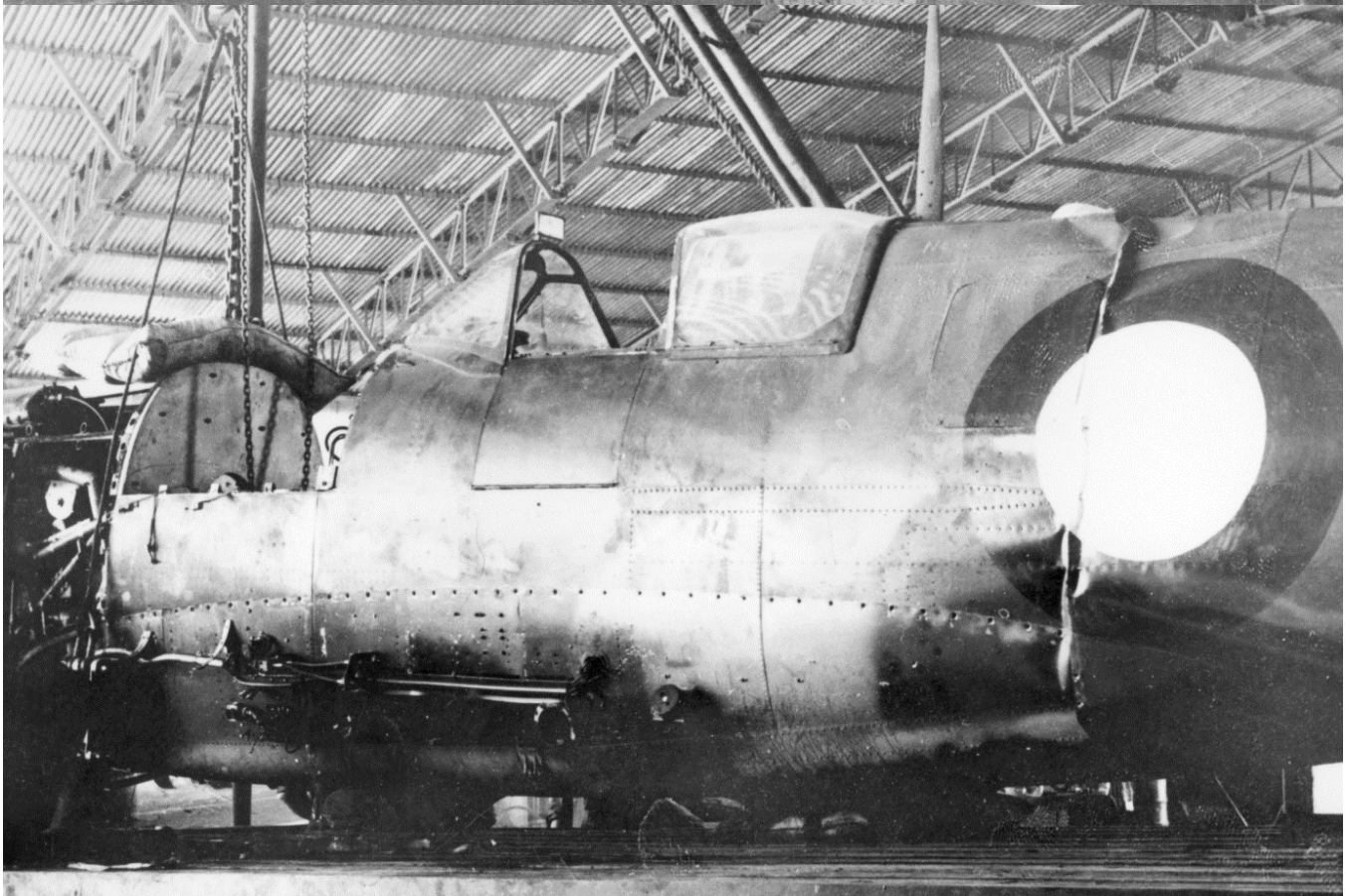
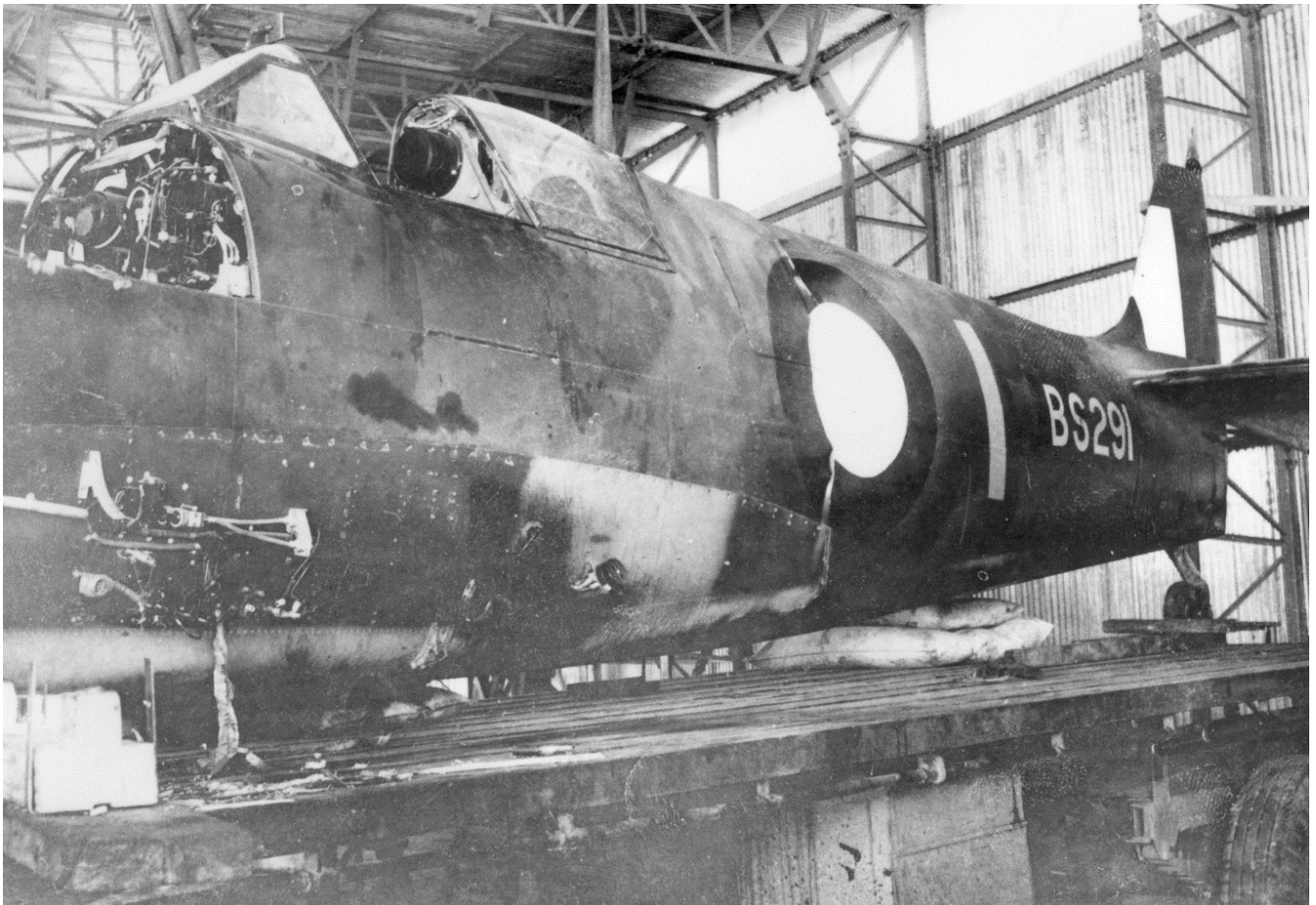
His DSO was awarded during his days as CO of 75 Sqn RAAF. One of his favourite 75 Sqn Aircraft of the time, survives this day at the AWM: P-40E-1 A29-133. As Squadron Leader, he flew 'Polly' during the last major Japanese air attack on Milne Bay on the 13th March 1943. He was awarded a Distinguished Service Order for his leadership and courage during this action, making several passes on enemy aircraft even though his guns had jammed.

Another favourite Kittyhawk of Wilf's: P-40E A29-153 "Oracle" (with Cec Norman at the controls below).



Odd Shots: Select Spitfire Vc Aircraft Histories and Pictures. @ Gordon Birkett 2019

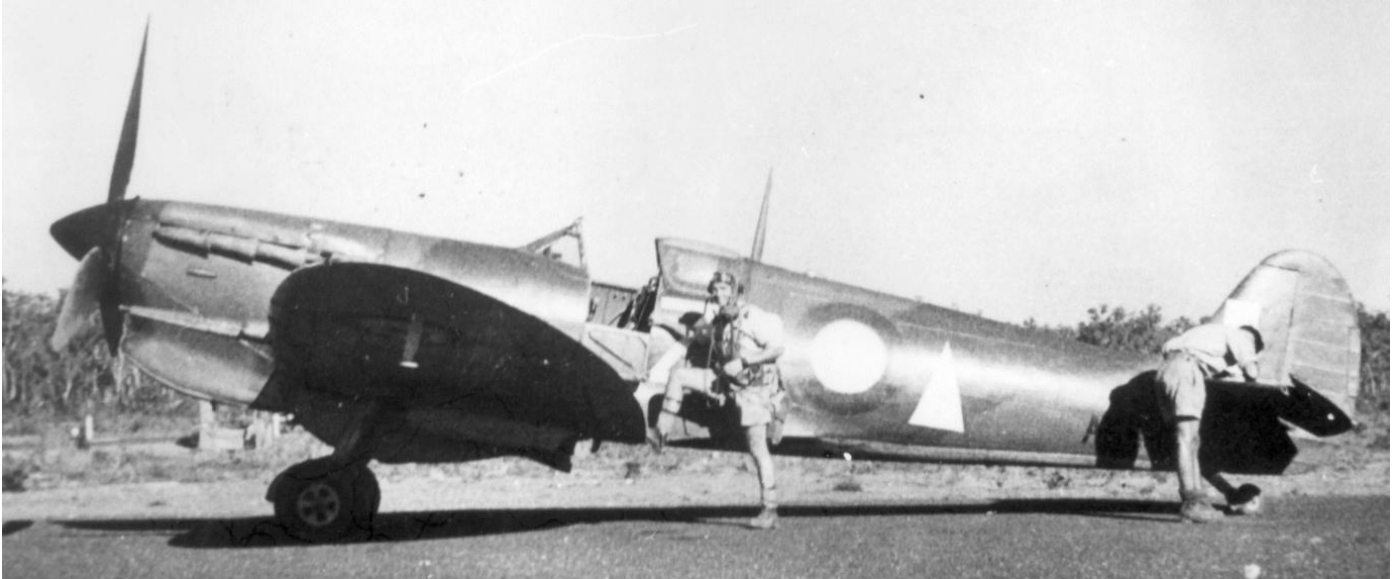
A58-100



Spitfire Mk.Vc BS291/A58-100 Pictured being converted to an Instructional Airframe.

Rec 2AD ex UK 21/11/42. Rec 2OTU ex 2AD 15/12/42. Marked "1" Accident 05/01/43 when aircraft was ground looped following normal landing after veering to the right. Aircraft ended on nose. Pilot; Sgt W.E. Nichterlein Serv#4161041 slightly injured (Later in 452Sqn RAAF). Rec 2AD ex 2OTU 15/01/43. AMSE Approval per File#9/16/649 to be converted to Instructional Airframe#1, 11/02/43. Converted to components 17/10/45.

A58-103



Spitfire Mk.Vc BS305 A58-103 2/42-8/42 Arrived by SS Tekoa 02/12/42. ZP-Delta
This was the final MkV variant built by Supermarine. F.F. 23/08/42 UK . 6MU 26/08/42, 215MU 6/09/42
shipped to Australia 17/09/42. Arrived 02/12/42.

Rec 1AD ex UK 06/12/42. Rec 7AD ex 1AD 20/01/43. Issued 54Sqn RAF ex 7AD 24/02/43. Accident 1440hrs
27/10/43 on landing at Darwin Civil, when port main collapsed after air test. Pilot; F/Sgt Kelman RAF not
injured. Rec 7RSU ex 54Sqn RAAF 29/10/43. Rec 452Sqn RAAF ex 7RSU 29/11/43. Rec 7RSU ex 452Sqn
RAAF 26/03/44. Rec 457Sqn RAAF ex 7RSU 08/04/44. Coded ZP-Delta.

Rec 14ARDRP ex 457Sqn RAAF 01/08/44. Rec 85Sqn RAAF ex 14ARD RP 02/10/44. Landing Accident
Guildford WA 20/11/44 when aircraft swung to port, causing undercarriage collapse and ground looped.
Pilot; P/O M.J. Green slightly injured. AMSE Approval per File#9/16/2196Min#2 to be convert to
components 29/12/44. Issued 4CRD ex 85Sqn RAAF 05/01/45. RR Engine M46 #92627.

A58-130



SpitfireMk.Vc EE735 A58-130 9/42-2/43 SS Empire Strength 11/04/43 "130" Rec 2AD ex UK 08/04/43. Rec 20TU ex 2AD 04/05/43. Accident 22/07/43, when the aircraft swung to port on landing, and ran off strip at Mildura. Aircraft's starboard undercarriage collapsed, with aircraft finishing on Port leg. Pilot, F/O A W Moore not injured.

It was repaired. Marked as "130" and in natural metal. Rec 80TU ex 20TU 09/11/44. Accident 1330hrs 05/07/45 when pilot undershot landing at Parkes NSW, causing damage to wings and undercarriage following collapse. Pilot, F/Sgt A.G. Oliver slightly injured. AMSE Approval to convert to components per File#9/16/2694 29/07/45.

A58-142



Spitfire Mk.Vc EE849 A58-142 9/42-2/43 Arrived SS Sussex 16/04/43 Coded UP-E Underscored, then underscore deleted, later recoded UP-O⁴ .

Rec 1AD ex UK 22/04/43. Issued 79Sqn RAAF ex 1AD 06/06/43. Coded UP-E Underscored. Accident 21/09/43 when taxiing along taxiway (Code name " Byproduct"; Kiriwina), collided with truck damaging port mainplane. Pilot, F/Sgt D A Brinlington Serv#408842 not injured.

Up to December 1943, A58-142 was coded, UP-E Underscored. The underscoring would be applied when there was already a UP-E coded in use, as in this case by A58-140. In late December 1943, A58-142 would be re-coded as UP-O#4.

On the 10th February 1944, following having oil throwing up on the windscreen some eighty miles into a escort mission from base, F/Sgt N Faulks, piloting A58-142 as Blue Four, on returning to base suffered a in-flight engine fire on approach.

He was forced to land UP-O some 100 yards off the end of the strip. Pilot was only slightly injured. Rec 12RSU ex 79Sqn RAAF 13/02/44.

AMSE approval to Write-off per File#9/16/1407 Min#2 09/03/44. EngRR Merlin M46 #92647(This engine would be re-built and installed into A58-143 May 1944)

A58-143

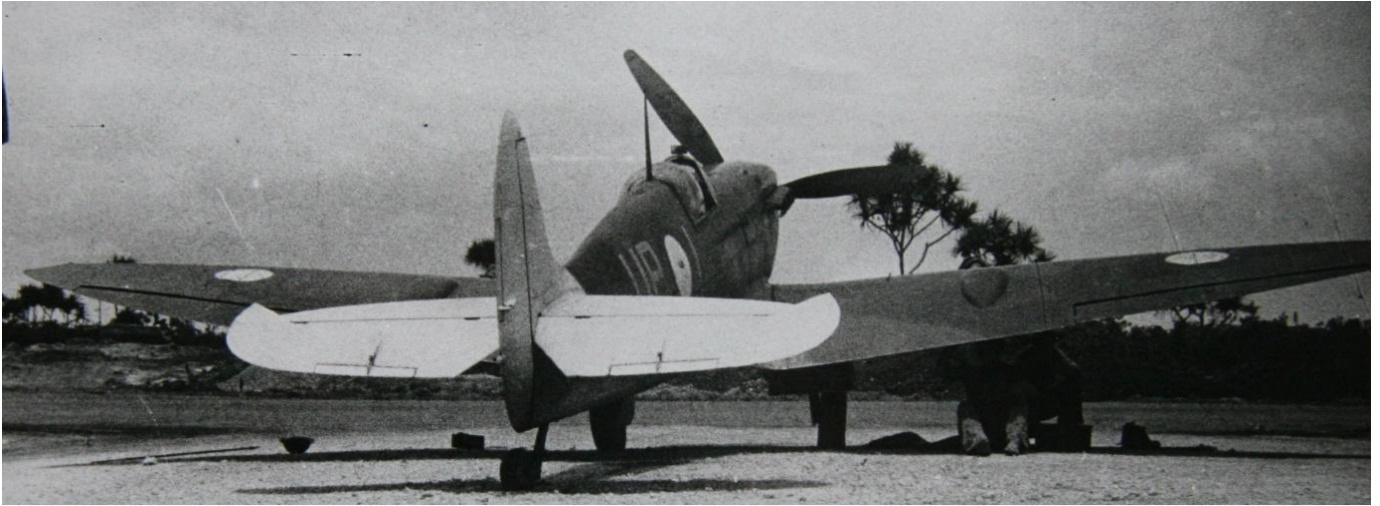


Spitfire Mk.Vc EE850 A58-143 9/42-2/43 Arrived on SS Sussex 16/04/43 Coded UP-Y with Pegasus motif "Dawn" appearing on second picture.

Rec 1AD ex UK 20/04/43. Issued 79Sqn RAAF ex 1AD 06/06/43. Coded UP-Y. It would later sport a large Pegasus Motif and named "Dawn". Flown in September 1943 by Wg Cdr Pelly, CO 73Wg. Accident 23/09/43 when aircraft's mainplane was slightly damaged during taxiing. Allotted 26RSU ex 79Sqn RAAF 23/09/43.

Allotted 79Sqn RAAF ex 26RSU 23/09/43. Rec 6AD ex 79Sqn RAAF 16/06/44. Rec 85Sqn RAAF ex 6AD 23/11/44. AMSE approval per File#9/16/2908 following survey to convert to components 12/10/45. Eng RR Merlin M46 #93647.

A58-165



Spitfire Mk.Vc ES232 A58-165 8/42-12/42 Arrived SS Empire Strength 11/04/43 UP-L "Boxing Bambi", with gloves and Indian Head dress Motif" Rec 2AD ex UK 29/03/43. Allotted Reserve Pool 7AD 16/04/43. Canc. Rec 1AD ex 2AD 23/04/43. Rec 79Sqn RAAF ex 1AD 06/05/43.

Coded UP-L. (Had Boxing Kangaroo Motif within circle under port exhaust cowl)Received streamline cowling modification 1AD (san Trop) 02/06/43. Returned to 79Sqn RAAF 06/06/43.Later re-fitted with Volkes filter.

Accident 05/12/44 when ferrying to Oakey when aircraft forced landed at Tipton Strip , Cecil Plains Qld when engine overheated during travel flight along with A58-200(F/O R V Day).Pilot, W/O J A Haynes uninjured. Rec 6AD ex 79Sqn RAAF 06/12/44.

AMSE File 9/16/1687. Repaired. Issued and received 6AD 22/11/45. Authorised for write off 22/05/46. Passed to DAP 26/11/47. Struck off 15/11/48.

A58-169

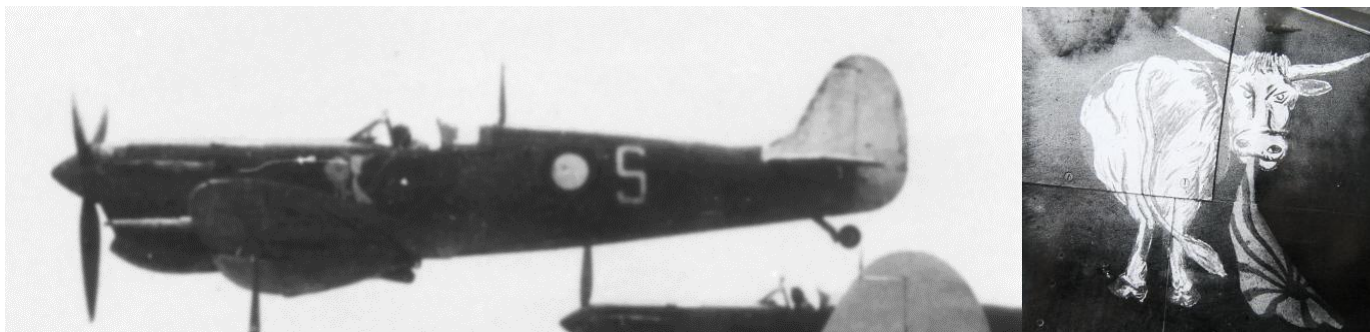


Spitfire Mk.Vc ES307 A58-169 8/42-12/42 Arrived on SS Empire Strength 11/04/43.

UP-X over and underscored

Rec 2AD ex UK 29/03/43. Rec 1AD ex 2AD 23/04/43. Received streamline cowling modification 1AD (sans Trop) 23/04/43. Returned to 79Sqn RAAF 06/05/43. Coded UP-X. Rec 1AD ex 79Sqn RAAF 02/06/43. Rec 79Sqn RAAF ex 1AD 06/06/43. Accident 26/06/43 when after having taken off for a one hour gun test flight, could not select undercarriage on landing. Pilot made a wheels up landing at Milne Bay. Pilot; Sgt G A Chomley Serv#418232 was uninjured. (Code name for Kiriwana was Drake Force) Fitted RR Merlin M46 was #93069. Rec 26RSU ex 79Sqn RAAF 22/08/43.

Rec 79 Sqn RAAF ex 26RSU 30/10/43. As LZ844 (A58-213) with 79 Sqn RAAF was now also coded as UP-X, ES307(A58-169) also coded as UP-X, was modified with a white overscore below and another above the grey X, with new Volkes Filter in natural metal cowl. RR Merlin M46 #92661. Rec 12RSU ex 79Sqn RAAF 28/10/44. Rec 6AD ex 12RSU 26/11/44. Rec 8OTU ex 6AD 07/01/45. Rec 6AD ex 8OTU 27/11/45. Authorised for write off 22/05/46. Passed to DAP 26/11/47. Struck off 15/11/48.



Spitfire Mk.Vc JG912 A58-180 12/42-4/43 arrived on SS Tijuga 13/04/43
 UP-S "Bull with Jap Flag" motif. Rec 1AD ex UK 15/04/43. Rec 79Sqn RAAF ex 1AD 07/05/43. Rec 1AD ex 79Sqn RAAF for Temperate Cowling Modification (Tropical Vokes intake removed) 27/05/43. Rec 79Sqn RAAF ex 1AD 01/06/43. Coded UP-S and later sported a "Bull with it clasping a Jap Flag in its mouth" motif on port side. Accident 20/12/43 when tyre blew on landing after striking flare path at Kiriwina, causing aircraft to swing off strip. Pilot; F/O G W Voges Serv#410760 not injured. Repaired in Unit. Rec 6AD ex 79Sqn RAAF 16/06/44. Stripped of paint by 6AD. Accident 1415hrs 17/01/45, following a non-operational test flight, when forced landed 100 yards on north end of NWSE Landing Strip at Oakey QLD. Aircraft was destroyed by fire. Pilot; F/O B A Bremner Serv#408792 of 6AD was un-injured. Rec 3CRD ex 6AD 28/01/45. AMSE Approval per File#9/16/2344 dated 14/02/45 to convert to components.

Did you know, besides Shipping losses, that a 260th Spitfire Mk Vc arrived in Australia?

RECORD CARD—AIRFRAMES, AERO ENGINES, MECHANICAL TRANSPORT AND MARINE CRAFT. R.A.A.F. Form E/E. 88. (June, 1938.)

Type	CAPSTAN	No. E. S. 731	Chassis } Airframe } Fitted Engine } MERLIN XLVI	No. _____	
Order No.	_____	_____			12.3.43.
Received from	UNITED KINGDOM	Date Received			

HISTORY (MOVEMENTS, CASUALTIES, Etc.).

Date.	Details.	Authority.	Date.	Details.	Authority.
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Surprisingly, it was never allotted an A58 Serial, but was used by 20TU. We have no Photo either, only Log Book entries and accident record. Spitfire MkVc EE731 9/42-2/43 Arrived on SS Empire Strength 11/04/43 "31" Rec 2AD ex UK 29/03/43, noted as 12/03/43 on Capstan Card. Rec 20TU ex 2AD 04/05/43. Marked as "31". NB* This Spitfire was never given an A58 Serial. Flown 21/07/43 per log books of F/Lt H A Kerr Serv#411789. Accident 13/08/43 it swung off during landing from Mildura and damaged wing when starboard u/c collapsed despite Pilot trying to correct. Aircraft tipped on nose and fell back. Pilot; P/O D J Murray not injured. AMSE approval to convert per File# 9/16/1020 Min#3 as engineering instructional airframe and converted as such given 10/09/43. Aircraft became Instructional Spitfire fire #2. Disposed, when passed onto DAP, 27/11/46.

A58-184



Spitfire Mk.Vc JK229 A58-184 12/42-4/43 SS Sussex 16/04/43
Coded UP-W^{III} "Nipps Emergency Sea-trip"

Rec 1AD ex UK 20/04/43. Rec 79Sqn RAAF ex 1AD 12/05/43. Allotted 1AD ex 79Sqn RAAF 19/05/43.
Accident 24/05/43 repairable at Unit. No Details on pilot, maybe with 1AD at time. Rec 1AD ex 79Sqn
RAAF 11/06/43. Rec 13ARDRP ex 1AD 04/07/43.

Rec 79Sqn RAAF ex 13ARD RP 19/08/43. Coded UP-W^{III} and later marked "Nipps Emergency Sea Trip" on
port forward fuselage, showing crashed jap fighter with Monkey climbing into raft motif. Rec 13ARD ex
79Sqn RAAF 21/06/44. Rec 6AD ex 13ARD 28/09/44.

Rec 4AD RP ex 6AD stripped of paint 19/03/45. Rec 4AD ex 4AD RP 21/03/45. Rec 85Sqn RAAF ex 4AD
30/06/45. Rec 17RSU ex 85Sqn RAAF 27/07/45. AMSE Approval to convert to components per File
#9/16/2856 Min#2 4/10/45.

Rec 4CRD ex 17RSU 23/10/45 for conversion.

Mid Air A58-214 and A58-63



Spitfire Mk.Vc LZ845 A58-214 3/43-6/43 SS Kent 08/07/43 QY-? Rec 1AP ex UK 09/07/43. Rec 1AD ex 1AP 14/07/43. Rec 452Sqn RAAF ex 1AD 25/07/43. Accident 1635hrs 02/08/43 when on landing at Strauss Strip, as Troppo Red 3, the gear was not locked, causing the aircraft's undercarriage to collapse on landing. Pilot;F/O G A Mawer Serv#403112. Rec 7RSU ex 452Sqn RAAF 06/08/43. Rec 452Sqn RAAF ex 7RSU 23/08/43. Coded QY-? as LZ845. Rec 7RSU ex 452 Sqn RAAF 09/09/43. Rec 54Sqn RAF ex 7RSU 18/12/43.

Non operational loss when A58-214 and A58-63 collided in flight above Humpty Doo, some 10 miles East north East of Strauss Strip 1530hrs 13/01/44. A flight of 4 Spitfires (A58-214/63/221/27) were practicing interception with 1 Hudson and 2 Beauforts of No2 Sqn RAAF. A58-63 collided with A58-214 which resulted in the tail unit of A58-63 to become torn off, and one of the main planes of A58-214 completely torn off, resulting in both aircraft to crash.

Pilots; A58-214: F/Sgt John Hoyle Whalley Serv#1527082 RAF (Clitheroe, Lanes UK) and A58-63: F/Sgt James Basil Gibbs Serv#1320096 RAF (Colchester, Essex, UK) , both killed. RR Merlin M46#155389. Rec 7RSU ex 54Sqn RAF 17/01/44. As per AMSE approval 9/16/1351, converted to components 16/03/44.

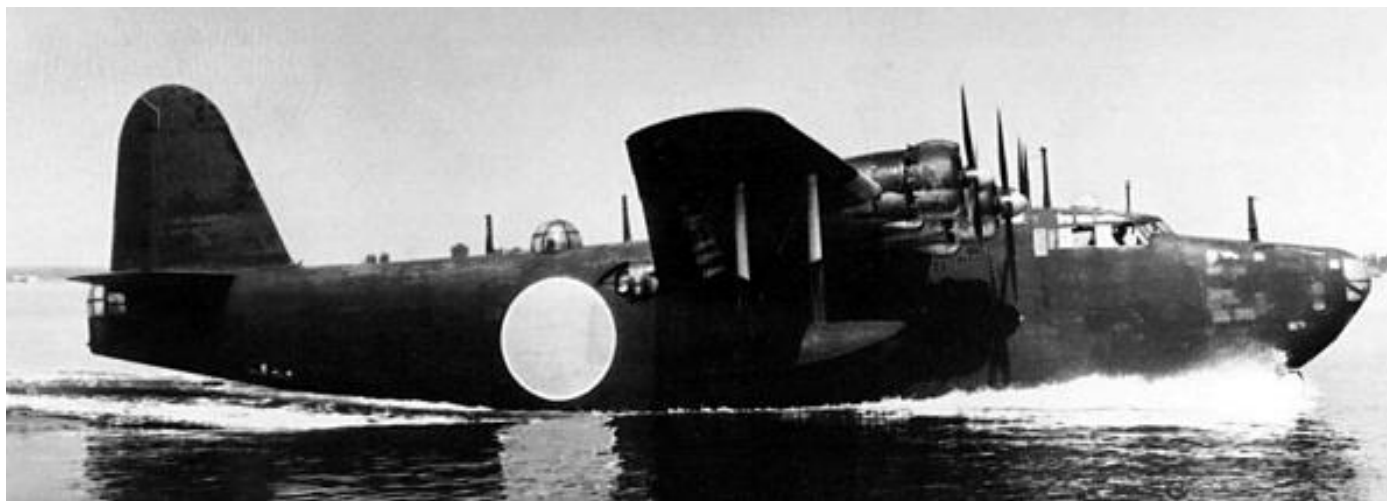


Mk.Vc BS164/ A58-63 2/42-8/42 SS Hoperidge 23/10/42 DL-K Rec 1AD ex UK 04/11/42. Rec 54 Sqn RAF ex 1AD 30/11/42. In-service with 54Sqn RAF 1943. Coded DL-K with nip glasses motifs on front cowl. Non operational loss when A58-214 and A58-63 collided in flight above Humpty Doo, some 10 miles East north East of Strauss Strip 1530hrs 13/01/44. Aircraft remains held May 1998 by Peter Crose, Melbourne.

Odd Shot Stories: Pearl Harbor; the hidden truths of Japanese Raid #2, with a review of Japanese coastal reconnaissance flights and bombing raids over Australia's East Coast.

What you didn't know that on this date, 4th March 1942, the Japanese Navy was undertaking their second raid on Pearl Harbor!!! Never heard of it?

The Kawanishi H8K "Emily" was a large, four-engine aircraft designed for long range and extended endurance on patrols or bombing missions typically flown alone over the ocean. The prototype first flew in January 1941 and H8K1s made their first combat sortie in March 1942. This first operational use was the second raid on Pearl Harbor.



***Our future connection in review,**...was a few months later when with only between 10 to 12 aircraft available at the time to the IJN, a few of these Emily flying boats conducted four small air raids on the north Queensland towns of Townsville and Mossman in later July 1942.*

Townsville, at this time had lost its RAAF Interceptor/Fighter Squadron, No 76 Sqn RAAF equipped with P-40E/E-1 Kittyhawks to Milne Bay, and had only been replaced by a green 35th Fighter Group advance echelon of two squadrons equipped with P-400 Airacobras.

On the night of 25th/26th July, the town was attacked by two flying boats but did not suffer any damage as the six bombs dropped by these aircraft fell into the sea. Townsville was attacked for the second time in the early hours of 28th July when a single flying boat dropped eight bombs which landed in bushland outside the town. P-400 Airacobras unsuccessfully attempted to intercept the Japanese aircraft.

The third raid on Townsville occurred in the early hours of 29th July when a single flying boat again attacked the town, dropping seven bombs into the sea and an eighth which fell on an agricultural research station at Oonoonba, damaging a coconut plantation. This aircraft was intercepted by two P-400 Airacobras (P-400 BW163 with Capt Mainwaring and P-400 BW183 with Lt Harringer) and was damaged after a single pass at 21000 feet. Tail Markings of this Emily was observed as P43.¹⁵²

The raids were carried out by the 2nd Group of 14th Kokutai (Air Group), Japanese Naval Air Force, under the command of Major Misaburo Koizumi, who planned to undertake night raids on Harbor facilities and airfields at Townsville from Rabaul, New Britain. In all, five raids were planned; three actually occurred.

A fourth Japanese raid was planned for Townsville on the night of 31 July, however the lone Emily flying boat may have experienced engine difficulties and decided to drop its load of eight bombs over the Mossman area. One bomb exploded in a farm at Miallo, north of Mossman, damaging the Zuilo family's house and injuring Carmel Zuilo. This was their second use operationally, but we will regress back to their first operation

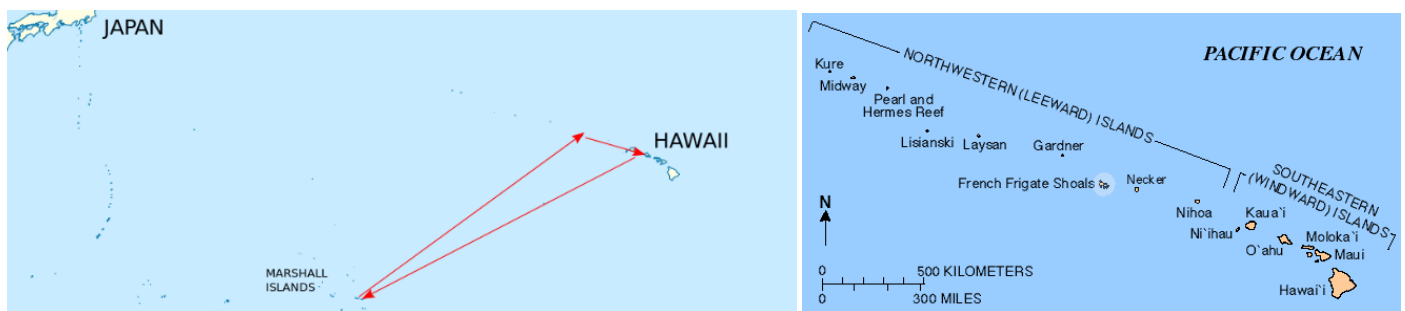
Planning Raid #2 on Pearl Harbor:

The Japanese plan revolved around using two Emily Flying boats in a mission called "Operation K". At the time there were only two prototypes flown (Jan 1941) and between 10-12 production aircraft available. The plan called for the aircraft to depart from the Marshall Islands and fly to French Frigate Shoal in the Hawaiian Islands (500 miles WNW of Pearl Harbor) where they were to be refuelled by I-class submarines. Submarine I-9 was assigned to take up station midway between Wotje and the Shoal and act as a radio beacon for two Kawanishi H8K1 "Emily" flying boats.

American Naval code breakers warned that the Japanese were preparing for reconnaissance and disruption raids, refuelling at French Frigate Shoals in the north western part of the Hawaiian Islands.

The planning for Operation K began in the weeks after the attack on Pearl Harbor, when the Imperial Japanese Navy high command considered how to take advantage of the capabilities of the long-range Kawanishi H8K flying boats. Plans to bomb California and Texas were being discussed, when the need for updated information regarding the repairs to US Navy facilities at Pearl Harbor took precedence.

An assessment of the repairs to the docks, yards and airfields of Oahu would help the IJN staff to determine American ability to project power for months to come.



Pilot Lieutenant Hisao Hashizume was in command of the mission, with Ensign Shosuke Sasao flying the second aircraft.

They were sent to Wotje Atoll in the Marshall Islands, where each aircraft was loaded with four 250-kilogram (550 lb) bombs. From there, they flew 3,100 kilometres (1,900 mi) to French Frigate Shoals to refuel, and then set off for Oahu, 900 kilometres (560 mi) distant. In addition to their reconnaissance mission, they were to bomb the "Ten-Ten" dock, named for its length, 1,010 feet (310 m) – at the Pearl Harbor naval base to disrupt salvage and repair efforts.

Submarines I-19, I-15 and I-26 (With a fourth I Class Submarine, I-25, also in Australian Waters at the same time¹⁵³) were to refuel the flying boats at the Shoal. A fourth Submarine, I-23 was planned to position itself some 10 miles south of Pearl Harbor, providing weather reports and acting in an air-sea rescue capacity.



Submarine I-23, who itself had earlier in Mid December 1941, operated off the western coast of California without any success, would never return from this mission as on the 24th February 1942, at 23:30hrs, I-23 transmitted her last report from the Hawaii area.

Presumed lost with all of her ninety-six sailors somewhere off the Oahu coast of Hawaii, including the Combined Fleet staff officer Lt Cdr Konishi Masayoshi, I-23 was removed from the Imperial Japanese Navy List on 30th April 1942. There are no reports of US Navy sinking of this Submarine, thus it is assumed it was an accidental loss.

Globetrotting IJN Submarine I-25, from Pearl Harbor to USA, then to the East Coast of Australia

These Submarines were all over the globe at this time, including one special Sub, I-25. I-25 and three other submarines patrolled a line north of Oahu during the Japanese attack on Pearl Harbor. After the Japanese aircraft carriers sailed west following the attack, I-25 and eight other submarines sailed eastwards to patrol the west coast of the United States. I-25 patrolled off the mouth of the Columbia River. A scheduled shelling of American coastal cities on Christmas Eve of 1941 was cancelled because of the frequency of coastal air and surface patrols. I-25 attacked SS Connecticut 16 km off the US coast. The damaged tanker managed to escape but ran aground at the mouth of the Columbia River.

I-25 then returned to Kwajalein, arriving on the 11th January 1942 to refuel and be refurbished. On completion, she sailed to the southern Pacific, Australia, under the command of Captain Meiji Tagami.

On 13 February 1942, I-25 sunk the UK merchant ship "Derrymore" at 05° 18' S, 166° 20' E.

By the 17th February 1942, Warrant Flying Officer Nobuo Fujita took off in the "Glen" for a reconnaissance flight over Sydney Harbor. The purpose was to look at Sydney's airbase. By 0730Hrs, Fujita had returned to I-25 and disassembled the "Glen" and stowed it in the watertight hangar. Commander Tagami then pointed I-25 southwards to the southern tip of Australia. No entries in 22 Sqns A50 Records

On 26th February 1942 the Japanese submarine I-25, was now off the northern tip of King Island in Bass Strait off the coast of Victoria, Australia, when a Yokosuka E14Y "Glen" was launched on a reconnaissance flight over the Port of Melbourne. The pilot and observer/gunner were in the air for three hours during which time they successfully flew over Port Phillip Bay and observed the ships at anchor off Melbourne before returning to land on its floats beside the submarine where it was winched aboard and disassembled. Fujita's next reconnaissance flight in Australia was over Hobart on 1st March 1942. I-25 then headed for New Zealand where Fujita flew another reconnaissance flight over Wellington on the 8th March 1942. Warrant Officer Nobuo Fujita photographed the Allied build up in Wellington Harbor in a "Glen" launched from the Japanese submarine I-25.

On the 13th March 1942 he flew over Auckland, and before the I-25 proceeded to Kwajalein, the submarine conducted a photographic sortie over Suva, Fiji on the 17th March 1942.

I-25 arrived at its base at Kwajalein on 31st March 1942 and then proceeded to Yokosuka Japan for refit. I-25 was in Yokosuka dry-dock number 5 on the 18th April 1942 when one of the Doolittle Raid B-25C Mitchell bombers damaged the Japanese aircraft carrier Ryūhō in adjacent dry-dock number 4.

A Yokosuka E14Y "Glen" from this Submarine also has the distinction of being the only aircraft to drop bombs on the United States mainland during World War II, in an incident known as The Lookout Air Raid.

On the 9th September 1942, Chief Warrant Officer Nobuo Fujita, and his crewman, Petty Officer Shoji Okuda, took off from Submarine I-25 off the coast of the western coast of the United States, Oregon near Brookings on strategic mission, to ignite forest fires. The bombs used, 76 kg (168 lb) incendiaries caused no injuries or real damage.

That was not where this story of I-25 ended ...refer end note ¹⁵⁴

The Pearl Harbor Mission itself

Meanwhile American radar stations on Kauai (and later Oahu) picked up and tracked the two planes as they approached the main Hawaiian Islands, prompting a search by Curtiss P-40E Warhawk fighters. US Navy Consolidated PBY Catalina flying boats were also sent to seek Japanese aircraft carriers, which were assumed to have launched the two invaders.

The two Emily aircraft arrived over Oahu in the middle of the night. The intended target, Pearl Harbor, was damaged but still operational. One of the pilots flew over the Koolau mountains and dropped the bombs over Tantalus by error, just a short distance of seven miles from Hickham Field and Pearl Harbor.

The explosion of the 550 pound bombs were so strong that the windows of nearby homes were shattered. The trees were also levelled leaving behind 20-30 foot craters in the forest.

“It was the most ingenious and bold long range bombing program of World War II,” said Daniel Martinez, a U.S. National Park Service historian.

The four bombs that were dropped on Oahu did minor damage to a few homes and caused alarm over a few of the residents. However, historians conclude that the impact of the attack could be seen in the change of U.S. strategy during the war.

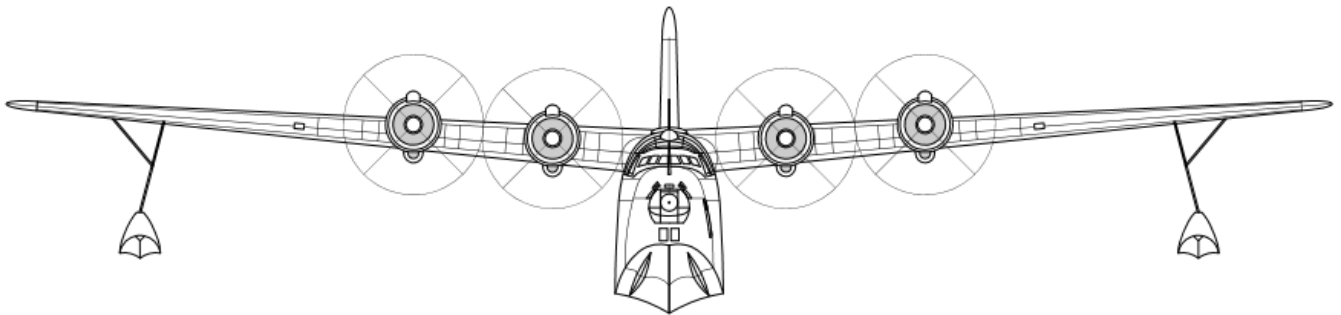
The two flying boats then flew southwest toward the Marshall Islands. Sasao returned as planned to Wotje atoll, but Hashizume's aircraft had sustained hull damage while taking off from French Frigate Shoals. Fearing the primitive base at Wotje was insufficient to repair the damage, Hashizume preceded non-stop all the way to their home base at Jaluit Atoll, also in the Marshall Islands.

It was the longest shore-based bombing mission of the war, lasting nearly 36 hours and covering more than 4,750 miles up to that point.

“The Navy and Army had to figure out: how did these guys pull it off. The only place they could refuel was French Frigate Shoals and so immediately, U.S. Navy ships sat on the area,” said Martinez.

After the Battle of Midway, the United States Navy built a naval air station on Tern Island, in the shoals, enlarging the island sufficiently to support a 3,300-foot (1,000 m) landing strip.

After the blockade was set-up after the second attack on Pearl Harbor, the Japanese forces were impaired from refuelling long-range patrol planes. This crippled their intelligence work through the skies for the Battle of Midway which took place months later. The battle would be won, and the long road to Japan started.



Sources:

<https://www.warhistoryonline.com/war-articles/second.html>

https://en.wikipedia.org/wiki/Japanese_submarine_I-23

https://en.wikipedia.org/wiki/Operation_K

<https://www.stripes.com/news/japan-s-little-known-2nd-surprise-attack-on-hawaii-failed-in-more-ways-than-one-1.514386>

<https://www.revolvy.com/page/Japanese-submarine-I-252D25>

<https://www.ozatwar.com/japrece/recce01.htm>

Corrections: Summer 2018/2019 Supplement Newsletter.

With a welcomed input by David Vincent who supplied these corrections supplied by email to the Editor



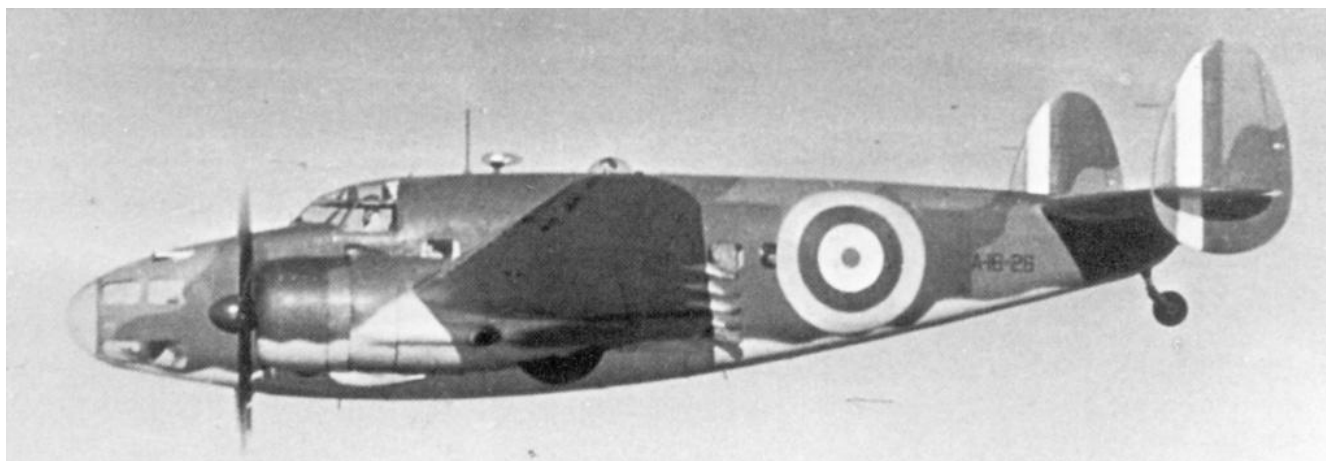
Caption: *Old timers continued on with No 87 Squadron in the forties: A52-6 now in post war scheme and named "Busco's Bus".*

Correction: There was a Mossie named "Bosko's Bus" rather than "Busco's Bus", but I thought that this was a Mk XVI rather than A52-6. Editor: *If anyone has the correct aircraft ID, please advise*



Caption: *1946, the first of many a RAAF Mosquito MK41's entered service with 87 Sqn RAAF: A52-306 SU-S*

Correction: Mossie A52-306 with unit code letters SU belonged to Survey Squadron (formerly Survey Flight, later [1948] No. 87 (Survey) Squadron); your photo probably dates from 1947 rather than 1946.



Caption: *A16-25 US-J and A16-26 don't; with latter before having its BP Turret installed in Malaya by 151 MU in mid 1940.*

Correction: I can confirm that the nice side view of A16-26 thought to have been taken prior to the turret being fitted in the Far East was actually taken whilst this Hudson was serving with No. 7 Squadron in 1942 after it had escaped from the Far East; the photographer was Cliff Hull.



Caption: A16-14 after its accident 1028GMT hrs 23/07/41 when crash landed gear down on beach and flipped, 75 kms on the beach, north of Kuatan, Malaya.

Correction: for Kuatan read Kuantan



Caption: A16-20 at Richmond late 1940

Correction: for Richmond read Parafield



Caption : Hudson A16-96 pictured in the No 2/13 Squadron Hanger at Darwin. It was delivered fitted with Drogue winch for target towing originally and issued to ATS Cressy 21/08/40. Received by SHQ Flight Darwin 24/11/40 for target towing. Attached to SHQ Flight Pearce 07/04/41, then attached to 2SqN 02/06/41. Received back at 1AD on the 15/06/41. Issued to 13SqN RAAF Darwin 13/07/41 and coded with Unit "N". Down as "Lost at sea near Koepang 30/01/42 " on card, but no record per A50 or per RAAF Losses or crews lost in association of serial.

<u>No. 8 Squadron</u>		A16-4 ✓	Headquarters Far East	Q.875	27/12
		A16-11 ✓	" "	Q.394	25/1
		A16-15 ✓	" "	Q.875	27/12
	9/16	A16-40 ✓	Advised by minute from D. Ops.		
		A16-41 ✓	Headquarters Far East	Q.875	27/12
		A16-43 ✓	" "	" "	" "
		A16-87 ✓	" "	Q.395	25/1
<u>No. 13 Squadron</u>		A16-7 ✓	Darwin	Q.978	25/1
		A16-29 ✓	"	Q.162	6/2
		A16-33 ✓	"	Q.978	25/1
		A16-59 ✓	"	852/2/1 (5A)	30/1
		A16-61 ✓	"	Q246	14/2
		A16-63 ✓	"	Q.978	25/1
		A16-64 ✓	"	"	"
		A16-66 ✓	"	852/2/1 (5A)	30/1
		A16-67 ✓	"	"	"
	9/16 Impact	A16-69 ✓	"	Q.162	6/2
		A16-71 ✓	"	852/2/1 (5A)	30/1
		A16/96 ✓	"	Q.162	6/2
		A16/123 ✓	"	852/2/1 (5A)	30/1
		A16-125 ✓	"	"	"

Official Loss Report for Far East has on 06/02/42 lost per radio message Q162 being reported as a loss by enemy action. That would signify the Timor Area of operations, in the NEI. E/E-88 Card has SOC 19/02/42.

Correction: Lastly, I spent a lot of time and effort trying to sort out early Pacific War Hudson losses for *The RAAF Hudson Story* and my 'take' on the loss of A16-96 was that it was lost on the ground at either Mina River ELG or Penfoei in an air raid on the date you show (30/1/42).

Hope that helps. David

Editor's comment: It certainly does.

End Notes: No 3 SQUADRON A.F.C. PART IV – THE HINDENBURG LINE AND VICTORY by John Bennett 2019

- ¹ F M Cutlack, *The Official History of Australia in the War of 1914-1918, Vol VIII, The Australian Flying Corps*, AWM/UQP, Brisbane, 1984, (first published in 1923), p.vii.
- ² H A Jones, *The War in The Air*, Vol III, Clarendon Press, Oxford, 1931, p.305.
- ³ Lt Gen Sir John Monash, *The Australian Victories in France in 1918*, IWM, London, 1920, p.217.
- ⁴ Monash, p.213.
- ⁵ Maj Gen Sir Archibald Montgomery, *The Story of the Fourth Army*, Hodder & Stoughton, London, 1919, p.9.
- ⁶ 3 Sqn Combat Record No 104, 2 Sep 1918.
- ⁷ 3 Sqn Combat Record No 105, 2 Sep 1918.
- ⁸ 3 Sqn Combat Record No 106 for this crew gives a similar engagement at 0630 hours on 3 Sep 1918. However, the Squadron Record Book dates this engagement during the afternoon of 5 Sep 1918.
- ⁹ 3 Sqn War Diary, 5 Sep 1918.
- ¹⁰ 3 Sqn War Diary, 6 Sep 1918. There is no Combat Report for this engagement, possibly due to the move to the new aerodrome.
- ¹¹ 3 Sqn Record Book, 14 Sep 1918. There is no Combat Report for this engagement.
- ¹² Cutlack, p.327.
- ¹³ Sir L J Wackett, *Aircraft Pioneer*, Angus & Roberston, Sydney, 1972, p.74.
- ¹⁴ H N Wrigley, *The Battle Below*, E G Knox, Sydney, 1935, p.121.
- ¹⁵ H A Jones, *The War in the Air*, Vol VI, Clarendon Press, Oxford, 1937, p.536.
- ¹⁶ 3 Sqn War Diary, 18 Sep 1918.
- ¹⁷ Wrigley, p.124.
- ¹⁸ Wrigley, p.124; Cutlack, p.328.
- ¹⁹ Cutlack, p.328.
- ²⁰ Montgomery, *Fourth Army*, p.9; Wrigley, p.125.
- ²¹ Wackett, pp.75-6.
- ²² Wackett, p.76.
- ²³ Jones, *The War in the Air*, Vol VI, p.510.
- ²⁴ Jones, *The War in the Air*, Vol VI, p.524; Monash, p.220.
- ²⁵ 3 Sqn Combat Record No 107, 26 Sep 1918.
- ²⁶ Monash, p.246.
- ²⁷ 3 Sqn Combat Report No 109, 27 Sep 1918.
- ²⁸ 3 Sqn War Diary, 26 Sep 1918.
- ²⁹ AWM 28 Series, Recommendations for Honours and Awards, Capt L J Wackett.
- ³⁰ Monash, p.251.
- ³¹ Wrigley, p.128.
- ³² Monash, p.258; Cutlack, p.329.
- ³³ Monash, p.262.
- ³⁴ 3 Sqn Record Book, 29 Sep 1918.
- ³⁵ Jones, *The War in the Air*, Vol VI, p.528.
- ³⁶ Monash, p.267.
- ³⁷ 3 Sqn War Diary, 1 Oct 1918.
- ³⁸ Wrigley, p.138.
- ³⁹ Wrigley, p.139; Cutlack, p.334.
- ⁴⁰ Monash, p.277.
- ⁴¹ Jones, *The War in the Air*, Vol VI, pp.536-7.
- ⁴² 3 Sqn Combat Record No 111, 8 Oct 1918.
- ⁴³ Wrigley, p.147.
- ⁴⁴ AWM 1DRL/0538/Lt Palstra, extract from diary of 9 Oct 1918.
- ⁴⁵ Jones, *The War in the Air*, Vol VI, p.538.
- ⁴⁶ 3 Sqn War Diary, 22 Oct 1918.
- ⁴⁷ Jones, *The War in the Air*, Vol VI, p.533. The RAF reconnaissance units - 7, 10 and 53 Squadrons - were the first to use this innovation.
- ⁴⁸ Monash, p.279.
- ⁴⁹ Jones, *The War in the Air*, Vol VI, p.535.
- ⁵⁰ Jones, *The War in the Air*, Vol VI, p.542.
- ⁵¹ These two aircraft were C917 and E2529, the latter having been repaired at Depot following the damage it had received in Wackett's epic mission of 25 Sep 1918, when it had been thought the aircraft was a write-off.
- ⁵² Wrigley, p.158.
- ⁵³ Wrigley, p.159.
- ⁵⁴ 3 Sqn War Diary, 25 Oct 1918.
- ⁵⁵ H A Jones, *The War in the Air*, Appendices, Clarendon Press, Oxford, 1937, p.153.
- ⁵⁶ Wrigley, p.160.
- ⁵⁷ 3 Sqn War Diary, 28 Oct 1918.
- ⁵⁸ Jones, *The War in the Air*, Vol VI, p.548.
- ⁵⁹ Wrigley, p.162; 3 Sqn Record Book, 1 Nov 1918.
- ⁶⁰ Wrigley, p.167.
- ⁶¹ 3 Sqn War Diary, 4 Nov 1918.
- ⁶² 3 Sqn Record Book, 4 Nov 1918.
- ⁶³ Montgomery, *Fourth Army*, p.10.
- ⁶⁴ Wrigley, p.169.
- ⁶⁵ Jones, *The War in the Air*, Vol VI, p.550.
- ⁶⁶ Montgomery, *Fourth Army*, p.x.
- ⁶⁷ L Bridgman & O Stewart, *The Clouds Remember*, Arms and Armour Press, London, 1972, p.29.

- ⁶⁸ O Thetford, *Aircraft of the Royal Air Force Since 1918*, Putnam, London, 1988, p.11.
- ⁶⁹ Cutlack, p.385.
- ⁷⁰ 3 Sqn War Diary, 23 and 28 Jan 1919.
- ⁷¹ 3 Sqn War Diary, 20 Feb 1919. In *The Battle Below*, Wrigley comments that by the end of January, the last of the R.E.8s had been handed in, and that the Squadron was fully equipped with Bristol Fighters. Wrigley, p.176. This is not supported by other sources; the War Diary makes no mention of such a significant event.
- ⁷² Message from Maj Gen J M Salmond CMG CVO DSO, GOC RAF in the Field, 3 Sqn Routine Order No 346, dated 24 Aug 1918.
- ⁷³ Wrigley, p.180.
- ⁷⁴ Jones, *The War in the Air*, Vol VI, p.554.
- ⁷⁵ V Orange, *Coningham*, US Air Force, Washington DC, 1991, p.30.
- ⁷⁶ 3 Sqn War Diary, 13 Nov 1918 records that crews returned from detachment to 'O' Flt RAF. C917 unfit for further service in RFC/RAF Serial Lists.
- ⁷⁷ The serials E2329 and E2529 are often confused as misprints, but in fact four Bristol Fighters were airborne at the same time on 1 NOV 1918 C917, E2329, E2351 and E2529, so they were separate aircraft. However, sometimes E2351 is misprinted as E2531.
- ⁷⁸ Wackett, p.77. Wackett recorded that this aircraft was a write-off due to the intense groundfire received on 25 Sep 1918. However, Wackett then immediately left 3 Squadron, and the aircraft was evidently repaired at an Aircraft Depot, as it then went to 9 Sqn RAF, and was then flying on 3 Sqn again in Nov 1918.
- ⁷⁹ 3 Sqn War Diary, 28 Jan 1919. Records do not exist definitively recording these two Sunbeam Arab-powered aircraft for 3AFC, but two aircraft that did pass through 2ASD from 8SQN RAF on 28 JAN 1919 were E9576 and E9578, and these may have been 3AFC's Arab/F2Bs.
- ⁸⁰ 3 Sqn War Diary, 23 and 28 Jan 1919.
- ⁸¹ AWM 2DRL/290, Lt Max Shelley's diary of Jan 1919.
- ⁸² The German aircraft may have been Fokker D.VII 8371/18; <http://www.adf-serials.com.au/capturedWWI.htm>
- ⁸³ Sopwith 1F.1 Camel F2195 was also gifted to Australia by the UK Government, but its fate is unknown. B Robertson, *British Military Aircraft Serials 1878-1987*, Midland Counties, Earl Shilton Leics, 1987, p.42; and R Sturtivant and G Page, *The Camel File*, Air Britain, Tonbridge Kent, 1993, p.174.
- ⁸⁴ <http://www.adf-serials.com.au/newsletter/A...18%20Spring.pdf>
- ⁸⁵ NAA B2455 series, for Norvill V. A.
- ⁸⁶ 69 SQN RFC War Diary, Aug 1917, p.4.
- ⁸⁷ H A Jones, *The War in the Air*, Vol IV, Clarendon Press, Oxford, 1934, p.358.
- ⁸⁸ <https://www.crossandcockade.com/StOmer/TheAircraftDepot.asp>
- ⁸⁹ Both 2AD and 2ASD had to be evacuated in late March 1918 with the German offensive on the Somme – 2AD pulling back to Rang du Fliers, and 2 ASD to St André-aux-Bois.
- ⁹⁰ P Dye, *The Bridge to Airpower*, Naval Institute Press, Annapolis MD, 2015, *Appendix B: Logistic Units 1914-18*.
- ⁹¹ M Baring, *Flying Corps Headquarters 1914-1918*, Buchan & Enright, London, 1985, p.278.
- ⁹² M Lax, *One Airman's War*, Banner, Maryborough, 1997, p.12.

⁹³ **End Notes: RAAF AIRCRAFT MARKINGS SINCE 1950 SQUADRON MARKINGS – PART 12** by John Bennett 2019
K3/185 was the Australian designation for the yellow that had been used by the RAF as 'Yellow' for trainer aircraft and roundels as Aircraft Finish No.2 and then Aircraft Finish No.405. Although the British Standard BS381 had included 'Golden Yellow' since its first issue in 1930, it was not until 1964 that the Ministry of Supply colours of all RAF aircraft were included into BS381C standard and although a close match, the RAF standard became 'Golden Yellow' BS381C-356. P Lucas, *Camouflage & Markings Vol.2*, Scale Aircraft Monographs, Luton, Beds, 2000, p.88.

⁹⁴ C Coulthard-Clark, *The Third Brother, The RAAF 1921-1939*, Allen & Unwin, Sydney, 1991, pp.419-423. The all-yellow painted Gipsy Moth on floats A7-55 had sailed south. It had been loaded in standard RAAF silver finish, but enroute was repainted in yellow, and without its serial number: I Baker, *Aviation History Colouring Book*, self published, Queenscliff, No.54 (2004), p.13.

⁹⁵ 'Yellow' K3/185 was a close approximation to BS381C-356, and in the US Federal Standard FS95a system to semi-gloss FS23538. B Pattison, *Kingfisher in the Antipodes*, Red Roo, Melbourne, 1995, p.54.

⁹⁶ FS12197 appears a red-orange, as photos tend to make oranges look even more red.

⁹⁷ #1205 was the designation for *International Orange* in the US Federal Standard (FS) TT-C-595 specification of 12 JAN 1950, which developed into the FS595a specification.
<http://federalstandard595.com/history-specification-tt-c-595-1950/>

⁹⁸ E/E.88 Status Card for A95-202.

⁹⁹ Beaver A95-202 had originally transited south aboard *Kista Dan* in DEC 1956, then remained in the new hangar at Mawson for the 1957 and 1958 winters, returning to Australia in FEB 1959. It received its *Dayglo* at Mawson, presumably in 1958.

¹⁰⁰ https://www.raafa.org.au/sites/default/files/Autumn%2018_web3.pdf

¹⁰¹ See *adf serials* Winjeel article no.9: <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202018%20Spring.pdf>

¹⁰² See *adf serials* Vampire article no.4: <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202017%20Spring%20.pdf>

¹⁰³ A Webber, *CT4 Airtrainer in Service with the RAAF*, 1992.

¹⁰⁴ <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202019%20Autumn%20.pdf>

¹⁰⁵ <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202019%20Autumn%20.pdf>

¹⁰⁶ 'Dayglo' was designated in the US Federal Standard FS595a vocabulary as FS28913 (semi-gloss) 'Blaze Orange' or 'Fluorescent Red Orange'. In the FS595 colour designation system, the first number designates gloss (1), semi gloss (2), or matt (3). The second number is the colour family, e.g. 3 is for yellows, 5 is blues, and in this case 8 is fluorescent. The last three are the shade, or reflectance so that 28913 and 38913 are the same shade of orange, only in semi gloss and matt respectively. UK introduced 'Dockerblaze Orange Red' as a fluorescent orange (33B-2202312) which, like the US colour, was applied over a white primer.

¹⁰⁷ <http://www.antarctica.gov.au/about-antarctica/history/transportation/shipping/lauritzen>

¹⁰⁸ The voyage dates from some sources are conflicting. *Alfreso Flight* (RAAF Museum Heritage Series No.3, 1991) dates were misinterpreted by a 12-month period caused by the confusing style of the ANARE diaries. Most dates are taken from ANARE sources when they are provided, such as the *Antarctic Events Database*, and Dept of National Mapping ID nos 4492961, 4598171, 4604596, 6391405 and 6391581. Some dates also from N Parnell & T Boughton, *Flypast*, AGPS, Canberra, 1988.

¹⁰⁹ A11-200 and A11-201 departed on MV *Kista Dan* on 4JAN54: NAA P1557 37/2 'Voyage of MV *Kista Dan* (1953/54)'.

¹¹⁰ A.B.O. N.524/1955 of 22AUG55.

¹¹¹ A.B.O. N.262/1956 of 27AUG56.

¹¹² The 1958/1959 Antarctic Flight was not disbanded until 8 JUN 1960 (A.B.O. N.96/1960 of 27JUL60), presumably as it was realised this action had not been completed when the 1960/1961 Flight was formed on 1 JUN 1960.

¹¹³ NAA CRS A703 400/1/10/P1 (16) of 26OCT61.

¹¹⁴ NAA CRS A703 400/1/10/P1 (16) of 26OCT61.

¹¹⁵ G Odgers, *Mr Double Seven*, Air Power Development Centre, Canberra, 2008, p.164.

¹¹⁶ A.B.O. N.95/1960 of 27JUL60.

¹¹⁷ A.B.O. N.65/1961 of 7APR61.

¹¹⁸ Discrepancy in dates of the Magga Dan voyage of JAN 1961. *Mr Double Seven* (p.165) states Cresswell flew Beaver to Fremantle Harbour on 24JAN61 for hoisting aboard Magga Dan, claiming arrival at Mawson on 24FEB61 and arrival back in Melb 20MAR61. The site for the *Magga Dan* voyage of 1960/61 confirms departure from Fremantle, but arrival Mawson 8FEB61, dept Mawson 11FEB61 to return via Wilkes, Chick Island, Dumont d'Urville, Oates and Macquarie, arriving Melb 19MAR61. Aircraft was Beaver VH-PGL (i.e. the second VH-PGL/A95-205) and a helicopter from Helicopter Utilities:

<http://antarctica.kulgund.net/History/Magga-Dan/Magga-Dan-60-61-V4.shtml>

¹¹⁹ A.B.O. N.122/1962 of 1JUN62.

¹²⁰ A.B.O. N.283/1962 of 13DEC62.

¹²¹ Re 'block', 'consecutive', and 'century' serials, see *ADF Serials Telegraph* Vol.5 Issue 3, Spring 2015:

<http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202015%20Spring%20Vers%20Fin.pdf>

¹²² R Ashworth, 'The Military Austers', *Air Britain Digest*, Vol IV No.4, London, APR 1952, p.2.

¹²³ <http://www.antarctica.gov.au/about-antarctica/history/transportation/aviation/1955-69/the-auster-mark-6-aircraft>

¹²⁴ RAF serials list, UK Serial Research Centre, Wolverhampton Aviation Group <http://www.ukserials.com/>

¹²⁵ K Wilson, *RAF in Camera: 1950s*, Pen & Sword, Barnsley UK, 201, p.18.

¹²⁶ 2AD Unit History A.50 OCT 1953.

¹²⁷ NAA P1557 37/2, *Narrative of the Voyage of MV Kista Dan JAN 1954*, entry for 12FEB54.

¹²⁸ ANARE Signal 6 MAR 1954, from Law to Minister of External Affairs, forwarded 9 MAR by A/Dir of Antarctic Division, J. Donovan.

¹²⁹ Submission by P.G.Law (Dir Antarctic Division ANARE) to Minister for External Affairs, NAA CRS A10299 A9 dated 1 DEC 1954.

¹³⁰ NAA CRS A10299 A9, 1 DEC 1954, Five-Year Plan Appendix pg.5.

¹³¹ NAA CRS A703 400/1/10/P1 (16) of 26 OCT 1961.

¹³² Image from the *Britmodeller* website, 'Antarctic Auster', attributed to "Magpie22" (who is apparently respected Australian historian, Peter M); <https://www.britmodeller.com/forums/index.php?topic/235052973-auster-antarctic/>

¹³³ NAA P1557 37/2, *Narrative of the Voyage of MV Kista Dan JAN 1954*, entry for 16FEB54.

¹³⁴ NAA P1557 37/2, *Narrative* entry for 12FEB54.

¹³⁵ NAA P1557 37/2, *Narrative* entry for 16FEB54.

¹³⁶ NAA CRS A1838 1495/17/8/2 Part 1 (14), Polar Committee Minute, 11 FEB 1954.

¹³⁷ Beaver A95-204 served at 1ATU Woomera over 1959-61: <http://www.dhc-2.com/id649.htm>

A95-204 was replaced by the two Otters A100-390 and A100-392, see:

<http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202019%20Autumn%20.pdf>

¹³⁸ De Havilland DHC-2 *Beaver Tails* website: C/n 783 <http://www.dhc-2.com/id595.htm>

¹³⁹ C/n 964 <http://www.dhc-2.com/id593.htm>

¹⁴⁰ C/n 1052 <http://www.dhc-2.com/id529.htm>

¹⁴¹ C/n 1340 <http://www.dhc-2.com/id466.htm>

¹⁴² The RAAF Aircraft Status Card E/E.88 for A95-205 does not clarify the changes of registration to VH-PGL over 1962 and 1963, but only states TOC at Point Cook ex VH-PGL from DH on 13 OCT 1961, and restored to VH-PGL 19 OCT 1964. The 1964/1965 expedition aboard *Nella Dan* was as a civilian aircraft.

¹⁴³ <http://www.dhc-2.com/id466.htm>

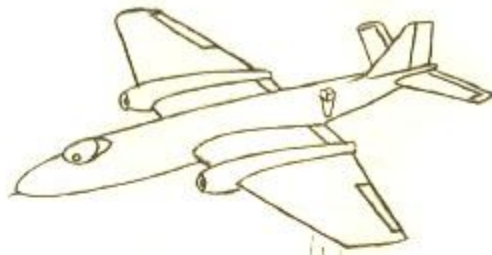
¹⁴⁴ E/E.88 Status Card for A65-81; and 2AD Unit History A.50 APR 1959.

¹⁴⁵ N Parnell & T Boughton, *Flypast*, AGPS, Canberra, 1988, p.271.

¹⁴⁶ *Adf-serials* database entry for A65-81 and E/E.88 Status Card for A65-81; and 2AD Unit History A.50 APR 1959.

¹⁴⁷ NAA CRS A703 400/1/10/P1(16) of 26 OCT 1961.

High Altitude Performance
Single Camera Installation.



Operational Data.

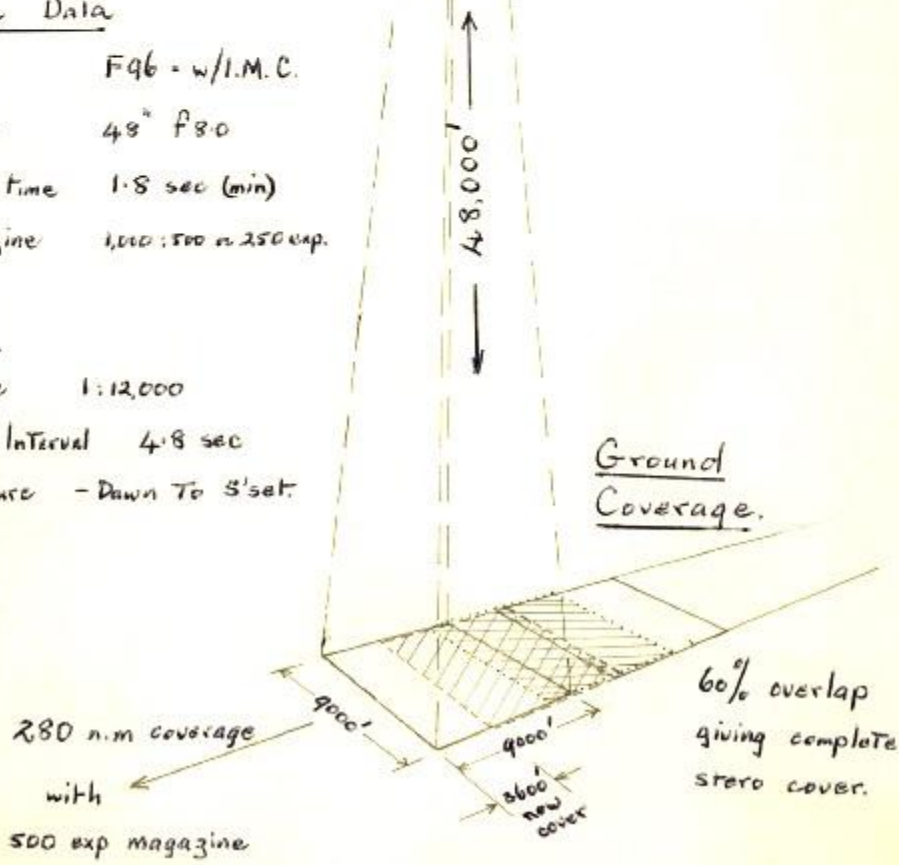
Height 48,000'
Speed 450 kts

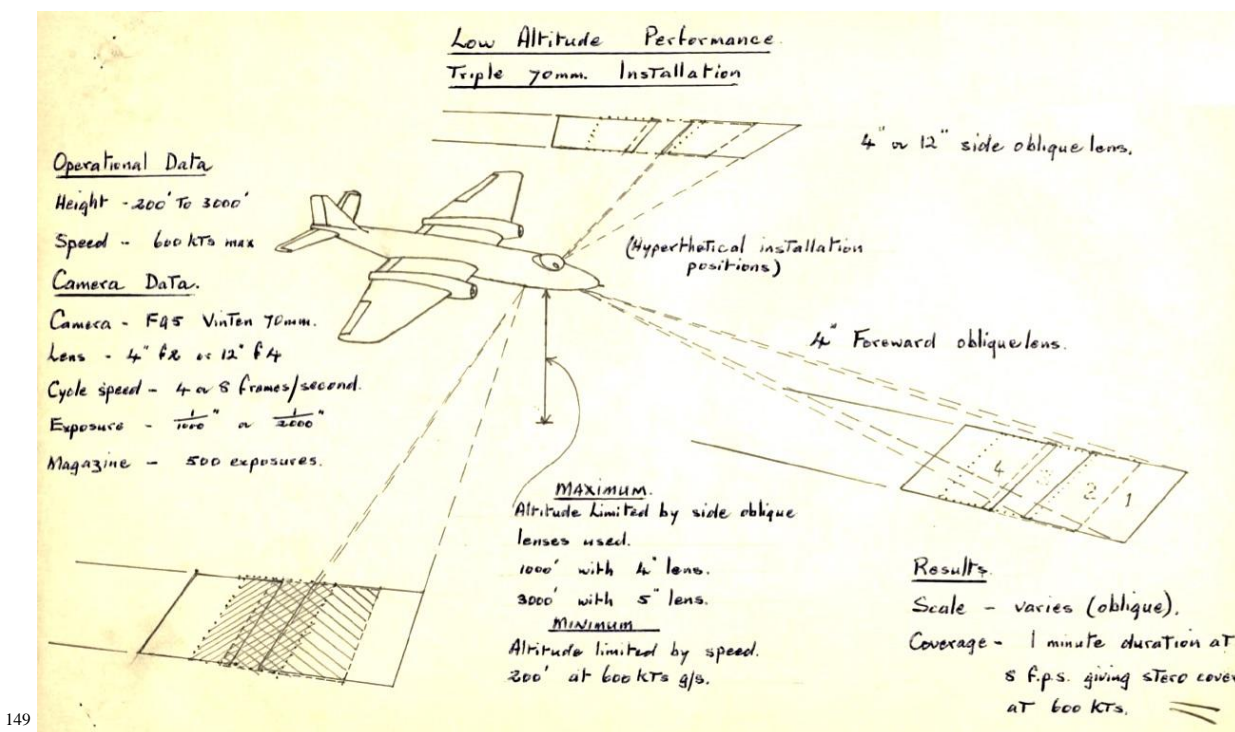
Camera Data

Type F96 - w/I.M.C.
Lens 48" f8.0
Cycle time 1.8 sec (min)
Magazine 1,000 : 500 or 250 exp.

Results

Scale 1:12,000
Cycle Interval 4.8 sec
Exposure - Down to 5' set.





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¹⁵⁰ On the 19th April 1956, the missile launching circuits of Sabre aircraft A94-922 were being checked in Hangar 3 at the Tech Area. Suddenly a Blue Jay missile mounted on the Sabre's port wing fired without warning, hurtling across the hangar and bursting through the far wall into an external revetment, where it disintegrated in a shower of burning propellant. Two De Havilland team members were standing beside the missile as it ignited. One of them, Tom Lister, was killed by the flame and blast. The other, John McLoughlin, was badly injured. By a bitter coincidence a party of six visitors led by Trials Superintendent Jim Price entered the hangar to the rear of the aircraft just as the Blue Jay fired, and several were severely burned by the efflux. There were of course no further firings while the accident was investigated. Source: [Directorate of Flying Safety] - Accident to: Sabre A94-922 - Unit: Air Trials - Place: Woomera - Date: 19 April 1956 and <https://www.dst.defence.gov.au/publications/scientific-publications> "Fire in the desert"

¹⁵¹ A3-107 3Sqn Dual. 05/12/69, enroute to Tengah from Butterworth, suffered canopy fracture which caused whole canopy to leave aircraft. Back Seater, F/Sgt K W Smith A11816 suffered superficial cuts and lost his helmet. F/O M R Susans (0222260) was uninjured and landed back at Butterworth safely

¹⁵² **End Notes: Odd Shots: The hidden truths of Pearl Harbour Raid #2**

A50 History Sheet RAAF SHQ Townsville

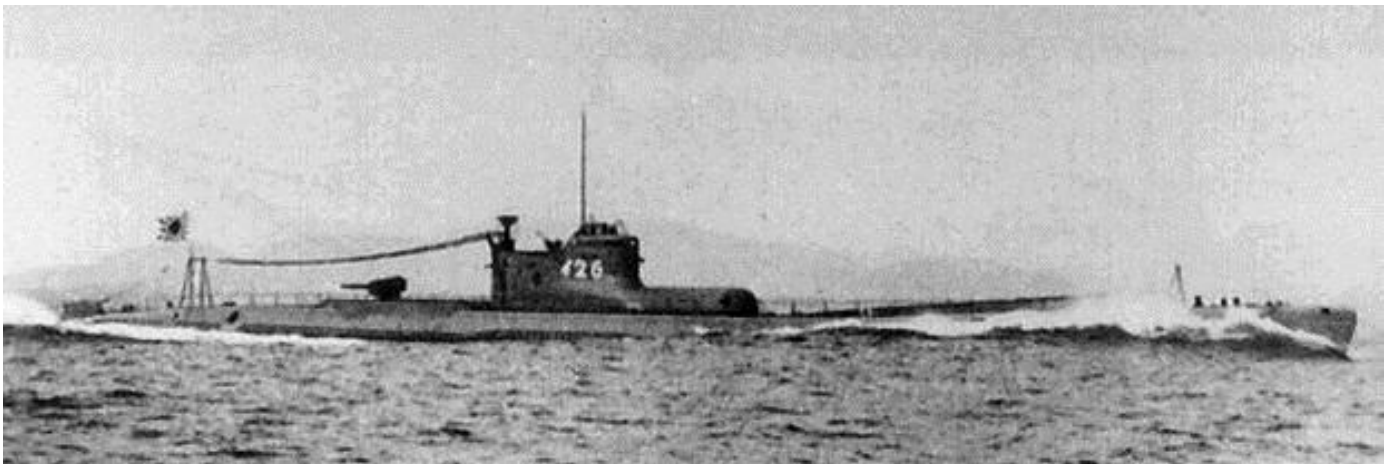
Extract

TOWNSVILLE.	28/7/42.	Third Air Raid. Yellow warning was received from 3 Fighter Sector at 1355Z/28, Red warning at 1402Z/28. Air raid was in progress 1428Z/28. Four fighters aircraft airborne at 1415Z/28. One large enemy aircraft caught in search light beams, travelled from North to South approximately 3 miles east of the field, turned west, then North, last sighted heading NNW. All Clear sounded 1507Z/28. Aircraft dropped bombs in sea near Magnetic Island, no bombs dropped in precincts of the aerodrome. Enemy aircraft identified as 4-engined flying boat serial F43. Two Fighter aircraft made one pass at 21,000 feet. Pilots observed tail of E/A aircraft alight, later extinguished. One fighter made further 5 passes, hits observed, enemy lost height 18000 to 12000 feet when combat broken off owing ammunition exhausted. One pilot observed E/A drop six or seven bombs west of Magnetic Island in Cleveland Bay. Captains of two Fighter A/C Lt. Harriger in P400 W183. Captain Mainwaring in P400 65. All fighter aircraft returned to base 1534Z/28.
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¹⁵³ These Submarines were equipped with aviation facilities and hanger, with a compliment of one Yokosuka E14Y "Glen"



¹⁵⁴ Two enemy submarines were sighted on 11 October 1942 about 800 miles (1,300 km) off the coast of Washington as I-25 was returning to Japan, following its raid on Oregon State.



Sister ship I-26 Pictured above.

I-25 fired its last torpedo at the lead submarine, which sank in 20 seconds with the loss of all hands. I-25 reported sinking a U.S. submarine, but the submarine was actually Soviet L-16 which was sailing with L-15 en route from Vladivostok to the Panama Canal via Unalaska, Alaska and San Francisco.

The United States Navy Western Sea Frontier denied loss of any submarine and withheld information about the Soviet loss because, at the time, the Soviet Union was officially neutral in the war between Japan and the United States.

I-25 was finally sunk less than a year later by the destroyer USS Patterson off the New Hebrides islands on the 3rd September 1943.