



ADF Serials Telegraph News

News for those interested in Australian Military Aircraft History and Serials

Volume 9: Issue 3: Spring 2019: *Editors and contributing Authors: John Bennett and Gordon R Birkett*

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

Story: No 2 SQUADRON A.F.C. PART I – THOSE EARLY DAYS by John Bennett 2019

Serial: RAAF WWII IN COLOUR; No.1 – RAAF Beaufighters: by John Bennett 2019

A series of RAAF aircraft in WWII – in Australia: New Guinea and the islands, and later, Europe and the Middle East will be included.

Odd Stories: The attack on USS Sargo SS-188(S-7) 4th March 1942 and associated events by Gordon Birkett @2019

Odd Shots: Operated by the RAAF: Liberator Spread by Gordon Birkett @2019

Curtiss Wright Corner: P-40K-10-CU A29-164 by Gordon Birkett @2019

Corrections: Zip

Message Traffic: Please address any questions to:

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News Briefs

19 May 2019: A39-007 arrived at Amberley (Pic is in UK prior) after ferrying from Getafe, Spain, on the 16 May 2019, via Canada, USA. It's since been in regular use.



New NZ Hercs

11 June 2019: New Zealand Defence Minister announced that the NZ Government has selected the Lockheed Martin C-130J-30 Super Hercules to replace the RNZAF's C-130H Hercules. The announcement, made on June 11 in Wellington, will see the Government request detailed pricing for five stretched fuselage C-130J-30 models, the requirement for which was considered the highest priority project in the most recent Defence Capability Plan 2019. "The current Hercules have served us well since the 1960s, but they have reached the end of the road, and suitable and proven replacement aircraft will need to be sourced," the Minister said in a statement. "After considering the range of military air transport aircraft carefully, the Super Hercules has been selected as it offers the necessary range and payload capability as well as fully meeting NZDF's requirements."

The C-130J-30 was up against the Airbus A400M and the Embraer KC-390, including a corporate proposal for a service contract with wet-leased KC-390s. Japan's Kawasaki had also confirmed at this year's Avalon Airshow that it would offer its C-2 transport, while Northrop Grumman and Leonardo said they would jointly offer the C-27J

Spartan. The Minister's statement says that, while pricing has been requested for five aircraft, no final decision has yet been made on numbers. New Zealand also has a requirement to replace its Boeing 757-200 passenger and freighter aircraft.



Concept of a C-130J-30 '04' in RNZAF 40SQN colours

[NZ Govt]

And Challengers go....

24 June 2019: The first RAAF CL-600-2B16 Challenger to be retired, **A37-001** (msn 5521) was registered VH-OFA to SPA Leasing P/L of Sydney. It departed Fairbairn on 22 JUN for Apia, and then continued to Honolulu 23 JUN and onto Burbank CA the next day.

Alphajets Go Home

July 2019: Two 'Top Aces' Alphajets (040 and 069) operated out of RAAF Base Tindal during Exercise Diamond Storm 2019.

Three Alphajets had been contracted to provide adversary training as Red Air for RAAF, Joint Terminal Attack Controller (JTAC) training for the Army, as well as naval support training for the RAN.

Then C-GITA (040) and C-GLTO (069) departed RAAF Williamtown for HMAS Albatross, as the 2 year contract with the RAAF is complete. They were due to be shipped back to Canada in early JUL.

The third Alphajet (057) had already been packed at Williamtown in FEB 2019 and returned home to Canada.



040/C-GITA operating out of RAAF Base Tindal during Exercise Diamond Storm 2019

[image ASO]

Australia Issues RFI for Tiger Replacement

8 July 2019: The search for a new armed attack helicopter to replace the Tiger fleet has begun. The Australian Government has issued a Request for Information (RFI) for a replacement of the fleet of ARH Tiger armed reconnaissance helicopters, which require capabilities in manned/unmanned teaming and amphibious operations.



[image Janes.com]

Under the LAND 4503 program, Defence's Capability Acquisition and Sustainment Group (CASG) RFI is for acquisition of **29 airframes** – with 24 to be based at a single location, and a further five for training. The timelines for the program anticipate an IOC of a squadron of 12 aircraft by 2026, with full operational capability (FOC) from 2028. The concept of operations outlined in the RFI documentation include the ability to deploy a troop of four aircraft at the point of IOC, with the other eight aircraft split between continued force generation and build-up training.

Once FOC is achieved, the Australian Army would be capable of “generating multiple concurrent deployed forces of up to squadron [12 aircraft] size,” supported by a training system of up to five aircraft. Procurement is reducing risk with a “proven and mature, off-the-shelf” system to “deliver armed reconnaissance efforts in close and deep contested battlespace”. Only the AH-1Z attack helicopter (Pic), Boeing AH-60E Guardian (Pic) and perhaps a known outsider; the ARH Tigre Mk3 are on offer.



P-8A Poseidon Deliveries

1 August 2019: As previously reported, **A47-008** had been held in storage in Renton at Renton for at least a year. The Minister for Defence had announced in April that the eighth aircraft would be delivered in mid-2019 and it duly arrived on 13 JUN. 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. The next, A47-009, arrived at RAAF Edinburgh on 1 AUG.



[Nathan Rundle Photography]

P-8A A47-009 (msn 64165), arriving at RAAF Edinburgh on 1 AUG 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** is msn 64168.

RAAF Serial	msn	Line no.	Test Reg	Date of FAA Reg	RAAF Delivery
A47-008	63191	6750	N872DS	27 AUG 2017 *	13 JUN 2019
A47-009	64165	7324	N391DS	18 SEP 2018	1 AUG 2019
A47-010	64166	7392	N397DS	24 OCT 2018	29 AUG 2019
A47-011	64167	7427	N398DS	14 NOV 2018	DEC 2019
A47-012	64168	7603	N468DS	6 Mar 2019	JAN 2020

* A47-008 had been long-term storage and modification at Boeing Renton – FAA Registration cancelled APR 2018, finally delivered to RAAF on 13 JUN 2019, then followed in AUG by A47-009.

...and Poseidons for UK

14 July 2019: The first P-8A Poseidon MRA.1 ZP801 flew for the first time at Boeing's flight test centre at Renton, Washington. Nine Poseidons are on order for the RAF, the first due to enter service later this year with 120SQN at RAF Lossiemouth, Morayshire. 201SQN will be the second unit. Although the current order is for nine aircraft, 15 serial numbers have been reserved – ZP801 to ZP815.

Meanwhile, on 737 airframes, the UK has also contracted to purchase five E-7 aircraft. The E-7 fleet will replace the current E-3D Sentry AEW.1 aircraft of 8SQN at RAF Waddington. While Australia's **E-7A is based on a standard**

Boeing 737-700NG airliner, the RAF UK specs are reportedly changed to the longer 737-800 variant, and possibly the 737-800ERX on which the P-8A is based.

8SQN RAF is planned to have an IOC in the second half of 2023. An RAF spokesman for the program says that the UK will “stay in lock-step” with lead Wedgetail operator the RAAF in regard to future updates of the E-7 system “It’s a lot smarter if we work together with them and effectively co-fund stuff going forward,” said a wise RAF Air Commodore.



14 July 2019: A future visitor to Australia perhaps, the inaugural flight of RAF P-8A ZP801 (Pic Boeing)

F-35A Lightning II Deliveries

2 August 2019: Our latest, A35-016, was ferried from the factory to Luke AFB on 2 AUG 2019, and a delivery update of our F-35As is provided below.



A35-016 in 3SQN markings, on ferry flight Fort Worth to Luke AFB, 2 AUG 2019

[pic F-16.net]

As previously reported, 3SQN are 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 Centre (sic, ITC) at Luke AFB. Further known RAAF milestones are by **late 2019**, 3SQN should have its full complement of aircraft at Williamtown, for an 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.



A35-015 in 3SQN markings, on a test flight at Fort Worth 21 JUN 2019

[pic 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 mks
A35-002	12-5061	AU-02	1 OCT 2014	61FS Luke AFB, del DEC 2014, 2OCU mks
LRIP Lot 10				
A35-003	15-5211	AU-03	DEC 2017	61FS Luke AFB, del DEC 2017, 3SQN mks
A35-004	15-5212	AU-04	12 DEC 2017	61FS Luke AFB, del DEC 2017, 2OCU mks
A35-005	15-5213	AU-05	JAN 2018	61FS Luke AFB, del 2018, 2OCU mks
A35-006	15-5214	AU-06	MAR 2018	61FS Luke AFB, del 2018, 2OCU mks
A35-007	15-5215	AU-07	2 JUL 2018	61FS Luke AFB, del 2018, 3SQN mks
A35-008	15-5216	AU-08	16 JUL 2018	61FS Luke AFB, del 2018, 3SQN mks
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	11 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	14 JUN 2019	3SQN markings
A35-016	17-5299	AU-16	JUL 2019	3SQN markings, ferry to 61FS Luke 2 AUG 2019
A35-017	17-5300	AU-17	SEP 2019	3SQN markings
A35-018	17-5301	AU-18	SEP 2019	3SQN markings

Estimated data provided in red.

RAAF Falcon 7X Deliveries

6 August 2019: Our second Falcon 7X, **A56-002** (msn 284), arrived at its new 34SQN home at Fairbairn on 4 JUN. Having left Bordeaux on its delivery ferry on 1 JUN, its first stop was Chennai, India.

A57-001 (msn 283) had arrived in Australia on 16 APR 2019. A56-003 took a different route, staging through Canada on 3 AUG, arriving at Fairbairn on 5 AUG. Delivery details of all aircraft are given below.



[Samuel Millar Photography]

Dassault Falcon 7X A56-003 in Canada on 3 August 2019

RAAF Serial	msn		Test Reg	RAAF Delivery to Canberra
A56-001	283		F-WWHE	16 APR 2019
A56-002	284		F-WWHF	4 JUN 2019
A56-003	286		F-WWHG	6 AUG 2019

Red details unconfirmed.

Note that msn 285 went to the USA in May 2019 as N673WM. Our last, A56-003, is possibly msn 286.

16th August 2019: The bombing capacity of F-35As has quadrupled with the arrival of small diameter bombs introduced to No. 3 Squadron in June. The GBU-39/B Small Diameter Bomb, Increment 1 (SDB1), packs about 16kg of modern high explosive, guided by GPS-aided inertial navigation. SDB1 is also designed to penetrate harder targets, or can fuse above ground to create area effects. Because of the wings on SDB1, a single F-35A can engage up to eight separate targets from outside the range the enemy can defend against.

Note: April 2016 - FMS request by Australia for 2,950 units and support equipment valued at US\$386 million.



PC-21 News

26 August 2019: Three more PC-21s arrived at East Sale on the delivery from the Pilatus factory at Stans in Switzerland. Also, the first Roulettes show for the new PC-21s had been held on **4-5 MAY 2019** for Wings Over Illawarra at Albion Park. Aircraft were A54-020, -021, 022, -023 and 025.

Deliveries from MAY 2019:

- A trio – **A54-034, A54-035 and A54-036** – arrived at East Sale on 6 MAY.
- The next pair, **A54-037 and -038**, arrived at East Sale on 27 MAY.
- **A54-040** arrived solo on 25 JUN, as A54-039 had to turn back to Stans with U/S on the delivery flight.
- After a long break for the European summer holidays, a trio arrived (**A54-039, A54-041 and A54-042**) at ESL on 26 AUG.



A54-043 / HB-HWQ – test flight at Stans on 17 JUN 2019 – will be next to arrive in SEP 2019

RAAF Serial	Ferry Reg	msn	Delivery Details
A54-039	HB-HWM	272	First flight at Stans believed to be APR 2019, Roulettes markings. Turned back to Stans on original delivery flight JUN 2019. Departed Stans again 16 AUG, arrived ESL 26 AUG 2019.
A54-040	HB-HWN	273	First flight at Stans 1MAY 2019 (Roulettes). Dept Stans 15 JUN, arrived ESL 25 JUN 2019.
A54-041	HB-HWO	274	Seen testing Stans early AUG (Roulettes), departed Stans 16 AUG 2019, arrived ESL 26 AUG 2019.
A54-042	HB-HWP	275	Test flown at Stans on 5 JUN 2019 (Roulettes), departed Stans 16 AUG 2019, arrived ESL 26 AUG 2019.
A54-043	HB-HWQ	276	Test flown at Stans on 17 JUN 2019 (Roulettes), ETA ESL SEP 2019.
A54-044	HB-HWR	277	Last pre-flights at Stans 24 JUN 2019 (Roulettes), ETA ESL SEP 2019.
A54-045	HB-HWS	278	FAC grey with ARDU markings, first flight 16 JUL 2019, ETA ESL OCT 2019.
A54-046	HB-HWT	279	FAC grey with 4SQN markings, blue tail band, compass swing on 23 JUL 2019, ETA ESL OCT 2019.
A54-047	HB-HWU	280	FAC grey with 4SQN markings, blue tail band, compass swing on 9 AUG 2019, ETA ESL prob NOV 2019.
A54-048	HB-HWV	281	FAC grey with 4SQN markings, blue tail band, ETA ESL prob NOV 2019.
A54-049	HB-HWW	282	FAC grey with 4SQN markings, blue tail band, towed to final assembly hangar on 8 AUG 2019, ETA ESL prob NOV 2019.

GREY FAC PC-21s

12 July 2019: Editor: PC-21 A54-045/HB-HWS (c/n 278), was rolled out of the Pilatus factory at Stans-Buochs. The aircraft, complete with shark mouth markings, is destined for the Aircraft Research and Development Unit (*Previous delivered ARDU PC-21s such as A54-017 and A54-018 (Lower Pic) are painted in standard training schemes, thus may be used to test FAC standard mods, then later transferred to No 4 Squadron?*).

The last four PC-21s for Australia (A54-046 to A54-049) are also in grey colour scheme, with shark mouth markings, in the FAC training role with No 4 Squadron. (Pics: Pilatus/RAAF)





16 JUL 2019: A54-045 (msn 278), Stans as HB-HWS, ready for first flight, to be the ARDU test FAC platform
[all from our Swiss friend Stephan Widmer]



23 JUL 2019: A54-046 (279) HB-HWT at Stans compass swing



AUG 2019: A54-047 HB-HWU compass swing on 9AUG A54-049 HB-HWW being towed for final assembly 8AUG

Ex-Army Kiowa Registrations

1 August 2019: Thanks mainly to Martin Edwards and Greg Hyde, we have the following details of 13 of the ex-Army Kiowas that have come onto the Australian civil register over MAR-AUG 2019, the latest being VH-JQN/A17-038. Previously reported aircraft are listed in green, the more recent additions in black.

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-JJP	A17-031	msn 44531	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.
VH-HRF	A17-039	msn 44539	to Charles Hull Contracting P/L, Waroona WA, on 28 MAY
VH-EJZ	A17-016	msn 44516	to E L Jones, Hilston NSW, on 9 JUL 2019
VH-PWU	A17-040	msn 44540	to J V Weymouth, Dora Creek NSW, on 31 JUL 2019
VH-JQN	A17-038	msn 44538	to J V Weymouth, Dora Creek NSW, on 1 AUG 2019



A17-047 is now Judy Pay's VH-XKH, at Tyabb June 2019

More DA 40 NG Aircraft for AAF Cadets

20 June 2019: The Australian Air Force Cadets (years ago, the Air Training Corps) received its last pair of eight new Diamond DA 40 NG trainers. The aircraft, featuring the latest in avionics technology and a turbocharged jet fuel piston engine, will be based at RAAF Amberley in Queensland, RAAF Richmond in NSW and RAAF Point Cook in Victoria. Although provided by the RAAF, the aircraft are registered to Airflight P/L, of Perth. Below are the CASA registration dates (with dates seen at airfields).

Possible Side Number *	Registration	msn	Date Registered
1	VH-UEX	40.N389	12 FEB 2019 (CBR 15Aug)
2	VH-UEZ	40.N390	6 FEB 2019 (PCK Jun)
3	VH-UEJ	40.NC042	18 APR 2019 (PCK Jun)
4	VH-UEL	40.NC043	23 APR 2019
5	VH-UEM	40.NC046	6 JUN 2019
6	VH-UEO	40.NC047	6 JUN 2019
7	VH-UEP	40.NC048	20 JUN 2019
8	VH-UEW	40.NC049	20 JUN 2019 (PCK 31Jul)

- These single-digit side numbers are unconfirmed, but have been listed in msn sequence.

No 2 SQUADRON A.F.C.
by John Bennett 2019

PART I – THOSE EARLY DAYS

We flew only at dawn and at sunset, when there was no wind. Our labouring box-kite, capable of only forty-five miles per hour, was provided with no instruments other than a barometer...The senses took the place of instruments. One's ears did duty as engine counters; the rush of air in the face told whether the climb or glide was at the right angle...

Tom White, First Flying Course Point Cook ¹

Military aviation in Australia was a natural consequence of aircraft development in the first decade of the twentieth century. Australia's vast distances suited air travel, and being a young and developing nation fostered the new air-mindedness. Australia's geographic insulation had not isolated the island continent from the dream that man could fly.

The use of the aeroplane for defence purposes followed. This new technology was recognised as having military application, although the roles initially remained undefined. In September 1909, the Commonwealth Government offered a £5,000 (\$10,000) prize for the successful design of a "flying machine...for military purposes".² During 1910, plans for an air arm were submitted to the Department of Defence, and the following year the Minister, Senator G F Pearce, was able to gazette the requirement for personnel to create a service flying school. The formation of a Flying Corps was approved in October 1912.³

The site chosen that year for Australia's first military aerodrome was Point Cook, to the west of Melbourne on Port Phillip Bay. Two pilots, Henry Petre and Eric Harrison, who had gained their licences in September 1911 in England, had been appointed to run the flying school. Orders were also placed for training aircraft. A part-time Australian Army officer on attachment in UK, Captain Oswald Watt, from the NSW Reserve of Officers, inspected British aeroplane manufacturers, and four aircraft were ordered for the Defence Department – two B.E.2a tractor biplanes and two Deperdussin tractor monoplanes. (Australia's fifth military aeroplane - a Bristol Boxkite pusher biplane – was ordered later in 1912.) Watt reported on 30 August 1912 to the Director of Military Training at Victoria Barracks, Melbourne:⁴

The arrangements made on behalf of the Corps are in my opinion excellent. Both the Deperdussin monoplane and the Factory (BE) engine-in-front biplane are unsurpassed by any.



One of the two CFS B.E.2a tractor ('engine-in-front') biplanes at Point Cook

[AWMA04628]

Captain Watt's involvement in military aviation at this early stage had stemmed from his personal interest in flying. By obtaining a pilot's licence⁵ while on duty in England during 1911, Watt had become the first Australian serviceman to be trained as a pilot. He subsequently bought his own Bleriot XI monoplane, which he flew in Egypt over 1913-14, and then in Paris, where he was working for Bleriot at the outbreak of war.

Meanwhile the rudimentary aeroplanes of Australia's embryo Central Flying School (CFS) were shipped to Sydney in 1913, and stored until the Point Cook⁶ school was established. CFS was part of the Army, and its newly appointed personnel formed the Aviation Instructional Staff. The function of CFS was "the training of the personnel of the Australian Flying Corps (Citizen Forces) and Flying Corps Reserve (Permanent and Citizen Forces)...Four officers of the Permanent Forces and eight officers of the Citizen Forces will be trained annually".⁷ The first Australian military aircraft took to the air on 1 March 1914, when Harrison flew the Boxkite, and then Petre a Deperdussin. Point Cook had become the birthplace of Australian air power.

The first training course for CFS commenced on 17 August 1914. The students were four soldiers - Captain Tommy White, and Lieutenants Richard Williams, George Merz and David Manwell. Training was conducted "dual" on the Boxkite, meaning the student leant over the instructor to reach the controls. When the student then had some time in the air, these positions were reversed, until he was assessed as safe to solo. Williams soloed after 2¾ hours instruction. As calm weather was needed to fly the Boxkite, it was the orderly officer's duty to test the air at daybreak. Williams recalled "he did so by holding his handkerchief in the air by one corner; if it did not hang still there was no flying that morning".⁸ The course finished that November, the students each completing under eight hours flying time.

With the advent of the Great War in August 1914, the services of the Australian pilots for operations were soon required. On 30 November the first Australian aviation unit for active service left Melbourne for German New Guinea.⁹ Germany had annexed north-east New Guinea in 1884, and this outpost of the German Empire held the potential for hostilities, bordering to its south, the British Empire. The unit was commanded by Harrison, with Merz as the other pilot. They sailed on *HMAS Una* with four mechanics and two aircraft, a BE.2a and Farman Hydroplane, donated by Sydney businessman, Lebbeus Hordern. By the end of 1914, all German posts in New Guinea had been occupied, and German New Guinea was placed under an Australian military administration. Although the detachment had sailed to Wilhelmshafen (now Madang) and Petershafen, on Witu Island north of New Britain, the aircraft remained unpacked, and arrived back from Rabaul in early 1915.¹⁰

Following this first expedition, a cable message received from the Viceroy of India on 8 February 1915 requested Australian air assistance further afield: "*Could you provide any trained aviators for service in Tigris Valley? All our trained officers are in Egypt and England.*"¹¹ The request amplified that aircraft could be provided from England. So, on 20 April 1915, one half of a flight, known as the 1st Half-Flight Australian Flying Corps – consisting of four officers, 42 other ranks, and no aircraft – was sent to serve in Mesopotamia (now Iraq). Sailing on the *RMS Morea* to Bombay, and then on the *SS Bankura* to the Persian Gulf, the Australians arrived at Basra on 25 May.¹² Under the command of Captain Petre, the other pilots were White and Merz, from the first CFS course, and Lieutenant William Treloar, who had trained in England before the war. They were all members of the Australian Flying Corps (AFC), and being on operational service, were part of the Australian Imperial Force (AIF). Later, a further ten groundcrew were to sail from Sydney on the *RMS Persia* on 10 August 1915, to join up with the original group.¹³ In Mesopotamia the Half-Flight was absorbed into the Indian forces, and flew Maurice Farman Shorthorn and Caudron G.III biplanes on reconnaissance missions.



A French Caudron G.III, similar to those flown by the Half Flight

Although the aircraft were unarmed, the observer could drop small bombs from the cockpit by hand. On one sortie in July 1915, Merz and his New Zealand observer, Lieutenant William Burn, forced-landed. They were attacked by Arabs and killed. By the end of the year both White and Treloar had been captured, and Petre continued flying in 1916 with the RFC. The remaining mechanics who had survived death or capture eventually reached the AIF in Egypt.

Later a Second Half-flight was offered to India. Lieutenant Williams would have commanded this unit, but it was not required. After the disasters that had befallen the first contingent, Williams felt fortunate that the offer had not been accepted.¹⁴

While the primary activity associated with military aviation in Australia was centred on Point Cook, pilot training was also being conducted at Richmond, in New South Wales. Here the NSW Government had established the NSW State Aviation School in 1916 under Billy Stutt. Stutt, trained in England before the war, served as the chief instructor at Richmond, and in November 1917 he was to fly one of the School's Curtiss Jenny biplanes to Point Cook. This was, most probably, the first Sydney to Melbourne flight. He was later to join the staff at CFS. The first course commenced at Richmond in September 1916, and nineteen pilots graduated in December – ten joining the AFC, one remained on staff to instruct, and the others were accepted into Britain's Royal Flying Corps (RFC). The types of machines flown at the School were a French Caudron and the American Curtiss Jenny. During 1917 the NSW Department of Education took responsibility for the School to widen its scope for "general after-the-war purposes".¹⁵ By the end of the war, six courses had been completed.¹⁶

The output of students at CFS also built up, with over twenty students starting on both the Sixth Course in 1916 and the Seventh Course in 1917.¹⁷ There was to be a total of eleven courses at CFS during the war. The earlier aircraft were supplemented by a French Bleriot and Caudron, and later by the British F.E.2b, Bristol Scout and Grahame-White Boxkite types. There were constant requests for more training aeroplanes from the British War Office, but these fell on deaf ears.¹⁸ More substantial numbers of each aeroplane type were not operated until Maurice Farman Shorthorns, and then D.H.6s, were received in limited quantities. The restricted number of training aircraft, and their obsolescence, meant that both the Richmond and Point Cook schools only achieved an elementary level of flying instruction. This therefore required the RFC, in Egypt or in England, to complete more advanced "higher" flying training.

The decision to constitute a complete flying unit in Australia was made in late 1915. Britain had previously requested personnel for service in the Royal Flying Corps (RFC), but on 24 November revised this by stating that no further groundcrew ("mechanics") could be accepted. However,

"Above does not apply to men joining any *complete* aviation unit raised and paid for by your Government".¹⁹

On 27 December, the Australian Government advised its intention "to organise a squadron, flying corps, 28 officers and 181 other ranks, for despatch in February". No 1 Squadron AFC was duly formed in January 1916, and embarked on 16 March to Egypt.

Australia thereby became the first Dominion to form a flying corps and dispatch flying units overseas. No 1 Squadron was to fly with distinction in the Middle East for the remainder of the First World War. But more importantly to this story, it was to give birth to a second unit – No 2 Squadron AFC. The first Australian squadron had joined the Egyptian Expeditionary Force on arrival in Egypt on 14 April 1916. After training with the RFC and equipping with British aircraft, No 1 Squadron AFC flew reconnaissance sorties in support of the Army defending the Suez Canal. This was the vital link in the line of communications for the British Empire. The AFC unit then went through a confusing change of identity as it was briefly referred to as No 68 (Australian) Squadron, Royal Flying Corps.

The raising of a second Australian flying unit was then proposed. On 27 July 1916, the Department of the Navy, in reply to a request from the Chief of General Staff in Melbourne, advised that transport for the dispatch of a flying unit of 13 officers and 186 other ranks could be arranged for November. But at this stage it was unsure whether the new squadron would be required in England or Egypt:

If the destination is the United Kingdom, arrangements could probably be made to despatch the unit complete. If the troops are to be forwarded to Egypt, it would be necessary for the majority of the officers to proceed by mail steamer. It is understood that a number of the rank and file could be despatched to Egypt in October if required, and also, that only personal equipment will be taken by the unit.²⁰

As these plans were being made for a new squadron to be shipped from Australia, plans were also afoot to prepare a further unit in Egypt for service on the Western Front. In London the War Office advised in early September of

its intention of forming the new unit, No 67 Squadron, in Egypt during November 1916.²¹ The date of formation was soon brought forward, as authority was received on 15 September to form this second squadron.²²

From: WAR OFFICE. LONDON.
To: Aeronautics, Eypforce.

22842. CIPHER A.O.1. 15/9/16

Your A.M.958. Formation of Australian Squadron RFC is authorised. Will be known as 67th (Australian) Sqdn.

Five days later the War Office advised the RFC (most probably for reasons of seniority in squadron numbering) that the new unit should instead be No 68 Squadron.²³

Air Board
GOC, RFC in the Field
GOC, RFC Middle East Brigade

.....
The following notification is issued concerning the Australian Squadrons:-

1. The present Australian Squadron in Egypt, known as No 68 (Aus) Squadron will in future be:-

No 67 (Aus) Squadron.

2. A second Australian Squadron, to be composed of personnel recruited from other Australian units serving in the East, has been authorised, and, when formed, will be known as :-

No 68 (Aus) Squadron.

B C H Drew
Major
General Staff
for Director of Air Organisation

War Office
20.9.16

The confusion created by the War Office was not to end there. In December it advised that No 67 Squadron, referring to the newly formed second Australian unit, would become a fighter squadron at Harlaxton in England, with its first three aircraft planned for delivery on 15 February 1917.²⁴ Apparently the edict of this unit being No 68 Squadron had temporarily been forgotten.

So, surrounded by some confusion, the second Australian squadron – No 68 – was formed, at Kantara in Egypt, from personnel from No 67 (Australian) Squadron and the Light Horse Regiments of the AIF, on Wednesday 20 September 1916.²⁵ Extra personnel were requested from Australia, and Headquarters in Melbourne advised the AIF HQ in Egypt that 14 Air Mechanics would embark on the *Barunga* on 20 October.²⁶ The main shortfall of ground staff remained with wireless operators, illustrated by this signal from London in December.²⁷

From: Troopers London
To: Perardua Cairo

No 19862 A.O.2 14 December 1916

Your T.605, wire as soon as possible exact date you expect mechanics to complete 68 Sqn would be obtained from Anzac Mounted Division as it is proposed to complete this Squadron as early as possible. If you cannot obtain these men, arrangements will be made here; we will collect 26 Wireless Operators, 10 riggers, 4 photographers from Australian Forces in England.

The Officer Commanding (OC) of No 68 (Australian) Squadron was Captain Oswald Watt. This flamboyant Australian had gained his pilot's, as mentioned, at Brooklands in England in August 1911, and in late 1913 based himself in Cairo amidst a high population of French aviators and their aeroplanes. This prompted Watt to buy his own machine, and he ordered a Bleriot XI from the factory in France. This was duly delivered to Heliopolis in Cairo in February 1914, where he first flew it operating from his own hangar on 14 February.²⁸ Although *Aeroplane* reported on 5 March 1914 that Watt was the first British subject to fly in Egypt, this was later queried that it may well have been an Irishman at Alexandria the previous month.²⁹



Oswald Watt's Bleriot XI at Heliopolis in early 1914, reportedly the first British aeroplane in Egypt [AWM C02799]

Having flown with the French *Service d'Aviation Militaire* since the outbreak of War in 1914, "Toby" Watt had gained combat experience in the air that no other Australian shared. Watt had initially flown Bleriot single-seat monoplanes, which were soon found to be unsuitable for active service and considered bad machines for war. If left in the open overnight, the fabric would soon become flabby, with a consequent loss of performance and manoeuvrability. By the end of 1915, the unarmed Bleriot was, for all active service purposes, a relic of the past.³⁰



Oswald Watt in France: a 9SQN RFC Bleriot XI No.1834, and his Shorthorn "Advance Australia" with Esc MF.44

Soon Watt had advanced to flying the pusher Maurice Farman "Shorthorn" in *Escadrille* (Squadron) *Esc MF.44*, with an observer standing in the front armed with a rifle to fire at the enemy.³¹ Watt named his two-seater "Advance Australia". During 1915, the French had awarded him both the *Legion d' Honneur* and the *Croix de Guerre*. However, as Watt was not a French citizen, he had been unable to hold a command, so he transferred back to the Australian Forces in 1916. He joined No 1 Squadron as the 'B' Flight Commander in Egypt during May,³² having travelled from England with 67 Squadron's new OC, MAJ Foster Rutledge.³³

This confusion of the squadron numbering of the new unit had not been restricted only to the Royal Flying Corps. Australia, too, had contributed by forming another "second Australian squadron" at Point Cook. A draft Military Order from the General Staff in Melbourne in August 1916 had stated:³⁴

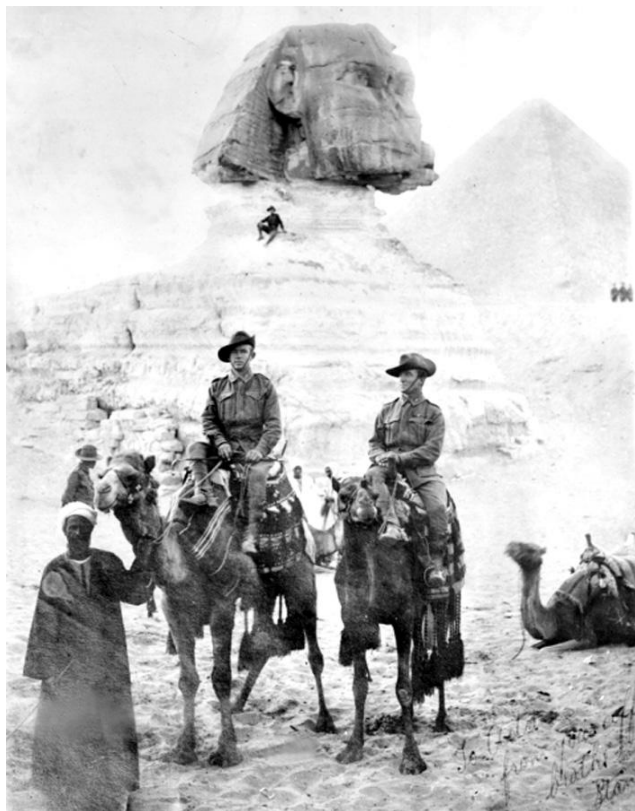
AUSTRALIAN MILITARY FORCE
No 2 Flying Squadron

1. Approval has been given for the raising and despatch of No.2 Australian Flying Squadron for active service abroad. NCOs will only be appointed temporarily for the voyage.
2. Table showing allotment and distribution of this unit is issued separately.

CGS
No 412/1916
31/8/16

Consequently, the eleven graduates of the Fifth Course at CFS, conducted over 1 AUG – 1 OCT 1916, were appointed as Second Lieutenants in the 2nd Squadron Australian Flying Corps on graduation.³⁵ The Squadron marched out of Point Cook for Melbourne on 25 October, proceeded by road and rail to Port Melbourne, and departed on the SS *Ulysses*, bound for England. This "No 2 Squadron" anchored in Devonport harbour on 28 December. The unit was subsequently designated No 69 (Australian) Squadron, and ultimately became No 3 Squadron AFC in 1918, however some of the novice pilots would fly in France with 68 Squadron.³⁶ The confusion of this "other No 2 Squadron" has confounded historians since. Even Cutlack, the official historian of the AFC in World War One, got this wrong³⁷ and the No 2 Squadron Battle Honours board recorded the Squadron as being formed under Watt at Point Cook!

But No 2 Squadron (soon to become 68 Squadron in the RFC) was formed in Egypt, with most of the tradesmen transferred from 67 Squadron. Other candidates for air mechanics, and pilots, had been recruited from the Light Horse Regiments (LHRs) - the methods used by Watt in obtaining applicants was somewhat unorthodox. One recruit was 2nd class Air Mechanic (2/AM) Fergus Cox. He recollected AFC personnel in three Leyland trucks arrived at the camp calling out for "any trades, any mechanics, any engineers". When queried if the volunteers should be processed through the orderly room, the response was: "No, we have to snatch them."³⁸



CPL Stan Muir, left, with 4LHR in Egypt, 1915



LT Bill Guilfoyle, ex-4LHR, in OCT 1915 graduating as a RFC pilot

The trade volunteers – and there was no shortage from the Light Horse – were tested at No 67 Squadron over late 1916; those selected were absorbed into the new Squadron at the Kantara camp in Alexandria, those not required

were returned to their units. Watt is recorded in the Official AFC History stating that 68 Squadron was composed (except for ten ground personnel) of men who had been on service in Egypt with the LHR or with 67 Squadron, or both.³⁹ The new Flying Corps held a fascination to those in the Light Horse. It was, perhaps, as 67 Squadron pilot 'Woody' Sutherland explained:⁴⁰

Aeroplanes are like horses. Some are docile, reliable, well-mouthed, and comfortable to ride. Others, like polo ponies, are sharp and snappy on the turns...lastly, the outlaw, which fights man's mastery up to the last; in its record there is sure to be at least one victory, involving maiming or death for the vanquished.

Some of those 68 Squadron mechanics that had passed their trade testing at Kantara included 2nd Class Air Mechanic (2/AM) George Jones (later a Camel pilot in France with 4AFC), who would rise to be Chief of Air Staff of the RAAF in the Second World War. Others included 2/AM David Clark, Les Ward and Frank Power, all to become 68 Squadron pilots. They sailed as a unit under MAJ Watt from Alexandria on 13 January 1917 on the HT *Kingstonian*, for their training in England and the war on the Western Front.

Several potential pilots had already been coerced from the Light Horse Regiments (LHRs) – considered suitable candidates as flying officer – and instruction for a few commenced in Egypt. For these newly recruited trainees, flight instruction was conducted at Aboukir with No 20 Reserve Wing on the Maurice Farman Shorthorn, and then “higher” instruction on the B.E.2c. One trainee was AVM Adrian Cole who flew MF.11s in SEP 1916, then B.E.2 in Oct 1916, which was considered sufficient to graduate as a “flying officer” and join 67 Squadron on the B.E.2c.⁴¹ In addition in 1916 the syllabus had introduced a month’s groundschool at a formal School of Military Aeronautics (SMA) before elementary flying commenced.



[AWM P08150002.001]

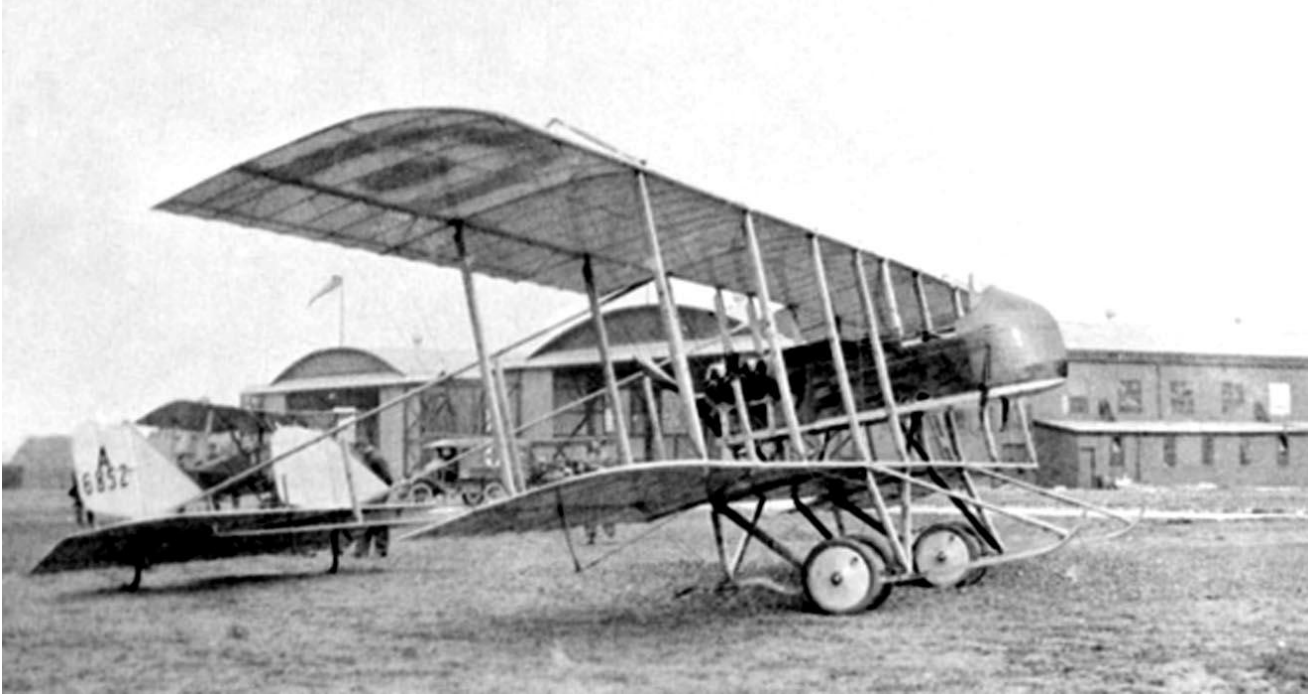


[AWM P11399.001]

Different systems of training: (left) Infantry officer *CAPT Roy Phillipps* of 28th Bn AIF in 1915 Egypt, before flying training in UK 1917, and becoming a Flight Commander; (right) *LT Clive Johnson*, a 2LT with 1LHR, started RFC training with 3SMA at Aboukir in DEC 1916 and flying with 20 (Reserve) Wing in Egypt, graduating in MAR 1917 to proceed to Britain and joining 68SQN.

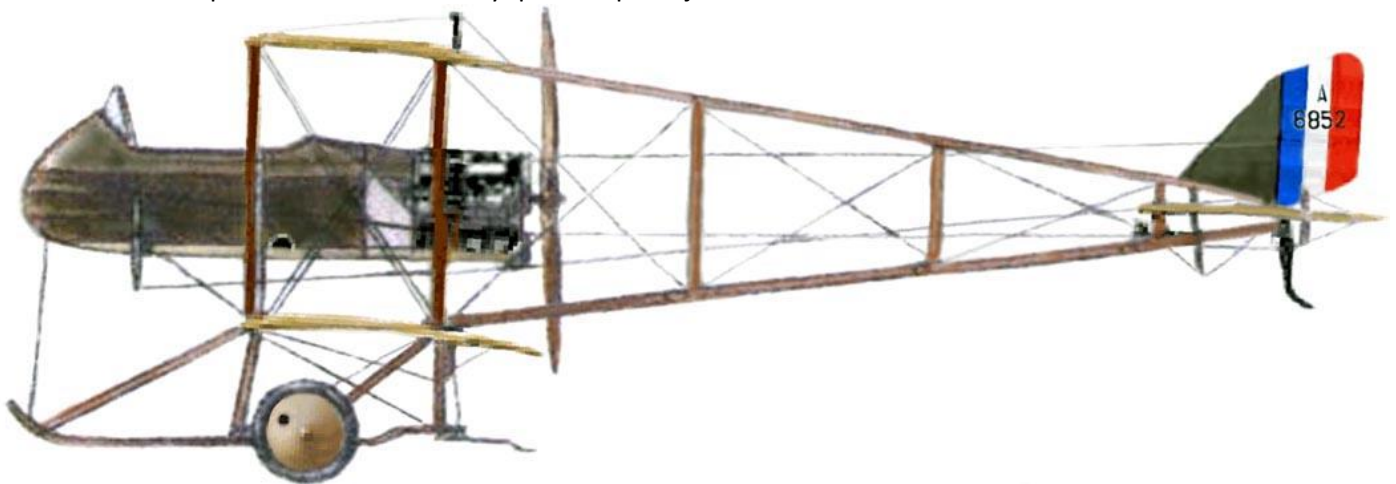
With a complement of trained ground personnel, 68 Squadron under Major Watt, promoted on 23 December,⁴² proceeded to Alexandria to board ship for England. The Squadron, with 180 personnel,⁴³ departed without pilots or observers⁴⁴ – they would be trained in Britain or Egypt – and set sail on the SS *Kingstonian* on Saturday 13 January 1917. Berthing at Malta, and they arrived in Marseilles harbour on 24 January. The Squadron executives onboard with MAJ Watt were the three appointed Flight Commanders – former Light Horsemen and trained pilots, CAPTs Stan Muir, William Guilfoyle and John Bell.⁴⁵

Below: 'Rumpety Flying' – new Australian pilots from the Point Cook courses were not considered trained by the RFC, and had to undertake further elementary training with Reserve Squadrons in the RFC's training wings



[AWM 12729/03]

The 'Rumpety' was the first aircraft novice trainees would fly, either with 20 (Reserve) Wing in Egypt, or with a Reserve squadron, normally in Lincolnshire. No.48(R)SQN (of the 23rd Wing at Waddington) provided elementary training for 68SQN pilots on Maurice Farman MF.11 Shorthorns, like A6852 shown here. The Shorthorn was known as the 'Rumpety' because of its rumbling flying noise. Advanced, or 'higher', training then would normally continue at another Reserve Squadron before the newly qualified pilots joined an AFC unit.



Disembarking in Marseilles,⁴⁶ the Australians boarded the crowded train for a three-day trip north through France, circumventing Paris and disembarking at Le Havre to await shipping for England. The Australians from the desert could not believe the cold. 1/AM Hubert Billings, an LHR wireless mechanic recruit, recalled that icicles were hanging under the engine where leaking water had frozen.⁴⁷ At Le Havre personnel were billeted in tents which offered little protection from the freezing conditions. "I got a tin of hot water from the cook for shaving, and ice was forming on the sides before I finished".⁴⁸ Fergus Cox recalled: "it was the coldest night for 80 years" and two of their British Army sentries died – "frozen on guard duty".⁴⁹ 2/AM Leslie Ward, another recruit from the Light Horse who was to become a pilot on the Squadron, spent his birthday here and recorded "we stayed and shivered all day at this camp".⁵⁰

From this makeshift camp, 68SQN sailed for Southampton on the *Donegal*, arriving at daybreak on Tuesday 30 JAN 1917. The Australians entrained to London, then again to Grantham, in Lincolnshire, arriving that night. Here 68SQN was to be based at the new RFC aerodrome at Harlaxton, 3km south-west of Grantham, beside the grounds of Harlaxton Manor. The Australians were to share this aerodrome with No.44 (R) SQN, which had only been in residence for two months.⁵¹ Both units were part of the 24th Training Wing, headquartered at nearby Spittlegate, Grantham.⁵²

Early 1917 was a period of major change for the RFC – on operations at the Front in France, and for increasing training numbers and standards in England at Home Establishment. At the beginning of the war, in 1914, most aircraft had been two-seaters, as the role of the aeroplane had been observation and reconnaissance. Information was needed about the enemy army, its disposition and strength, and its movements. Aircraft crews were the "eyes of the army" – mapping trench systems, reconnoitring the battle area and directing artillery barrages. Machine-guns were not carried as their weight restricted the rate of climb. But it soon became evident that the air force with the best scouts, or fighters, could control the air for its own observation machines.

Pusher scouts, which were developed for fighter squadrons in 1915 had soon become obsolete. The pusher normally had a crew of two - a pilot, and an observer in the front cockpit to shoot a machine-gun. This, however, had a restrictive field of fire, and the crew had blind spots which covered an approaching enemy. The replacement of the pusher was, therefore, not due solely to their relatively poor performance, but to the adoption of the synchronised machine-gun to fire forward through the propeller arc.⁵³ This innovation had been pioneered by the French in February 1915. By fitting metal plates to the wooden propeller blades, bullets fired by a forward-firing machine-gun could be deflected.⁵⁴ But when this aircraft was forced down behind German lines in April, the idea was effectively developed by Fokker in the form of an interrupter gear.⁵⁵ This was a synchronised mechanical device which stopped firing when the blade obstructed the path of fire. The new design flew in the Fokker E-1 *Eindekker* (itself modelled on the French Morane-Saulnier monoplane), and in turn, was captured by the Allies during the summer of 1915.

The British initially copied Fokker's system with the Scarff-Dibrovski cam interrupter. Then, with the assistance of a Romanian engineer, Georges Constantinesco, the Allies were able to develop a gun which fired efficiently through the propeller by way of a hydraulic system. The advantage of this system over mechanical gears was that it was easy to adapt to all classes of engines and aircraft. The connection between the generator on the engine and the trigger motor on the gun was by means of a simple pipe instead of complicated push rods and bell cranks. This enabled a fairly constant and high rate of fire.⁵⁶

As the Germans had used their development to gain control of the air during this "Fokker Scourge", in turn the Allies by 1916 were now able to gain air superiority, the attainment of control of the air. Gun synchronisation – "gear that synchronised miraculously the absence of a blade with the presence of a bullet"⁵⁷ – in addition to a scout's speed and manoeuvrability, was of major importance. The resultant tactic of getting onto an adversary's tail, with minimum deflection or angle-off, is one which has remained to this day. To use this to advantage, a scout pilot could use superior height for concealment in the sun, and then pounce to achieve success by accurate close-in shooting.

The balance for control of the air then see-sawed during 1916 as performance of the opposing scouts improved. Firepower, too, was developed and the German Albatros D.I was the first scout to appear with twin synchronised guns.⁵⁸ With this machine, and the Halberstadt scout, the German Air Service was able to gain the advantage by late 1916. In a letter from Field Marshal Haig, the Commander-in-Chief of British Armies in France, to the Chief of the General Staff in early 1917, he advised:⁵⁹

The position as regards fighting squadrons in particular is most serious. Our fighting machines will almost certainly be inferior in number and quite certainly in performance to those of the enemy. In view, therefore, of the marked increase in the number and efficiency of the German aeroplanes it appears that we cannot expect to gain supremacy in the air in April, and it is even possible that it may pass to the enemy.

Haig's prediction was quite correct. The German scouts did maintain their superiority, and during "Bloody April" the RFC was to lose no less than 316 aircrew.⁶⁰ In spite of this, the RFC was to maintain offensive operations. One tactical development, pioneered by the Germans, was the flying of aeroplanes in formations. This had started from a pair, to provide mutual support, developed into flights of four, then into massed formations of close-flying aircraft. The official RFC tactical manual explained:⁶¹

The development of aerial fighting has shown that certain fundamental maxims which govern fighting on land and sea are equally applicable in the air. Among these are concentration, mutual co-operation and support, and a well organised system of command, under which no individual has more than a limited number of units under his immediate control. The adoption of formation flying has followed as an inevitable result. Any mission which has fighting for its object, or for the accomplishment of which fighting may normally be expected, must usually therefore, be carried out by a number of machines, the number depending on the amount of opposition likely to be encountered.

Selected German fighter squadrons (*Jagdstaffeln*, abbreviated to *Jasta*) were grouped into wings (*Jagdgeschwadern* - *JG*), or circuses, for large scale operations. The most renowned became JG I, commanded by Baron Manfred von Richthofen. The German strategy was to engage the RFC over the German lines, to ensure several advantages. The prevailing westerly wind on the Continent drifted the ensuing melee over German territory. Allied fighters then had the handicap of heading back home into wind, while the Germans were closer to their airfields, and therefore needed less fuel. Also aircraft forced down in these dogfights would, more often than not, fall into German territory, with Allies becoming prisoners of war, while the Germans could be returned wiser to their squadrons.

These tactical advantages in 1917 were not, however, one-sided. The Germans had initiated these formation operations to counter the general RFC offensive principle, which had persisted from the beginning of the War. But now RFC fighting principles extended aerial encounters upwards to 20,000 feet. Fighting also extended downwards, with RFC low-flying aircraft cooperating with the infantry, and attacking enemy trenches, transport, and even aerodromes. The Germans then followed suit, but found that they had to develop their wireless technology – necessary for air-to-ground communications – as they had lagged by some twelve months. And as numbers of aeroplanes increased, single machine engagements developed into battle of whole formations from both sides. These 1917 RFC principles of fighting were a major shift in policy, advocating cooperation between the arms:

The aeroplane is a new weapon in warfare; every fresh development brings with it an element of surprise which is bound to be looked on by other arms as something exceptional. Our aeroplanes attacked the enemy low down during the battle of the Somme. From captured documents and the reports of German prisoners we know that this new form of aerial fighting caused the greatest dismay among the enemy...⁶²

A further factor aiding the advantage to the RFC later in 1917 was the quality of the equipment that became available – superior machines such as the S.E.5a, the Camel and the Bristol F.2b Fighter. And in response to this increased aerial activity, the 1917 RFC training system within Home Establishment in Britain was undergoing radical changes and expansion. 68SQN now in early 1917 became a Reserve Squadron, a training unit preparing for its role as a "Service" squadron, which was an active unit at the Front. It would be trained as a scout squadron and support the ground forces in fighting for control of the air over the battlefield. For its groundcrew, this meant adapting their technical expertise, mainly gained before joining the Light Horse, to the new technologies of aviation. For the pilots, many of whom were recruited from horsemen, this involved learning to fly.

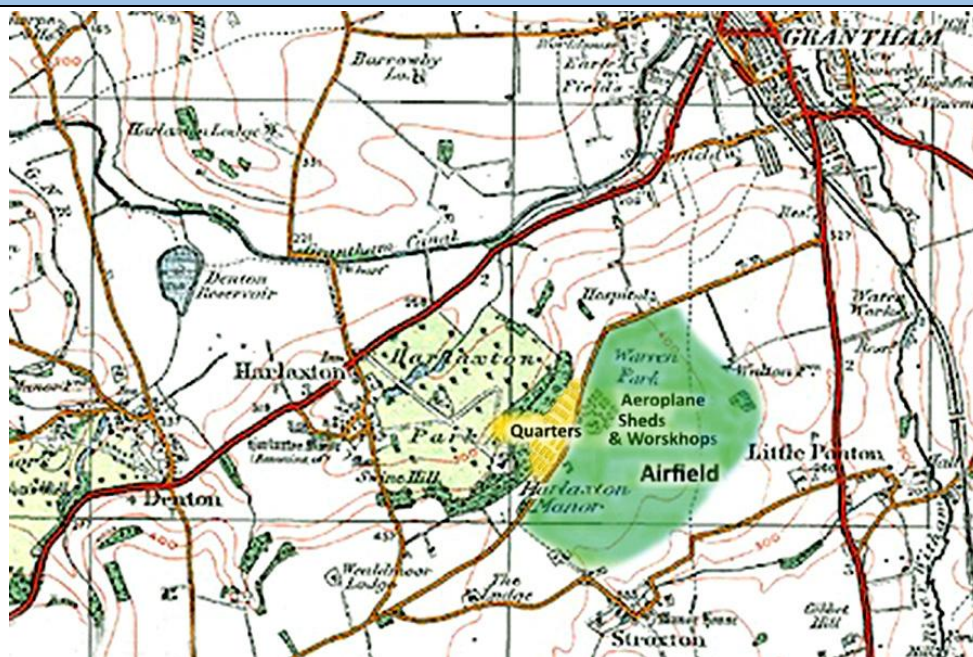
For the newly-arrived Australians, training for those selected as pilots was to commence at the RFC's Schools of Military Aeronautics, No.1 at Reading and No.2 at Oxford. The syllabus covered the technical aspects of aeroplane engines and rigging, and practical airborne procedures. A month's technical groundschool was a precursor for before passing on to preliminary flying training. 2/AM Leslie Ward was taken by surprise by his sudden selection for pilot training, as his diary indicated:⁶³

Thursday 15 March. Waiting on parade this morning, two of us were suddenly ordered to pack up and proceed to Reading on a course of Aeronautics, in other words to be trained as pilots. We were almost stunned as it was more than we could realise, however, we were soon packed.

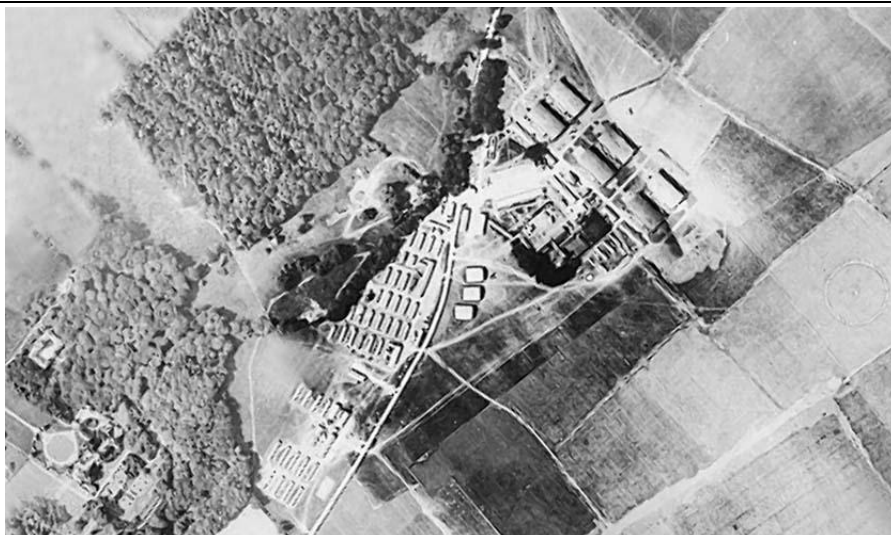
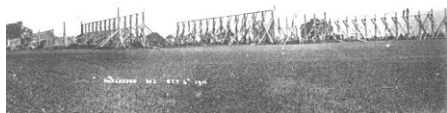
Maintenance training for the Australian mechanics was conducted at different RFC depots. Some were detached to Catterick, near York, for training with the 8th Training Wing on rotary engines, and then more advanced tuition at different factories. Manufacturers, such as Rolls-Royce and Smiths Instruments, hosted the Australians and were impressed by the standard and eagerness of their students. They then returned 'home' to Harlaxton aerodrome, constructed over late 1916 to house two squadrons of the 24th Wing for the large RFC expansion of training facilities. No.44(R)SQN was formed in November 1916 to train for the bomber and reconnaissance roles, and awaited the arrival of the Station's second squadron, the Australian 68SQN.



Six of these hangars were constructed at Harlaxton from OCT 1916 – the same design as Yatesbury airfield, above



Harlaxton was equipped with six 1916-pattern General Service aeroplane sheds (hangars), with a 80-ft span, and 170-ft depth. Below shows the construction of these large GS sheds, starting in OCT 1916, and completed by early 1917 as 68SQN arrived.



Harlaxton's six large aeroplane sheds (hangars) under construction in late 1916, and the completed airfield



68SQN's new home at Harlaxton – overlooking Harlaxton Manor, with the aerodrome /technical site on the far side of the road (Warren Park), the domestic area on the near side just outside the treeline for Harlaxton Park.

SCHOOLS OF MILITARY AERONAUTICS

In 1916 the flying training syllabus had introduced a month's groundschool at a formal School of Military Aeronautics before elementary flying commenced. No 1 School at Wantage Hall in Reading University had originally been the School of Instruction at the end of 1915, changing to No 1 School of Instruction when No 2 formed at Christ Church College Oxford in April 1916 – both titles changing to School of Military Aeronautics (SMA) in October 1916.⁶⁴ AWM photographs also show a large number of AFC cadets at Queen's College Oxford from mid-1917. No 3 SMA was formed in Egypt at Abu Qir (Aboukir) also in 1916, and fed students to then train with the 20th Training Wing RFC, which included AFC trainee flyers.

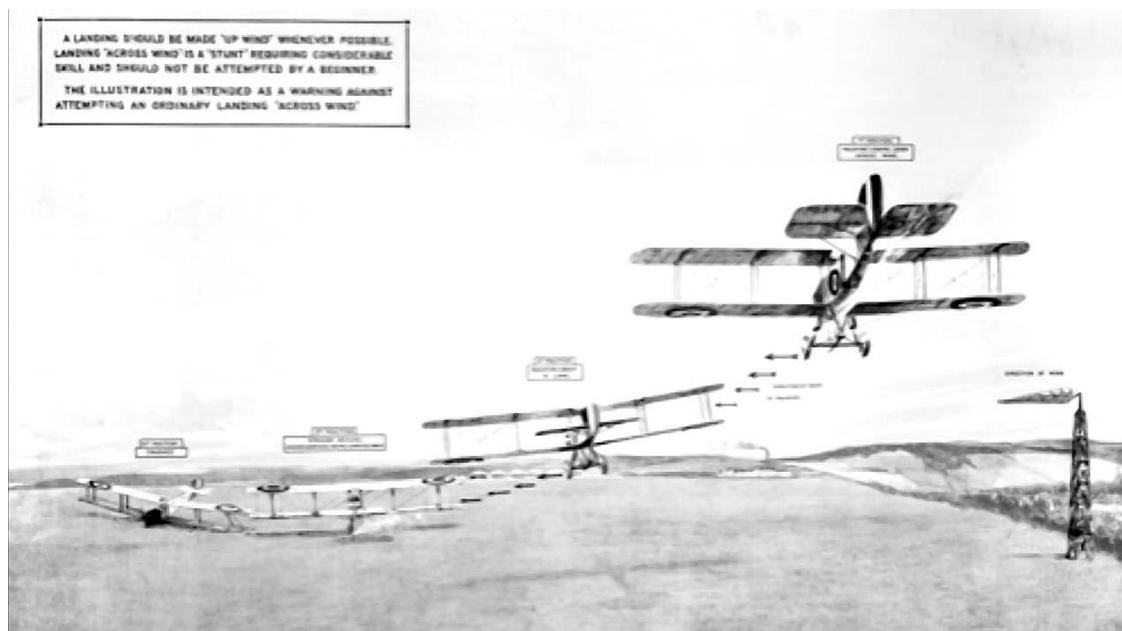


Students learning aeroplane theory at 1SMA Reading

The Aeronautics course covered the technical aspects of aeroplane engines and rigging, the theory of flight and map reading. Specialist training was given in wireless signalling and receiving, the care of machine-guns, the operation of aerial cameras and, by the use of models, the observation of artillery fire.⁶⁵



Engine run and taxi experience with a D.H.5 instructional airframe at 2SMA Oxford [IWM Q27249]



The dangers for novices attempting cross-wind landings

[IWM Q67825]

The warning reads: A landing should be made "up wind" whenever possible. Landing "across wind" is a "stunt" requiring considerable skill and should not be attempted by a beginner.

The illustration is intended as a warning against attempting an ordinary landing "across wind".

Basic flying training at this stage was normally conducted on the Maurice Farman Shorthorn, the 'Rumpety', with advanced training on the Avro 504. Trainees went to RFC aerodromes around Lincoln for their instruction before returning to Harlaxton. Tuition here with the 24th Training Wing continued on the Avro 504 and the Sopwith Pup. Also flown by the Australians was the Sopwith 2-seater, known commonly as "one and a half Strutters", for its splayed centre-section wing struts. The Strutter had, by this stage, been relegated to the training role from the Western Front, where in 1916 it had been the first RFC aeroplane to be fitted with machine-gun interrupter gear.⁶⁶ It had, therefore, been considered as the first real British fighting machine.⁶⁷ At Harlaxton, Avro 504s comprised 68SQN's 'A' Flight, and 'B' Flight consisted of two Pups and four Strutters.⁶⁸ 'C' Flight flew Pups and Avros.



['High Adventure']



['Reckless Fellows']

1917 training crashes Harlaxton – left A5926 Avro 504A Cobby's crash on 68SQN mid-1917; right Sopwith 'Strutter'

The key to the control of the air was fast, armed fighting scouts flown by good pilots. Up until December 1916, the total flying experience of a replacement pilot arriving in France had averaged 15 hours. Instruction was then increased to 22 hours, but the heavy losses to the RFC during the "Bloody April" of 1917 forced a cut back to 17 hours.⁶⁹ The typical standard of training was described by the famous Australian aviator P G Taylor. He met his instructor immediately before his first flight and received no briefing. The instructor:⁷⁰

...walked off towards a Maurice Farman standing on the tarmac and I followed him in a somewhat confused state of mind. This wasn't exactly what I had expected. I had pictured some sort of orderly approach; a talk with the instructor before my flight, and some idea of the theory behind controlling an aeroplane. Instead, I climbed up after my instructor into the rear seat...

The engine was throttled back, the nose went down, and a shout came from the figure in the front seat, 'You land it!' The shock of this remark caused an immediate physical reaction. My hands shot out to the scissors handles in front of me and my feet onto the rudder bar on the floor. I imagined that unless I took the controls

instantly the aeroplane might fall out of control to the ground. I knew nothing. Nothing beyond the absurdity of the demand that I should land the aeroplane. I checked my panic. The instructor was still in the aeroplane with me. Even if he were mad enough to expect me to land it without instruction he would probably be sane enough to stop me crashing it...The engine came on, the controls were snatched out of my hands and a savage shout came back to me from the instructor, 'Bloody awful!'

Fortunately, this standard of instruction was not to persist – the RFC had lost too many students for that. Pilot training was then to become systemised and comprehensive through the efforts of Major Robert Smith-Barry who established the flying school at Gosport, near Portsmouth in Hampshire. Under the commander of Training Division, Major-General John Salmond, Gosport developed into the School of Special Flying.⁷¹ Here instructors were taught how to teach, and aerobatic manoeuvres became part of the basic pilot training curriculum. This concentrated training program resulted in pilots going to France by 1918 with an average of 50 hours.⁷² "Smith-B", as he was always called, was to ensure that the "Gosport System" of training would ultimately form the basis of flying instruction as we know it today.



[AWM P00394.011]

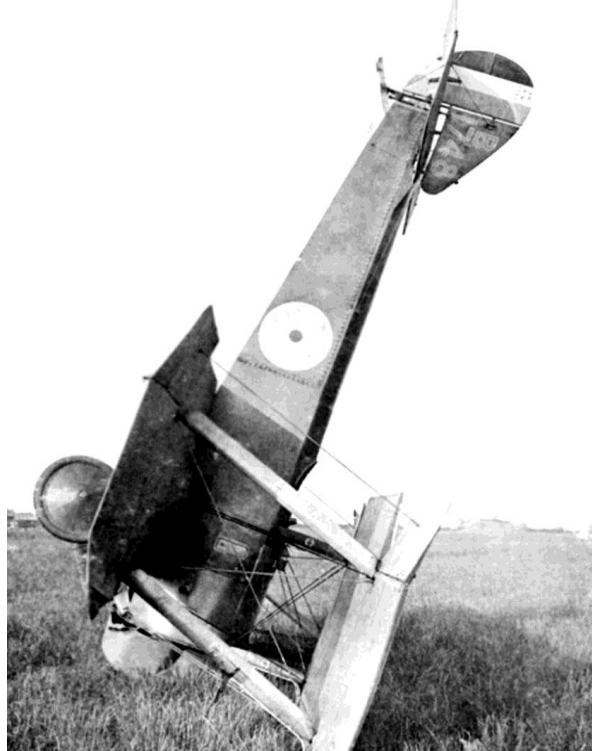
The Avro 504A initially equipped 68SQN's 'A' and 'C' Flights at Harlaxton over May-July 1917

But a problem for any newly-arrived AFC pilots trained at the Australian flying schools was that they were not considered trained pilots by the RFC. Whether from Point Cook or Richmond, they had only accumulated a handful of hours on obsolescent machines. For most, this did not constitute as being capable of passing immediately onto advanced training, first they would need the comprehensive RFC groundschool at a School of Military Aeronautics, then repeat their elementary training at a lower Reserve Squadron (comprising about five hours dual instruction, and five hours solo) before advancing onto higher training. Those AFC pilots who were considered more experienced were sent for advanced, or "higher", instruction – referred by the students as "higher destruction"⁷³ – at Reserve squadrons. Most of these pilots returned to their home bases to instruct on their squadrons: the pilots graduating from advanced flying returned as qualified pilots, those who had undergone only the elementary training were still the student pilots. Both AFC units – 68SQN and 69SQN – undertook this advanced training role, graduating pilots for both the AFC and the RFC. On 31 MAY 1917, the RFC Reserve squadrons were retitled 'Training' squadrons, still with their instructional role,⁷⁴ and when 68SQN commenced training on D.H.5 in JUL 1917, it became a 'Service' squadron.

The shortcomings of the Australian training system had been exacerbated by the British War Office. Both CFS at Point Cook, and the State School at Richmond, had continually requested supply of more modern equipment, and been undermined by a reluctance of making training aeroplanes available. This led to assessing that the Australians were "inadequately trained for modern warfare".⁷⁵ Below is a summary of initial AFC flying training and basing in Britain, from the beginning of 1917 until the squadrons were fully worked up a 'Service' squadrons and deploying to France by the year's end. With regard to CFS Point Cook instruction, the first four courses had formed and reinforced 67SQN in the desert.⁷⁶ In 1918, the AFC Training Wing would form in Gloucestershire under LTCOL Oswald Watt.

Summary of Initial 1917 AFC Flying Training in Britain

AFC Unit	RFC Training Wing	Prior Training	RFC Flying Training in Britain
68SQN / 2AFC	24th Wing, Harlaxton	A few 3SMA and 20(R) Wing in Egypt, some from Richmond, but mostly untrained LHR recruits.	49(R)SQN for elementary/lower training at Spittlegate. Higher training on 68SQN, and 44(R) SQN Harlaxton, 45(R)SQN South Carlton, and 81(R)SQN Scampton.
69SQN / 3AFC	23rd Wing, South Carlton ⁷⁷	Point Cook's 5th Course, then 1SMA or 2SMA in Britain.	49(R)SQN for elementary/lower training at Spittlegate. Higher training 69SQN and 45(R)SQN South Carlton and 81(R)SQN Scampton.
71SQN / 4AFC	25th Wing, Castle Bromwich ⁷⁸	Point Cook's 6th Course, then 1SMA or 2SMA in Britain.	48(R)SQN for elementary/lower training at Waddington.



Pup B1748 crash in mid-1917 from the AWM/Cornell collection [AWM H12729/16]



The Harlaxton airfield with its six large hangars – Harlaxton Manor grounds beyond

For the Australian novice pilots having obtained their wings and becoming “flying officers”, they held at 68SQN for continuation. Also they were then sent off for two weeks training to their “finishing school”, at the School of Aerial Gunnery at Turnberry in Ayrshire – this soon became the School of Aerial Fighting, epitomising the improvement in 1917 RFC training. The purpose of the fighting school was summarised in an RFC document, “Bring Down Your Hun!”:

Object of a Fighting School

Pilots and observers are taught, during their training, to fly and to shoot and the object of the fighting school is to combine the two so that the pilot automatically puts his machine in such a position that he can use his guns accurately, without the enemy being able to use his. The school also teaches co-operation between pilot and observer, and between a number of machines working together. At the school the pilot gets used to manoeuvring his machine in close proximity to a number of others.⁷⁹

One pilot with 68SQN at Harlaxton for advanced training was the future ace, Lieutenant Harry Cobby. A graduate of the Sixth Course at CFS, Cobby had sailed with No 4 Squadron, arriving in England in March 1917. He was to become the highest scoring pilot of the Australian Flying Corps. Cobby had soloed on the Shorthorn, and then flew the Avro 504 for higher training on 68 Squadron.

There was a vast difference in the manner in which we were treated at Harlaxton, to that meted out to us at Royal Flying Corps schools. We were Australians with Australians and no longer gentlemen visitors from the Antipodes and instruction and comment was direct and to the point. The senior instructors were Guilfoyle, Muir and Matthews and they just put us through the hoops. We were started off on Avros, something in our experience that was more like a proper aeroplane than anything we had touched. There were no frills about the place at all. A few hours with an instructor, a few "straights", that is a fast taxi and then lift the machine off and put it down again, then one dual flight right away, and you went "solo". Not only did we have to follow a fixed sequence of movements in the air, in sight of our instructors on the ground, but we were all under a moral obligation to loop on our first solo. Somebody had started the habit some little time before and although nothing was ever said until after you had done it, even amongst the pupils, it had to be gone through otherwise you lost caste. It did not matter how many times you looped the loop later on, it had to be done on the first solo.⁸⁰

The operational aeroplane for which the Australian novice flyers were training was the De Havilland D.H.5 single-seat scout. De Havilland designed the D.H.5 to combine the better tractor performance with the good forward and upward view of the pusher, resulting in its negative wing stagger – the bottom wing was forward of the upper wing. It was most probably the first aircraft specifically designed for ground attack, as the Air Ministry "required a machine for 'trench-strafing' and low flying, and instructions were issued to designers to produce a type which would give the pilot a good view overhead as well as below and in front".⁸¹



[AWM H12729/07]

68SQN's first D.H.5 A9197 at Harlaxton in JUL 1917 – Avro 504A behind is probably A5938

This is before application of a Presentation inscription “NSW No.15 “The Upper Hunter” probably in JUL 1917, before more D.H.5s were allocated to 68SQN – A9197 did not go to France, and its inscription was transferred to A9245.

So for the 68SQN pilots after ‘finishing school’ flying in mid-1917, the ‘Service’ work-up phase took place for one to two months on the operational aircraft the unit would take to France. So concurrently as 68SQN underwent service training on the D.H.5 at Harlaxton over JUL-SEP 1917, the OC MAJ Watt despatched his pilots to France over JUN-AUG 1917 for operational experience,⁸² what would be a month of operational on-the-job training. Most then assembled back at Harlaxton in AUG 1917 for preparation for the Squadron deployment to the Front. This operational attachment warrants a detailed mention, as it truly culminated the RFC’s thorough approach to training by 1917. All of the Australian pilots were attached to active RFC squadrons on the Front, mainly on D.H.5 units.⁸³

68SQN Pilot Attachments to France JUN-AUG 1917

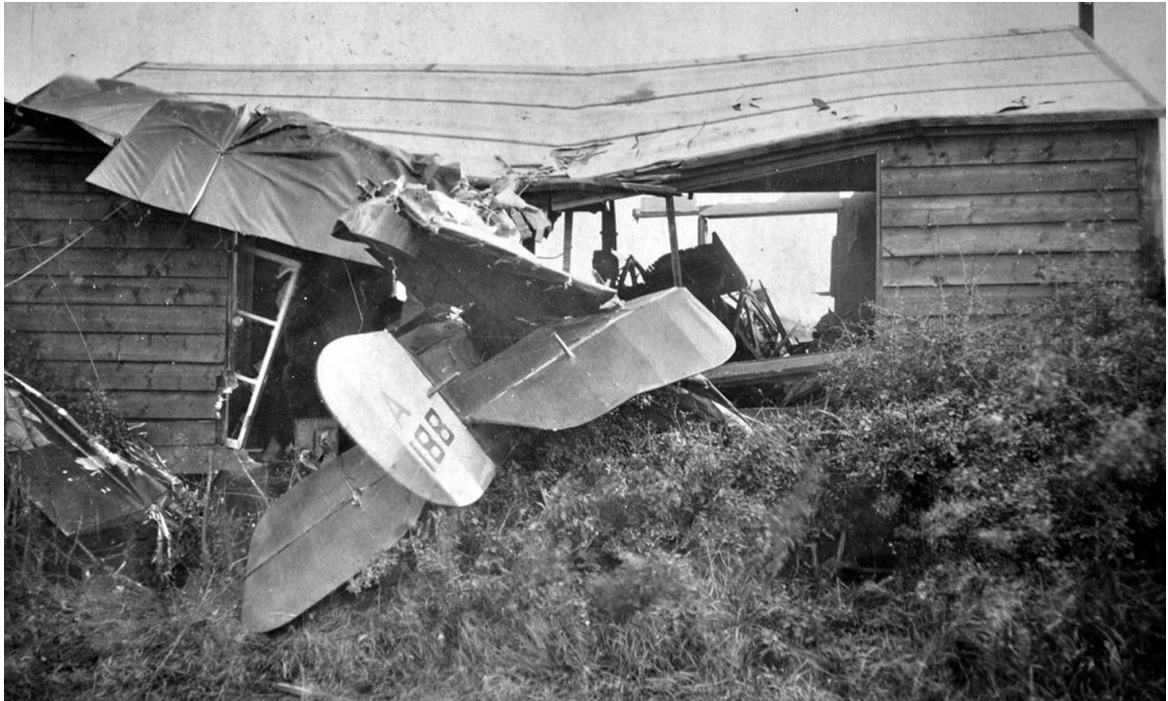
RFC Unit in France	68SQN Pilot	Aircraft Type	Remarks
32 SQN Drogland	CAPT Phillipps LT Wilson LT Matthews LT Bartlam LT Roberston LT Forrest 2LT Sands	D.H.5	Forrest originally on 43SQN Strutters; crashed D.H.5 A9380 on 5 AUG 1917, returned to 68SQN. Phillips became 68SQN ‘A’ FLT Commander, after McCloughry (already serving at the Front) returned from 68SQN France to UK in OCT 1917 to work up 71SQN. Wilson wounded in A9325 on 14 AUG 1917, returned to UK, became 68SQN ‘B’ FLT Cdr on 21 SEP 1917.
24 SQN Baizieux	CAPT Muir LT Griggs LT Morrison LT James	D.H.5	Muir killed at Harlaxton 12 SEP 1917, replaced as ‘B’ FLT Cdr by Wilson.
41 SQN Abeelee	MAJ Watt CAPT Bell LT McKenzie 2LT Taylor	D.H.5	Watt took 68SQN to France SEP 1917 as the OC. Bell was 68SQN ‘C’ FLT Cdr, killed when shot down 20 NOV 1917; replaced by Matthews.
70 SQN Liettres	LT Epps LT Pratt LT Agnew	Camel	Epps wounded in Camel on 19 AUG 1917, did not return to 68SQN.
57 SQN St Omer	LT Holden LT Howard	D.H.4	The choice of this two-seat bomber was an odd attachment – probably the only slots available.
66 SQN Estrée-Blanche	2LT Huxley	Pup	Huxley crashed Pup B1731 24 JUL 1917, returned to 68SQN.



[AWM C01862]

‘B’ FLT Cdr CAPT Stan Muir in D.H.5 A9197 in early SEP 1917 – he was killed on 12 SEP in an accident at Harlaxton

68SQN’s flying over AUG/SEP 1917 was a strenuous and systematic preparation, and completed a truly radically stepped approach for wartime operations. This followed on from the rudimentary ‘conversion’ onto the D.H.5 to feel its handling, utilise its performance and gain experience on the type. The D.H.5’s performance was reasonable for the power offered by its 110-hp Le Rhone and it was not unduly difficult to handle. For the primary ‘trench-strafing’ role, gunnery was practised at a nearby weapons range. ‘Press-on-itis’ in a dive with target fixation was always a risk, as shown in the image below of a 23rd Wing D.H.5 A9188 which crashed into the range’s gunnery hut.



[23rd Training Wing album⁸⁴]

D.H.5 A9188 of 45 (Training) SQN South Carlton crashed on 5 OCT 1917 into the gunnery hut on the range
In OCT 1917 there were still 68SQN pilots being trained on D.H.5s in Lincolnshire before joining the unit in France

The D.H.5 had a maximum speed of 105 mph at 6,500 feet and could climb to 10,000 feet in 12 minutes. But this performance was inferior to contemporary German scouts, and the D.H.5 was generally considered the least successful of De Havilland's ten wartime designs. While its backward-staggered wing (with the pilot sitting ahead of the upper wing leading edge) did provide good forward visibility, the downside was that the rear visibility was fatal for hunting "the Hun in the sun". Again P G Taylor recollected:⁸⁵

Apart from the D.H.5's performance, which was inadequate for the period of its service, its pilot's vital rearward view was almost entirely obscured by the upper wing. And any pilot in France who didn't, or couldn't, look behind to watch for the enemy on his tail, didn't live very long.



Part II will cover D.H.5 operations in France over SEP-DEC 1917, with a full list of 68SQN D.H.5s.



Chef de Mission Francaise.

Many reports have recently been received from both French and English sources as to the difficulty of recognising British aeroplanes by means of the present method of a Union Jack being painted on the under surface of the wings.

It is therefore proposed to try a system of circles similar to those on French machines, which are more clearly visible, but to paint the circles as follows :-



Have you any suggestion or remarks please ?.

MARKINGS of WWI

National Markings

Roundels. RFC aircraft were identified by the red, white and blue roundel on the fuselage and mainplanes, which was adopted on 11 DEC 1914 to replace the Union Flag (the union cross causing confusion with the German cross). However, on 17 DEC 1914, RNAS machines carried red rings and white centres on their wings – this unique marking being retained until NOV 1915.⁸⁶ As P.C.10 *Khaki* had been adopted as standard during 1916, to ensure the roundel was obvious, on 5 MAY 1917 a mandatory thin white outline was introduced.⁸⁷

Rudder Stripes. In MAY 1915, rudder stripes had been added, with blue on the leading edge against the rudder post, a practice similar to that adopted by the French.⁸⁸

This official RFC memorandum, possibly from the Military Aeronautics Directorate, appears to be dated in 1916.

10

BRITISH AEROPLANE MARKS



Recognition Markings of the above country are displayed as follows

1. On both sides of the fuselage.

Three concentric circles – inner circle red, middle circle white, and outer circle blue.

(Diagram A)

2. On bottom side of lower planes.

Three concentric circles – inner circle red, middle circle white, and outer circle blue.

(Diagram A)

3. On top of upper planes.

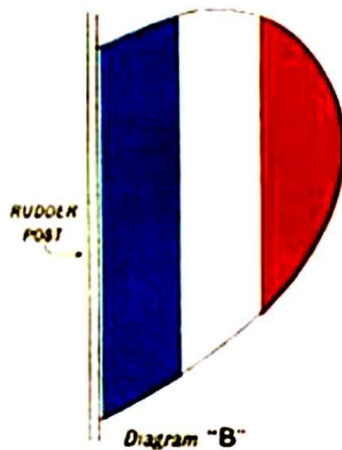
Three concentric circles – inner circle red, middle circle white, and outer circle blue.

(Diagram A)

4. On rudder.

Three vertical equal stripes – blue, white, and red, on both sides – the blue stripe being next to the rudder post.

(Diagram B)



Continued from page 10



National Markings colours: Blue VB2 and Red VR3

To make National Markings more effective in daylight, the paint specifications were changed from the original VB1 *Blue*, VW1 *White* and VR1 *Red*, to VB2, VW3 and VR3 respectively, improving visibility. Therefore, by 1917, the colour specifications (approximated to FS595a designators) were: VB2 (FS 15056) and VR3 (FS 21105).⁸⁹

SOPWITH 1½ STRUTTER TRAINING AIRCRAFT of 68 SQUADRON, HARLAXTON 1917

Two Sopwith 1½ Strutters are shown in Harry Cobby's autobiography, *High Adventure* – 7781 and A5239. However, both these aircraft were not at Harlaxton, but at 6TS AFC Minchinhampton in 1918 when Cobby was instructing there, with LTCOL Watt commanding the 1st AFC Training Wing who introduced the colourful Australian style kangaroo/emu markings on aircraft.⁹⁰



Cobby in 68SQN 'B' Flight Strutter, mid-1917 [High Adventure]



Strutter crash at Harlaxton 1917 [Reckless Fellows]



A5967 probably at Harlaxton in mid-1917, outside the large 1916-pattern GS hangars [AWM H12729/34]



[AWM H1272932]

68 SQN 'B' Flight known Sopwith Strutter trainers:

A5967 in the [AWM H12729/34 'Cornell' collection]; and A8767 image from Cornell [AWM H12729/33].

(2LT Tom Hewson, trained by 68SQN Harlaxton, was killed flying Strutter A1029 with 45SQN RFC in France on 7 JUL 1917.)

SOPWITH PUP TRAINING AIRCRAFT of 68 SQUADRON, HARLAXTON 1917

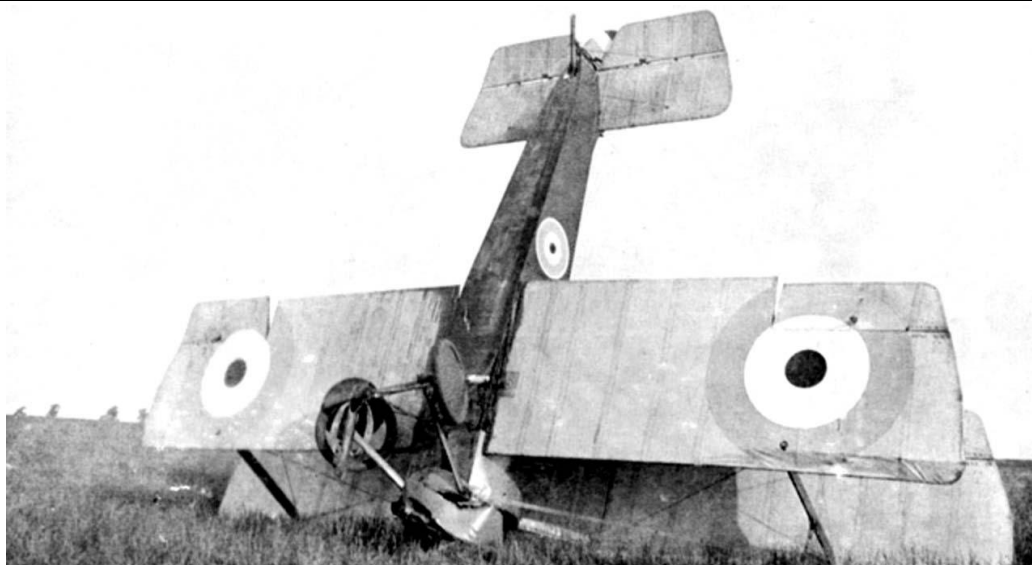
Operated over MAY-JUL 1917, JUN 1917 was a bad month for AFC training losing two Pups: flight commander CAPT Bill Guilfoyle was injured when he crashed 68SQN Pup **B1720**, and student 2LT Harold Kitson was killed in **B1734**.



Sopwith Pup – either at 24th Training Wing Harlaxton, or 23rd Wing at South Carlton [AWM H12729/35]



Guilfoyle's Pup B1720 of 68SQN JUN 1917 at Harlaxton



Pup B1748 crash, AWM collection from LT Cornell

[AWM H12729/18]

68 SQN known Sopwith Pup trainers:

B1720 crashed by 68SQN 'A' Flt Cdr CAPT William Guilfoyle (injured) 4 JUN 1917.

B1734 crashed by 2LT Harold Kitson (killed), on 15 JUN 1917 at Sth Carlton. He was from the 7th Point Cook course.

B1748 crashed mid-1917, 45RS AWM/Cornell collection [AWM H12729/16 and H12729/18].

And also both **B1736** and **B1749** were on 45TS South Carlton strength in mid-1917 - may have been used by 68SQN.⁹¹

AVRO 504A TRAINING AIRCRAFT of 68 SQUADRON, HARLAXTON 1917

68SQN 'A' and 'C' Flights. Harry Cobby relates in his autobiography "High Adventure" his training days with 68SQN at Harlaxton, on the 504A, his first solo on A8527 (later crashed by another student), and his crash with A5926.



68SQN Avro 504A A8527 in clear doped linen (CDL) scheme mid 1917

[Cobby: High Adventure]



A8510 crash at Harlaxton 1917

[Reckless Fellows]

68 SQN known Avro 504A trainers:

A3399 crashed at Harlaxton 19 JUN 1917 (Wilkins) 24th Wing, but probably with 44TS.

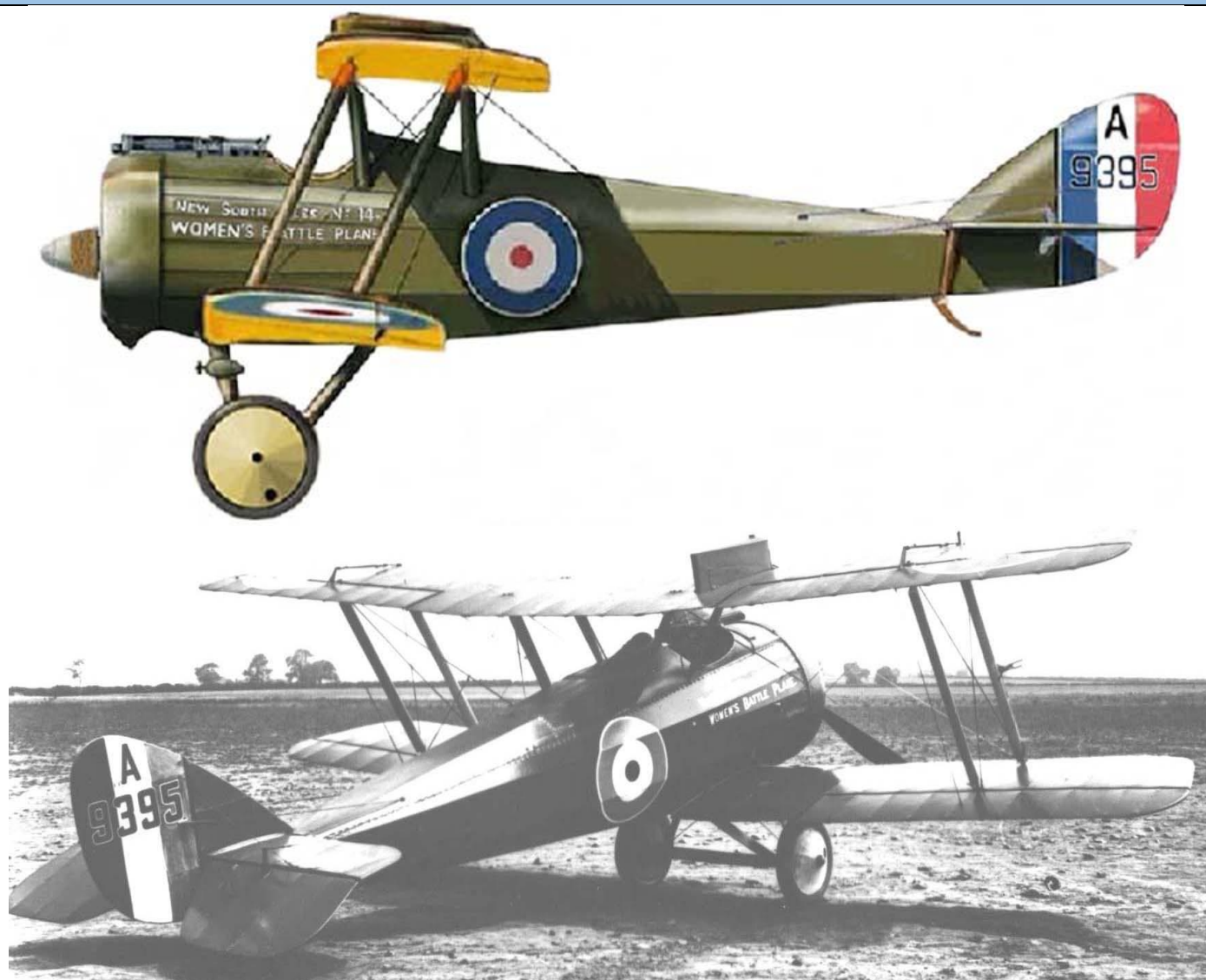
A5926 68SQN crashed at Harlaxton (LT Cobby), early-mid 1917.

A5927 68SQN taxi accident with Nieuport 12, at Harlaxton (possibly from 23rd Wing), in mid-1917.

A8510 24th Wing, crashed at Harlaxton 1917.

A8527 68SQN over mid-1917, crashed at Harlaxton.

A5938 is possibly in picture with 68SQN D.H.5 A9197 JUL 1917 [AWM H12729/45].



[AWM C01856]

A9395 AUS No.15 NSW No.14 "Women's Battle Plane" in AUG 1917. This was one of 68SQN's first D.H.5s at Harlaxton, delivered on 22 JUL 1917 while most of the Squadron's pilots were deployed to RFC units in France to gain operational experience. This aircraft did not proceed on deployment to France, but was replaced on 68 SQN on 3 SEP 1917 by A9242 which adopted the Presentation inscription.

A9395's inscription as shown above read: **"New South Wales No.14, Women's Battle Plane"**. This differed slightly from the inscription on its replacement A9242 (below): **"New South Wales No.14 Women's Battleplane, Presented & Collected By Women of New South Wales"**.



These Presentation inscription images were taken at Harlaxton over AUG-SEP 1917

[AWM C01859]

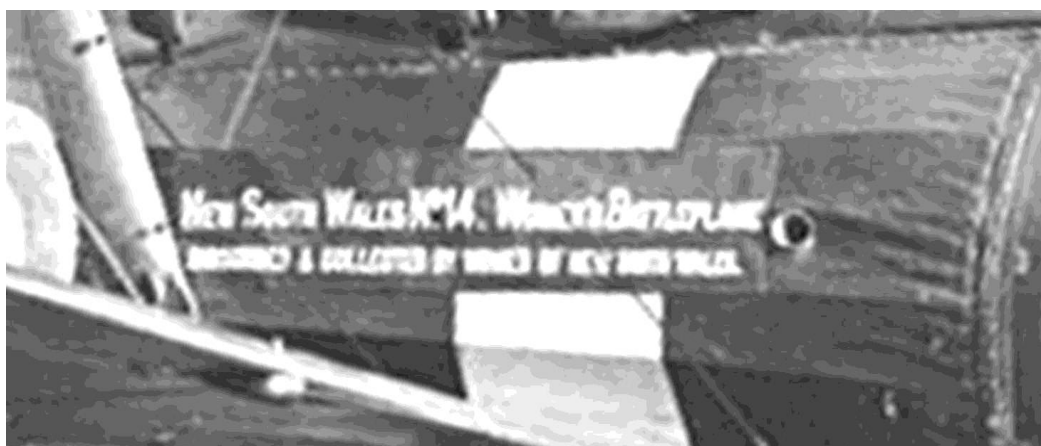


[AWM C01858]

A9242 AUS No.15 NSW No.14 "The Women's Battleplane" – why a white fuselage band has been added to the inscription is not known. This aircraft not yet modified with the cowling stiffening ribs, added in SEP before France.



A9242's different inscription, mocked up for the 1920 Alma Baker presentation souvenir book [Alma Baker book]



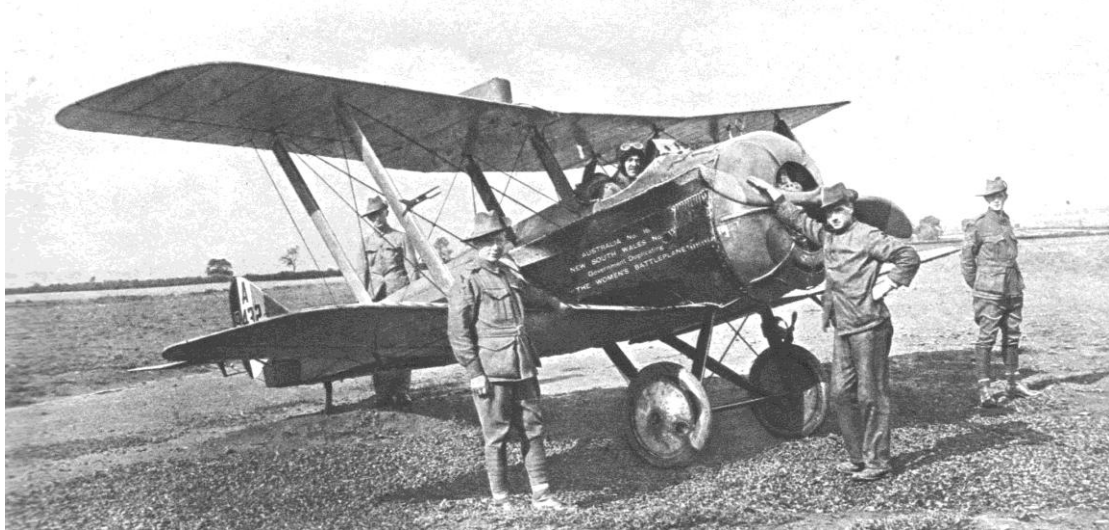
Enlargement of the real inscription on A9242:

**New South Wales No.14 Women's Battleplane
Presented & Collected By Women of New South Wales**



[AWM C01857]

A9432 AUS No.16 NSW No.15 "The Women's Battleplane" – at Harlaxton in AUG 1917



A9432's inscription as shown mocked up in the Alma Baker book



A9432's inscription in AUG 1917 appears to be a more expedient application of fabric

[AWM C02800]



[AWM C01862]

A9197 NSW No.15 "The Upper Hunter" – the inscription has been applied in error, and was corrected on A9245 to "AUS 17 NSW No.16 The Upper Hunter Battleplane". The pilot is 'B' Flight Commander CAPT Stan Muir, tragically killed at Harlaxton during the work-up period on 12 SEP 1917, while airtesting a new D.H.5 A9275.



[AWM C01855]

A9245 AUS No.17 NSW No.16 "The Upper Hunter Battleplane" with the changed inscription in SEP 1917



RAAF WWII IN COLOUR

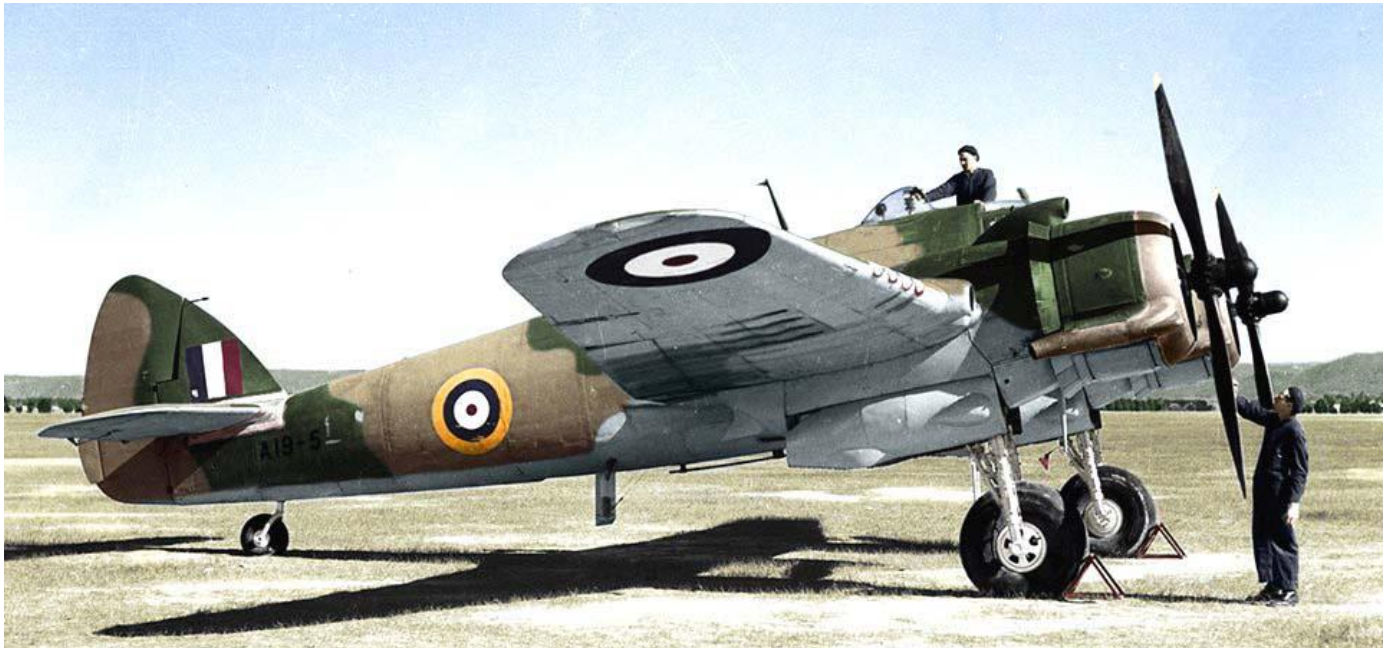
A series of RAAF aircraft in WWII – in Australia, New Guinea and the islands. Later, Europe and the Middle East will be included.



No.1 – RAAF Beaufighters

UK-built Beaufighters

Australia ordered 54 Beaufighter Mk.I fighters in MAY 1941, with twelve to be delivered by DEC 1941.⁹² However, inevitably delays slipped this date, partly because of shipping requirements. RAAF London, as late as 29 NOV 1941, were still working with the RAF on the packing of the aircraft, and not just sending as deck cargo.⁹³ While the official RAAF history records that by MAY 1942 these 54 had been either received or shipped,⁹⁴ in fact (as seen in the *adf-serials* database) the speed of these deliveries had accelerated. The first aircraft were shipped from UK in late JAN 1942, the first being received in MAR 1942, and all the remaining aircraft had been despatched by early APR 1942.



An accurate colourised image of Mk.Ic A19-5, with 30SQN at Richmond on 20 JUL 1942

This camouflage accords with the RAF *Temperate Land Scheme* (TLS) of *Dark Green* (and would later in service be changed to RAAF *Foliage Green* K3/177), *Dark Earth* (soon changed to RAAF *Earth Brown* K3/178), while the undersides had been changed to RAAF *Sky Blue* K3/195 from the MAP *Sky*, evidently an immediate requirement to better blend in with local clear skies, rather than the greyish haze of Europe. A19-5 later carried code 'F' with 30SQN.

The camouflage scheme of these first 54 RAAF Mk.Ic Beaufighters has been a point of conjecture. But it appears that as these aircraft were a direct paid order for Australia in 1941 (and not an EATS training aircraft transfer), they were delivered in a requested "green/brown" camouflage according to RAAF policy at the time. This would have K3/177 *Foliage Green*, K3/178 *Earth Brown*, with K3/195 *Sky Blue* undersurfaces – but of course these paints were unavailable in UK and approximate equivalents would have been used, i.e. TLS.

RAAF Policy. In 1940, the RAF's Aircraft Design Memorandum (ADM) No.332 had specified Air Diagrams (AD) for camouflage schemes for different types of service aircraft.⁹⁵ For twin-engined monoplanes with a wingspan less than 75-feet, i.e. the Beaufighter, the relevant diagram was AD.1159. RAAF HQ adopted this in 1941 by the Directorate of Technical Services (DTS) in DTS 368/41, which also for the first time laid out the RAAF's standard overland camouflage scheme.⁹⁶ These colours, in RAAF Specification 3K5, were *Foliage Green* (RAAF stores number K3/177, to replace RAF *Dark Green*), *Earth Brown* (K3/178 to replace RAF *Dark Earth*), and *Sky Blue* (K3/195 instead of RAF *Sky*). In AUG 1942, this was formalised by a more codified policy as a RAAF Technical Order, Aircraft General Instruction (AGI) No.C.11.⁹⁷

RAF Schemes. The RAF *Temperate Land Scheme* (TLS), had been mandated by RAF AMO A.926 in DEC 1940, specifying upper surfaces in Ministry of Aircraft Production (MAP) *Dark Green* and *Dark Earth*, and on the undersides

MAP Sky.⁹⁸ Historian Peter Malone has noted that while the RAAF was not bound by RAF camouflage instructions, the RAAF 3K5 Specification colours were not available in UK and so this initial 1941 order of 54 aircraft would therefore have been painted in local equivalents – MAP *Dark Green* and *Dark Earth*. The undersides were probably specified as *Sky Blue*, and MAP *Sky Blue* might have been used, in lieu of the normal TLS *Sky*,⁹⁹ a subtlety that changed the light green/grey of *Sky*¹⁰⁰ to the light blue of *Sky Blue*. These 54 aircraft were built in blocks by Fairey,¹⁰¹ receiving a green/brown instead of the Coastal Command *Temperate Sea Scheme* (TSS) applied to the production run of Mk.Ic aircraft at the factory (although they may have been overpainted by the RAF 47 Maintenance Unit at Sealand who packed our Beaufighters for despatch). Later in RAAF service these colours would eventually be changed to the RAAF standard *Foliage Green K3/177* and *Earth Brown K3/178*. Pentland, in his Vol.1, assessed on arrival in New Guinea these aircraft were “dark earth, dark green and *Sky* type-S”.¹⁰² However, the undersides shown below on a 30SQN Mk.Ic at Milne Bay had been changed already to the RAAF brighter *Sky Blue K3/195* from the TLS *Sky*. Suffice to say the first 54 Mk.Ic aircraft were *delivered* in TLS, and thereafter in TSS – both schemes using the same camouflage design template.¹⁰³ Furthermore, 1941 RAAF policy had directed that aircraft delivered in TLS brown/green were not required to be repainted.¹⁰⁴



Milne Bay, SEP 1942: This 30SQN Mk.Ic is from the AWM movie (F03628) shot by Kim Bonython when he deployed with 100SQN, and is dated around SEP 1942. By this stage *Red* and *Yellow* have been removed from the national insignia, and the MAP green/brown colours may well have been over-painted by new stronger RAAF K3/ colour equivalents.¹⁰⁵ The undersides are a more bluish rich *Sky Blue*, not the MAP greenish/grey *Sky*.

Serial number. The image of A19-5 shows that its serial number is marked in *Black* (as do others of this batch) which was the RAF standard. Current RAAF *Aircraft General Instruction* of OCT 1940 policy was for the serial number to be in *Grey*,¹⁰⁶ so this is an indicator that the aircraft was painted in this scheme – with its serial number – in the UK.¹⁰⁷

National markings. The *Yellow* surround of the type-A1 fuselage roundel was standard when the initial Beaufighters were delivered in 1942, but would be overpainted in AUG 1942 with camouflage paint; the following month the *Red* in the roundels would also be deleted. Standard delivery fin flashes were 27” high, 24” wide (8’ wide per colour).¹⁰⁸

Ultimately 218 UK-built Beaufighters – Mk.Ic, VIc, X and XIc variants – were delivered, and after this initial order of 54, the prevalent RAF camouflage was accepted, which was the *Temperate Sea Scheme* (TSS). The UK-produced Beaufighters were then supplemented and replaced by 365 Australian DAP-produced Beaufighter Mk.21s from 1944.

Beaufighter Mk	RAAF Serials	Delivery	Colour Scheme
Ic	A19-1 to A19-72	MAR 1942–SEP 1942	Similar to RAF <i>TLS</i> up to A19-54, then RAF <i>TSS</i> applied from A19-55
VIc	A19-73 to A19-136 ¹⁰⁹	AUG 1942–AUG 1943	<i>TSS</i> colours of <i>Dark Slate Grey/EDSG/Sky</i>
X / TF.X ¹¹⁰	A19-149/150, A19-153/155, A19-159, A19-162, A19-164 to A19-218	AUG 1943–JUL 1944	32 up to A19-187 in <i>TSS</i> ; final 30 from A19-188 in the <i>new TSS EDSG</i> over <i>Sky</i> ; A19-218 in Coastal <i>White</i> ¹¹¹
XIc ¹¹²	A19-137 to A19-148, A19-151/152, A19-156/158, A19-160/161, A19-163	JUL 1943–SEP 1943	All in <i>TSS</i> colours of <i>Dark Slate Grey/EDSG/Sky</i>
21	A8-1 to A8-365	JUL 1944–DEC 1945	Overall <i>Foliage Green</i>

Not to go by ~~air~~ mail 5589

AIR MAIL



9/18/41

1A

COMMONWEALTH OF AUSTRALIA

**AUSTRALIA HOUSE
STRAND · LONDON
W.C.2.**

PLEASE REFER TO
THE OFFICIAL SECRETARY
AND UNIT

TELEGRAPHIC ADDRESS
"COMMONWEALTH, AUSTRALIA LONDON"
TELEPHONE, TRADING BUREAU 1507

819/2/E/5588

25th November, 1941.

The Secretary,
Air Board,
Victoria Barracks,
MELBOURNE, AUSTRALIA.

RECEIVED
31 JAN. 1942
AIR REGISTER

[Handwritten signatures and initials]

BEAUFIGHTER AIRCRAFT ON INDENT 910 - PACKING
FOR SHIPMENT FROM THE UNITED KINGDOM TO
AUSTRALIA

Confirming my signal AL 868 of the 22nd November 1941, it is advised that each of the fifty-four (54) BEAUFIGHTER aircraft which are being supplied against Indent 910 will not be shipped as deck cargo but will be packed by an R.A.F. Packing Depot in four cases as follows :-

- (a) 1 Tee shaped case containing fuselage with centre section fitted but less engines and the tail section.
- (b) 1 case containing the wings, tail section and airscrews (assembled)
- (c) 2 Cases containing the engines.

2. The following detailed information is also enclosed :-

- (i) Copy of 47 Maintenance Unit, R.A.F. Sealand, Trial Packing Report.
- (ii) Six photographs referred to in paragraph 5 of the Report.
- (iii) Five drawings referred to in paragraph 6 of the Report.

3. An additional set of the information referred to in para. 2. is being forwarded by ordinary mail under cover of my letter 5589.

[Handwritten initials]

[Handwritten signature]
Air Commodore,
R.A.F. Liaison Officer.

Encls. ✓

After the initial 1941 RAAF order for 54 Beaufighters, follow-on Beau Ic and VIc deliveries were just accepted in the RAF schemes of the production blocks, due to the urgency of the time. The 'c' mark suffix, indicating Coastal Command orders, meant that future aircraft were delivered in TSS. 30SQN in New Guinea apparently had no preference in schemes, however 31SQN operating from Coomalie Creek on long over-water legs to the northern islands over the Arafura and Timor Seas, preferred the mixed grey scheme of TSS.

Temperate Land Scheme – TLS



[colourised by RAAF Photographic Training Flight]

Colourised image of Mk.Ic A19-43 in 1943 which served with 50TU and then 31SQN

			
MAP Dark Earth	MAP Dark Green	MAP Sky	RAAF K3/195 Sky Blue

All the RAAF Mk.Ic aircraft (A19-1 to A19-72) were built by the Fairey Aviation Co at Stockport UK, on sub-contract to Bristol. This production carried on too for some of the RAAF's the Mk.VIc aircraft (A19-73 to A19-136), as follows:

- **Fairey** Aviation Co Stockport, RAF serials between T5200 and T5344, flat (i.e. no dihedral) tailplane;
- **Bristol** (Ministry of Aircraft Production shadow factory at Old Mixton), Weston-super-Mare, Somerset, RAF serials from EL510, 12° dihedral on the tailplane.¹¹⁴

The later UK-produced Mk.X and Mk.XIc aircraft were all delivered in TSS, with the final 30 Mk.X from A19-188 received in the 'new' TSS – in use by 1944, with upper surfaces in the single colour *Extra Dark Sea Grey* over *Sky* undersurfaces.¹¹⁵ Australian production of the Department of Aircraft Production Mk.XXI (soon re-designated to Mk.21) was all in overall *Foliage Green*. From mid-1945, some aircraft were being stripped to bare metal for use in secondary roles. Overall, Beaufighters were delivered in different Coastal Command schemes: TSS, the new TSS from 1943 (where Dark Slate Grey was dropped and upper surfaces were only EDSG), and the Mk.X/TF.X scheme of "Whitex" camouflage from 1944.

The interpreting of black & white images and stating categorically the exact shades of colours is not always possible, especially as 31SQN modified their schemes 'in-house' for overwater operations. But existing records do provide definitive colour data points from markings – the brown and green can generally be determined.¹¹⁶ However, while there has been controversy of the first 54 Beaus delivered, as this was an RAAF direct order in 1941 before the large wartime deliveries began from the UK, the RAAF colours would have been specified IAW the 1941 policy, but unavailability of the specific K3 colours¹¹⁷ meant that acceptance in RAF TLS was more realistic.

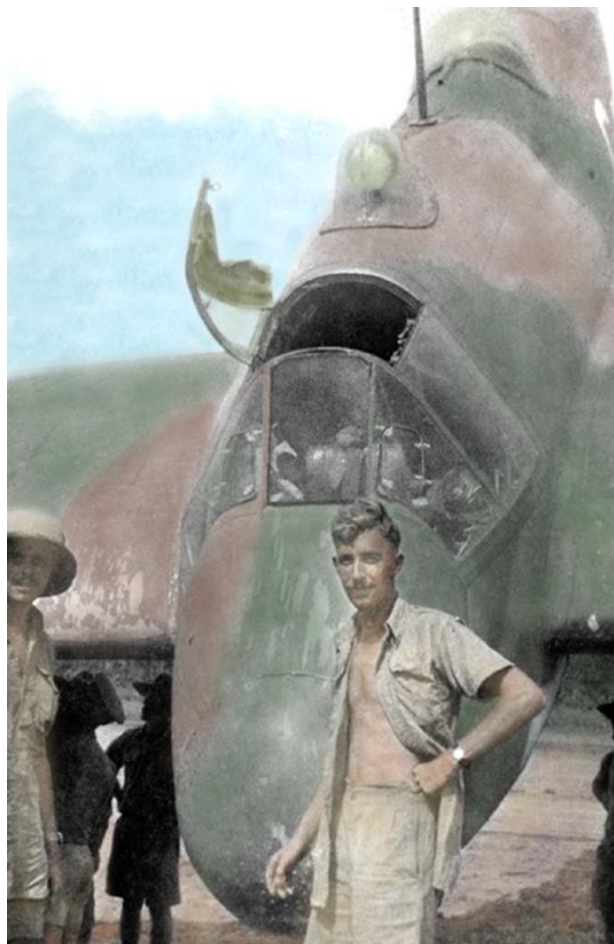
30 Squadron. From early SEP 1942, 30SQN operated the Mk.Ic in green/brown camouflage over Papua and New Guinea from Port Moresby's Seven-Mile Ward's Strip,¹¹⁸ and these early machines were later joined by newer Mk.Ic and Mk.VIc Beaufighters all in TSS. First operations were flown from Fall River (Gurney)/Milne Bay,¹¹⁹ and Wards/Port Moresby for a year, then Vivigani (on Goodenough Island AUG 43), to Kiriwina (Trobriand Islands NOV 43),¹²⁰ to Tadjji (JUN 44), Noemfoor (NEI, as part of 10 Group in AUG 44), and then north-west to Morotai (Halmaheris group NOV 44).

30SQN soon found in New Guinea that the original RAF paint did not last long, probably as there was no undercoat. The RAF paint was Synthetic Enamel, which wore off after about 40 hour's flight time. The repair units used Zinc Chromate primer then a nitro cellulose camouflage dope, this primer then lifting the original paint of in flakes.¹²¹



[Colourised from 30SQN Beaufighter website]

TLS: A19-6/G named 'Hellzapoppin' (after the 1941 film), 30SQN at Bohle River, Townsville, in Aug 1942
Crew from AUG 1942 until MAR 1943 was pilot FSGT R Cummings and nav FSGT A Kirley. (There was another Beau "L's a Poppin", A19-181 a Mk.X EH-L with 31SQN in 1944.)



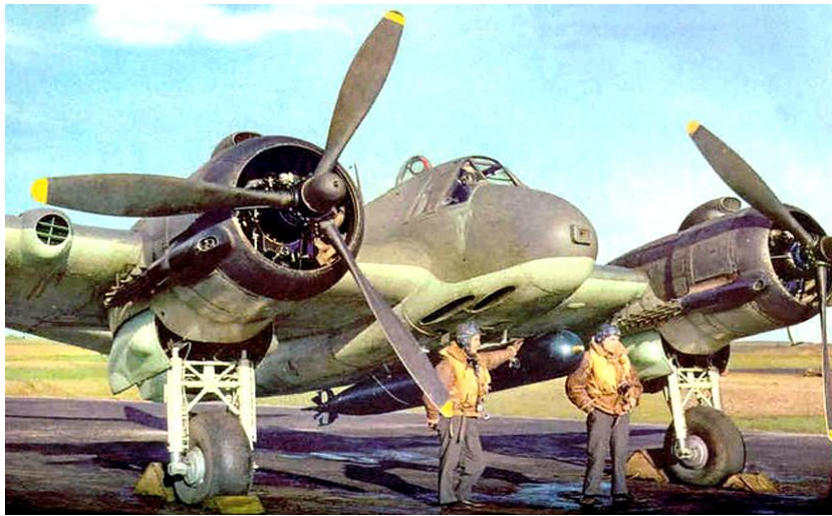
[colourised from AWM P01275.017]

TLS: A19-36/S, 30SQN, battle damage and loss of hydraulics tipped onto nose, NOV 1942

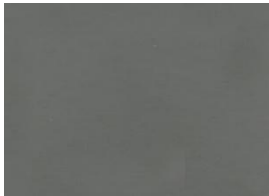
Temperate Sea Scheme – TSS



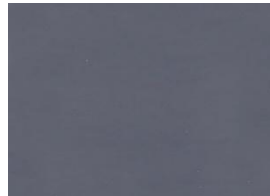
RAF Fairey-built Beaufighter Ic T4916 in TSS (A19-1 was T4920) and 35" type-A1 roundel [Etienne du Plessis collection]



RAF Beau in TSS – showing green hues of the upper *Dark Slate Grey* and lower *Sky*, and sharp factory demarcation



MAP *Dark Slate Grey*



MAP *Extra Dark Sea Grey (EDSG)*



MAP *Sky*



Later Beau Mk.Vlc receipts in 1943 had the RAF type-C1 markings and all were in TSS [Etienne du Plessis collection]

31 Squadron. Beaufighter **A19-17 EH-B of 31SQN in 1943** (below) shows that 31SQN did not find TLS coloured aircraft suitable for their long overwater legs to their targets in Timor or the NEI islands, and preferred the Coastal Command-coloured Mk.Ic aircraft, that had been delivered in Temperate Sea Scheme (TSS). Most of those delivered, if not all, **after** the first 54 Fairey-built aircraft appear to have been received in TSS. Therefore, some earlier brown/green aircraft in RAAF service were repainted in a modified TSS with Australian equivalents – *Dark Slate Grey (K3/189) /Extra Dark Sea Grey (K3/187) /Sky Blue (K3/195)*, often by overpainting the brown (*Dark Earth*) with grey (*Extra Dark Sea Grey/EDSG*). The squadron code (“EH”) for 31SQN therefore dates this A19-17 image as post the

code introduction in JAN 1943 (mandated by AFCO A.3/43), but like many units in Australia's top end, the EH- codes were not added until mid-1943. 31SQN did leave their Darwin base at Coomalie on 1 DEC 1944, to join 30SQN at Noemfoor; 21 Beaufighters (each with extra gear and four passengers !) departed for the Kamiri strip Noemfoor and arrived the same day.¹²² As part of the "island hopping" to the north-west, 31SQN moved to Wama strip on Morotai (in the Halmaheris group) on 7 DEC, and then on to Tarakan (in Borneo) in MAY 1945 to support the OBOE 6 amphibious operations.



[Etienne du Plessis collection]

TSS: A19-17 a Beau Ic delivered to 30SQN in JUL 1942, then to 31SQN OCT 1942 (here EH-B in mid-1943)

A19-17 in a form of 31SQN TSS – TLS brown overpainted with grey, a scheme preferred by 31SQN. A19-17 was received with the 35" **type-A1** roundel, with *Yellow* overpainted to give a 25" diameter *Blue* roundel, and the *Red* overpainted to leave a 15" *White* disc making the RAAF 15:25, i.e. **3:5 ratio**, roundel; fin flash 27" high. Deliveries received in Australia in 1943 had type-C markings.

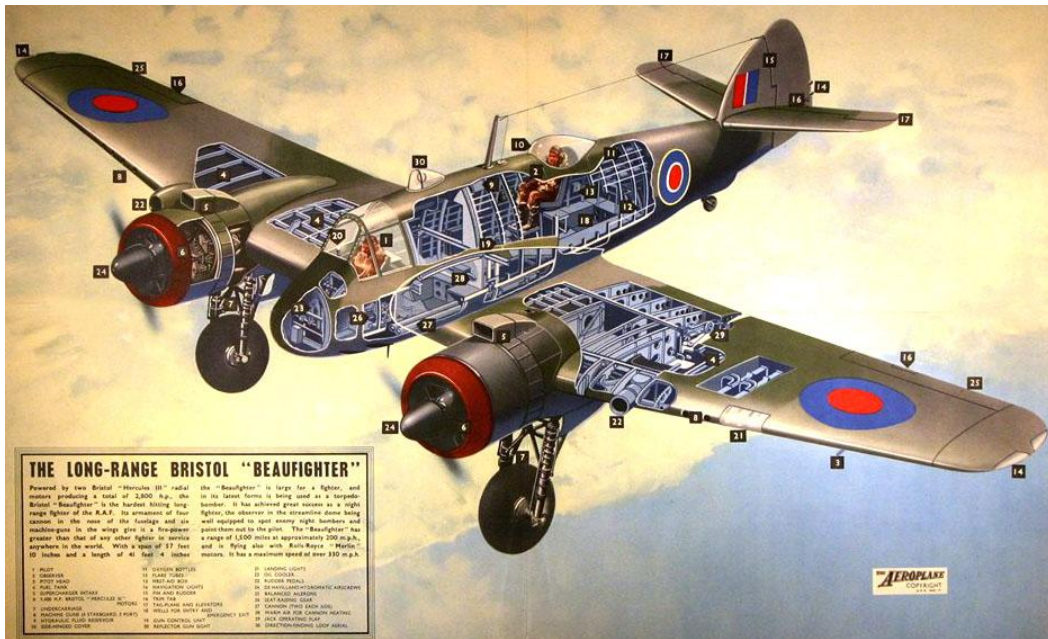
Below, RAF **type-C** national markings (fuselage 36" *Yellow* outer ring C1 roundel) introduced by Air Ministry Order A.664/42 policy of JUL 1942: a 32" outer *Blue* roundel, a 16" *White* disc, a 12" *Red* inner circle, with a 24" square fin flash.¹²³ This image shows how colours were removed to result in a 16:32 (i.e. a **1:2 ratio**) Blue/White roundel.



[marked up from internet image]

TSS: Beaufighter Ic T5039, in TSS, marked up to show the 1942/43 changing of National Markings

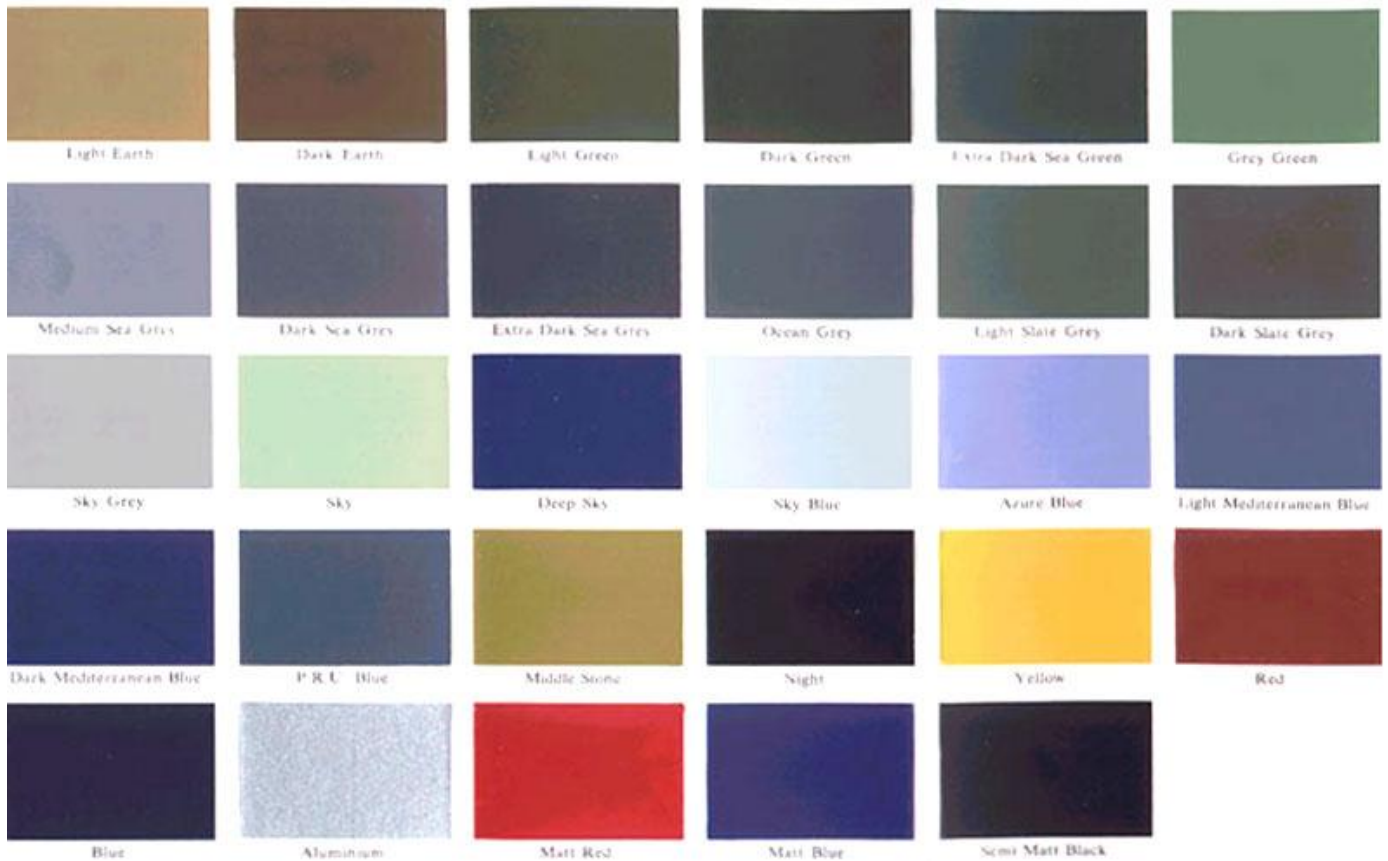
This shows how a Mk.Ic or Mk.VIc delivered in TSS *EDSG* and *Dark Slate Grey* (the greener colour) would have had their, type-C1 roundels and fin flash markings altered to RAAF standard. The above markings show how at the Depot, the RAF roundels have had *Red* painted over by *White*, and the roundel's outer *Yellow* ring overpainted by camouflage; the overwing type-B 2:5 roundels would have *Red* overpainted, but sometimes increased in white diameter to 3:5. The type-C fin flash red was overpainted, giving a wider white segment (apparent in some photographs); and undersides RAAF *Sky Blue* oversprayed the RAF *Sky*.



RAF Beaufighter VI cutaway from *The Aeroplane* shows the new dihedral tailplane

Over early 1943, Mk.VIc Beaufighters were now reaching both squadrons. Mk.VIc aircraft manufactured by the Fairey factory had retained the Mk.Ic horizontal (flat) tailplane. 31SQN pilot Ken McDonald received his in MAY 1943: ...we were allocated one of the latest Beaus, A19-103, one with dihedral tailplane. The earlier ones all had a tailplane with no dihedral, and they were very unstable in the fore and aft plane. There was no way you could set the trim and leave it to fly itself, the nose would either gradually go up or down, consequently you had to fly it all the way, which became tiring. I noticed right away that the new one with the dihedral tailplane was much more stable and could be trimmed to fly itself steadily in good conditions.¹²⁴

Below are the British MAP colours, which applied to UK Beaufighter deliveries. But briefly, as US-produced aircraft began to arrive for the RAAF from 1942, these largely continued in British colours and markings, diverted from RAF contracts or ordered on behalf of Australia by the British Purchasing Commission. (Later, RAAF aircraft were delivered in USAAF standard camouflage of *Olive Drab* and *Gray*, which the US had adopted for the Curtiss P-40 in May 1940.¹²⁵)



British Ministry of Aircraft Production (MAP) Colours

RAAF NATIONAL MARKINGS 1940-1945

The RAAF went through a low-visibility policy from late 1939 into 1940 by removing *White* from the roundels on the upper wings and fuselage – essentially an RAF type-B roundel. But *White* returned to the fuselage roundel and some upper surfaces in AUG 1940.¹²⁶ As the Beaufighter Ic and Vlc aircraft were received by the RAAF over MAR 1942 to AUG 1943, this would coincide with several policy changes to the National markings.

- **OCT 1940.** The extant policy was AGI No. C.11 Issue 3 of 3 OCT 1940,¹²⁷ and specified these markings as:
 - *Marking M.1* – a blue ring surrounding a red centre, the diameter of the red to be 2/5 of the blue circle, on upper wings of operational Wirraways. This is what we refer to as the type-B roundel.
 - *Marking M.2* – a blue ring surrounding a white ring surrounding a red circle, the proportions to be 1:3:5, on fuselage and lower wings of operational Wirraways, and in all six positions on the Hudson. This is what is referred to as the type-A roundel.
 - *Marking M.3* – three colour circle (i.e. *M.2*) surrounded by a yellow ring, proportions as for *M.2* and the yellow the same width as the blue circle, i.e. 1:3:5:7 proportions. At this stage was only required for seaplane fuselages (Seagull V and Dolphin), and this is the type-A1 roundel.
 - *Marking M.4* – red, white and blue stripes on the fin, stripes the same widths as the rings of the roundel with blue nearest the rudder, and this applied only to the Seagull.
- **AUG 1942.** The AGI C.11 was changed by Issue 4 of 31 AUG 1942, which generally for operational retained red/white/blue National Markings, dropped the yellow outer ring, but there were still unintended consequences.
 - Upper surfaces – red was dropped, so the roundel was specified as *Matt White* and *Matt Dull Blue*, with the white diameter to be 2/5 of the outside diameter of the blue. This was the first directive for what we call the Pacific roundel. The red was delete because in 26 JUN 1942 a USN Wildcat fighter had attacked a RAAF Catalina marked with the *M.1* roundel – but the blue outer ring had faded and blended with the surrounding camouflage, making an apparent red disc too prominent and similar to the Japanese *Hinomaru* !!¹²⁸
 - Fuselage sides – *Dull Red*, *White*, and *Dull Blue* roundels in the 1:3:5 proportions.
 - Undersurfaces – the same *Dull Red*, *White*, and *Dull Blue* roundels but only for day fighters and trainers, but not for bombers or seaplanes.
 - Fin markings – all aircraft marked with *Dull Red*, *White* and *Dull Blue* stripes of the same width (typically 8" per colour), with red leading.

Colours were specified as *Matt Dull Red* K3/214 or K3/199, *Matt Dull Blue* K3/196 or K3/197, and *Matt White* K3/170.

- **AUG 1942.** A trial of the blue/white roundel on the upper wings of a Kittyhawk, Beaufighter and Wirraway was conducted to evaluate if the white centre was too large and provided a conspicuous aiming point. The trial found that on the Beaufighter roundel was too large, recommended reduction to the P-40 size, and also not carried on the starboard upper wing, which was similar to USAAF marking policy.¹²⁹
- **SEP 1942.** On 19 SEP 1942 red was dropped completely from National Markings – blue and white roundel with the blue not to exceed 4 feet, with the white diameter 3/5 (3:5) of the blue. Roundels were to be in the six positions, with blue/white fin stripes, white leading, in the specified colour *Matt White* K3/170 and *Matt Dull Blue* K3/197. This directive also cancelled the use of the *Sky Blue* band used on day fighters (i.e. the Spitfire).¹³⁰

Changing the National Insignia. To achieve RAAF blue/white roundels, the Beaufighter Ics received with 35" RAF type-A1 roundels had the *Yellow* ring camouflaged over (as directed in AUG 1942 to become a small **25" Blue**), and *Red* overpainted with *White* (as required in SEP 1942). For the type-A1 roundel, this gave the 3/5th (3:5) RAAF requirement; for the type-B roundel, this gave 2/5th (2:5) which was closer to the ideal (i.e. less white to compromise camouflage). However the simplified roundel overpainting became more complex when the RAF changed to the **type-C1 roundel** in JUL 1942, which affected RAAF Mk.Vlc, X and Xlc deliveries in 1943 and 1944. Fighter aircraft fuselage roundels were 36" diameter *Yellow*, 32" diameter *Blue*, 16" diameter *White*, and 12" diameter *Red*¹³¹ – therefore *Yellow* overpaint by camouflage and *Red* overpaint by *White*, gave **32" Blue** and 16" *White*, 1:2 proportions. (While the outer C1 *Yellow* ring could be overpainted with *Blue*, it still didn't exactly achieve the 2:5 proportions required in 1944.) Also variances in roundel and fin flash sizes occurred when different Aircraft

Depots (ADs), Aircraft Repair Depots (ARDs) and Repair Servicing Units (RSUs) did not simply replicate by overpainting, but applied new non-standard sized roundels.



Earlier A1/B Roundels: Left, the **type-B** roundel (normally on uppersurfaces, but briefly in 1940 also on RAAF fuselages) in 1942 could have *Red* replaced with *White* and produce a 2:5 RAAF Pacific roundel. Centre, the 35" **type-A1** roundel in 1942 with both *Yellow* and *Red* deleted resulted in a small 25" 3:5 roundel. Right, the **fin flash** had *Red* overpainted by camouflage, which often in B&W pictures gave a dark stripe in front of the resultant *Blue/White* flash.



C1 Roundels: Received from 1943, the 36" C1 roundels were changed, and proportions did vary! Left, camouflage over the outer *Yellow* ring gave a 32" 1:2 roundel and obvious on some Beau images.¹³² Right, extending the roundel *Blue* over the *Yellow* gives closer to 2:5, similar to that achieved by overpainting the *Red* in a type-B roundel.

Fin Striping: Overpainting *Red* with *White* gave unequal widths, until more accurately re-applied at a Depot or RSU.

- **JUL 1943.** RAAFHQ on 8 JUL 1943 specified that the roundel white circle was to be smaller, at 2/5 the size of the blue,¹³³ i.e. the 2:5 roundel, but generally not implemented until 1944.

RAAF 'Pacific' Roundels

The RAF A1 roundel diameters below show how the RAAF size was derived. Initially the 'adapted RAF roundels' on the Beaufighter (by overpainting *Red* and *Yellow*, on receipt at an AD) resulted in the 3:5 RAAF blue/white 'Pacific' roundel – the standard 35" A1 became the 25" diameter fuselage roundel (which was generally at least 40" diameter on the mainplanes). On receipt at Depot, 36" C1 roundels were changed into 32" roundels, the white proportion initially being 1:2, later 2:5. **A1** fin flash was 27" high, **C1** 24"; both 24" wide (8" each colour),¹³⁴ then reduced to 16" wide. The Beau 21's fin flash was aligned to the rudder post giving a bent asymmetry (below) of 27" H x 16" W.¹³⁵

<p>RAF Type-A1 fuselage</p>	<p>3:5 roundel from 1942, by overpaint A1 roundel gave 25" diameter. Overpaint of C1 gave a 32" diameter.</p>	<p>2:5 roundel generally the standard from 1944, 32" when converted from C1, ratios did slightly vary.</p>	<p>Beaufighter 21 fin flash (port), 27" high x 16" wide, bent along the rudder post.</p>
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Squadron Codes

Aircraft identification marks were referred to in 1940 only as *grey*, and this list provided the single letter squadron code allocation, e.g. A for 1SQN, B for 2SQN, etc up to V for 25SQN – Beaufighter squadrons, of course were yet to form. By 1942, the issue of the next AGI was more specific in colour designations, and detailed *Medium Sea Grey* K3/183 for codes in JUL 1942.¹³⁶

Squadron codes were mandated in JAN 1943 by RAAF HQ AFCO A3/43.¹³⁷ Prior to this time, 30SQN had applied a single letter individual aircraft code letter ahead of the roundel. In 1943, AFCO A3/43 listed two letter squadron codes to be applied – LY for 30SQN, and EH for 31SQN – to be applied forward of the roundel in K3/195 *Sky Blue*, followed by a single letter to identify an individual aircraft (the letters ‘C’ and ‘I’ were not to be used). Para.6 of this order stated: “Normally code letters are to be placed, showing the squadron code letters immediately forward of the fuselage roundel with the single individual aircraft distinguishing letter immediately aft the roundel.”¹³⁸ Code letters were typically 28”x16” (but did vary slightly), and the squadron had to apply the relevant code letters as soon as possible after receipt of the aircraft.¹³⁹ Generally, the two-letter squadron code was not added to the single-letter identifier until later in 1943. From MAY 1944, Instructions required codes to be marked in *Medium Sea Grey*,¹⁴⁰ although by 1945 many units were using *White* squadron codes; aircraft serial numbers, however, remained in *Medium Sea Grey*.

Australian-built Beaufighter Mk.21

In JAN 1944 DAP production of the Beaufort at Fisherman’s Bend switched to the Beaufighter, code named BD.43A. Initially a version of the Mk.VIc with Hercules 26 engines was chosen, designated Beaufighter VII. An early Beau Mk.Ic (A19-2) was re-engined with the Wright Double Cyclone installed in long nacelles as an alternative to the Hercules, and as the prototype for proposed production variants Mk.VIII and IX. But as Hercules supplies had not been disrupted, it was decided to adopt a close version of the Beau Mk.X. The Beaufighter XXI, which became the ‘Mk.21’, differed from the Mk.X with a Sperry autopilot (the bulge over the nose, although not fitted) and supercharged Hercules XVIII engines (with flame damper exhausts mounted on the starboard side of each engine). The Mk.21 was heavily armed, with the earlier four 20mm Hispano cannon in the fuselage, four 0.5 calibre machine guns in the wings (two each side, replacing six 0.303s), and a flexible and stowable Vickers 0.303 gun fitted in the newer-shaped navigator’s cupola.¹⁴¹ Mk.21s were all delivered by DAP in all-over *Foliage Green*.

The earlier RAAF Beaus had no rearward protection, and in FEB 1943 31SQN tried a DIY modification in the rear of the cupola. Pilot Ken McDonald relates in his book *Coomalie Charlie’s Commandos* how he and his nav installed a gun:

...after our scare with a Zero on our tail we thought we would try to fit up a rear firing gun.

We acquired a Browning machine gun and a ball and socket assembly into which the gun fitted snugly. We cut a suitable size hole in the Perspex canopy and secured the socket with screws. Then Frank [his nav] proudly inserted his gun through it and practised sighting imaginary enemy fighter. There was nothing to stop him hitting the tail, hence my worry. Anyway, the whole arrangement was deemed a success, and I just had to hope that we were never attacked at close quarters again.¹⁴²

However, this was followed in JUN 1943 by an official report assessing the veracity of such a modification:

We have fitted in some aircraft a rear flexible gun which has deterred enemy fighter stern attacks, but which has also resulted in damage to the fin and rudder of our own aircraft (the gun cannot be satisfactorily aimed).¹⁴³

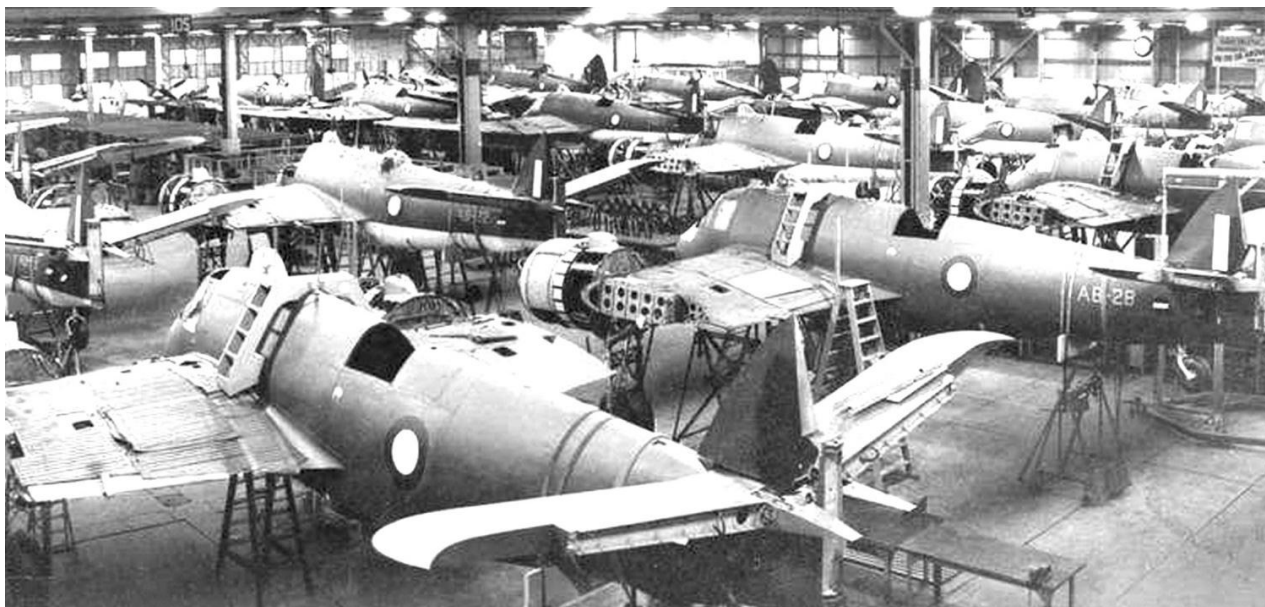
This prompted modification by Beaufighter Order No.17 from late 1943 to add a Browning .303 gun mounting with ball and socket fitted in the nav’s cupola,¹⁴⁴ and ensured the newer Beaus received from UK did have rearward defence. All production Mk.X and Mk.XIc were fitted with a rear-firing Browning gun for the observer.¹⁴⁵ So did the Mk.21.

The first Beaufighter 21 (A8-1) and flew on 26 MAY 1944.¹⁴⁶ In SEP 1944 already plans were underway to issue two Mk.21s to 31SQN for operational use ahead of the main deliveries.¹⁴⁷ Concurrently 31SQN were honing their skills with a new weapon, the 60-pound HE rocket projectile (RP), and became the first RAAF unit in the Pacific to use RPs,¹⁴⁸ soon to become the primary attack weapon for the Beaufighter squadrons. In late NOV 44 at Morotai most of 22SQN’s Bostons were destroyed in a very effective Japanese attack, so 22SQN withdrew and re-equipped with Beau 21s. By JAN 1945, the three units – 22, 30 and 31 Squadrons – formed No. 77 (Attack) Wing of the RAAF’s 1st Tactical Air Force. 1st TAF was under the operational control of the US 13th Air Force, and basically was tasked with cleaning up bypassed Japanese targets instead of the main US thrust to the Philippines. This resulted in RAAF objections to

this 'sideshow' policy, and 1st TAF was given the opportunity to participate in the Borneo assault on Tarakan, Labuan and Balikpapan.¹⁴⁹

FOLIAGE GREEN K3/177

The initial Mk.21 scheme was directed by RAAFHQ in APR 1944 to be uppersurfaces in K3/177 *Foliage Green*, undersurfaces in K3/316 *Azure Blue*.¹⁵⁰ DAP production completed the early aircraft – up to at least A8-22 – in this scheme. But this was soon changed to an all-over *Foliage Green*, mandated by the MAY 1944 policy of RAAFHQ Technical Order Aircraft General Instruction (AGI) Part 3(c), where Annex C specified overall green for attack aircraft.¹⁵¹



Early DAP Mk.21 production – A8-28 in overall *Foliage Green*, in front of it is A8-22 with *Azure Blue* undersides

When the first Mk.21 (A8-1) flew in MAY 1944, it was in overall *Foliage Green*, with the *Azure* requirement cancelled. In their research into *Foliage Green*, Gary Byk and Peter Malone assess it as an approximate to FS34092. Probably it was a local attempt to copy the American colour *Medium Green 42* (as the RAAF received more aircraft from the US) because the American colours – particularly the green – matched the Australian vegetation and climate better.¹⁵²

The US *Medium Green 42* has a definite 'bottle green' or 'bluish' hue to it (as opposed to olive), similar to FS34092, and this is borne out by the following AWM colour images (from film F04758) of 50TU Mk.21s at Williamtown.¹⁵³



A8-71 with 3:5 roundel



A8-97 with 2:5 roundel



Foliage Green Beaufighter 21s (A8-75 left), with black collector rings¹⁵⁴

BEAUFIGHTER Mk.X – A19-218 Coastal Command ‘Whitex’ Scheme 1APU 1944

LX815 (known as the ‘White Elephant’) was flown both at DAP Fisherman’s Bend and by 1APU at Laverton. Delivered to the RAAF in 1944, it was used mainly by DAP for Mk.21 development work until handed back to the RAAF in AUG 1945 and finally became A19-218. The ‘Whitex’ scheme (officially ‘Special Coastal Duties-A’) was the prevailing Coastal Command attack aircraft scheme in from 1943,¹⁵⁵ shown in the image below. Other known RAAF Mk.X received in this scheme were A19-165 and A19-168, which were camouflaged at 5AD before issue to units.¹⁵⁶



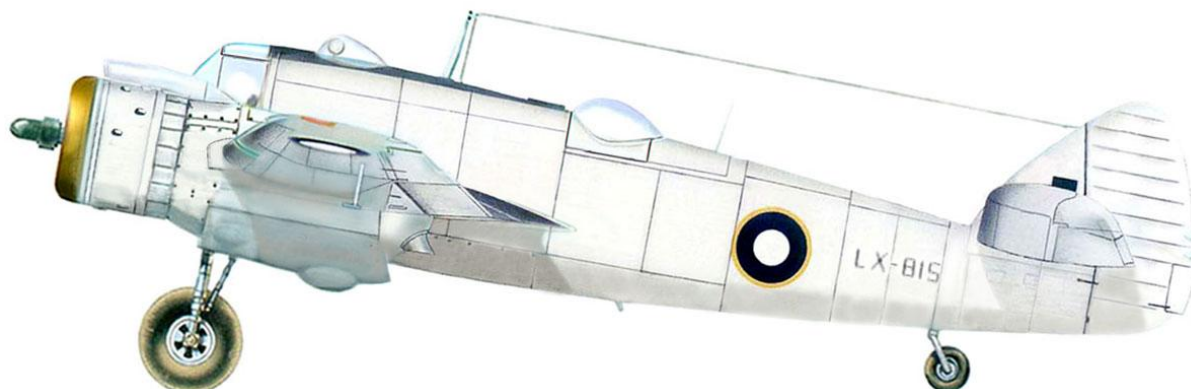
RAF TF.X in Coastal Command ‘Whitex’ – lower and side surfaces gloss *White*, upper surfaces *EDSG*. Roundels in the RAF at this stage (1944) were 36” type-C1 on the fuselage, and type-B on the mainplanes, as colourised here.



[colourised from RAAF image]

LX815 (touched up by 1AD as “LX-815”) in 1944, before becoming A19-218 in 1945

Unique markings – not only the sole UK Beaufighter to retain the ‘Whitex’ (SCD-A) scheme, but also by the change of the type-C1 roundel to Pacific 3:5 and retaining the outer *Yellow* ring! Upper surfaces were the contemporary Coastal Command EDSG; RAAF engineering report at the time referred to the upper surfaces as “white and blue”.¹⁵⁷



The RAF had advised the RAAF of this new Coastal Command scheme in JUL 1943, and in OCT 1943 the RAAF conducted trials at Lowood with a 71SQN Anson (AW665 PP-B) in this scheme, but was not further pursued.¹⁵⁸

Beaufighter weapons



FLIGHT cover JUL 1944

Guns: “In the belts that fed the four 20mm cannons, were loaded ammunition combinations of Ball, Armour piercing, High Explosive and Incendiary shells. With each cannon firing at the rate of 600 rounds per minute, the combined destructive power of these weapons was enormous. The six machine guns mounted in the wings each spat out .303 ball ammunition at 1,200 rounds a minute as well, completing the devastation on anything they hit.”¹⁵⁹



[AWM OG0431]

30SQN armoureders at Vivigani load cannon ammo belts with pilot F/O E Robinson, DEC 1943



[AWM OG1727]

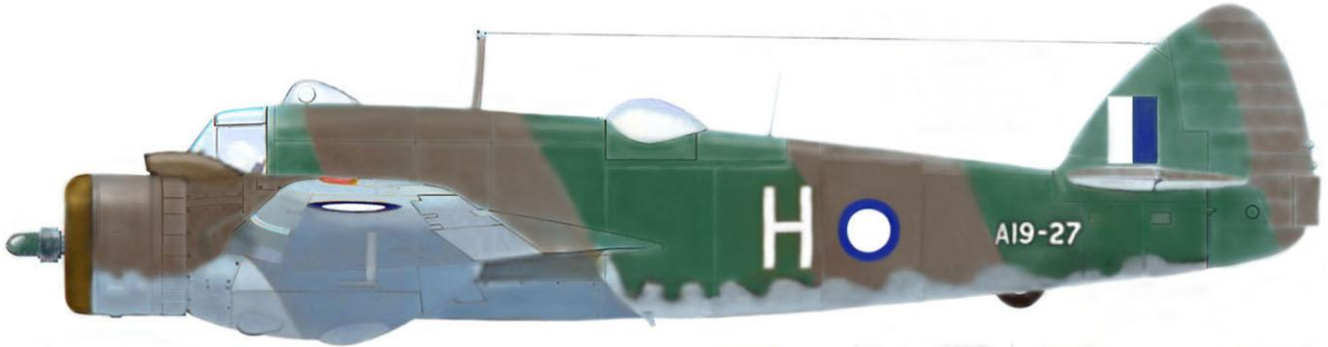
30SQN armoureders lift 250-lb bomb onto the rack on the starboard wing of A19-200 LY-K at Noemfoor, OCT 1944

Bombs: Over the second half 1943, more versatility to the Beaufighter’s weapons was added with a bomb rack beneath each wing, to carry a 250-pound (113kg) bomb. 31SQN began using racks adapted from Dutch Mitchells.¹⁶⁰ Alternatively, cluster of six smaller 20-pound (9kg) anti-personnel fragmentation bombs, encircled with a metal strap that was discarded, could be carried on the rack.¹⁶¹ For 31SQN, in JAN 1945 the bombloads also included 100-pound napalm and 325-pound depth charges.¹⁶² (Also at the end of 1944, the 3-inch /60-pound aerial rocket was introduced to all Beau squadrons.) The Beaufighter was considered a superb low level weapons platform and “ideal for the tasks they were given in the Pacific”.¹⁶³

30 SQUADRON

BEAUFIGHTER Ic – A19-27 ‘H’ PANDEMONIUM of 30SQN 1943

A19-27 (ex-T4991) was received at 1AD Laverton in MAY 1942, but with delays in erection, it was not until NOV 1942 that it was delivered to 5OTU at Williamtown. After a landing accident in JAN 1943 when the starboard undercarriage collapsed, A19-27 was repaired at 5AD Oakey until late APR 1943¹⁶⁴ where it would have been repainted in FG and EB, then delivered to 30SQN in Moresby. Allocated the code ‘H’, flown for two months by S/L Boulton and F/OMcCarthy until it crash landed at Ward’s Strip in JUN 1943 with a failure of the port undercarriage.



A19-27/H in fresh paintwork from 5AD Oakey: *Foliage Green/Earth Brown/Sky Blue* undersides and scalloping. The fuselage 3:5 roundel is 25” in diameter, the fin flash was common for that time, 27” x 16” (8” wide per colour).



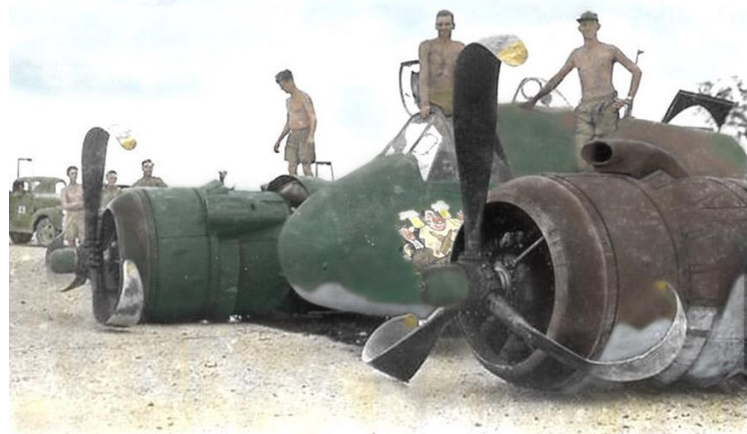
K3/177 Foliage Green



K3/178 Earth Brown



K3/195 Sky Blue



‘Time Gentlemen Please’ nose art on port side, **‘PANDEMONIUM’** on the starboard nose [colourised from adf-serials images]



A19-27’s crash landing at Ward’s on 7 JUN 1943 when port undercarriage failed – fresh paintwork highlights the distinctive *Sky Blue* undersurface scalloping, a delination style not used by the RAF. Also the aircraft serial number and code letter are in a very new bright *White*. After this incident, A19-27 went to 15ARD but repairs were not possible, so was sent south to 5AD again, where it was converted to components.

BEAUFIGHTER Mk.X – A19-195 LY-R of 30SQN 1944

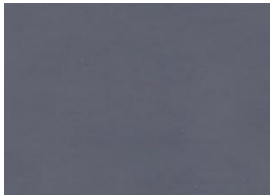
A19-195 (ex-NE359) was delivered to 30SQN from 2AD in JUL 1944. It was one of the final batch of Mk.X Beaus delivered, and was the newer TSS in single colour *EDSG* upper surfaces and *Sky* undersides, when *Dark Slate Grey* was deleted by the RAF in 1943, formalised by the RAF AP2656A in 1944.¹⁶⁵ The *Sky* undersides would have been repainted in RAAF *Sky Blue*. While both colours look similar in black and white images, the repainting is interpreted from the demarcation line between upper and lower surfaces. When the demarcation is scalloped or feathered, the aircraft has been repainted in Australia with *Sky Blue*; when a very distinctive factory straight/regular edge, it is the scheme delivered from Britain in RAF *Sky*.



[colourised from AWM OG1754]

A19-195 LY-R in *Extra Dark Sea Grey* with 30SQN at Noemfoor Island, NEI, on 10 NOV 1944

Underside *Sky Blue* feathering can be seen. 28" x 16" codes in *White*, LY-R starboard side, also LY-R port side; serial in *Medium Sea Grey*. Fuselage roundels, converted from the RAF type-C1, are 1:2 proportion 32" in diameter.



MAP *Extra Dark Sea Grey* K3/187



MAP *Sky*



K3/195 *Sky Blue*

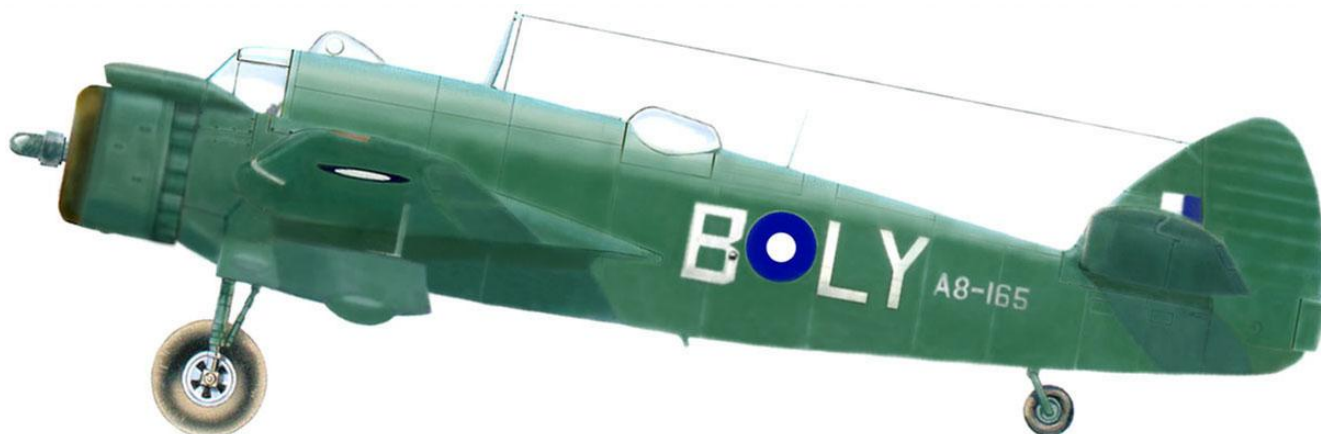


[AWM P024995]

Marking of port 'LY-' squadron codes: Morotai 1945 Mk.X A19-189 LY-V; Mk.21s Z-LY, X-LY, and A8-153 W-LY

BEAUFIGHTER Mk.21 – A8-165 LY-B ‘Bronte or Bust’ 30SQN 1945

A8-165, received by 30SQN in APR 1945 until 5AD storage in OCT, converted to components 1948-49.¹⁶⁶ Named *Bronte of Bust*, B-LY was overall FG, had the longer supercharger intakes and flame damper exhausts (starboard side of each engine). The Mk.21 nav’s cupola was the later shape (from Mk.VI onwards) for a dorsal 0.303 gun.



A8-165 has the later DAP factory-applied 2:5 fuselage roundel (25” diameter), fin flash standard from the factory (27” x 16”). Serial in *Medium Sea Grey*, and 28”x16” codes in *White* (the ‘LY’ was aft of the roundel on both sides).



[colourised from AWM OG2522]

A8-165 LY-B ‘Bronte or Bust’ in APR 45 at Morotai. This aircraft joined 30SQN from the production line in APR 1945 and flew with the unit until storage in OCT 1945.



[colourised from AWM OG2526]

A8-165 shows its port side marking as B-LY



[colourised from AWM OG2520]

A8-165 LY-B ‘Bronte or Bust’ – shows the aircraft serial number is *Medium Sea Grey*, and the squadron code is *White*.

30 SQUADRON NEW GUINEA – NOSE ART 1943

A19-3/C 'BITZ' JUN 1943



[colourised from AWM 015119]

A19-3/C 'BITZ' June 1943, 30SQN Ward's strip. The aircraft of SGT John Drummond (pilot) and SGT Ron Allan (nav) over MAY-JUN 1943, taking it over from CO Blackjack Walker.¹⁶⁷ The colour red in *BITZ* is estimated.

A19-27/H 'PANDEMONIUM' JUN 1943



[colourised from AWM 015121]

A19-27/H 'PANDEMONIUM' (marked on the starboard nose). Artwork 'TIME GENTLEMEN PLEASE' was marked on the port nose. Crew was S/L Bill Boulton (pilot) and F/O Keith McCarthy (nav) on 30SQN at Ward's, over MAY-JUN 1943.¹⁶⁸ A green port nose was the standard pattern for aircraft delivered in TLS – and by 1943 the original TLS colours had been substituted by RAAF *Foliage Green/Earth Brown*.

A19-35/R 'Wendy Joy' and A19-50/X 'Wendy Joy II' 1942-43



Beautiful A19-50 'Wendy Joy II' cockpit section at Fighterworld made by HARS at Albion Park.

It represents early nose art on A19-50, on 30SQN from AUG 1942 until bombed at Ward's in APR 1943. The original *Wendy-Joy* was A19-35/R¹⁶⁹ (which crashed in NOV 1942) was flown by SGT Mostyn Morgan and nav Sgt Fred Cassidy from SEP 1942.



colourised from Fighterworld website

A19-50/X joined 30SQN at the beginning of AUG 1942, deploying immediately to Ward's, replacing A19-35 in DEC 1942 to MAR 1943 as the aircraft of Morgan/Cassidy.¹⁷⁰

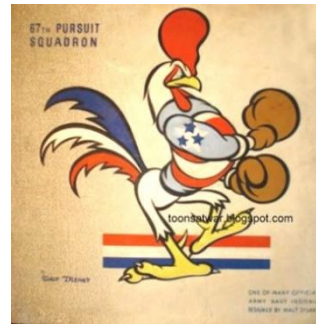
30 SQUADRON NEW GUINEA – NOSE ART 1943

A19-74 Fighting Cock 30SQN 1943



[colourised from AWM P01274.008]

A19-74, a Beau Vic, joined 30SQN (code letter unknown) in DEC 1942 and served until AUG 1943. The 'Fighting Cock' nose art was from Walt Disney studios, who issued many of their creations to the war effort. The badge of the 67th Pursuit SQN USAAF from 1940, these Beau colours are estimated from tones on the photo and the Disney artwork.



[internet images]

A19-74's Fighting Cock from Walt Disney, was the badge of the USAAF's 67th SQN in New Guinea in 1943 – known as 67th Fighter SQN from 1942.¹⁷¹ Postwar, the same image adorned a Meteor F.8 of the RAF's 43SQN at Leuchars, Scotland, known as *The Fighting Cocks* – below, colourised on a Meteor with estimated colours.



A19-93/P Goofy 30SQN JUN 1943



[colourised from AWM 015120]

FSGT Edgar Woolcott (pilot) and SGT Robert Hasenohr flew A19-93/P over APR-JUN 1943. This crew was killed flying A19-93 taking off at Ward's, on 15 JUN 1943.

A19-111/F 'EAT-EM-ALIVE' 30SQN 1943



[colourised from internet]

A19-111/F 'Eat-Em-Alive' AUG 1943, 30SQN Ward's strip. Flown by FSGT Bill Cosgrove in AUG 1943, who had played with Richmond Football Club.¹⁷² The tiger's head on the starboard nose had the club's motto 'EAT-EM-ALIVE'.

30 SQUADRON NEW GUINEA – SPINE ART 1943

A19-54 LY-V The 30SQN *Varga Girl* AUG-OCT 1943

The shapely Varga girl. 30SQN personnel liked to read *Esquire*, with its drawings by Varga of languorous, scantily-clad girls with shapely long legs and precisely delineated breasts.¹⁷³ Alberto Vargas (who used the name 'Varga girl' for his art) was an artist of beautiful ladies in *Esquire* magazine, an American men's magazine published by the Hearst Corporation from the 1930s. Sometimes the 'Varga girl' was carried by the Australian magazine *MAN* (which was influenced by *Esquire*) and was very popular in the war years with the deployed Australian forces.



[colourised from 30SQN Assoc Beaufighter site]

A19-54/V 30SQN crew FSGT Harold Tapner pilot, and W/O B Thomas nav, at Vivigani in SEP/OCT 1943

From SEP 1943 is dated by the accident when on 22 JUL 1943, A19-54 (Hunt/Hodges) had about 45cm of its port wingtip blown off by medium ack-ack, and images show marked as 'V', not yet with the "LY" squadron code, nor with this artwork (AWM OG0028), and serial number still marked in it is original form in black. Furthermore, this Varga girl featured in *MAN* magazine of JUL 1943, with a Varga type girl wearing a pale blue dress.¹⁷⁴ Several sources discuss the colour of the dress: some model/decal manufacturers have favoured yellow.¹⁷⁵ After its JUL 1943 incident, A19-54 was repaired at 15ARD at Ward's¹⁷⁶ (presumably repainted), then returned to 30SQN now at Vivigani strip on Goodenough Island in AUG 1943. Then A19-54 was flown by Tapner/Thomas through SEP 1943, until taken over by the CO, S/L Bill Boulton at the start of OCT. The 'LY' code was added OCT 1943, as images at Dobodura strip show A19-54 marked as LY-V there over the 11-18 OCT period.



Of the same genre – an *Esquire* Varga girl in 1943

30 SQUADRON CODES 1943-1945

Colours and National Markings

When 30SQN received Mk.21 aircraft, they initially had the earlier style DAP 3:5 fuselage roundel (25" diameter), and with 3:5 mainplane roundels (36" diameter). Squadron code letter positions varied, marked in *White* (with each letter 28"x16" in 3" strokes), and serial numbers were *Medium Sea Grey* (K3/183). More details of individual 30SQN aircraft can be found at the Beaufighter 30SQN website.¹⁷⁷

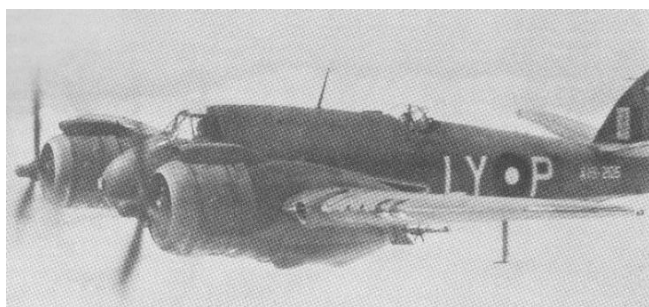
30 Squadron Codes

Listed below are the original individual codes letters allocated sequentially to the first Beaufighters, which deployed with 30SQN to New Guinea from SEP 1942. In JAN 1943, the 'LY' squadron code was allotted to 30SQN, but this was not marked until approximately JUL 1943. References *adf-serials* A19 and A8 databases, Parnell, and imagery.

Original Letter	30SQN Code	Serials	Original Letter	30SQN Code	Serials
A19-1/A	LY-A	A19-190; A8-145	A19-14/N	LY-N	A19-214
A19-2/B	LY-B	A19-134; A8-165	A19-15/O	LY-O	A8-201
A19-3/C	LY-C	A19-141; A19-170	A19-28/P	LY-P	A19-93; A19-205
A19-4/D	LY-D	A19-34; -101; -215; A8-144	A19-33/Q	LY-Q	A19-104; A8-178
	LY-E		A19-35/R	LY-R	A19-195; A8-84
A19-5/F	LY-F	A19-111; A8-147	A19-36/S	LY-S	A19-171; A19-213; A8-146
A19-6/G	LY-G	A8-152	A19-37/T	LY-T	A19-106; A8-130
A19-8/H	LY-H	A19-120; A19-183	A19-38/U	LY-U	A8-58
	LY-I		A19-54/V	LY-V	A19-179; A19-189; A8-179
A19-9/J	LY-J	A19-167		LY-W	A8-153; A8-223
A19-10/K	LY-K	A19-200; A8-141	A19-50/X	LY-X	A19-146
A19-11/L	LY-L	A8-98; A8-187	A19-53/Y	LY-Y	
A19-13/M	LY-M	A19-142; A19-151; A8-72	A19-90/Z	LY-Z	A19-132; A8-111

The single letter codes were marked ahead of the roundel. Although the three-letter squadron codes were introduced by AFCO A.3/43 in JAN 1943, it was not until the second half of 1943 that most squadrons applied these codes. Note that LY-C was allocated, although the 1943 AFCO had forbidden use of 'C' and 'I' ('I' apparently not used by 30SQN). Occasionally the Beaufighter squadrons would have more than 24 aircraft on strength.¹⁷⁸

Differing 30SQN Markings



A19-205 LY-P in TSS in 1944 and A8-84 LY-R in overall Foliage Green in 1945

These images show interesting apparent contradictions in markings.

Roundels: A19-205 in 1944 has the later style of 2:5 roundel then being introduced, while A8-84 has the earlier style 3:5 roundel DAP factory-applied, even though delivered in early 1945, and further forward than A19 aircraft. These 3:5 fuselage roundels persisted in DAP production up to about aircraft A8-94.

Fin Flash: A19-205 has a stubbier 24"x24" flash; A8-84 has the DAP-applied 27"x16" asymmetric sloped flash.

Colours: A19-205 has obvious indications of still remaining in TSS with the lighter undersurfaces, while A8-84 was as per all DAP-produced Mk.21s in overall FG.

Codes: A19-205 has the squadron 'LY' forward of the roundel, while A8-84 had the correct policy-directed style of individual code letter aft of the roundel. Codes 28"x16" in 3" strokes. 93SQN abided by the same policy with 'SK' marked aft on both sides of the fuselage, while other squadrons combined the whole code in a three-letter group, with the squadron identity and individual letter separated by a hyphen: eg 22SQN DU-M and 31SQN EH-N.

30 SQUADRON CODES 1943-1945

A19 AIRCRAFT 1943-44

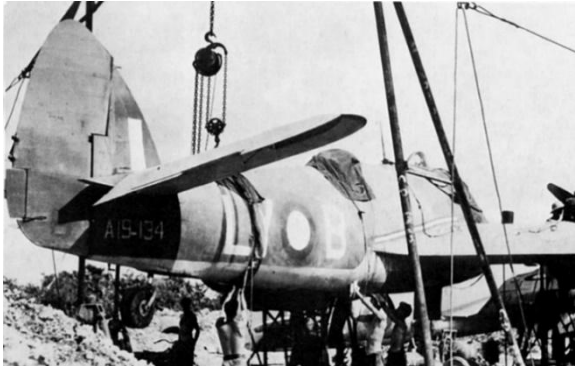
30SQN A19 Beaufighters were marked with LY-codes from the second half of 1943 – all marked to read **LY O #** where **O** represents the fuselage roundel, changed from C1 roundels to the 32" 1:2 ratio; this changed with the A8 Beaus.



A19-120 Mk.VIc LY-H at Vivigani (Goodenough) DEC 1943



A19-170 Mk.X LY-C at Vivigani DEC 1943



A19-134 Mk.VIc LY-B at Kiriwina 1943-44



A19-170 Mk.X LY-C after transfer to 5OTU MAY 1945

A8 AIRCRAFT 1945

30SQN A8 Beaufighters had their fuselage roundels marked in the factory, further forward than the earlier aircraft. Accordingly, the 'LY' tended to be marked behind the roundel, so that it read naturally as **LY O #** on the starboard side, but as **# O LY** on the port side. Roundels were either the early 3:5 style, or the later 2:5.



A8-153 W-LY Morotai 1945



A8-144 D-LY Morotai 1945



A8-98 LY-L Morotai APR 1945



A8-147 LY-F Morotai 1945

31 SQUADRON

ROCKETS ON BEAUFIGHTERS

From AUG 1944, 31SQN began receiving a new weapon, the 60-lb HE rocket projectile (RP).¹⁷⁹ 31SQN became the first RAAF unit in the Pacific theatre to use RPs in NOV 1944,¹⁸⁰ which soon became the primary air-to-ground weapon for the Beaufighter squadrons. These 6-foot long rockets could be delivered accurately, and with its HE warhead and kinetic trajectory packed a punch against their targets.



[colourised from AWM NWA0676]

A19-192 EH-T Mk.X of 31SQN at Coomalie NOV 1944 with the introduction of the 3-inch / 60-pound rocket
From left: navigator F/O S Greene, LAC Forest, and Greene's pilot F/O A Cobb



[colourised from AWM OG1755]



[colourised from AWM OG1758A]

30SQN Beau Mk.X A19-195 LY-R on 10 NOV 1944 at Noemfoor, RP instruction by pilot F/L G H Lavery

BEAUFIGHTER Mk.XIc – A19-140 EH-W 31SQN 1943-44

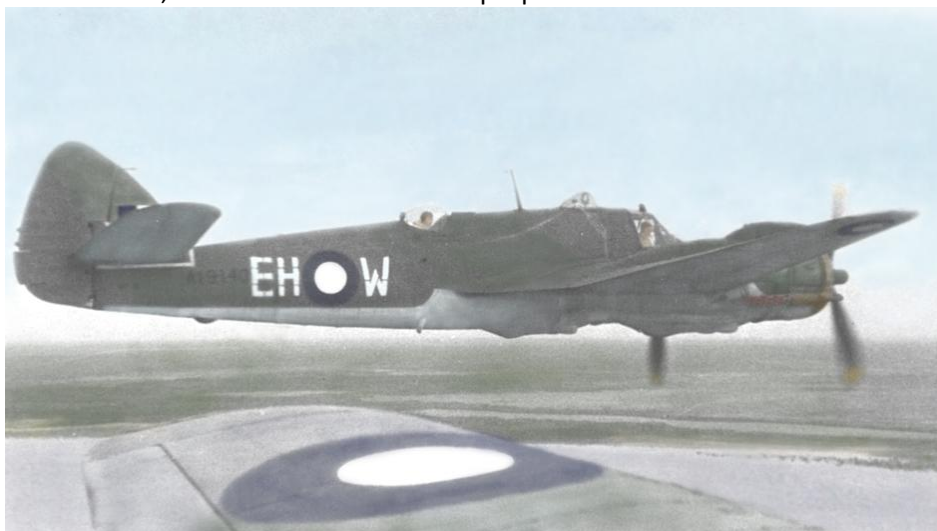
A19-140 (ex-JM184) was delivered to 31SQN at Coomalie in SEP 1943 and operated until landing wheels-up at Kamiri strip on Noemfoor in DEC 1944. Colours were the original TSS style – *Extra Dark Sea Grey* (EDSG) and *Dark Slate Grey*, with the original RAF Sky undersides repainted in RAAF Sky Blue.



[both colourised from 31SQN Assoc website]

A19-140 EH-W with 31SQN at Coomalie 1943-44

Underside *Sky Blue* slight feathering can be seen. Codes stencilled in *Sky Blue*, EH-W starboard side as seen here and below, code also read EH-W on port side; serial number unusually in *Black*. Fuselage roundels converted from RAF C1 are 1:2 ratio 32" in diameter, white disc 16"; upper wings at least 40" and maybe larger, but smaller and closer to tips on the undersides, and later in 1944 had 2:5 proportions.



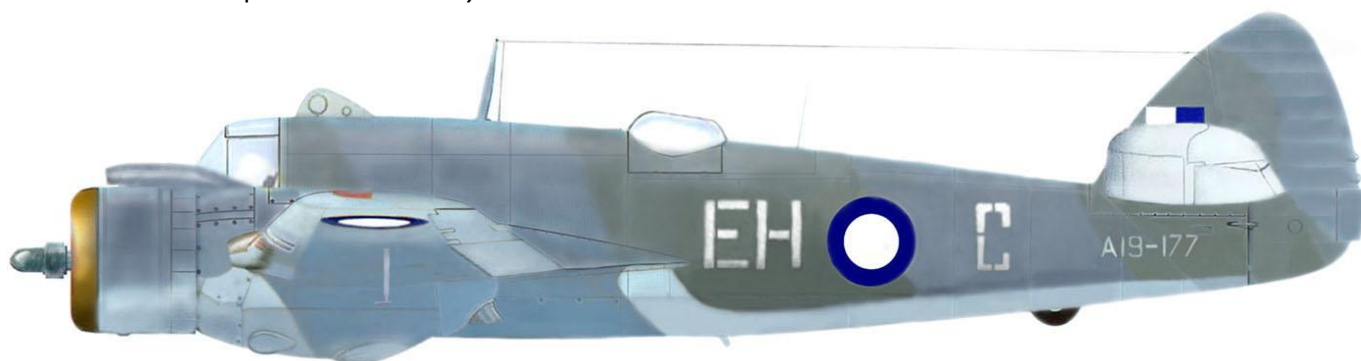
EH ○ BE OWZ

Style of 31SQN code letters

31SQN codes were thin stencilled style, generally 28"x16" in 3" strokes. Letter shapes could vary, e.g. see "E".

BEAUFIGHTER Mk.X – A19-177 EH-C 31SQN early 1944

A19-177 (ex-LZ200) was delivered to 31SQN from 5AD in MAR 1944, but crashed on landing at Coomalie in APR 1944. It was one of the last Mk.X Beaus delivered in the original TSS of *Extra Dark Sea Grey* (EDSG) and *Dark Slate Grey*, before introduction of the newer TSS (single colour *EDSG* upper surfaces). The original RAF *Sky* undersides would have been repainted in RAAF *Sky Blue*.



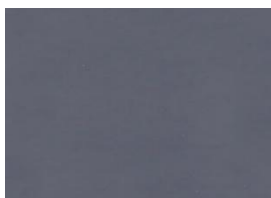
A19-177 EH-C with 31SQN at Coomalie APR 1944

Underside *Sky Blue* slight feathering can be seen. Codes stencilled in *White*, EH-C port side and also starboard side; serial number in *Medium Sea Grey*. Roundels are 1:2, fuselage is 32" in diameter, wings appear to be 40".

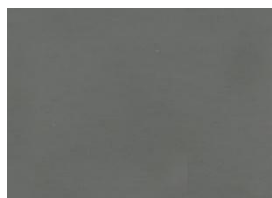


[colourised from adf-serials]

A19-177 EH-C crashed on 11 APR 1944 landing at Coomalie in a strong crosswind and ran off the strip



MAP Extra Dark Sea Grey K3/187



MAP Dark Slate Grey K3/189



K3/195 Sky Blue



[marked up from RAAF image]

A19-186 (ex-LZ327) at 1APU Laverton in MAR 1944. This was probably the last Mk.X delivered in the 3-colour TSS, and clearly shows the demarcation of shades of grey – these have been annotated above with the designated colours. After this, deliveries were in the newer 1943 RAF TSS: all over *EDSG* upper surfaces, over *Sky* replaced by *Sky Blue*.

31 SQUADRON – COLOURS 1944-1945

Colours and National Markings

When 31SQN received Mk.21 aircraft, they initially had the earlier style DAP 3:5 fuselage roundel (25" diameter), and 3:5 mainplane roundels. 31SQN code letter positions could vary, normally stencilled in *White* (with each letter 28"x16", but sometimes smaller), in a three-figure group aft of the roundel. Serial numbers were *Medium Sea Grey* (K3/183).

Disruptive pattern Mk.21s. As mentioned, 31SQN preferred the TSS coloured pattern for their over-water and coastal operations. 31SQN accordingly wanted a dispensation from the 1944 AGI Part 3 Section C which stated overall *Foliage Green* for attack aircraft, requesting a disruptive camouflage pattern on upper surfaces, and light grey undersurfaces. This was the 28 JUN 1944 request from Darwin to RAAF HQ in Melbourne:¹⁸¹

COPY.

77B

2410/7/ENG.

Group 22,
DARWIN, N.T.

June 28th, '44.

Secretary,
AIR BOARD,
Victoria Barracks,
MELBOURNE, S.C.L., Victoria. (Attention D.T.S.)

CAMOUFLAGE SCHEMES AND IDENTIFICATION MARKINGS OF AIRCRAFT.

The present camouflage policy as laid down for operational aeroplanes in A.G.I., Part 3, Section C, Instruction 1, is not entirely suitable for all types of aeroplanes in this Area, due to the general local meteorological conditions and the many and varied roles that are required of them.

2. After due consideration, and after consulting operating squadrons, the following alterations to the present scheme are suggested as being the most suitable type of camouflage to meet all requirements in the Area.

A19 Beaufighter: Appendix C of A.G.I.'s state all surfaces to be foliage green. Camouflage required-- upper surfaces to be irregular areas of foliage green and medium sea-grey; under surfaces, sea-grey.

From SEP 1944, 31SQN was armed with its approval to apply disruptive camouflage to its brand new production line all-over *Foliage Green* Mk.21s. One of the first, A8-5 EH-N (see below) received on 28 SEP, had a shade of grey applied over the *Foliage Green* on the upper surfaces, and an unspecified 'Sea Grey' underneath.



[31SQN Assoc website]

The Squadron sign outside its Headquarters says it all – for Latin scholars *Non Circum Coimus*

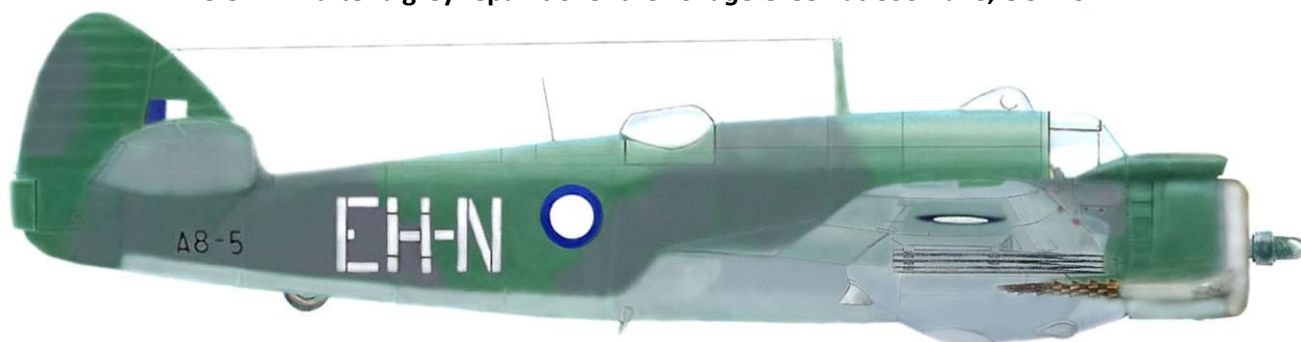
BEAUFIGHTER Mk.21 – A8-5 EH-N 31SQN NWA late 1944

When overall *Foliage Green* Mk.21s were delivered from SEP 1944,¹⁸² 31SQN repainted them in similar colours to the UK-supplied aircraft. 31SQN navigator at this stage, Peter Demayne, has observed:¹⁸³ “The Coastal Command camouflage was very appropriate when we were operating long flights over the sea from the Darwin area – it soon became obvious that *Jungle Green* [i.e. *Foliage Green*] was more appropriate when most of the ops out of Morotai were spent over jungle.” Similar disruptive camouflage schemes were carried on at least **A8-6**, **A8-11/EH-D**¹⁸⁴ and below on **A8-5/EH-N**.



[AWM P008710]

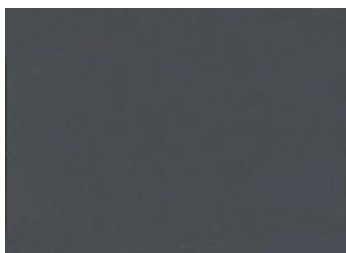
A8-5 EH-N after a grey repaint over the *Foliage Green* at Coomalie, OCT 1944



The Colours? A8-5 in 31SQN's disruptive camouflage – of interest as all Mk.21s were delivered in overall *Foliage Green* and repainted by 31SQN's conjoint 7RSU at Pell. Here the dark colours represent *Foliage Green*, the lighter upper surface colour being probably *EDSG*, and undersides *Medium Sea Green*. In JUN 1944 a scheme of upper *Foliage Green* and *Medium Sea Grey*, and *Sea Grey* undersides. However: 'Sea Grey' was not a listed colour on the RAAF vocabulary, so it is probable that *Medium Sea Grey* K3/183 had been intended (although it is possible that *Sky Blue* might have been used); furthermore, for an upper dark and light disruptive pattern, *EDSG* was probably applied onto the upper green. A8-5 had the early DAP factory-applied 3:5 small fuselage roundel (25" diameter), narrow standard DAP-applied fin flash (27"x16", i.e. 8" each colour), note that the serial was in *Black*, and codes in *White*.



K3/177 *Foliage Green*



K3/187 *Extra Dark Sea Grey*



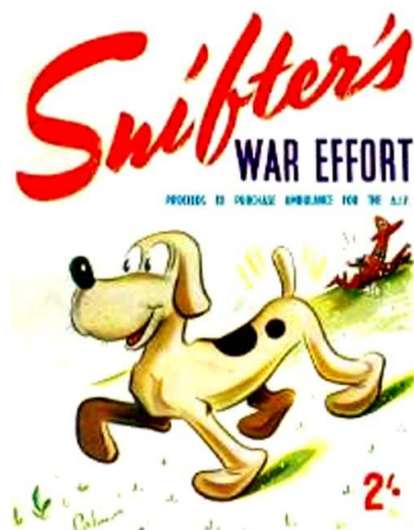
K3/183 *Medium Sea Grey*

Codes stencilled and supposedly marked from MAY 1944 in *Medium Sea Grey* instead of *Sky Blue* (which had faded to resemble *White*), but often by late 1944 these were now marked in *White*. A8-5 shows 28" starboard code EH-N aft of the 25" roundel (on both sides). Another Mk.21, A8-11, had its port marking of EH*D straddling the roundel.

31 SQUADRON NWA – NOSE ART 1942/44

From FEB 1943, 31SQN began to receive the first Mark VIc aircraft (A19-80, 83, 84, 86) which enabled “long-range” reconnaissance and attack missions as far afield as Koepang, Taberfane and the Aroe Islands.¹⁸⁵ A tiger’s face was carried on the very front of the nose of 31SQN’s Beaufighters, both the UK and Australian-manufactured variants.¹⁸⁶

A19-51 31SQN Snifter



A19-51 Snifter 31SQN in OCT 1942 [colourised *Whispering Death* p.42]

Snifter book

[internet]

A19-51, an early-delivered Mk.Ic, was still in brown/green TLS on arrival at 31SQN in OCT 1942, but soon 31SQN adapted these colours to a variation of grey/green TSS – with *Dark* or *Extra Dark Sea Grey* overpainting the *Dark Brown*, the *Dark Green* initially retained until repainted by *Foliage Green*, or even another shade of grey. AHCB 24 and 79 discuss Beau cam colours, with the port nose being a shade of green. ‘Snifter’ was the brainchild of artist Hardtmuth Lahm who had started comic strips in the 1930s: some appeared in *Smith’s Weekly*, *Fatty Finn’s Weekly* and *The Bulletin*. In 1936 he began contributing to K.G. Murray’s new MAN magazine, and some appearing in the first issue (DEC 1936). In 1937 he famously drew *Snifter*, a dog whose toileting habits provided endless gags. MAN, of course, became a favourite on RAAF squadrons. When MAN discontinued the Snifter series, it was inundated with complaints – he was reinstated. So popular was Snifter that he featured in his own series of booklets.¹⁸⁷



[colourised from AWM P02541.014]

‘Snifter’ in the Desert – 3SQN P-40D AK961 CV-O JUL 1942, *Snifter* leaves his mark on the Afrika Korps symbol

31SQN Beaufighter Mk.X late 1944 Coomalie



[Colourised from 31SQN Assoc website]

A19-203 Mk.X EH-H flown by S/L Pat Boyd and P/O Fred Anderson over AUG-SEP 1944 before arrival of Mk.21s

A good example of the 31SQN dispersed working conditions at Coomalie Creek, where the groundcrew worked on the aircraft in its revetment, comprising a camouflage netting roof for concealment, and minimal corrugated iron sided blast fences for protection from near-misses. A19-203 was typical of late delivery Mk.X Beaufighters, in TSS/overall *EDSG* on upper surfaces, over the *RAAF Sky Blue* (overpainted *RAF Sky*); code in **EH O H** format on both sides.

31SQN Beaufighter Mk.21 A8-8 EH-A 'Ailsa Joan' early 1945 Morotai



[Colourised from 31SQN Assoc website]



[Colourised from 31SQN Assoc website]

A8-8 Mk.21 EH-A at Morotai JAN 1945 F/L Sid Sippe pilot and FSGT N McKenzie who flew A8-8 EH-A 'Ailsa Joan' over JAN-FEB 1945 from Morotai. This shows the 31SQN code letter group on the Mk.21. The crew crashed A8-8 off the island on a training sortie on 12 FEB 1945; also squatting on the right is 31SQN Intel O, F/O Bill Sugden. Markings are standard as delivered from the DAP Fisherman's Bend factory in late 1944 – overall *Foliage Green*, early 3:5 25" fuselage roundel, serial in *Medium Sea Green*. Subsequently the codes were added in *White*, in the new 31SQN style of a three-letter group (22SQN adopted this group format too in 1945) in broader figures 28" high x 20" wide.

31 SQUADRON NWA – NOSE ART 1944

A19-184 31SQN Eat 'Em Alive



[colourised from 31SQN Assoc website]

Richmond Football Club, club's motto Eat-'Em-Alive, A19-184 at Coomalie. Pilot F/L Johnny Klug flew this aircraft over JUL-AUG 1944, before 31SQN received the Mk.21 in SEP. This Mk.X, typical of 31SQN colours, was in TSS – probably the new style EDSG upper surfaces on the late Mk.X and XIc deliveries, with the blended RAAF Sky Blue undersurfaces. Klug, a Richmond supporter, adopted the tiger's head.¹⁸⁸ A Mk.21 became **Eat-'Em-Alive II'**, evidently A8-7 flown by Klug in NOV/DEC 1944.

A19-192 EH-T Pistol Packin' Momma



[colourised from Parnell p.54]

A19-192 EH-T in AUG 1944 – a Beau Mk.X delivered in TSS and received by 31SQN in JUN 1944, which favoured and retained this scheme, and by this stage was all-over upper EDSG (i.e. the *Dark Slate Grey* had been discontinued). The undersurfaces appear to be the original Sky, shown by the RAF straight delineation (no RAAF Sky Blue blending or scalloping). The tiger interpretation by 31SQN applied the tiger's head directly onto the front of the nose. A19-192 crashed at Brooks Creek NT in SEP 1944, and was reduced to components.

The origins of the Tiger's head on Beaufighters started with 30SQN in New Guinea, on A19-111. From *Beaufighters over New Guinea*, 30SQN navigator George Dick relates: "Bill Cosgrove, a one time player with the Richmond Football Club, regarded A19-111 as his aircraft and its nose bore the painting of a tiger's head – the symbol of his erstwhile club."¹⁸⁹ Also marked was the club's motto "Eat 'Em Alive". Cosgrove was killed in the crash of A19-74 in AUG 1943.

The tiger was subsequently adopted by 31SQN, from about mid-1944, first on its UK-supplied Mk.X Beaufighters, then from SEP 1944 on the Mk.21. Pilot F/L John Klug, a keen Richmond Football Club supporter, had a tiger painted on the nose of his and nav F/O Pat Jones' aircraft (A19-184) with the words "Eat 'Em Alive" on the side.¹⁹⁰ The ferocious tiger interpretation by 31SQN had the tiger's head directly on the nose. This has subsequently been adopted by the 'new' 31SQN (which is the Base Squadron at RAAF Wagga) and the motto has been politely adapted from the original Latin.



[internet]



[RAAF]

31 SQUADRON – TIGERS 1945

The tiger's face would adorn the Mk.21s as they were received from SEP 1944, often with the aircraft 'last two' superimposed, as for A8-24 below. A8-23 EH-C and A8-20 EH-M were similarly marked, as probably were most of 31SQN's Mk.21s. The Mk.21s were delivered to 31SQN, as standard from the DAP factory, in all-over *Foliage Green*. But at this stage operating from Coomalie, 31SQN still flew long overwater missions, and preferred as ever, a disruptive camouflage pattern. Approval was granted for aircraft to be so camouflaged, and a pattern was devised using *Extra Dark Sea Grey* over the *Foliage Green*, with *Sky Blue*. However, as 31SQN moved north to Morotai in DEC 1944, the aircraft were pooled for maintenance at 5RSU with those of 22 and 30SQNs, so all aircraft came back in the standard all-over *Foliage Green*. The images below are at Morotai, over JAN and FEB 1945.

A8-24 JAN/FEB 1945 MOROTAI



[colourised from AWM OG2151]

A8-24 31SQN code unknown, 27 JAN 1945 at Morotai. 31SQN crews pilot F/L Robert Lasscock, nav F/S John White, and pilot F/S William McGuigan. In the background is Mk.21 A8-19 EH-E used as a source for spare parts, after is landing accident at Wama strip on Morotai in DEC 1944.



[colourised from AWM OG3356]

AWM image stated as Morotai on 26 MAR 1945, but A8-24 crashed on 15 FEB 1945. Its normal crew was Ellis/Coleman, shown here with a new crew Wood/Arbon who had just arrived from Australia – date is probably **11 FEB 1945**.¹⁹¹ A8-24 was damaged by groundfire over the target on 15 FEB 1945, and with a damaged engine crash landed on arrival, to be written-off. From left: P/O Wood, F/L Arbon, F/O Ellis, F/L Provost, F/S McGuire, and F/O Coleman.



AWM model of 31SQN Mk.21 A8-20 EH-M

[AWM REL40999]

31 SQUADRON – NOSE ART 1945

A8-6 'Winston'



[colourised from AWM P01157.009]

A8-6 'Winston' at Morotai in JAN 1945. A8-6 was delivered to 31SQN like other Mk.21 aircraft in all-over *Foliage Green*, but a disruptive pattern was added using *Extra Dark Sea Grey/Sky Blue*, with name in *Yellow* [colour ref *Baker:79, p.5*]. Pilot was F/L David Doughton (left), nav F/O Peter Demaine, who flew this aircraft over NOV 1944 to JAN 1945. The British Bulldog and 'Winston' was out of respect to Churchill.

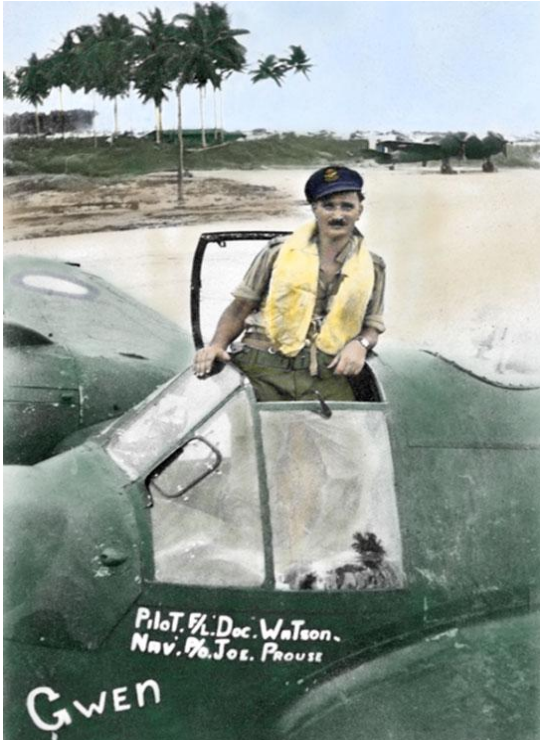
Bulldog's Face



A8-6 'Winston'

The bulldog's face of Footscray Football Club was adopted on the front of the nose of A8-6 by pilot F/L David Doughton, in the position which then became the location for the Squadron's tiger's face (ironically itself adopted from Richmond Football Club).¹⁹² The above version of the VFL Club's bulldog appears similar to that applied to the nose of A8-6.

A8-37 EH-W 31SQN 'Gwen'



[colourised from AWM P00956.046]

A8-37 EH-W 'Gwen' - pilot F/L Laurence 'Doc' Watson flew this aircraft on ops from Morotai from MAR 1945, then from Tarakan in JUN 1945.

A8-14 EH-J 31SQN 'Patricia II'



[colourised from 31SQN Assoc website]

A8-14 EH-J on the aircraft dump at Morotai, APR-MAY 1945. Crashed on landing MAR 1945. Nose art name 'Patricia II' (assumed to be in *Yellow* script), the nose cap was marked 'Abandon All Hope' with unlucky symbols. Scavenged for spares: nose cap is missing, with the Sperry autopilot bulge, ADF loop antenna and perspex cover, and the nav's cupola. A 'hedgehog' exhaust flame damper is lying on the ground.

31 SQUADRON – NOSE ART 1945

A8-7 31SQN 'Eat-'em-Alive II'



[colourised from 31SQN Assoc website]

'Eat-'em-Alive II', evidently A8-7. Pilot was F/L Johnny Klug, who previously flew A19-184 'Eat-'em-Alive'. When the 31SQN Mk.21s arrived from SEP 1944, Klug named one 'Eat-'em-Alive II' – probably A8-7 which he flew over NOV/DEC 1944. Foliage Green modified with Sky Blue undersurfaces.

A8-19 EH-E 31SQN 'Ruth & Roland'



[colourised from RAAF image]

A8-19 EH-E on the blocks at Morotai 1945, appears to be named 'Ruth & Roland' – marked on the starboard nose, and what appears to be 'NARROMINE' on the port side. A8-19 had crashed on landing at Wama strip when the undercarriage collapsed on 22 DEC 1944, and was written-off to be used as a "Christmas Tree" for spare parts.

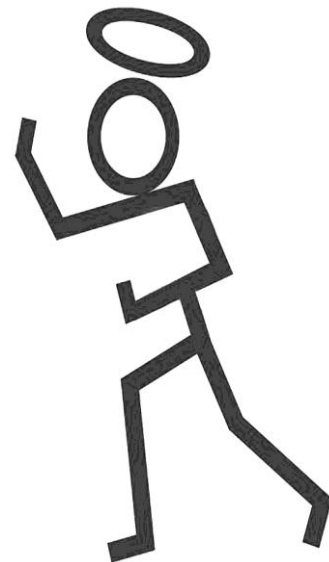
A8-191 31SQN 'The Saint' JUN 1945



[colourised from

AWM P028663]

A8-191 'The Saint' – the nav's name F/O M Wall is marked below the pilot's, above this marking. Michael Wall's pilot was F/O John Cowley. A8-191 was the aircraft they were killed in, on 11 JUN 1945 in a mid-air near Tarakan and Sanga Sanga with A8-39. 'The Saint' marking is assumed to be in White.



[internet]

The Saint was a popular character from Leslie Charteris' novels of the day – marked by this stickman logo. This nose art on A8-191 shows The Saint running with a bomb, in football style, representative of St George Rugby League Club perhaps, as pilot John Cowley was from Sydney.

31 SQUADRON CODES 1943-1945

A19 AIRCRAFT 1943-44

31SQN A19 Beaufighters were marked with EH-codes, generally in stencil style, from the second half of 1943, and these were all marked to read naturally, i.e. as EH O # – where O represents the fuselage roundel, which at this stage were all the 3:5 pattern. This style was changed with the A8 aircraft.



A19-18 Mk.Ic EH-T at Coomalie 1943, ex-50TU



A19-88 Mk.XIc EH-B forced landed nr Drysdale 25 FEB 44



A19-180 Mk.X EH-Q port 1944, and A19-180 EH-Q starboard at Coomalie in JUN 1944



Line-up of EH-E, EH-Y, and A19-140 EH-W at Coomalie FEB 1944

[colourised from 31SQN Assoc website]

A8 AIRCRAFT 1944-45

31SQN A8 Beaufighters had their fuselage roundels marked in the factory, and were further forward than on earlier aircraft. Accordingly, the codes were generally marked as a three-letter group, such as 'EH-#', aft of the roundel on each side. A few earlier deliveries to 31SQN in 1944 were marked with the normal reading sequence EH O # on each side. Roundels tended to be the small 25" size, and were either the early DAP factory 3:5 or later 2:5 style.



A8-20 EH-M early 1945 Morotai



A8-19 EH-E stripped for spares in Morotai



A8-23 EH-C - a 'tiger face' Beau

31 SQUADRON CODES 1945

A8-37 EH-W was marked in the normal 31SQN Mk.31 style three-letter group, aft of the roundel on each side. Roundels were the early 3:5 size on fuselage and mainplanes. By this stage of DAP deliveries, aircraft were being delivered with white cowling collector rings and exhausts. British cowls had been a copper colour, which soon tarnished, and DAP deliveries initially had *Foliage Green* or *Black*, but on some deliveries this was a *White* anti-scorch finish.



[coloured from 31SQN Assoc website]

A8-37 EH-W was received by 31SQN on Morotai on New Year's Day 1945, and served until storage in OCT 1945

Being received at Wama strip on Morotai, the disruptive camouflage changes were not required, so A8-37 retained the factory overall *Foliage Green*. The tiger's face had not been added on the nose, now carrying the last-two '37'. Marked as 'Gwen' on the port nose, there is some unidentified art on the starboard nose, possibly reading 'Beryl II'.

31 Squadron Codes – A19 and A8

31SQN Code	Serial	Later Serials	31SQN Code	Serial	Later Serials
EH-A	A19-6	A8-8; A8-89; A8-114	EH-N	A19-30	A8-5
EH-B	A19-17	A19-88	EH-O	A19-172	
EH-C	A19-177	A8-23	EH-P	A19-180	A8-15
EH-D	A8-11	A8-196	EH-Q	A19-181	
EH-E	A8-19		EH-R	A8-21	
EH-F	A19-64	A19-82; A19-160; A8-198	EH-S	A8-44	A8-161
EH-G	A19-40		EH-T	A19-18	A19-192; A8-10
EH-H	A19-30	A19-203	EH-U	A19-175	
EH-I	A8-12	A8-109	EH-V	A19-78	A19-158; A19-189; A8-25
EH-J	A19-161	A8-14	EH-W	A19-119	A19-140; A8-37
EH-K	A19-162	A8-39; A8-192	EH-X	A19-62	A8-17; A8-60
EH-L	A19-181	A8-142	EH-Y	A19-70	A19-148, A8-169
EH-M	A19-159	A8-20; A8-174	EH-Z	A8-2	

References for known 31SQN codes: *adf-serials* A19 and A8 databases, Parnell, and imagery from 31SQN Association website.¹⁹³

Note that EH-C and EH-I were both used by 31SQN, although the AFCE of 1943 had forbidden use of 'C' and 'I', however some units such as 31SQN often had more than 24 aircraft.

31 SQUADRON ACCIDENTS

These aircraft are marked with the larger 32" roundel, converted from their delivered RAF type-C1, a 1:2 ratio. Code letters 28" x 16" characters, and not as tall as the roundel.



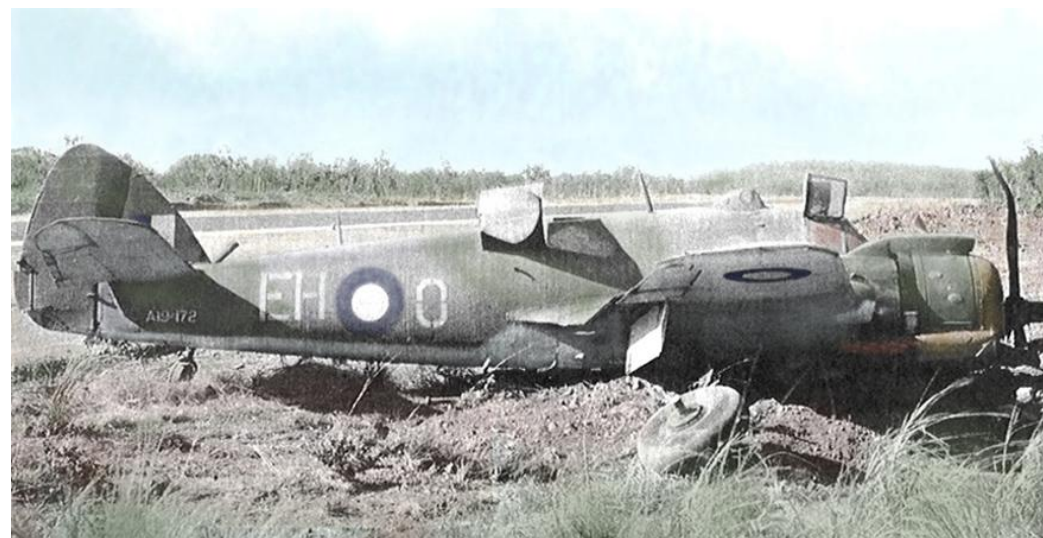
[all colourised from 31SQN Assoc website] ¹⁹⁴

FEB 1944: A19-88 Mk.XIc EH-B off the end of the Coomalie strip after an engine failure 9 FEB 1944

A19-88 was repaired, but later that month had another incident. Overhead its target, the entrance hatch opened, the extra drag resulted in running out of fuel, and belly landing at Ian Bay when it couldn't make the Drysdale strip.



APR 1944: A19-162 Mk.X EH-K crash landed Coomalie 29 APR, in TSS not with the normal 31SQN stencil codes



AUG 1944: A19-172 Mk.X EH-O swung on take-off Coomalie, 25 AUG 44 – Dark Slate Grey showing its green hue

22 SQUADRON

22 SQUADRON MARKINGS

The third RAAF Beaufighter squadron formed was 22SQN. This unit had been operating A-20G Bostons from Morotai, but after a Japanese attack on its airfield on 22/23 NOV 1944, was left with so few aircraft that it was forced to withdraw to Kamiri strip on Noemfoor to re-equip with Beaufighters.¹⁹⁵ Troubles were soon experienced with the new Australian-made aircraft. Glues used in manufacture were not initially suitable to the tropics, and there was no tailwheel locking device so landings on the narrow island strips often saw the aircraft veer off the runway. "Pilots accustomed to Bostons which behaved like a good stock horse, now had to contend with brumbies who tried to head for the bush at touchdown. Although a couple of faults were originally found in the new Australian-made Beaufighters, they were said to be better built and finished than English ones."¹⁹⁶ A8-36 ground looped and A8-48 crashed landing at Kamiri in DEC 1944, and A8-38 crashed off Noemfoor in JAN 1945. As part of the 1st Tactical Air Force, forming 77 (Attack) Wing with the Beaufighters of 30 and 31SQNs, 22SQN moved to Wama strip on Morotai in FEB 1945, then to Sanga Sanga (also known as Tawi-Tawi) in north-eastern Borneo in APR 1945 to cover the Tarakan OBOE 1 landings. The OBOE assaults in Borneo were major joint undertakings for the Australian forces, and some 20 squadrons of the 1st TAF supported the landings at Tarakan, North Borneo and Balikpapan.¹⁹⁷ After the OBOE landings at Labuan and Brunei Bay in northern Borneo,¹⁹⁸ 22SQN was withdrawn to Deniliquin NSW, disbanding with 30 SQN in AUG 1946.

Squadron Codes and Names

22SQN Code	Serial	Details and Name	22SQN Code	Serial	Details and Name
DU-A	A8-27	<i>Rockabye Baby</i>	DU-M	A8-61	
DU-H	A8-50		DU-O	A8-66	<i>Shirley Belle</i>
DU-I	A8-45	possible only	DU-P	A8-52	
DU-K	A8-55		DU-Q	A8-67	

We do not have many Beau 'DU' codes in our *adf-serials* database - unfortunately they are not provided in the 22SQN A.50 or A.51 operational unit sheets.

22SQN Beau Mk.21s were initially marked with the earlier style DAP factory 3:5 fuselage roundel (25" diameter), and with 3:5 mainplane roundels. Serial numbers were *Medium Sea Grey* (K3/183). 22SQN code letter positions varied slightly, marked in solid *White* letters in 3" strokes, wider than normal, at 24"x20" – almost the same height as the roundel. Squadron codes were in a three-letter group on both sides, always aft of the roundel. Ian Baker has A8-66 DU-O in his AHCB:78, and he does mark the letters slightly smaller than the 25" roundel.¹⁹⁹ This standardised style of 22SQN code letter groups, below on A8-61, shows M-DU on starboard side aft of the roundel; port side read DU-M.



[coloured from adf-serials]

A8-61 M-DU, with I-DU (possibly A8-45), at Morotai cMAR 1945

22SQN Morotai 25 MAR 1945, Visit by Governor of NSW

C-60A Lodestar A67-5 (callsign VH-RAE), recently stripped back to bare metal by 1AD for VIP use by No.1 Comms Unit, flew the NSW Governor Lord Wakehurst around New Guinea, Bougainville and north to Morotai to visit the troops.



[colourised from AWM OG3308]

Morotai visit at Wama strip, 25 MAR 1945 by Honorary Air Commodore of 22SQN, NSW Governor Lord Wakehurst
Left–right: AIRCDRE Harry Cobby (Commander 1TAF), G/C Simms 1TAF, the Governor, and CO 22SQN S/L John Entwistle



[colourised from AWM OG3313]

A8-67 Q-DU ('67' covered by 'Q') Morotai: F/L W Berriman, NSW Governor Lord Wakehurst, CO22 S/L Entwistle

22 SQUADRON – NOSE ART

A8-27 DU-A 'Rockabye Baby'



A8-27 DU-A 22SQN Morotai 1945. Detailed nose art of green Beau DU-A attacking a Jap soldier holding a bottle of sake, named 'Rockabye Baby' – Yellow background.

A8-n.k. 'SILENT KNIGHT II'



Unidentified Beau 21, unit unknown – so possibly not 22SQN. Image from storage c1945 probably at 5AD Wagga, named after the 'Silent Knight' kerosene refrigerator popular at the time. Being a Mk.21, overall *Foliage Green*, and nose art assumed to be *Yellow/Silver*.

A8-52 DU-P 'PU' Ginger Meggs



[colourised from AWM P02666.013]

A8-52 DU-P 'PU' Ginger Meggs, 22SQN Morotai, in JUN 1945. Nav F/O Alan Miller, pilot F/O Vic Tovey.



A8-52 in postwar storage at Wagga, c1946. Meaning of 'PU' is unknown (perhaps as the code was DU-P), marked probably in *Yellow*. Contemporary colours for Ginger Meggs were red pants and shoes, white shirt, black jacket. His dog Mike was black and white. Brown monkey Tony wore red pants and green top. A8-52 went to storage in OCT 1945 at 5AD CMU at Wagga, with hundreds of Beaus and Beauforts, for disposal in 1946. 223 Beaufighters were written-off by 1949 under Disposal List 1738 (see *Newsletter 2018*, Vol 8 No.2).²⁰⁰

22 SQUADRON ACCIDENTS



[colourised from 31SQN Assoc website]



[colourised from RAAF 000-147-913]

A8-55 DU-K crashed on take-off Sanga Sanga 5JUN45 **A8-66 DU-O 'Shirley Belle'** take-off Tarakan 19AUG45



[all colourised from RAAF images]

A8-107 crashed when tyre burst taking-off and hitting an ambulance, Tarakan 31 AUG 1945

Overall *Foliage Green*, code letter unknown, newer style 2:5 fuselage roundels and 3:5 on wings, the 22SQN unique blue/white/red rudder tab on A8-107 (also seen on image of A8-50/DU-H), and unidentified palmtree art on port nose.



93 SQUADRON

93 'GREEN GHOST' SQUADRON MARKINGS

93SQN – the 'Green Ghost' Squadron – was the last operational Beaufighter squadron, formed at Kingaroy in JAN 1945. In MAR 1945 the first aircraft flew north to Morotai to escort 79SQN Spitfires, where the squadron then deployed in MAY. The main thrust forward would be as part of 86WG with 1SQN Mosquitos at Labuan in JUL 1945, from where A8-86 and A8-123 carried out 93SQN's first attack. Strikes were continued by 93SQN through AUG, and with the cessation of hostilities more mundane tasks such as leaflet dropping, formation shows of strength and communication duties formed its activities. Over early 1946, 93SQN escorted the 81WG Mustang squadrons from Labuan to Japan as part of the British Commonwealth Occupation Force, until disbanding later in 1946 at Narromine.

201



[coloured from AWM P02010.029]

CO 93SQN S/L Keith Gulliver with A8-87 SK-G at Kingaroy in early 1945. Gulliver was unfortunately killed in an accident at Labuan in DEC 1945 when his aircraft A8-184 SK-O collided with a Mustang parked beside the strip.

93SQN had a unique style of individually marking its aircraft, with an unusual form of ghostly and gremlin type artwork on the aircraft rudder. Some aircraft had more conventional Disney-style artwork, but most with the theme of riding on rockets. In addition, aircraft also carried nose art with a girl's name – see serial numbers and squadron codes below.



[coloured from AWM P02010.011]

Three Beaus are identifiable here at Kingaroy before 93SQN moved north to operations in JUL 1945: FSGT Bill Mutton's A8-116 SK-N 'Babs'/'Pistol Pakin Gremlin', with A8-112 SK-L Goofy, and A8-96 SK-M 'Set In The Butz'.

Aircraft Colours

As all 93SQN aircraft were Mk.21s straight from the DAP production line at Fisherman's Bend, they were received in the then standard 1944/45 colours of overall *Foliage Green* (K3/177).



A coloured A8-173 (SK-Y of 93SQN, at Labuan in OCT 1945) from the internet

This interpretation (source n.k.) has *Foliage Green* more 'olivey' towards FS34096, than 'bottle green' of FS34092.²⁰²

Roundels – DAP used a small roundel (apparently the 25" was derived from the early Beaus) in an earlier 3:5 style up to about A8-94,²⁰³ then the 2:5 style introduced as shown; all with 3:5 mainplane roundels (48" diameter). The factory applied a 27" high fin flash (probably tall to be visible over the tailplane dihedral) along the rudder post, with the standard 8" per colour width (which was the standard with different sized flashes).

Codes – 93SQN 'SK' code letters were a fat 4" stroke always **aft** of the roundel, and individual letter **forward** of the roundel in *White* (taller than the 25" diameter fuselage roundel, each letter 28"x20", obvious on T-SK shown below).

Serial numbers – from the factory were *Medium Sea Grey* (K3/183), but invariably became *White* during 1945.



A8-124 SK-T 'Marge' on 11 Aug 1945 at Labuan

[coloured from AWM OG3168]

From left: Navs F/S Ross Shute, F/S Max Paige, F/S Norton Duckman, and pilot W/O Lionel Parham, before its crash 30 AUG (below over page)

A8-124 SK-T 'Marge' swung on asymmetric landing at Labuan on 30 AUG 1945
 [coloured from Bowyer, p.151]



Squadron Codes and Names

93SQN used a unique 'fat' style of code letters, an 'Arial Black' style font in 4-inch stroke, 28" high by 20" wide, taller than the fuselage roundel and in *White*. Most 93SQN codes are known and listed below – from the fact the unit was in existence for a short period of time in 1945, into 1946, and because of well-recorded A.50 Unit History Sheets.

93SQN Code	Serial	Names and Later Serials	93SQN Code	Serial	Names and Later Serials
SK-A	A8-164	A8-324	SK-O	A8-119	A8-184; A8-316
SK-B	A8-78	A8-318	SK-P	A8-120	<i>Pattie</i> ; A8-334
SK-C	A8-338		SK-Q	A8-121	A8-266
SK-D	A8-81	A8-341	SK-R	A8-122	<i>Bambi</i> ; A8-317
SK-E	A8-83	A8-159 <i>Nancy</i> ; A8-346	SK-S	A8-123	<i>Paddy</i> ; A8-337
SK-F	A8-85	<i>Hilary</i>	SK-T	A8-124	<i>Marge</i> ; A8-262
SK-G	A8-87	A8-13; A8-330	SK-U	A8-125	A8-182 <i>Betty</i>
SK-H	A8-86	A8-260	SK-V	A8-126	<i>Our Con</i> ; A8-149
SK-J	A8-92	<i>Miss Lornace</i> ; A8-195; A8-329	SK-W	A8-127	<i>Ye Adj</i>
SK-K	A8-102	A8-270	SK-X	A8-129	
SK-L	A8-112	A8-332	SK-Y	A8-173	
SK-M	A8-113	A8-96; A8-325	SK-Z	A8-133	<i>Shirley Faye</i>
SK-N	A8-116	<i>Babs</i> ; A8-327 <i>Tuppy's Beau</i>			

AFCO of 1943 had forbidden use of 'C' and 'I'; 93SQN used SK-C but not SK-I. Some units often had more than 24 aircraft on strength, and individual letters would include 'C' and 'I', or shape designs (such as a question mark, or diamond shape). However, Beaufort A9-401 was on 93SQN strength, and coded SK-Ā (a bar over the 'A', to distinguish it from Beaufighter SK-A). Over 1945, 93SQN often had 24 Beaufighters on strength.²⁰⁴



Style of 93SQN code letter examples

93SQN codes were in a 'fat' stencil font (a style similar to "Arial Black"), in 4" stroke instead of the normal 3" stroke
Nose art girl's names – 93SQN was unique with an aircraft often having two nicknames, a girl's name on the nose, and the strange ghoulish "Green Ghost" Gremlin-inspired tail art, which invariably incorporated the rocket weapon.



[adf-serials]

A8-85 SK-F 'Hilary' Garrett and Leviston, Morotai mid 1945 tail



[colourised from AWM OG3169]

A8-120 SK-P 'Pattie', marked as 'Barren-Joey' on the tail

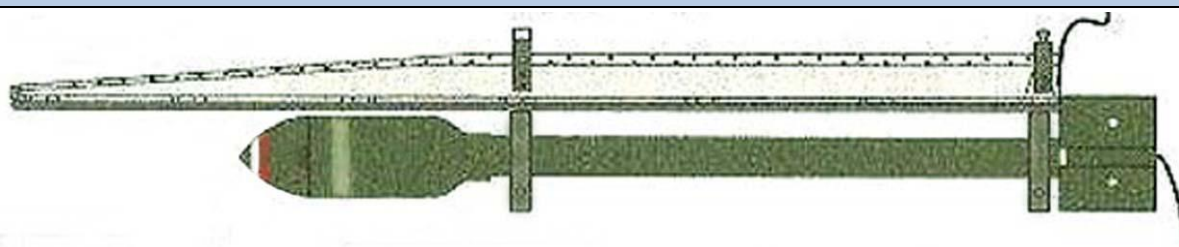
93SQN Rocket Art

In the following collection of 93SQN tail art, the 60-pound aerial rocket (which together with the 20mm cannon was now the Beaufighter's primary weapon) featured prominently in the artwork added to rudders.



93SQN armourers loading rockets at Labuan, AUG 1945 [colourised from AWM OG3162]

60-POUND ROCKET PROJECTILE



The "60-pound rocket" weighed 82lb (37kg), with a 60lb warhead comprising 12lb (5.4kg) of HE, typically TNT – the warhead was HE/SAP (semi-armour piercing) with the 12lb TNT filling, or general purpose HE/GP hollow charge.²⁰⁵ It was 55" long (140cm), 3" in diameter (76mm), and coloured RAF *Dark Green* colour. The four rails were on a truly British-engineered underwing mounting plate – a four feet square steel plate ideal in Morotai for barbeques.²⁰⁶

93 'GREEN GHOST' SQUADRON – TAIL ART

A8-85 SK-F 'Hilary'



[colourised from AWM P02010.013, ref Hasegawa Models]

W/O Stan Leviston's A8-85 SK-F 'Hilary' at Kingaroy. The rudder marking is of a purple/lilac gremlin wielding the 60-pound rocket projectile as a club. (It was not the 'Purple People Eater' of the 1950s.)

A8-116 SK-N 'Babs'



[colourised from AWM P02010.012]

A8-116 SK-N 'Babs' with tail art of the 'Pistol Pakin' Gremlin'. Waving a couple of pistols, this style of tail art epitomised the way-out, almost ghoulish form of markings that 93SQN were permitted to carry.

A8-112 SK-L



[colourised from AWM P02010.009, ref Baker 24 p.2]

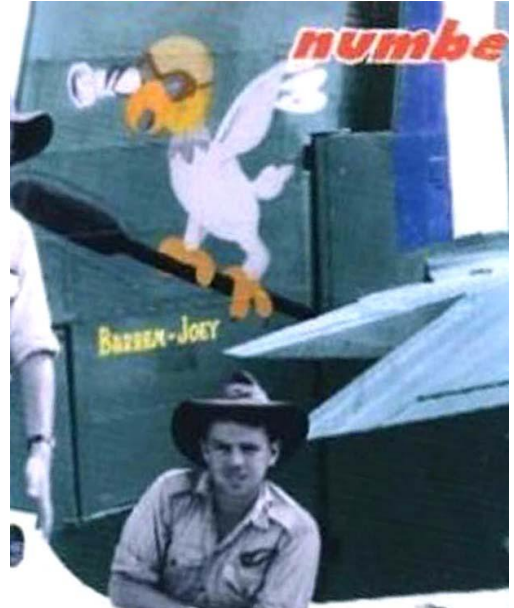
Pilot W/O John Carter's A8-112 SK-L in MAY 1945 at Kingaroy painting of Disney's Goofy riding a rocket. Rockets, being the Beau's primary armament (together with its cannon), featured prominently in 93SQN's tail art.

93 'GREEN GHOST' SQUADRON – TAIL ART

A8-120 SK-P 'Pattie'



[colourised from AWM OG3167]



[Classic Warbirds No.6 cover]

A8-120 93SQN SK-P 'Pattie' with tail art cockatoo 'Barren-Joey' riding a rocket, supposedly in AUG 1945. However, these group shots of 93SQN personnel were taken at Kingaroy, probably APR-MAY 1945, before the deployment north from JUL. 'Pattie' was a long-serving Beau with 93SQN from FEB 1945, seeing ops in Borneo, and going to storage in JAN 1946. The aircraft was featured in *Classic Warbirds* No.6.

A8-122 SK-R 'Bambi'



[colourised from bowyer, p.143]



[colourised from image ROPos Models]

A8-122 SK-R with a green ghost marked on the tail holding rocket and a bomb. Continuing the ghoulish theme, this commemorated Dracula, by being named 'Drack's Daughter', titled in yellow. Marked on the nose as 'Bambi'. In the left image is the staged publicity shot at Kingaroy in MAY 1945, before the move north – left is SGT Ross Shute (nav) and pilot F/L W Harris. Note that this aircraft carried different art on the starboard side of the rudder, named 'Graucho', with a gremlin holding a rocket. [colour ref Baker AHCB # 24 p.3; Pentland Vol 2 p.96]

93 'GREEN GHOST' SQUADRON – TAIL ART

A8-124 SK-T 'Marge' / Donald Duck



[colourised from Parnell p.69]



[colourised from Bowyer, p.143]

A8-124 SK-T 'Marge' with another Disney star, Donald Duck on a rocket, at Labuan, port and starboard sides shown. The normal crew was FSGT Norton Duckmanton (nav, kneeling) and W/O Ron Morton (pilot) shown here at Kingaroy cMAY 1945. Donald's rocket has Latin writing *NON HIC FAECES TAURIS* – 'No bullshit here'. A8-124 crashed in AUG 1945 when it swung off the end of Labuan strip at the end of its landing run with the port engine feathered. It was subsequently written-off.

A8-127 SK-W 'Ye Adj' / Big Bad Wolf



[colourised from AWM
P02016.016]

A8-127 SK-W 'Ye Adj', the Big Bad Wolf in RAAF drabs holding a pint. This is the aircraft of P/O Ken Shirley at Kingaroy cMAY 1945. Shirley had crashed A8-125 on transit to Morotai in MAY 1945, and then flew the unit's first operation in A8-123. A8-127 served until 93SQN was disbanded in early 1946. Behind is A8-129 SK-X.

A8-96 SK-M 'Set In The Butz'



[colourised from Ventura decals VA3284]

A8-96 SK-M 'Set In The Butz', 93SQN probably at Kingaroy in MAY 1945. Crew F/S M Paige nav, W/O G McLeod pilot. The name is probably a reference to harmonising the weapons in the gun butts, and the 'H' and 'T' dice may imply the guesswork involved! A8-96 had joined 93SQN in MAY 1945, then deployed with the main 93SQN party to Morotai in JUL, then to Labuan in AUG. As 93SQN prepared for a 15-ship rocket attack on an enemy airfield on 13 AUG, the mission was cancelled and all offensive ops ceased. ²⁰⁷ A8-96 crashed at 5AD Oakey in OCT 1945, to be converted to components.

93 'GREEN GHOST' SQUADRON – TAIL ART

A8-126 SK-V 'Our Con' / Snifter



[colourised from AWM P02010.014]

A8-126 93SQN SK-V 'Our Con' at Kingaroy with a naughty Snifter (Australia's favourite pooch), having left his calling card on a pint of ale. Snifter was normally fairly well-behaved, only showing his contempt in his traditional manner on images of Tojo and Jap flags (and Nazis!), but here he is walking away innocently whistling and wagging his tail. There appears to be a logo of VB Victoria Bitter – perhaps an assessment from the crews in Queensland of southern ale? A8-126 was W/O Frank Clarke's, here at Kingaroy in MAY 1945; A8-120 SK-P behind.

A8-159 SK-E 'Nancy'



[image colourised from HyperScale Forum]

Image:

[colourised from Parnell, p.67]

A8-159 SK-E 'Nancy' marked on port nose, with Ginger Meggs tail art. A8-159 joined 93SQN in MAR 1945 to replace A8-83/SK-E which had crashed in FEB. This rudder art shows the posed crew photos at Kingaroy in MAY 1945 before proceeding to Labuan at the end of JUL: crew W/O Evill pilot, F/S Fyshe nav. This image is not in the AWM collection, it is from the HyperScale Forum posted on 22 Mar 2013, and shows Ginger above a 60-lb HE rocket, popular in much 93SQN tail art. The crew under 'Nancy' are later in 1945: pilot F/S MacDonald and nav F/S Bushell.

93 'GREEN GHOST' SQUADRON – TAIL ART

A8-102 SK-K 'Guess Who'

A8-102 SK-K 'Guess Who' joined 93SQN in JAN 1945. The aircraft was ferried north to Labuan in JUL 1945 by F/O Newbury and W/O Goss, who flew it on their only operation on 7 AUG before the cease of hostilities.



[colourised from *Beaus in Pacific* p.162]

A8-122 SK-R 'Graucho'

A8-122 SK-R 'Graucho' on starboard rudder of A8-122, and presumably '*Drack's Daughter*' marking remained on the port side of the rudder. Art shows a gremlin (assessed as probably in light green) shouldering the standard 93SQN 60-lb RP, and appears to be holding a fire cracker.

A8-122 when photographed at Kingaroy in MAY 1945 (for the general PR photo-shoot) had crew F/L Harris and SGT Shute, who did fly the aircraft to Labuan in JUL. Harris/Shute then flew A8-122 on sorties from Labuan over AUG/SEP 1945.

Shown here are probably the groundcrew.



[colourised from *Beaus in Pacific* p.162]

A8-184 SK-O 'Ye Old Bumble Bee'

A8-184 SK-O 'Ye Old Bumble Bee' carried Dr Seuss style artwork of a fierce-looking bee with a top hat, riding on a 93SQN 60-lb rocket. This image is colourised from Nev Parnell's "*Beaufighters in the Pacific*", and uses the Hasegawa Models kit as a colour reference.

A8-184 was received on 93SQN in APR 1945, and flown to Labuan by F/L Kirkman and F/S Fraser.

A8-184 came to an unfortunate end in DEC 1945 when it swung on take-off at Labuan and crashed into a Mustang.



[colourised from *Beaus in Pacific* p.102]

93 SQUADRON ACCIDENTS



[colourised RAAF images]

A8-113 SK-M, crashed when ran off strip and caught fire at Strathpine on 16 APR 45



[colourised RAAF images]

**A8-83 SK-E, crash landed near Leyburn 27 FEB 1945
Strathpine**

A8-119 SK-O, 19 APR 45 tyre blew on landing at



[colourised from AWM P02010.027]

A8-129 SK-X stalled approach Labuan 11AUG45



[colourised RAAF image]

A8-123 SK-S Paddy ground-looped avoid fence at Wagga 6NOV45

93 'GREEN GHOST' SQUADRON – POSTWAR

92 SQN. A new unit, 92SQN followed 93SQN at Kingaroy, forming on 25 MAY 1945, but its first Beaufighter did not arrive until 4 JUL.²⁰⁸ With peace in AUG 1945, preparation for Beaufighter operations in the islands was curtailed, and disbandment of the unit commenced in SEP 1945. Beaufighters A8-226, -245 and -264 were delivered,²⁰⁹ and although 92SQN was allocated the unit code 'OB', there is no record of these codes being carried by Beaufighters.

93SQN. Meanwhile 93SQN remained active into 1946, with a large northern deployment again of squadron Beaufighters from Kingaroy, this time to Labuan. The role from Borneo was the escorting of 81 Wing Mustangs from Labuan, through the Philippines and Okinawa to Japan, for the British Commonwealth Occupation Force (BCOF):

Postwar ferry duties – Over FEB-APR 1946, Beaufighters and Mosquitos provided support as weather reces and escorts to ferry 81 Wing from Labuan to Clark field (Philippines), Naha (Okinawa), and to Bofu in Japan.²¹⁰

Below: A8-329 crew was F/O 'Bill' Hosking pilot, and navigator F/O 'Harry' Horton. Hosking flew A8-329 to storage at Wagga on 9 MAY 1946. As all 93SQN aircraft were withdrawn from service in early MAY 1946, both **A8-327/SK-N** and **A8-329/SK-H** passed to Care and Maintenance Unit (CMU) at Tocumwal for storage and disposal. Both were offered for tender on DAP Disposal List 489 in JUN 1954, for sale to R H Grants Trading Co for scrapping later that year.²¹¹

A8-327 SK-N 'Tuppy's Beau'



[coloured from AWM OG3824]

A8-327 93SQN 'Tuppy's Beau' at Iwakuni 9 MAR 1946

93SQN deployed in FEB 1946 to Morotai, Labuan and Clark (Philippines) to assist with 81 Wing P-51 ferries to Japan. On 9 MAR, A8-327 flew from Naha (Okinawa) to Iwakuni in Japan. The above crew on arrival at Iwakuni were: LAC Whitehead, W/O Ken Rowling nav, and F/O Jack Chamberlain pilot. Flying on to Bofu on 13 MAR, the return commenced back to Naha on 29 MAR, then from Clark to Morotai and Darwin.²¹² A8-327 was also named 'Lady Lynette' under the nav's cupola on the port side.

A8-329 SK-H 'Sweet Sue'



[coloured from adf-serials]

A8-329 93SQN 'Sweet Sue' Narromine 19 APR 1946

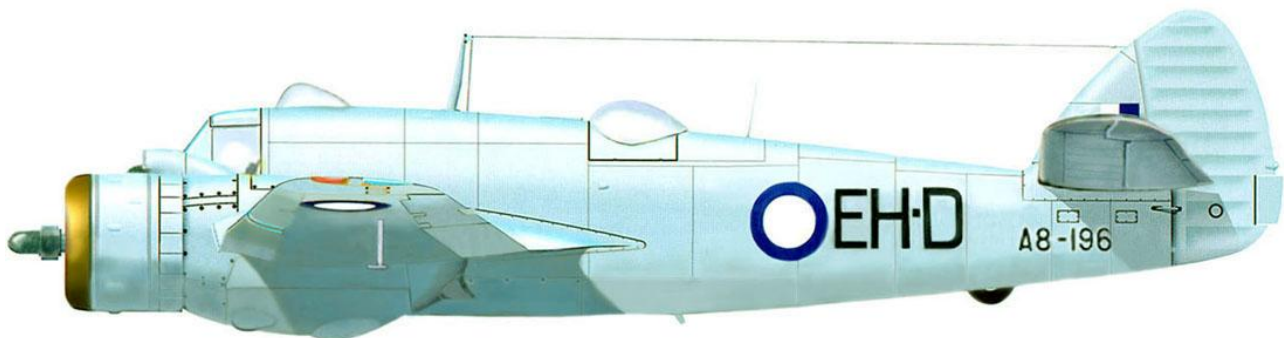
A8-329 had joined 93SQN in JAN 1946, on 27 FEB deploying forward from Labuan to Okinawa as part of the advance attachment, crew Hosking/Horton. When ferry duties were complete, A8-329 returned with 93SQN back from Morotai to Darwin on 17 APR, then as a Beau 16-ship to Narromine on 19 APR.

Markings of Beaufighters in postwar RAAF service have been covered in our ***adf-serials Newsletter Volume 8, Issue 2 (Autumn 2018)***.²¹³ Withdrawn from the attack role – although they may have been useful in the first year of the Korean War – Beaufighters were relegated to second line target-towing duties, just as their contemporary Mosquitoes conducted photographic survey. In the months leading up to the end of the War, several Beaus were stripped of camouflage as there was no air threat, and were used for communication duties.

SILVER BEAUS

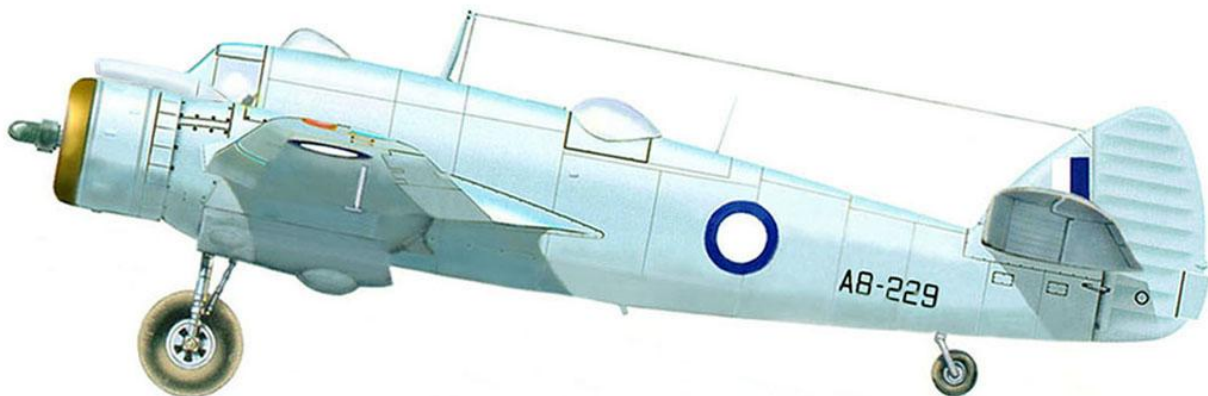


During JUL 1945, with the approval of OC 77 Wing G/C Charles Read, A8-196 EH-D was stripped of its wartime camouflage, back to its bare metal, and 3:5 roundels applied with black codes. This quite large and tedious operation was carried out by 31SQN maintenance flight under the direction of F/L Frank Stewart who co-opted the assistance of any aircrew who were available. After the paint had been stripped from all surfaces of the aircraft the metal surfaces were polished for two reasons. Firstly to improve the appearance of the aircraft and secondly to increase the speed of the aircraft by about 10 knots. (The maximum speed of a Beaufighter aircraft at that time, at sea level, was approximately 270 knots which converts to about 310 mph and further converted to about 498 kph.) Therefore with the paint stripped off and the panels polished A8-196, 'The Silver Beau,' would be capable of over 500 kph, and it was the first bare-metal Beaufighter to grace the skies up north. Wherever A8-196 landed, it was much admired as it was the only silver RAAF aeroplane at that time, and affectionately known as 'The Silver Beau'.²¹⁴



A8-196 EH-D, 'The Silver Beau', of 31SQN JUL 1945 until returned to 5AD storage Wagga later that year

31SQN nav F/L David Beasley noted: "When we returned to Labuan I received a pleasant surprise to find that my good friend F/L Mal Baker had been assigned to fly A8-196, the 'Silver Beau', to Wagga to be stored, and I was to accompany him as nav – this meant that I had had the privilege of being the navigator of A8-196 for practically the whole of its Squadron service. We left Labuan and arrived in Melbourne on 28 OCT 1945, then on to Wagga."²¹⁵

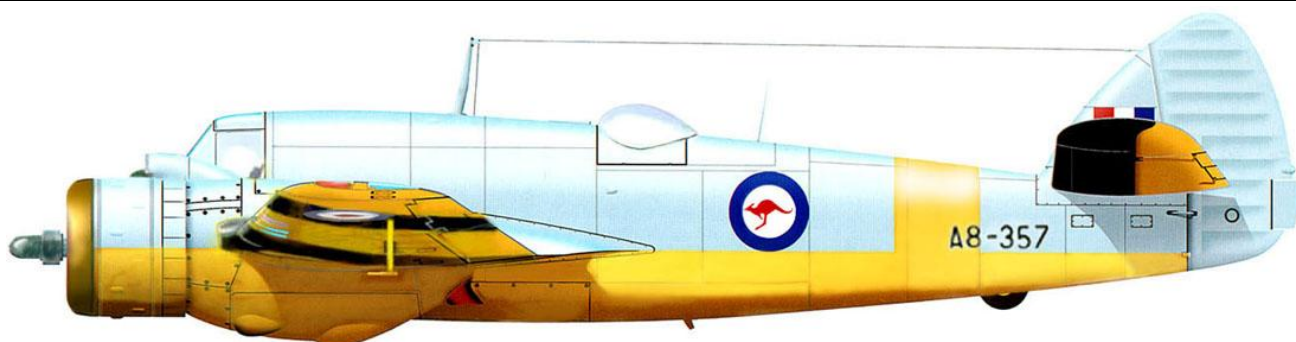


A8-229 with 8 Comms Unit (8CU) from JUN 1945 to OCT 1945, then to 111 ASR Flt until MAY 1946

Both these Mk.21s had larger 32" 3:5 roundels, EH-D a 28" code. A8-229 did not see Squadron service, delivered to 1AD in MAY 1945, where it was presumably stripped of its *Foliage Green* before its four months with 8CU. After 111ASRF, A8-229 was stored at 1AD Laverton and authorised for write-off by AIR List 1738 in 1946.²¹⁶

TARGET TOWING BEAUS

1 Comms Unit flew A8-265 in JUL 1946 to Richmond for acceptance the following month by Target Towing and Special Duties (TT&SD) FLT. In SEP 1947 the unit was re-named TT&SD SQN, and then 30(TT) SQN in MAR 1948.²¹⁷ A winch modification was incorporated into a further 16 TT Beaufighters. In JAN 1956, the final four aircraft A8-328, -350, -358 and -362 were ferried from 2AD to 1AD Det 'B' at Tocumwal for scrapping; 30(TT)SQN disbanded in MAR 1956. The Beaufighter TT aircraft of Air Trials Unit at Woomera were withdrawn from service in 1957 (A8-357 and -363), with their last flights on 9 DEC 1957 on ferry from Woomera to Edinburgh.



A8-357: Target-towing Beau 21 at Air Trials Unit in Woomera in 1956 with fuselage kangaroo roundels.



From 1946, the TT Beaufighters had basically two different schemes. The first from 1946 to the early 1950s, was all-over yellow/black stripes – *Trainer Yellow* K3/185 and *Black* K3/172. Then from about 1953 the scheme of all-over *Aluminium* K3/162 and yellow/black undersides was standardised: shown on A8-357 and below on A8-328. A8-328 was retired to the Lord Mayor's Children Camp at Portsea, before being rescued for the museum at Moorabbin.



PRESERVED IN WARTIME COLOURS



A8-328 displayed as 31SQN A8-39 EH-K at the Moorabbin's Australian National Aviation Museum



A8-186 is preserved at Camden Aviation Museum in fictitious 22SQN markings as "DU-1/Beaugunville"



A19-144 under years of restoration at Duxford's Fighter Collection with hopes towards airworthiness



A19-43 restored at the USAF Museum at Dayton as a USAAF machine T5049

RESTORATION OF A8-328

In JAN 1956, the final four 30SQN aircraft A8-328, -350, -358 and -362 were ferried from 2AD to 1AD Det 'B' at Tocumwal for scrapping, however A8-328 was reprieved to serve at the Lord Mayor's Children's Camp, Portsea.



[Airliners.net]

In 1962 fortunately A8-328 was again saved, for restoration by the then Australian Aircraft Restoration Group (AARG). Here at Moorabbin in 1976, AARG became the Australian National Aviation Museum (ANAM), and this Beau is a star exhibit on static display.



Starboard engine run at Moorabbin in 1983

Now on inside display at ANAM as a 31SQN example, A8-39 / EH-K. It has the right Mk.21 touches – the 'hedgehog' flame damper exhausts when flown on ops, the nose Bendix autopilot bulge, and a bomb on the starboard rack.

Just as a guide for WWII, below is the Spartan Paint colour chart with references to the official colour names and the K3/ identification numbers in the RAAF 3K5 specification.

Spartan CAMOUFLAGE COVERINGS

• The Camouflage Coverings are applied by spray after thinning with equal volumes of Normal Thinner, and two coats are necessary to ensure complete coverage and achieve the desired result. Identification markings are usually applied by brush and the material is used straight from the can. These Coverings form the finishing coats of a system including Red Oxide Epoxy and Epoxy Coating Aluminium which conforms to the latest issue of R.A.A.F. Specification K3.

		
• BRIGHT RED -For Ambulances only- Part No. 7594 Ident. No. K3/169	• LIGHT GREEN Part No. 7516 Ident. No. K3/225	• YELLOW Part No. 7553 Ident. No. K3/185
		
• LIGHT SLATE GREY Part No. 7507 Ident. No. K3/190	• FOLIAGE GREEN Part No. 7511 Ident. No. K3/177	• SKY BLUE Part No. 7545 Ident. No. K3/195
		
• DARK SLATE GREY Part No. 7503 Ident. No. K3/189	• DARK GREEN Part No. 7515 Ident. No. K3/216	• AZURE BLUE Part No. 7547 Ident. No. K3/316
		
• MEDIUM SEA GREY Part No. 7504 Ident. No. K3/183	• LIGHT EARTH Part No. 7539 Ident. No. K3/223	• DULL BLUE Part No. 7543 Ident. No. K3/197
		
• DARK SEA GREY Part No. 7506 Ident. No. K3/188	• EARTH BROWN Part No. 7537 Ident. No. K3/178	• DARK OCEAN BLUE Part No. 7548 Ident. No. K3/315
		
• EXTRA DARK SEA GREY Part No. 7505 Ident. No. K3/187	• DARK EARTH Part No. 7538 Ident. No. K3/209	• NIGHT BLACK Part No. 7568 Ident. No. K3/179

Also BLACK, WHITE and ALUMINIUM.

Beaufighter Variants

Each of the RAAF Beaufighter variants had different powerplants:

- Beaufighter Ic – two 1400hp Bristol Hercules III, X or XI
- Beaufighter VIc – two 1600hp Bristol Hercules VI or XVI
- Beaufighter X and XIc – two 1735hp Bristol Hercules XVII
- Mk. XI was the Mk.VIc when converted with Hercules XVII but not converted to torpedo duties.²¹⁸ Also, identical to Mk.X but not fitted with dive brakes or provision to carry torpedo.²¹⁹
- Beaufighter 21 – two 1735hp Bristol Hercules XVIII.²²⁰

BEAUFIGHTER Mk.21 MODELS

31SQN



A8-2 EH-Z



A8-23 EH-C

22SQN



A8-50 DU-H



A8-186 in fictitious markings DU-I

93SQN



A8-96 SK-M



A8-182 SK-O

Bristol Beaufighter Mk.21 'Green Ghost'
Hasegawa - Nr. 00728 - 1:72



A8-116 SK-N



A8-124 SK-T

Odd Stories: The RAAF attack on USS Sargo SS-188(S-7) 4th March 1942 and associated events.

0300hrs December 8, 1941: FROM COMMANDER ASIATIC FLEET ... to Asiatic fleet ... URGENT... BREAK . . . JAPAN COMMENCED HOSTILITIES ... GOVERN YOURSELF ACCORDINGLY.

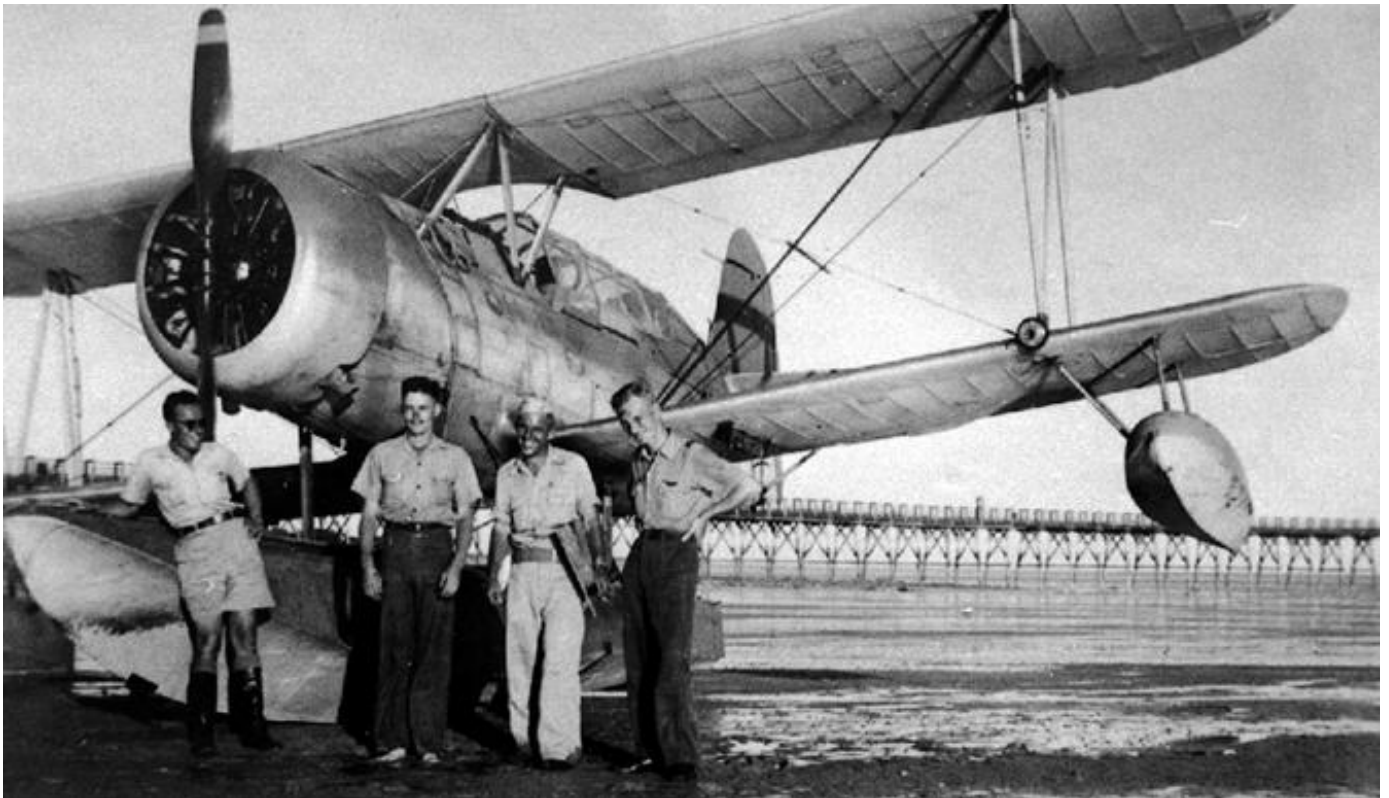
At 1335hrs local, on the 4th March 1942, the day after the Japanese raid on Broome, F/Lt Lindsay R Trewren of No 14 Squadron RAAF took off in Hudson A16-122 on an Anti-Submarine Patrol from Pearce RAAF Station. Western Australia.

Based at Pearce RAAF Station, No 14 Squadron RAAF, was equipped with just seven Hudsons and, along with No 25 Squadron RAAF equipped with eleven Wirraways, was the sole RAAF Operational Strength in the area.

On board was Chief Petty Officer Bannowsky, US Navy. He was one of a number of USN Observers attached at this time to No 14 Squadron RAAF to help identify shipping and US Navy Ships evacuating the Far East due to the overwelling Japanese Naval Presence.

The early US Navy Presence in Perth, from February 1942.

The US Navy Petty Officers had been off loaded the USS Langley at Fremantle in mid February 1942, with their surviving mix of two SOC-1 Sea Gulls and two OS2U-2 Kingfishers, along with thirteen Officers and sixty enlisted men, who were to be based at Pearce RAAF Station, with a detachment of five Officers plus enlisted men and those three aircraft based at Pelican Point.



A third SOC-1 Sea Gull, Bu No 1066, arrived the following day, after flying solo, via Broome, ex Darwin piloted by Lt(jg) Lamade.

Before the Japanese attack on Pearl Harbor, the US Navy's Asiatic Submarine fleet (29 submarines) had been based in Manila in the Philippines along with 3 cruisers, 14 destroyers and a numbers of smaller vessels.

When the war started the Japanese bombed the Navy Base at Cavite quite extensively. The submarines were operating near the Philippines at that time. Captain John Wilkes who had been Commander Subs Asiatic Force was due to return to the States prior to the start of the war with Japan. Admiral Thomas C. Hart, the Commanding Officer of the Asiatic Fleet told Wilkes he was staying.

Captain Wilkes was given command of the six "S" type and some other Fleet type submarines and told to use facilities at Soerabaja in Java.

Captain John Fife was ordered to proceed to Darwin to establish a new Submarine Headquarters and a repair base where the submarine Tender USS Holland (AS3) would be based. It was soon realised that Darwin, with its high tides was unsuitable for Submarine operations and was too open and hence could be easily mined.

USS Holland (AS3) was then relocated to Tjilaljap in Java, which also proved unsuitable. All three locations were often bombed by the Japs.

Java was then eventually taken by the Japanese leaving the Asiatic Submarine Force without a base. Exmouth Gulf in Western Australia was also considered for a while as a likely contender for a new Submarine Base. The sub fleet sank only three merchant ships during December 1941.

One Submarine, the USS Sealion (SS-195) was sunk by the Japs while it was moored at the wharf in Cavite Navy Yard.

During initial operations, they only sank another 3 Japanese ships in January 1942 and one further submarine, SS-36, was lost in the Makassar Straits on the 20th January 1942.

The USS Sargo (SS-188) assisted in the rescue of the crew of S-36 after she ran aground on Taku Reef in the Makassar Strait. Sargo remained surfaced, relaying distress messages to friendly aircraft and surface ships.



USS Sargo on commission, pictured here sometime in late 1938.

After the rescue by the Dutch merchant ship Siberote, the USS Sargo headed for Java, and arrived at Soerabaja on 25th January 1942. Here, she offloaded all her reload torpedoes (keeping only those in her tubes) and three-inch ammunition, and took on one million rounds of .30-caliber ammunition desperately needed by Allied forces in the Philippines.

She sailed on the 5th February 1942, avoiding the usual traffic lanes, and arrived in Polloc Harbor nine days later. After delivering her vital cargo to Mindanao, she returned to Soerabaja with 24 USAAF Boeing B-17 specialists from Clark Field on board.

Sailing from Soerabaja on 25th February 1942, she headed for Australia.

The Blue on Blue Attack

Meanwhile, Hudson A16-122 and crew, as the standby aircraft, were on a location search on a specified square for enemy submarines on the 4th March 1942, following a report received through the United States Naval Channels of an unidentified Submarine.

At this time, several US Navy, Civilian Cargo and Dutch refugee Cargo Ships were in flight ex Netherlands East Indies to Freemantle following the overwhelming Japanese Naval presence in the Indian Ocean.

A16-122: Operational Record 04/03/1942.

Time Up: 1335hrs Time Down: 1645Hrs

Pilot: F/Lt Lindsay R Trewren Serv#2206 (Later posted to No 13 Squadron 11/05/42)

Observer: Chief Petty Officer Bannoosky (US Navy)*

Navigator: Sgt M C Dunn

WAG: Sgt D H Grabbe

** Some eight US Navy Petty Officers were attached to No 14 Squadron during this Feb/March 42 period; including Petty Officers Lurvey/Jarman/Morris/Hartin/Salvail/Murphy. They assisted in identifying US Navy Ships on retirement from the Far East. Following this, they returned to the parent USN Unit at Freemantle.*

The orders were to attack any submarine sighted, whilst taking care to challenge and watch for identification signals.



At 1438Hrs a submarine was sighted on the surface, 30°27S Longitude, and 113°37E Latitude, on an approximate converging course of 150° towards a ship, its course, 130° approximately 20 miles away.

On approaching to within 2 miles, no flags or signals were observed. The pilot of A16-122 flashed the British challenge letter six times and the submarine immediately crashed dived. The Pilot did not have time to use the Andusrec Signals (*Allied recognition signal using Lamps*).

Earlier in January 1942, the USS Peary had a similar near fatal attack made by RAF or MLD Catalinas near Menado on the northeast tip of Celebes, due to it not issuing signals in reply. The Andusrec challenge was made on the destroyer's signal searchlight and it was thought that the pilot waved in answer, but the remaining two planes came on for a glide bombing attack.

Two attacks were made with 250lb Anti Submarine bombs.

As the Conning tower just disappeared under the water, the first bomb rolled the submarine onto its side and threw its stern up into the air; the second bomb was a near miss, approximately amidships, with the explosion hurling water into the air fifteen to twenty feet. The submarine wallowed and sank out of sight. Large patches of oil were observed on the surface of the sea.

Hudson A16-122 and crew circled the area for an hour after the attack, but no further evidence of its presence was observed. Submarine Sunk.

Chief Petty Officer Bannoosky (US Navy) comments after the attack..."If it was a Jap, we sunk her- if it was a US Submarine it could take it"

One scored a direct hit midway between conning tower and tail. From the subsequent behavior of the submarine and the large patches of oil observed on the surface, the Pilot considered that the submarine had sunk. It later transpired that the submarine attacked was the U.S. "BARGO". After the Operation the U.S.A. N.A.F. Observer who was in the Hudson observed - "If it was a Jap, we sunk her - If it was a U.S. Submarine it could take it".

As for the final fate of that enemy submarine ...well, it actually was the USS Sargo: SS-188

It was not sunk, having only suffered minor damage caused by the near misses of the two bombs. She arrived safely at Fremantle on 5th March 1942 with 31 passengers from Java, but was found that the submarine had suffered some damage, with most glass fixtures and instruments shattered, including both periscopes damaged beyond repair.

She then went on to complete twelve War Time Patrols before reverting to a training role in late 1944. She and her crews were awarded eight battle stars for her service in World War II and received the Philippine Presidential Unit Citation.

Having survived the war, she was decommissioned on the 22nd June 1946, then stricken 19th July 1946 and finally sold for scrap on the 19th May 1947.



USS Sargo SS 188, port side, in 1946.



Picture: Ron Cuskelly (L256)

As for A-28-LO Hudson Mk IVA A16-122, she managed to survive the war after two accidents, and remained flyable until 1973 when she crashed on take-off at Horn Island, Torres Straits, Queensland, whilst operating under Adastral Aerial Surveys. A16-122 is currently held stored by the RAAF Museum, pending static restoration.

Note Back in 1944, even 16-122 nearly met its fate when with 38 Sqn RAAF.

ROYAL AUSTRALIAN AIR FORCE		RAAF Form P.T.81 (Revised Dec., 1942)
PRELIMINARY REPORT (INTERNAL) OF FLYING ACCIDENT OR FORCED LANDING		
Air Force Orders (10/D/2 & 18/E/1)		Serial No.: 843 Period: 194344
(a) AIRCRAFT:	Type: Number:	HUDSON A16-122
(b) UNIT:		38 Squadron Detached Flight, Corrie.
(c) LOCALITY:	Place: Date: Time:	21 miles North of Quongba Homestead. 12.3.44. (signal just received) 1300 hours E.A.S.T.
(d) PILOT:	Rank: Name: Condition:	F/O O.L. SANDS Normal.
(e) CREW:	Rank: Name: Condition:	414304 F/SGT BERGMAN E.E.) 21567 SGT HOWARD A.R.) NORMAL. 42575 LAC SEARLS R.G.)
(f) NATURE OF ACCIDENT:		Aircraft engaged in transport flight, GUILDFORD to EMMOUE GULF. Caught in Cyclonic storm near terminal, fuel exhausted in attempt to return to CARNARVON. Aircraft forced landed with undercarriage retracted.
(g) PROBABLE CAUSE:		Adverse weather conditions.
Date: 22.3.44.		
Copies for information to C.A.S. A.M.P. A.M.E.M. Secretary, AIR BOARD. D. AIRCRAFT MAINTENANCE. D.M.S. D.T.S. I.A.A. D.T. D.S.D. File (D.T.).		<i>A Stewart</i> for DIRECTOR OF TRAINING

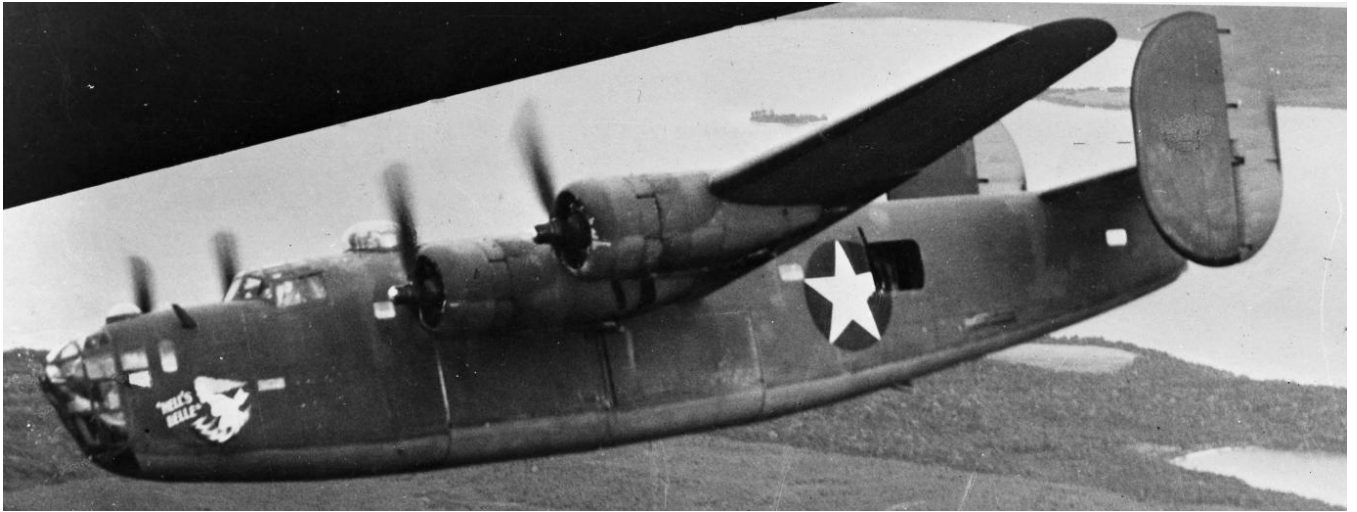
Odd Shots: Operated by the RAAF; a Liberator Spread



A72-1 before being in the RAAF as "our first pride and joy" RAAF B-24D#1



A72-5 before being in the RAAF



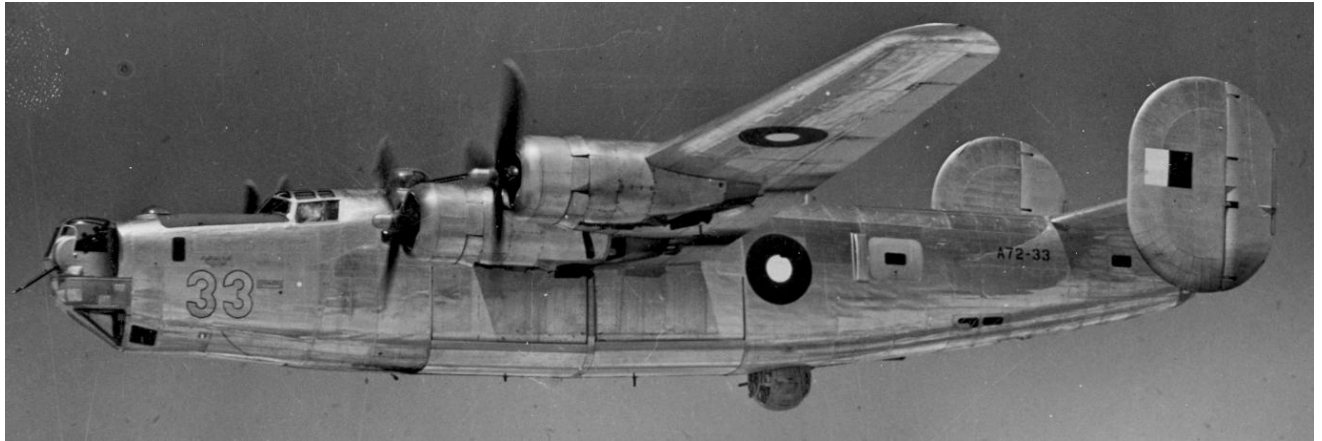
A72-8 before in the RAAF



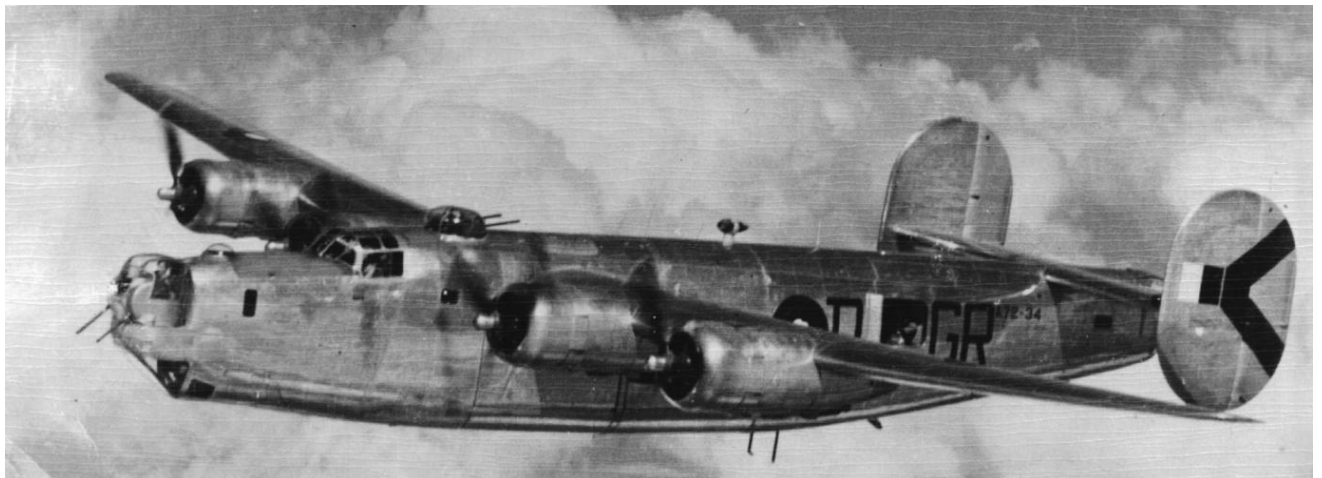
A72-10, and before, after a USAAF Accident



A72-11 before the RAAF in 1943



A72-33



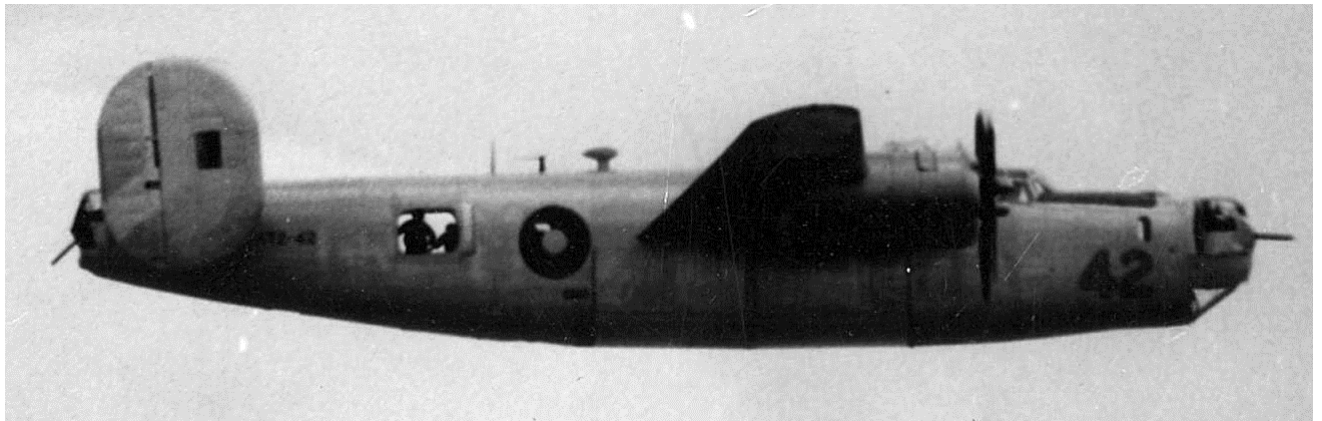
A72-34



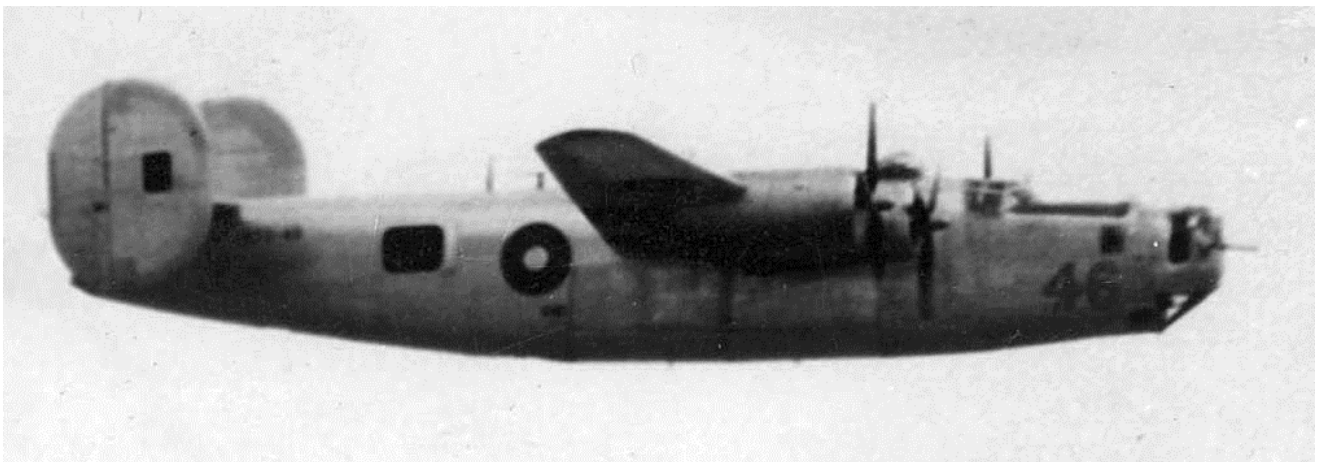
A72-38 #1



A72-39



A72-42



A72-46



A72-55



A72-56



A72-78 and Spitfire Mk8 A58-611 lay entangled. Below; how A58-611 looked after it was moved.

Sgt B Miels Serv#442430 had just landed from a patrol at North Strip at Pitoe when on taxiing back to the squadron bays, his aircraft suffered a port main blowout at 10-15 miles per hour and collided with RAAF B-24 (A72-78), despite selecting wheels up to halt his speed.

Damage was done to both aircraft. Despite caved in cockpit on port side, He was not injured.



A72-81

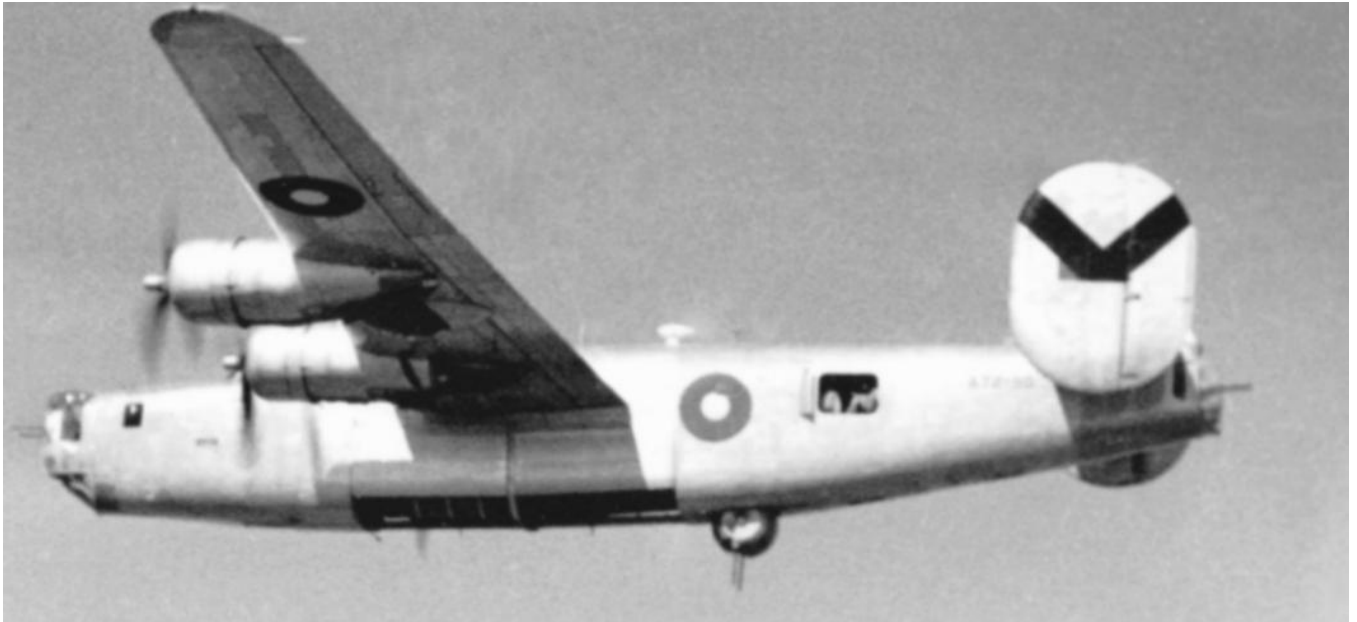


A72-88

Returning to Fenton airstrip, N.T. late in the evening 3 February 1945, from an attack on Japanese shipping the Liberator, captained by FLTLT Cambridge, on final approach switched to intercommunication and warned the crew that a crash landing was imminent. The wheels were still fully retracted and 20 degrees flaps were down. Headlights were switched on. The aircraft crashed through trees and landed upright. Two died.



A72-89



A72-90



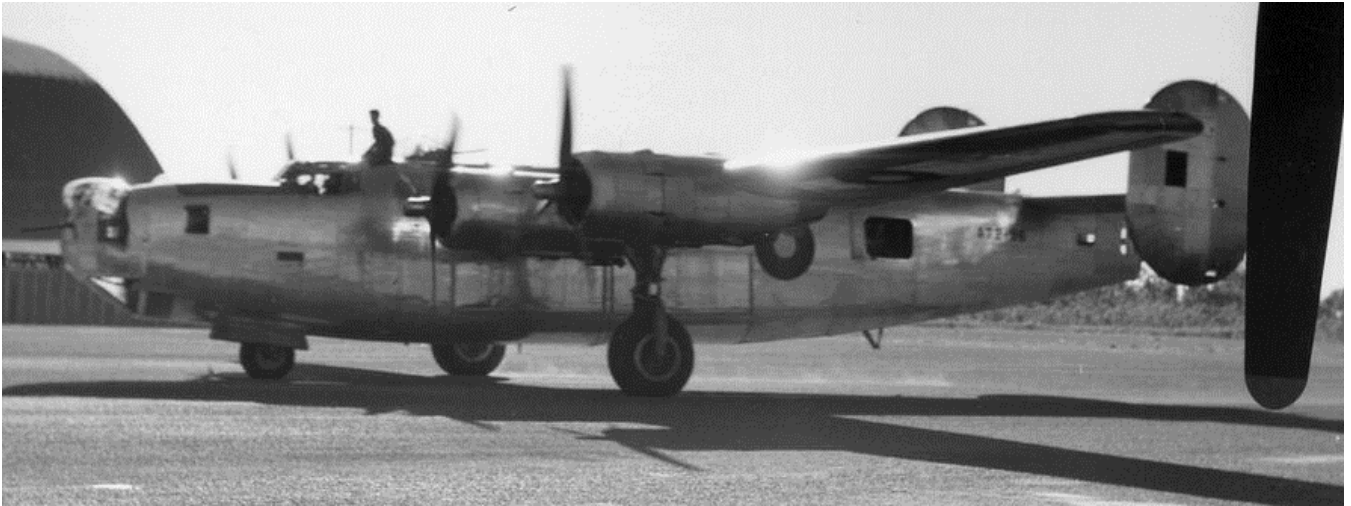
A72-92



A72-94



RAAF aluminium overcast, Australia in 1945



A72-96



A72-110



70TU's A72-112, after its crash at Tocumwal, 14 April 1945



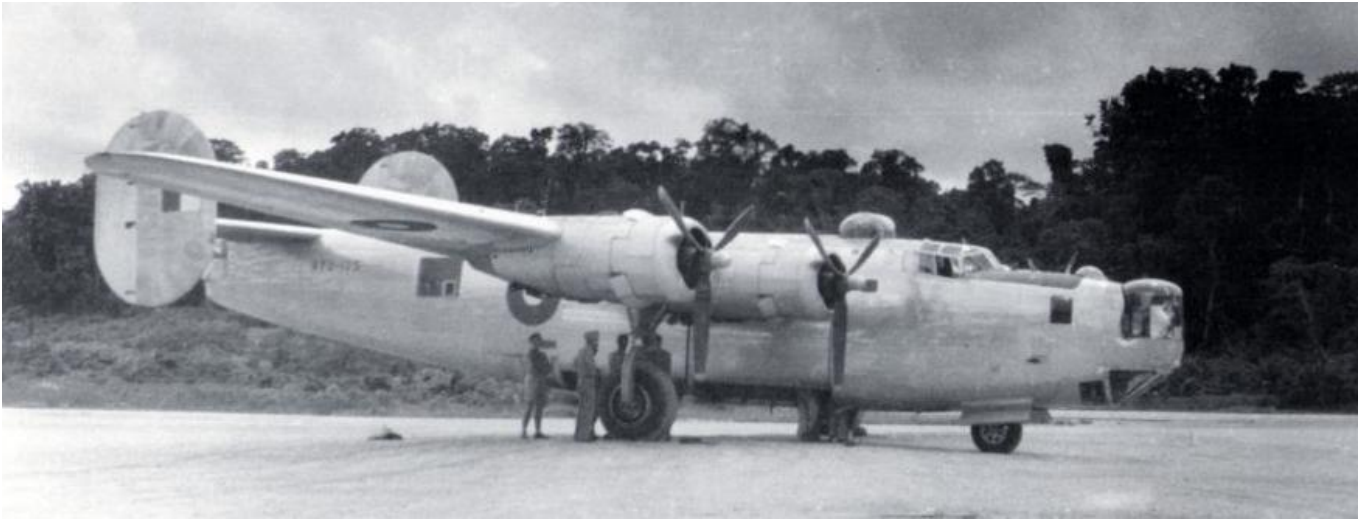
7OTU's A72-123 lies a little twisted here after its crash at Tocumwal, on 20 January 1945



25Sqn RAAF's A72-137(Colour original) SJ-K at Darwin after its accident on 28 November 1945



A72-138



A72-175



A72-183



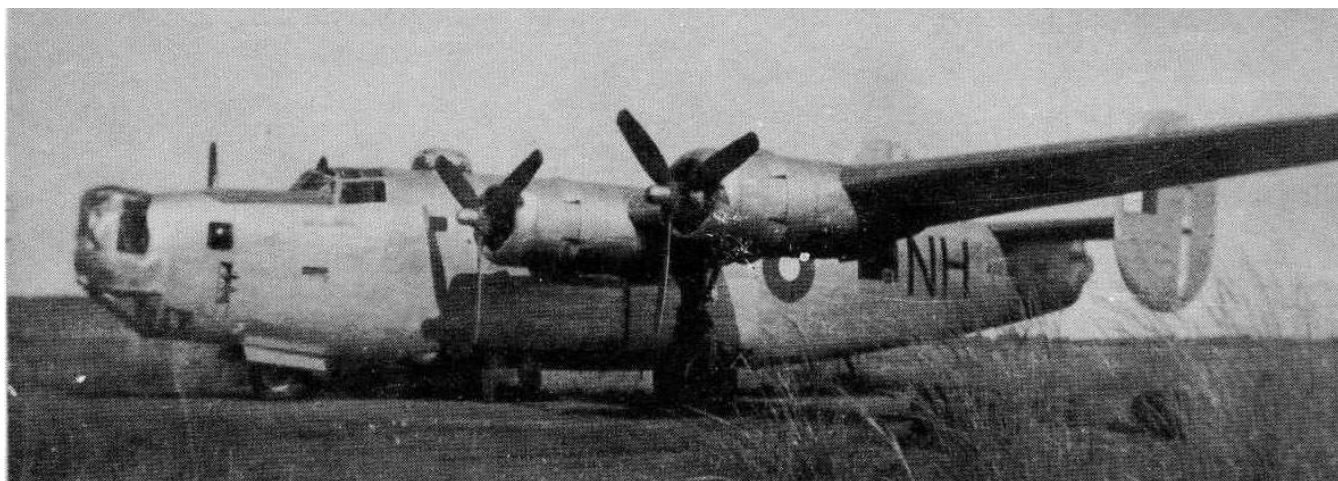
A72-186



A72-193 VIP



A72-306 UX-J, post Amberley RAAF Station after its accident 16 August 1945



A72-332



A72-338



A72-339 BV-F



A72-352



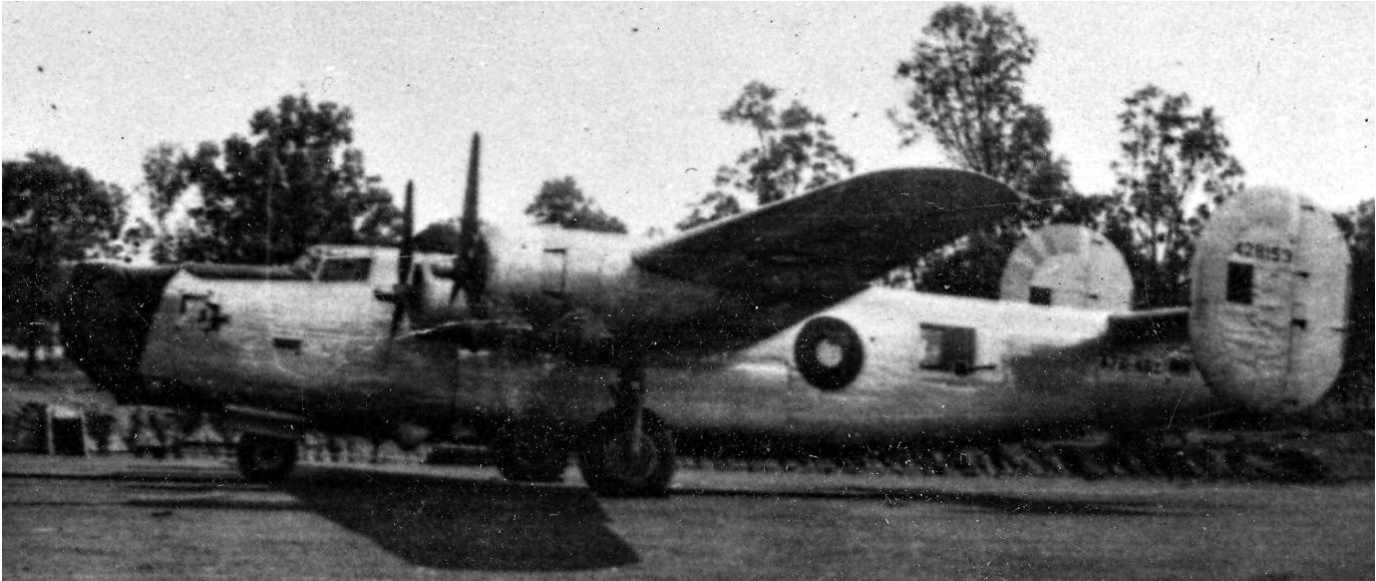
A72-358 performed the Last B-24 Flight in RAAF Squadron Service



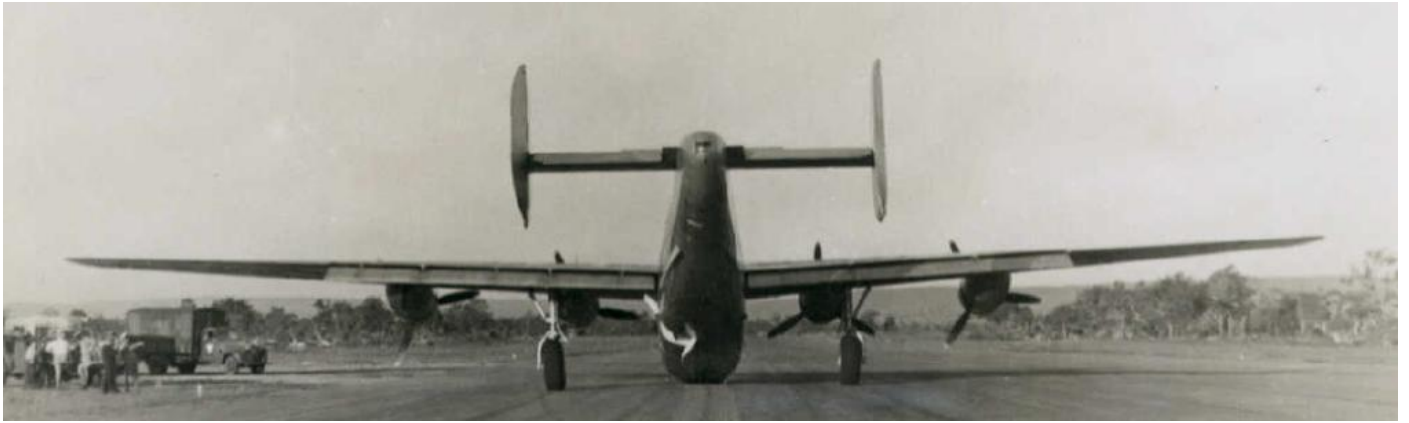
A72-359



A72-359 from port side



A72-401. The highest A72 Serial picture I've seen.



A72-Ring in: QANTAS Consolidated Vultee LB30 Liberator MKII Aircraft (c/n 45)G-AGKU – Guilford WA 1700hrs 16 October 1944. Note rear bomb bay egress hatch opened.



A Special Aussie Co-pilot in the USAAF 380th BG



USAAF B-24D-53-CO Liberator, #42-40387, "Beautiful Betsy", of the 528th Bomb Squadron of the 380th Bomb Group.

What is the RAAF connection? It was Co-piloted during Parachute Tests for the SRD (Australian's Strategic Reconnaissance Department).

L-R: Sgt Clapinson (Australian SRD Parachute Packer), Capt Craig 380th BG (Pilot), F/Lt Cook RAAF (Co-Pilot attached to SRD) and three USAAF Crew Members.

It went missing on 26 February 1945 with the loss of 8 lives (6 American and 2 British service personnel).

The wreckage of "Beautiful Betsy" was not discovered until 49 years later on 2 August 1994, when park ranger, Mark Roe, was checking the results of a controlled burn-off in the Kroombit Tops National Park, about 80 kilometres from Gladstone, Qld.



Why at times I get irked over unresearched colourisation of pictures; ummm why in RAF SEAC Colours? Nice job, but White and Blue RAAF Roundels Man, for A72-143 MJ-S!!!! Someone get Mr Benjamin Thomas to fix it please!!!!



Curtiss Corner: P-40K-10-CU A29-164

This P-40K-10-CU was one of the first for 35 Direct Australian Lend Lease charged P-40Ks per the Munitions Advisory Commission (Air)'s October 1942 Aircraft Allocation under USAAF Contract W535 AC22714, RAAF Requisition 322 Indent 202A, per MAC (Air) Case 126, Diversion 146 Aus1 Allotment.

Prior to this, the 35 RAAF Allotted P-40K -10 aircraft of this batch were ferried by USAAF Pilots direct from Buffalo, New York State, between the 28th September and the 2nd November, 1942, to the modification centre nearby. Boxed and crated, they, along with a further 800 boxes of spare parts shipped by rail, to the United Nations Depot #3 at Long Beach California (USA) by late December 1942.



Above at Buffalo NY, Pictured in this batch of P-40K-10s, are the first RAAF P-40K-10s in the background in temperate camouflage per top picture: Serial spread is P-40K-10's FY42-10163(T/C) to 42-10180(O/D)

However, there was no available shipping to send these all of these crated aircraft to Australia. It was, on availability of shipping ex Vancouver Canada that arrangements were made to send 17 a/c (34 Crates) of this batch by rail from California to Vancouver Canada for shipping firstly. The balance waited for shipping to become available from San Francisco and supposedly expected to arrive second to Australia by date.

P-40K-10 USAAF Fiscal Serial 42-10172, the 1,043rd P-40K produced, was one of the balance that was left in California, contracted as RAAF Case 126 Diversion 146 Aus 1 Aircraft #27. It was received at Number 1 Aircraft Depot at Laverton, Victoria on the 24th January 1943 following its sea voyage from the USA, arriving and assembled first in the second batch. *(The Vancouver consignment arrived only two days prior in Sydney on the 22nd January 1943)*

Numbered as A29-164, as the first assembled P-40K-10 in RAAF service, following on the last RAAF P-40E delivered in September 1942 ex Charters Tower USAAF Pool, A29-163. A gap of nearly four months at that time had transpired,

where the P-40E Kittyhawk Fighter Force received no replacements. (*Deliveries of Spitfire MkVc (Trop) and Boomerangs had started though*).

No 77 Squadron Establishment per HD-108, was *In use* sixteen (16) aircraft and *In use Reserve* of eight (8) aircraft, but by this time the Unit was down to just twenty aircraft on establishment, with only eleven or twelve operational during the month. With equipping with the later model, the P-40E/E-1 models were transferred as attrition replacements for the other two Squadrons (No 75 and No76), along with a few to 2OTU.

It was issued to No 77 (F) Squadron RAAF on the 14th February 1943 as one of four P-40K transferred by air from Laverton to Richmond on the 12th February 1943. From Richmond, it was flown by Squadron Leader Richard (Dick) Cresswell on the 22nd February 1943 to Gurney Strip PNG, via Richmond, Amberley and Townsville. The aircraft had been coded as AM-Z.

On the same day of arrival, at 1944hrs local, the first of two attempted solo intercepts of an un-identified aircraft were made by Sqn Ldr Cresswell in this aircraft. Two days later, F/O Alan Morrison flew this aircraft on a ship recce alongside with F/O G Gratton (in A29-192).

On the following day, F/Lt Kimpton flew her when scrambled with five other aircraft at 1220 hrs local, in an unsuccessful intercept. Thereon the aircraft was mostly flown by F/Lt Kimpton or F/O Morrison within B Flight for the next few weeks.

On the 5th April 1943 it was flown by F/O Gratton (with Sgt Holdsmith in A29-197) on an escort of a Catalina to the Trobrainds Islands.

At 11.02hrs local, on the 14th April 1943, she was flown by F/O A Morrison as part of a 14 aircraft squadron scramble (named Kibosh Squadron) to intercept a large Japanese Bomber Force with escorts (all in all some 20 a/c) that were approaching. A further flight of five aircraft joined a half hour later (Jappo Squadron). The result was 5 enemy aircraft destroyed (4 bombers and one fighter), along with a further five Bomber probable's. The Squadron suffered one loss (Sgt Melrose in A29-169 missing) and a further two aircraft damaged (A29-185 with Sgt Laing and A29-195 with F/L R Kinross).

On the 14th May 1943, it was flown by F/O Gratton during an unsuccessful intercept over Oro Bay.

At 2102hrs local, on the 19th May 1943, it was flown again by F/O Gratton on a unsuccessful night interception of a Japanese recce aircraft in accompany with Sqn Ldr Cresswell (in A29-166 AM-U) between Cape Frere and Cape Dulcie.

On the 29th May 1943, F/Sgt McKenzie-King in A29-164 along with five other aircraft provided an escort for the visiting Governor General of Australia aircraft. For the visit and press, most No 77 Squadron Aircraft received cowl motifs, named and presented to all present.

A29-164 became "Tropo", along with a cat devouring a few Japanese mice.



On the 8th June 1943, F/O A Morrison (A29-164) and Sgt Murdock (A29-194) provided an escort for a DC3 to Vivigani Strip on Goodenough Island.

During mid June 1943, the squadron moved from Gurney Strip to Vivigani Strip on Goodenough Island.

However on 16/6/43 A29-200 (AM-X) overshot its landing and collided with the tail of A29-164 which was still on its landing run at Vivigani strip Goodenough Is. F/O A Morrison escaped injury, but A29-164 was damaged, but after a fortnight, repaired in Squadron.

Following repairs it was flown operationally mainly as an In-Reserve aircraft for the most of the period leading up to November 1943.

At 0902hrs on the 20th July 1943, she was flown by F/Lt Gratton (promoted from F/O) on a twelve aircraft escort of a 30 Sqn Beaufighter recce mission to Gasmata.

A week later, again flown by F/Lt Gratton flew as part of a seventeen aircraft top cover force (Badger and Jappo Squadrons) on the 27th July 1943 over 265 miles of open water, for No 30 Squadron Beaufighters and No 100 Squadron Beauforts which was to attack enemy shipping near Cape Jacquinot, south of New Britain.

On the 14th November 1943, as one of three aircraft on a travel flight to Woodlark from Vivigani Strip, A29-164 blew a tyre on take-off, with the aircraft further damaged on landing to the Port mainplane. F/Lt G Gratton was uninjured, but had completed his tour and was posted out on the 15th November 1943.

She was issued to 26 Repair and Salvage Unit on the 16th November 1943. Her condition post repair was poor, thus was sent and received at No 3 Aircraft Depot at Amberley, Queensland on the 11th March 1944.



Pictured is a worn A29-164 AM-Z "Tropo" in flight with fresh new White Fighter SWPAC Identification paint circa September-October 1943. (A29-174 AM-K at rear, perhaps)

Last flown on operational patrol on the 9th November 1943 Area coded as Bermuda, by F/Lt G Gratton.

By February-March 1944, No 77 (F) Squadron was converting to P-40N-20 model, with the days of the P-40K-10/15 being withdrawn from frontline service after the 7th March 1944.

Further repairs and surface finishing (removal of paint) was required, and it was received by No 6 Aircraft Depot at Oakey on the 25th May 1944.

On the 1st September 1944, she was received by No 2 Operational Training Unit, located at Mildura in natural metal and with the last three of her serial in block form on the fuselage.

Just over six months later, at 1150hrs on 27th April 1945, following an oil pressure rise on a test flight, it was forced landed some two miles west of the Mildura strip by F/O R D Dyson who escaped injuries.



Later issued to 1 CRD on 3rd September 1945 following assessment as a write-off, it was eventually destroyed as a target with the School of Air Support (SAS) at Werribee, Victoria on the 28th October 1947.

DIVERSION 146 AUS 1 CONTRACT W535 AC 22704
KITTYHAWK P40 - OCTOBER ALLOCATIONS

<u>NO. OF AIRCRAFT</u>	<u>SERIAL NUMBER</u>	<u>LOCATION</u>	<u>C.V.NO.</u>	<u>BLADING</u>	<u>SAILING</u>	<u>DESTINATION</u>
1	42-10206	Vancouver	56	273	299	WL 936 16/12/42 advised departure aircraft listed hereon
2	42-10214	"	"	"	"	
3	42-10216	"	"	"	"	
4	42-10222	"	"	"	"	
5	42-10223	"	"	"	"	
6	42-10233	"	"	"	"	
7	42-10234	"	"	"	"	
8	42-10235	"	"	"	"	
9	42-10175	"	"	274	"	
10	42-10178	"	"	"	"	
11	42-10193	"	"	"	"	
12	42-10194	"	"	"	"	
13	42-10195	"	"	"	"	
14	42-10196	"	"	"	"	
15	42-10197	"	"	"	"	
16	42-10203	"	"	"	"	
17	42-10204	"	"	"	"	
18	42-10205	San Francisco	67	EM385	241	
19	42-10213	"	"	"	"	
20	42-10215	"	"	"	"	
21	42-10217	"	"	"	"	
22	42-10224	"	"	"	"	
23	42-10225	"	"	"	"	
24	42-10226	"	"	"	"	
25	42-10227	"	"	"	"	
26	42-10232	"	"	"	"	
27	42-10172	"	"	"	"	
28	42-10173	"	"	"	"	
29	42-10174	"	"	"	"	
30	42-10176	"	"	"	"	
31	42-10177	"	"	"	"	
32	42-10183	"	"	"	"	
33	42-10184	"	"	"	"	
34	42-10185	"	"	"	"	
35	42-10186	"	"	"	"	

A29-164 as listed as Aircraft #27 of 35 P-40K-10s allotted Oct 42

End Notes:

No 2 SQUADRON A.F.C. PART I– THOSE EARLY DAYS by John Bennett 2019

- ¹ Tom White was a student on the First Course at CFS Point Cook in 1914, and proceeded to Mesopotamia in 1915 as part of the First Australian Half-Flight; T W White, *Guests of the Unspeakable*, Little Hills Press, Sydney, 1990, p.13.
- ² "Wanted - A Flying Machine For Military Purposes", in *RAAF News*, Vol 2, No 4, May 1962.
- ³ Military Order 570, of 22 Oct 1912.
- ⁴ AA CRS MP84/1 1954/23/144 letter, of 30 Aug 1912.
- ⁵ Royal Aero Club licence No.112, awarded at the Bristol School, Salisbury Plain, on 1 Aug 1911.
- ⁶ Named after John Murray Cooke, mate on HMS Rattlesnake during 1837 survey of Port Phillip Bay. Admiralty Charts and Land Survey Maps were to erase the 'e' from Cooke, and although recommendations were made in 1937 to rectify the error, the base was to remain Point Cook. AA CRS A705/1, 24/2/143, of 30 Nov 1937. The site was also referred to as Laverton and Werribee.
- ⁷ Military Order 381, of 14 Jul 1914.
- ⁸ Air Marshal Sir Richard Williams, *These Are Facts*, AWM, Canberra, 1977, p.26.
- ⁹ K Isaacs, *Military Aircraft of Australia 1909-1918*, AWM, Canberra, 1971, p.17.
- ¹⁰ AA CRS A2023/1 items A38/3/130, of Dec 1914, and A38/3/128, of Dec 1914 and Jan 1915, cite the movements of the New Guinea expedition.
- ¹¹ F M Cutlack, *The Official History of Australia in the War of 1914-1918, Vol VIII, The Australian Flying Corps*, AWM, Canberra, 1923, p.422.
- ¹² AWM8 Embarkation Roll 8/15/1, of 20 Apr 1915; and AWM224, MSS 513, 255/3/39a, of 18 Jul 1919.
- ¹³ AWM8 Embarkation Roll 34/13/1, of 10 Aug 1915.
- ¹⁴ Williams, p.39.
- ¹⁵ "State Aviation School", in *The Sydney Morning Herald*, of 20 Jul 1917.
- ¹⁶ D Roylance, *Air Base Richmond*, RAAF Base Richmond, 1991, p.12.
- ¹⁷ Cutlack, p.426.
- ¹⁸ N F Hayes, *Billy Stutt and the Richmond Flyboys*, Pacific Downunder, Cowes Vic, 2008, pp.283-285.
- ¹⁹ Cutlack, p.423. Essentially the first four Point Cook courses established the First Half Flight, and the 'First Squadron' (67 SQN / 1AFC) in Egypt. The Fifth Course manned the 'Second Squadron' (which became 69 SQN / 3AFC) for training in England; the Sixth Course manned the 'Fourth Squadron' (71 SQN / 4AFC). 2 SQN was formed at Kantara from manpower from 67SQN and the LHR, with the executive Flight Commanders from the LHR, trained by the RFC, and experienced with 67SQN. Later Point Cook courses were reinforcements for the AFC, but required full RFC flying training.
- ²⁰ AA CRS A2023/1 A38/8/816 Navy Office M.T.O. 2408, of 27 Jul 1916.
- ²¹ PRO AIR1/2086/207/6/1 "Air Org Memos Jun 1916-Oct 1918" War Office AO/173, of 5 Sep 1916.
- ²² AWM22, AIF HQ 31/2/2005 War Office 22842 Cipher A.0.1, of 15 Sep 1916.
- ²³ PRO AIR1/2086/207/6/1 War Office AO/199, of 20 Sep 1916, and AWM22 AIF HQ 31/2/2005, received 6 Oct 1916.
- ²⁴ PRO AIR1/2086/207/6/1 War Office AO/279, of 22 Dec 1916.
- ²⁵ AWM224, MSS 517 Part 1.
- ²⁶ AWM22 AIF HQ 31/2/2005 Signal WY 75, of 13 Oct 1916.
- ²⁷ AWM22 AIF HQ 31/2/2005 Signal 19862, of 14 Dec 1916.
- ²⁸ C Clark, *The High Life of Oswald Watt, Australia's First Military Pilot*, Big Sky Publishing, Sydney, 2016, p.113.
- ²⁹ *Aeroplane*, 5 Mar 1914, cited in Clark pp.113-4. The first apparently was Frank McClean on 3 Jan 1914 at Alexandria.
- ³⁰ PRO AIR1/727/152/6 "The Bleriot Machines 1906-1915", p.5.
- ³¹ C G Grey, "Oswald Watt the Airman", in *Oswald Watt*, S Ure Smith, B Stevens & E Watt, Art in Australia Ltd, Sydney, 1921, p.29.

RAAF WWII IN COLOUR; A series of RAAF aircraft in WWII – in Australia, New Guinea and the islands. Later, Europe and the Middle East will be included.No.1 – RAAF Beaufighters

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Cutlack, p.41; Williams, p.43.

³³ Clark, p.149.

³⁴ AA CRS A2023/1 A38/8/857 CGS No 412/1916, of 31 Aug 1916.

³⁵ AA CRS A2023/1 A38/8/969 Draft Military Order CFS 5th Course of Instruction; AA CRS A2023/1 A38/8/969 DOD Minute "Appointment of Officers to No 2 Squadron AFC" of, 25 Sep 1916: AA CRS 2023/1 A38/8/969 DOD letter CFS.425, of 20 Sep.

³⁶ Those Point Cook trainees who sailed on the *SS Ulysses* from Melbourne on 25 OCT 1916 and would fly with 68SQN in England included Griggs, Morrison and Kitson, the latter killed in a Sopwith Pup accident on 15 JUN 1917; the others went to France with 68SQN. Also sailing as 2nd Class Air Mechanics (2/AM) included Sheppard and Ayers, who became 68SQN pilots; NAA individual AWM personnel files in the B2455 series.

³⁷ Cutlack, p.424.

³⁸ F R Cox, *The First World War Memoirs of Fergus Cox, 2 Squadron AFC*, unpublished manuscript courtesy of Garth Cox and the Museum of Army Aviation and Flying, Oakey, p.2.

³⁹ Cutlack, *fn.5* p.176.

⁴⁰ L W Sutherland, *Aces and Kings*, Hamilton, London, 1935, p.15.

⁴¹ AWM Personnel Records PR88/154 for AVM A T Cole, SEP-NOV 1916.

⁴² Dept of the Army 706/R2/14, of 29 Dec 1966.

⁴³ Clark p.160.

⁴⁴ Williams, p.54.

⁴⁵ NAA individual AWM personnel files in the B2455 series.

⁴⁶ J Bennett, *Highest Traditions*, AGPS, Canberra, 1995, p.16, mentioned that the convoy to Malta had come under submarine attack, evidently from personal reminiscences. However, historian Chris Clark in *The High Life of Oswald Watt* (p.160) disputes this, as although there was hostile activity nearby in the area, any attack on the *Kingstonian* would have been an exaggeration.

⁴⁷ H D Billings, *My Own Story*, Glen Iris, 29 Oct 1989, p.68, held at RAAF Museum, Point Cook.

⁴⁸ Billings.

⁴⁹ Cox, p.6.

⁵⁰ AWM PR 83/230 Personal Diary of 2/AM Ward, of 29 Jan 1917.

⁵¹ The training squadrons were initially known as "Reserve Aeroplane Squadrons", changed to "Reserve Squadrons" (RS) on 13 JAN 1916. R Sturtivant, J Hamlin & J Halley, *RAF Flying Training and Support Units*, Air Britain, Tunbridge Wells, 1997, p.6. This title was again changed on 31 MAY 1917 to "Training Squadron" (TS). Eventually the training system developed in AUG 1918, and Wings became Training Depot Stations.

⁵² The 24th Wing had been formed on 25 Sep 1916, while Harlaxton was being constructed. PRO AIR1/2086/207/6/1 AO/187, of 13 Sep 1916, and AO/280, of 29 Dec 1916. The Wing consisted of HQ and 49 RS at Spittlegate (Grantham), with 31 RS and 65 RS at Wyton. First unit at Harlaxton was 44 RS on 13 NOV 1916, followed by 68SQN on 30 JAN 1917; next was 54 RS in MAR 1917 and as 68SQN departed for France, 26 TS arrived on 22 SEP 1917, then 64 TS in DEC 1917. Harlaxton became 40 TDS in AUG 1918, disbanding postwar in MAY 1919. E Bujak, *Reckless Fellows*, Taurus & Co, New York, 2015, pp.146-148.

⁵³ "The D.H.5", in *Flight*, 9 Jan 1919, London.

⁵⁴ E H Sims, *Fighter Tactics and Strategy 1914-1970*, Cassell, London, 1972, p.9.

⁵⁵ B Robertson, *Air Aces of the 1914-18 War*, Harleyford, Letchworth, Hertfordshire, 1964, p.15.

⁵⁶ PRO AIR1/2301/215/5, p.5.

⁵⁷ V M Yeates, *Winged Victory*, Mayflower, St Albans, Herts, 1975, p.26.

⁵⁸ An Albatros D.Va scout, number 5390/17, is on display at the Australian War Memorial in Canberra. This was forced down by a 3 Sqn AFC R.E.8 crew, Lt Sandy and Sgt Hughes, on 7 Dec 1917. In addition, the AWM holds a Pfalz D.XII scout, 2600/18, supposedly forced down by 4 Sqn AFC pilots during Oct 1918, however, this is not confirmed by Squadron records.

⁵⁹ PRO AIR8/2/ID2/137 letter OB/1837, of 13 Feb 1917.

⁶⁰ C Shores, N Franks & R Guest, *Above The Trenches*, Grub Street, London, 1990, p.17.

⁶¹ PRO AIR10/324 AP302 "Fighting in the Air", March 1917, pp.8-9.

⁶² M Baring, *Flying Corps Headquarters 1914-1918*, Buchan & Enright, London, 1985, pp.244-246.

⁶³ Ward, 15 Mar 1917.

⁶⁴ Sturtivant, Hamlin & Halley, p.6

⁶⁵ "Training the Military Flyer", in *Flying*, Aeronautical Society, London, 14 Feb 1917, p.87. AWM 90/0604 PR 90/138, p.88.

⁶⁶ O G Thetford & E J Riding, *Aircraft of the 1914-1918 War*, Harleyford Publications, Marlow, 1954, p.34.

⁶⁷ PRO AIR1/2301/215/5 "Arming of Aircraft", paper prepared by Capt Batsford, Mar 1919, p.2.

⁶⁸ A H Cobby, *High Adventure*, Kookaburra, Melbourne, reprint 1981, pp.27, 29.

⁶⁹ M Paris, *Winged Warfare*, Manchester University Press, Manchester, 1992, p.219.

⁷⁰ Sir Gordon Taylor, *Sopwith Scout 7309*, Cassell, London, 1968, pp.17-19.

⁷¹ H A Jones, *The War in The Air*, Vol V, Clarendon Press, Oxford, 1935, pp.429-32.

⁷² Paris, pp.220-1.

⁷³ AWM 3DRL/1298, 419/88/3, Les Ross, letter, 9 Aug 1917.

⁷⁴ Sturtivant, Hamlin & Halley, p.7.

⁷⁵ Hayes, p.133. Eric Harrison had been continuously requesting more modern aeroplanes for CFS from the War Office, through the Dept of Defence, over 1915-17. Hayes, pp.283-5.

⁷⁶ Cutlack, p.426.

⁷⁷ B B Halpenny, *Action Stations Vol.2*, Patrick Stephens Pub, Cambridge, 1981, p.170.

⁷⁸ E J Richards, *Australian Airmen*, Bruce & Co, Melbourne, 1922, p.8.

⁷⁹ PRO AIR 1/2087/207/7/38, *Bring Down Your Hun!*, JUL 1917, p.2, Object of the Fighting School.

⁸⁰ Cobby, pp.289.

⁸¹ Cutlack, p.402.

⁸² From JUN 1917, the AFC had begun to establish its own Australian training squadrons in Gloucestershire, but these were by no means mature enough to graduate students to proceed to France with the new AFC squadrons by SEP 1917.

⁸³ NAA B2455 Personnel series of digitized AWM records. Both 69SQN and 71SQN also had a similar system of attaching pilots for operational experience, but not as widespread as that of 68SQN. Some other pilots with 68SQN connections were: LT Tom Hewson of 71SQN had done advanced training on 68SQN with Harry Cobby, and was killed with 45SQN RFC in Strutter A1029 on 7 JUL 1917; LT Victor Norvill of 69SQN had sailed from Australia as part of the "2nd Squadron" (ie later 69SQN) and was shot down with 29SQN RFC in Nieuport 17 B1677 on 29 JUN 1917 and became a POW.

⁸⁴ D.H.5 A9188 photograph from album of Frank Saunders, 23rd Training Wing RFC, South Carlton:

<https://www.flickr.com/photos/13150208@N05/albums/72157627846452902/with/6223752892/>

⁸⁵ Taylor, p.55.

⁸⁶ J M Bruce, *Bristol Scouts*, Windsock Datafile 44, Albatros Productions, Berkhamsted UK, 1994, p.33.

⁸⁷ J M Bruce, *Sopwith Pup*, Windsock Datafile 2, Albatros Productions, Berkhamsted UK, 1995, p.21.

⁸⁸ Robertson, *WWI British Aeroplane Colours and Markings*, pp.26, 33. In his earlier book (*British Military Aircraft Serials 1878-1987*, p.71), Robertson stated rudder striping had been 'introduced' in March 1915 – perhaps there is a subtle difference between 'introduced' and 'adopted': 'introduced' when rudder striping first appeared and then 'adopted' when it became mandatory. In an

even earlier Robertson work of 1967, *Aircraft Markings of the World 1912-1967*, Harleyford, Letchworth, p.89) the date for introduction of rudder striping is given as 23 JUN 1915.

⁸⁹ J Bennett, *The Imperial Gift*, Banner Books, Maryborough, 1996, p.195. These US FS595a colours can be further approximated to the British BS381C 108 *Aircraft Blue*, and BS381C 538 *Cherry*.

⁹⁰ The 6SQN AFC War Diary does record both these Strutters joining in OCT 1917, so apparently Cobby mis-recollections – these aircraft were at Minchinhampton when he was instructing there in 1918, and not when he was a student with 68SQN at Harlaxton in 1917.

⁹¹ J M Bruce, G Page & R Sturtivant, *The Sopwith Pup*, Air Britain File series, Tonbridge Kent, 2002 – this does not list any 68SQN Pups. However, B1720, crashed by Guilfoyle on 4 JUN 1917, is listed as 68SQN in the airhistory.org RFC serial database. Other Pups operating at Harlaxton and South Carlton over JUN-JUL 1917 included A7313, B1735, B1736, B1748 and B1749, on strength with 45 and 48 Res/Trg Sqns. Furthermore, 54 Res/Trg Sqn flew from Harlaxton over MAR-DEC 1917 with Pups A7317, A7343, B2243-46, B5275, B5332, and B5334.

⁹² Authorisation to buy 54 aircraft was made by Cabinet on 20 MAY 1941; N Parnell, *Whispering Death*, Reed, Sydney, 1980, p.8.

⁹³ RAAF Liaison Officer Australia House London, letter 819/2/E/5588, of 29 NOV 1941.

⁹⁴ D Gillison, *RAAF 1939-1942*, AWM, Canberra, 1962, p.484.

⁹⁵ RAF ADM 332 (Issue 3) of 15 NOV 1940, held in RAAFHQ file 150/4/852 AGI C.11, Standard Finishes and Markings.

⁹⁶ RAAFHQ file 150/4/852(53A), DTS directive 368/41, signal SAS 9984 of 23 DEC 1941, paras. 2 and 4.

⁹⁷ RAAFHQ Technical Order AGI No.C.11 (issue 4) of 31 AUG 1942.

⁹⁸ AMO A.926 of 12 DEC 1940, in J Tanner, *British Aviation Colours of WWII*, RAFM, Arms & Armour Press, London, 1986, p.9.

⁹⁹ Peter Malone on *Britmodeller.com* website, 2 MAY 2017.

¹⁰⁰ MAP *Sky* is also referred to as *Sky Type 'S'*, not to be confused with either MAP or rich colour of RAAF *Sky Blue* – the RAF AMO A.926 para.9 refers to *duck-egg blue Sky Type- 'S'* even though it is more greenish than blue (sometimes also called '*duck-egg green*' – this was the colour that day fighters were marked with by an 18" rear fuselage band and spinner). The *Sky Type 'S'* referred to Smooth paint, in *Sky* colour. *Sky* was probably preferred by the RAF as they had haze and smog and not clear blue Australian skies!

¹⁰¹ These 54 Fairey-built Mk.Ic aircraft were built in consecutive batches:

A19-1 to A19-12 ex-T4920 to T4931

A19-13 to A19-17 ex-T4943 to T4947

A19-18 to A19-26 ex-T4970 to T4978

A19-27 to A19-40 ex-T4991 to T5004

A19-41 to A19-49 ex-T5047 to T5055

A19-50 to A19-54 ex-T5070 to T5074.

¹⁰² G Pentland, *RAAF Camouflage & Markings 1939-45 Vol.1*, Kookaburra, Melbourne, 1980, p.63

¹⁰³ I K Baker, *Aviation History Colouring Book No.73*, 'RAAF Colour Schemes & Markings Part 6b', Queenscliff, 2011, p.7.

¹⁰⁴ RAAF HQ DTS 368/41 of 23 DEC 1941, para.2 discusses introduction of *Earth Brown* and *Foliage Green* replacing RAF colours, but exempted those on delivery: "Aircraft whose upper surfaces are already camouflaged in Brown and Green are excepted."

¹⁰⁵ These colours appear to be RAAF *Foliage Green* (i.e. the bluish 'bottle green') and *Earth Brown* (a rich 'chocolate' brown).

¹⁰⁶ RAAF HQ Aircraft General Instruction No. C.11, Issue 3, of 3 OCT 1940. Page 3 stipulated grey serial number and code letters on camouflaged aircraft.

¹⁰⁷ NAA A705 9/32/11 (42A), DTS Beaufighter Aircraft – General Technical File, RAAF London Signal AL 619, 23 JUL 1942. Later signals from RAAF London (for instance re A19-73 to A19-78) also referred to aircraft by their RAAF numbers.

¹⁰⁸ J Goulding & R Jones, *Camouflage & Markings RAF Fighter Command 1936-1945*, Doubleday, New York, 1971, pp.208-9.

¹⁰⁹ Aviation history researcher Mark Harbour ('Sydhuey') has studied these RAAF Beaufighters for years, and provided these details on the *Britmodeller.com* website as 'Sydhuey' on 23 APR 2017. He reported of these Beaufighter VIc aircraft, some were made by Fairey (as the Mk.Ic aircraft had been, and had the flat tailplane), while the remainder were Bristol-built at the Old Mixton factory at Weston (with the dihedral tailplane, longer range fuel tanks, and bomb carriage capability).

¹¹⁰ The Mk.X – basically a Mk.VIc but with Hercules XVII engines and provision for torpedo carriage – is often referred to as the TF.X. Contemporary RAAF documentation refer equally to it as the Mk.X or TF.X, but as it was stripped of torpedo capability in the RAAF and for conformity, this article refers to this model as the Mk.X. The Mk. XIc was a Mk.X without the torpedo gear.

¹¹¹ *Britmodeller.com* website, 'Sydhuey' on 23 APR 2017. Some late Mk.X aircraft also appear to have been delivered in the late 1943 Coastal Command scheme of *Special Coastal Duties – Scheme A* (SCD-SA) of all-over *White* with upper wings blue (EDSG), which of course need RAAF camouflaging at the acceptance AD; 'Biggles 81', *Britmodeller*, 26 APR 2017. This RAF Coastal Command scheme was formalised by new policy AP 2656A, of OCT 1944, para.33 specifying SCD-SA as upper surfaces *EDSG* and undersurfaces glossy *White*; cited in Tanner, pp.38-39. Only one was operated by the RAAF in *Coastal White* – A19-218 retained for testing at Laverton and Fisherman's Bend where it was known as the 'White Elephant'. If other Mk.X aircraft did arrive in this scheme, they were quickly camouflaged at the Aircraft Depot.

¹¹² As stated, the Mk.XI was basically a Mk.X, but without torpedo release gear, allocated to 163 aircraft. J Scutts, *Beaufighter in Action*, Squadron/Signal, Carrollton TX, 1995, p.34.

¹¹³ NAA CRS A705 file 9/32/11 (1A), DTS Beaufighter Aircraft – General Technical File, 25 NOV 1941.

¹¹⁴ Parnell, *Whispering Death*, p.107.

¹¹⁵ Mark Harbour ('Sydhuey'), in *Aussie Modeller International*, 28 AUG 2015; and in *Britmodeller*, 23 APR 2017.

¹¹⁶ While National Insignia of aircraft are known, so generally are the camouflage colours, and can be interpreted from B&W imagery. Peter Malone (*Aussie Modeller International*, 3 JAN 2011) makes several points: The RAAF generally used Orthochromatic film at this stage with yellow filters (not Panchromatic); comparing RAAF Beaus taken on Ortho film shows a *high* contrast between these colours, and a *low* contrast between the upper colours on Pan film; Ortho renders reds/browns darker and blues/greens lighter in tones than Pan, i.e. EDSG (with its blues) is a much lighter tone, and browns (having red components) are darker. This is therefore useful in also interpreting the TSS scheme – Dark Slate Grey (with its green) would tend to have a dark mid tone, whereas the EDSG (having a lot of blue) would be a light mid tone. Also obvious with Ortho film, yellow is a dark grey.

¹¹⁷ *Foliage Green (K3/177), Earth Brown (K3/178), Sky Blue (K3/195)* undersides

¹¹⁸ Ward's referred to the general area west of 7-mile strip whose defence had been allocated to LTCOL K H Ward's 53rd Battalion, and the name stuck. G T Dick, *Beaufighters over New Guinea*, RAAF Museum, Point Cook, 1993, p.28.

¹¹⁹ The first airstrip at Milne Bay in JUL 1942 was called No.1 Strip, or "Gurney" Field (after S/L Bob Gurney), and code-named 'Fall River'. US engineers arrived in AUG 1942 to start work on No.2 Strip (south-west of No.1), which would prove unusable, and No.3 Strip (east of No.1) which became "Turnbull", after CO 76SQN S/L Peter Turnbull. M Johnston, *Whispering Death*, Allen & Unwin, Sydney, 2011, pp.200-207.

¹²⁰ Dick, pp.129-148.

¹²¹ NAA CRS A705 file 9/32/11 (72A), DTS Beaufighter Aircraft – General Technical File, extract of notes of aircraft maintenance at Port Moresby of 23 JUN 1943, para.2 "Beaufighter Painting".

¹²² 31SQN A.50 Unit History NOV 1944.

¹²³ AMO A.664/42, of 2 JUL 1942, para.5, cited in Tanner, p.21.

¹²⁴ K N McDonald DFC, *Coomalie Charlie's Commandos, 31 Squadron RAAF Beaufighters at Darwin 1942-43*, Banner Books, Maryborough, 1996, p.79. However, later in MAY 1943 he received a new aircraft, A19-112, which had the old tailplane; p.81.

¹²⁵ P Malone & G Byk, *Understanding RAAF Aircraft Colours*, Red Roo, Melbourne, 1996, p. 27. As noted, the standard RAAF camouflage colours over 1941-1943 was uppersurfaces *Earth Brown* and *Foliage Green*, undersides *Sky Blue*. In DEC 1943 this was changed to uppersurfaces *Green*, undersides *Grey*: Malone & Byk p.7. This was due to accepting USAAF aircraft deliveries.

¹²⁶ I K Baker, *Aviation History Colouring Book No.4*, 'Roundels, Tail Stripes & Other Markings (1)', Melbourne, 1995, p.4.

¹²⁷ AFHQ AGI No. C.11 Issue 3, of 3 OCT 1940, para.2(a); in AFHQ file 1/501/329.

¹²⁸ I K Baker, *Aviation History Colouring Book No.5*, 'Roundels, Tail Stripes & Other Markings (2)', Melbourne, 1995, p.3.

¹²⁹ Allied Air Forces SW Pacific Area Minute, D OPS 1 17A, 'Marking of Allied Aircraft', of 5 AUG 1942. Being a USAAF organisation, the comment to not carry the blue/white roundel on the upper starboard wing accorded with US practices.

¹³⁰ RAAF HQ Message T520, file 947/19/30A, of 19 SEP 1942.

¹³¹ RAF AMO A.664 of 2 JUL 1942, para.5; cited in Tanner, p.21.

¹³² The RAAF MAY 1944 AGI refers to such roundel proportions in Diagram A5524 Sheet 1, as 12" *White* and 32" *Blue*, i.e. 3:8.

¹³³ RAAFHQ AMEM letter 1/501/329, of 8 JUL 1943. This, directed to HQ 2 TG, specified Air Diagram 1160 for the Vengeance and Wirraway, and shows the varied white centre on other aircraft. For these aircraft, National Markings were given as 32" blue diameter, 12" white diameter (3:8); fin marking 8" width each colour and 24" high. Note that 8" wide colours was in general use.

¹³⁴ Fin flash sizes generally remained consistent with the original RAF markings over 1942-44, i.e. from 27" high to 24" high by 8" wide for the main colours; RAF AMO A.664/42 of 2 JUL 1942 (Tanner, p.21), and RAF AP 2656A Ch.2 para 12 (Tanner, p.55). Also Goulding & Jones, pp.208-9. RAAF images show some inconsistency with the occasional shorter/squarer flashes – 16" x 16".

¹³⁵ Sizes: Baker *AHCB* No.78 p.13 gives some dimensions, others determined by photo mensuration. Mensuration can be tricky, with compensation made for the perspective, lens distortion by differences in the horizontal and vertical planes, and for curved surfaces

¹³⁶ AFHQ AGI No.C11 (issue 3), *Standard Camouflage Finishes, Markings*, para.2(b) note (i)(a) of 3 OCT 1940 (file 9/1/396) specified a 'grey' letter on camouflage in front of the fuselage roundel. By 1942, AGI C11 (issue 4), *Standard Aircraft Finishes and Markings*, paras.2(a)(i) and 4(d) of 31 JUL 1942 (file 1/501/329), colours were specified in more detail, and identification on camouflaged surfaces were to be *Medium Sea Grey* K3/183.

¹³⁷ Air Force Confidential Orders AFCO A3/43, file 62/1/271, of 4 JAN 1943, RAAF HQ Melbourne.

¹³⁸ Para.6 of A3/43 then amplified that if there was insufficient room on the fuselage for the two letter code in front of the roundel, then it could be transposed – with the single aircraft letter in front, and the two letter squadron code aft.

¹³⁹ Para.8 stated the code letters were to be the same height as the diameter of the fuselage roundel (but varied slightly), and to be horizontal when the aircraft was in level flight.

¹⁴⁰ RAAF AFHQ Tech Order AGI Pt.3 Sect (c) Instruction No.1 of 26 MAY 1944, Appendix C.

¹⁴¹ RAAFHQ file 9/58/29(14A), of 18 MAY 1945, para.2.

¹⁴² McDonald, p.53.

¹⁴³ NAA A11312 HQ NWA 6/10/AIR(4A), para.3, of 3 JUN 1943.

¹⁴⁴ NAA CRS A705 file 150/4/4572 (5A) of 28 APR 1944 – this Order No.17 modification had been drafted from DEC 1943.

¹⁴⁵ C H Barnes, *Bristol Aircraft since 1910*, Putnam, London, 1994, p.300.

¹⁴⁶ Barnes, p.303.

¹⁴⁷ NAA A11312 6/10/AIR AFHQ 9/58/38(38A), of 7 SEP 1944.

¹⁴⁸ 31SQN A.50 Unit History NOV 1944.

¹⁴⁹ V Bingham, *Bristol Beaufighter*, Airline, Shrewsbury, 1994, p.141.

- ¹⁵⁰ *Sky Blue* was found to fade too much in the tropics to a white. The richer *Azure* was advised to DAP by RAAFHQ for the BD.43A by ref 25/2/32 of 6 APR 1944, filed as 1/501/329 (143A); *Foliage Green* as BALM 201983, *Azure Blue* as BALM 201228.
- ¹⁵¹ AGI Part 3, Section C, Instruction No.1, Appendix C, “Camouflage Scheme: Foliage Green”, of 26 MAY 1944, in RAAFHQ file 150/4/5056 (1A), *Camouflage Schemes and Identity Markings*.
- ¹⁵² G Byk & P Malone, *RAAF Foliage Green*, HS Models Melbourne, 2001, www.clubhyper.com/reference/foliagegreenrefgb_1.htm
- ¹⁵³ Furthermore, this ‘bottle green’ hue is applied to Vengeance EZ999 at Narellan. When queried that this exact green colour used in his repaint was ‘too blue’, Harold Thomas produced the WWII can of K3/177 *Foliage Green* that he had used. <http://www.adf-gallery.com.au/newsletter/ADF%20Telegraph%202016%20Mid%20Year%20Supplement.pdf>
- ¹⁵⁴ The Hercules engines on Beaufighters had copper-coloured collector rings and exhausts, which either deteriorated or were later painted black. On later Mk.21s, these were anti-scorch white.; Baker *AHCB 77*, p.15 refers
- ¹⁵⁵ AP.2656A Vol.1 Sec.6 Chap.1 para.33 of OCT 1944, cited in Tanner, p.38. This AP evidently formalised the earlier DTD Tech Circular 360 App 5 of 23 FEB 1943, which had introduced SCD-A.
- ¹⁵⁶ NAA A705 9/32/11 (90A), DTS Beaufighter Aircraft – General Technical File, 5 Maint Gp Postagram T.241 of 20 OCT 1944.
- ¹⁵⁷ This Coastal Command camouflage of “white and blue” on the mainplanes (EDSG in fact, with white leading edges, also applied to the tailplane) was IAW the maker’s Modification No.112. NAA A705 9/32/11 (90A), DTS Beaufighter Aircraft – General Technical File, 5 Maint Gp Postagram T.241 of 20 OCT 1944.
- ¹⁵⁸ RAF reference S.4950/DOR of 12 JUL 1943, filed as RAAFHQ 1/501/329 (106A); correspondence in RAAFHQ 62/4/84 (121A to 123A) over OCT/ NOV 1943 describe the successful trial results of a *White* aircraft on anti-sub patrols (reducing visibility ranges by 10%), but this was now no longer necessary. Pentland *Vol.1* p.91 provides artwork of this coastal Anson scheme.
- ¹⁵⁹ W Mann, *Search and Destroy*, 31SQN RAAF, self-published, 2001, p.77.
- ¹⁶⁰ Parnell, *Whispering Death*, p.45. 31SQN ORB does not mention this modification, nor of bomb carriage – sorties are just ‘strikes’.
- ¹⁶¹ Dick, pp.157-8.
- ¹⁶² 31SQN A.50 Unit History JAN 1945.
- ¹⁶³ AWM PR00646 Interview with 30SQN Beaufighter pilot Bob Weymss, cited in Johnston, p.258.
- ¹⁶⁴ Aircraft Status Card E/E.88 for A19-27.
- ¹⁶⁵ AP.2656A Vol.1 Sec.6 Chap.1 paras.32-33 of OCT 1944, cited in Tanner, pp.38-39.
- ¹⁶⁶ Aircraft status card E/E.88 for A8-165.
- ¹⁶⁷ 30SQN A.50 Unit History APR-JUN 1943.
- ¹⁶⁸ Artwork colour *Dark Earth* is referenced by DK Decals sheet DK72001, which also incorrectly gives the details as A19-34/J.
- ¹⁶⁹ 30SQN Beaufighter website.
- ¹⁷⁰ 30SQN A.51 Detail of Operations, SEP 1942-APR 1943.
- ¹⁷¹ https://en.wikipedia.org/wiki/67th_Fighter_Squadron
- ¹⁷² Dick, p.131.
- ¹⁷³ Dick, p.77.
- ¹⁷⁴ Aussie Modeller International (AMI), aussiemodeller.com.au website, ‘Sydhuey’ on 4 MAY 2018.
- ¹⁷⁵ Parnell, *Whispering Death*, p.29 dates this as OCT 43, but this crew flew A19-54 over SEP, and then the CO S/L Bill Boulton from beginning OCT. Yellow dress shown by MPM Models, and DK Decals 48001 and 72001 sheets.
- ¹⁷⁶ Aircraft Status Card E/E.88 for A19-54. *Units of the RAAF, A Concise History, Vol.7 Maintenance Units*, AGPS, Cbr, 1995, p.34.
- ¹⁷⁷ <http://www.beaufighter30squadronraaf.com.au/aircraft%20numbers.html>
- ¹⁷⁸ Parnell, *Whispering Death*, p.55 shows the 30SQN operations board for 1 JAN 1945 lists 25 Beaus.
- ¹⁷⁹ The 31SQN Engineering Officer relates the humorous ground experiment undertaken in AUG 1944, firing the rockets for the first time from a Beaufighter in the scrub surrounding the Coomalie strip, “The Day We Fired the Rockets”, on 31SQN Association website: <https://31squadronassociation.com.au/about/squadron-album/>
- ¹⁸⁰ 31SQN A.50 Unit History NOV 1944.
- ¹⁸¹ RAAF Darwin Letter 2410/7/ENG (77B) of 28 JUN 1944.
- ¹⁸² The first two Mk.21s on operations with 31SQN were A8-6 and A8-13 at the end of SEP 1944. 31SQN A.51 ORB SEP 1944.
- ¹⁸³ 31SQN Assoc website: <https://31squadronassociation.com.au/archives/profiles/peter-demaine-mbe/>
- ¹⁸⁴ An example illustrated by Ian Baker was A8-11/EH-D in DIY colours – as a 31SQN mixed mid-*Green* with probably *Medium Sea Grey* disruptive camouflage, and mixed light *Blue* undersides (as *Sky Blue* stocks were no longer held). I K Baker, *Aviation History Colouring Book No.79*, ‘RAAF Colour Schemes & Markings Part 12’, Queenscliff, 2013, p.3.
- ¹⁸⁵ 31SQN A.51 Operations Record Book FEB-APR 1943.
- ¹⁸⁶ Baker, *Aviation History Colouring Book No.79*, p.5.
- ¹⁸⁷ <http://www.collectingbooksandmagazines.com/snifter.html>
- ¹⁸⁸ 31SQN Assoc website: <https://31squadronassociation.com.au/archives/profiles/peter-demaine-mbe/>
- ¹⁸⁹ Dick, p.131.
- ¹⁹⁰ 31SQN Assoc website: <https://31squadronassociation.com.au/archives/profiles/peter-demaine-mbe/> *When the Mk.21s were received, Klug named one (probably A8-7) as ‘Eat-‘Em-Alive II’.*
- ¹⁹¹ 31SQN A.51 Detail of Operations, 11 FEB 1945. This was the first operation for Wood/Arbon on 11 FEB 1945, in a formation with Provost/McGuire and Ellis/Coleman.
- ¹⁹² Baker, *Aviation History Colouring Book No.79*, p.5.

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- ¹⁹³ F/L 'Hank' Henry and F/O Doug Hooke flew A19-30 during its time on 31SQN over JUL-SEP 1943, and are photographed in the 31SQN Assoc Album with EH-N, so this tie-up is unconfirmed. <https://31squadronassociation.com.au/archives/beaufighter/>
- ¹⁹⁴ Accident details from E/E.88 Status Cards; Squadron A.50 Unit Histories/ORBs; 31SQN Assoc website.
- ¹⁹⁵ *Units of the RAAF, A Concise History, Vol.3 Bomber Units*, AGPS, Canberra, 1995, pp.65-66.
- ¹⁹⁶ B Rice, *22 Squadron RAAF*, 22SQN Assoc of Vic, Melbourne, 1987, 'As a Beaufighter Squadron' chapter.
- ¹⁹⁷ Johnston, p.411.
- ¹⁹⁸ 22SQN A.50 Unit History JUN-AUG 1945.
- ¹⁹⁹ I K Baker, *Aviation History Colouring Book No.78*, 'RAAF Colour Schemes & Markings Part 11', Queenscliff, 2013, p.16.
- ²⁰⁰ <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202018%20Autumn.pdf>
- ²⁰¹ *Units of the RAAF, A Concise History, Vol.2 Fighter Units*, AGPS, Canberra, 1995, pp.95-97.
- ²⁰² Again, see Byk & Malone, *RAAF Foliage Green*: www.clubhyper.com/reference/foilagegreenrefgb_1.htm
- ²⁰³ From imagery: 93SQN A8-92, 5OTU A8-93 had 3:5. From DEC 1944, factory-new A8-95 and 5OTU A8-97 had the newer 2:5.
- ²⁰⁴ 93SQN A.50 Unit History FEB-OCT 1945.
- ²⁰⁵ <https://en.wikipedia.org/wiki/RP-3>
- ²⁰⁶ The 31SQN Engineering Officer described the introduction of the RP to the RAAF in "The Day We Fired the Rockets", on 31SQN Association website. "These plates, about four feet square, were attached to the underside of the Beaufighter mainplane and then rocket rails fitted to the plates. Later on, we took off those ugly ungainly launching plates and fitted the American Zero length rocket launchers. The natives of Morotai were welcome to our original rocket launchers. They would make great barbeque plates."
- ²⁰⁷ 93SQN A.50 Unit History, 13 AUG 1945.
- ²⁰⁸ *Units of the RAAF, Vol.2 Fighter Units*, p.94.
- ²⁰⁹ Parnell, *Whispering Death*, pp.120-121.
- ²¹⁰ 93SQN A.50 Unit History, FEB-MAY 1946.
- ²¹¹ <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202018%20Autumn.pdf>
- ²¹² 93SQN A.50 Unit History Sheet, FEB-APR 1946.
- ²¹³ <http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202018%20Autumn.pdf>
- ²¹⁴ 31SQN Assoc website: <https://31squadronassociation.com.au/archives/profiles/david-beasley/>
- ²¹⁵ 31SQN Assoc website: <https://31squadronassociation.com.au/archives/profiles/david-beasley/>
- ²¹⁶ Aircraft Status Card E/E.88 for A8-229. In 1946, there were nearly 150 Beaus at Wagga and 75 at Laverton for disposal. Details in our *Newsletter*, Autumn 2018:
<http://www.adf-serials.com.au/newsletter/ADF%20Telegraph%202018%20Autumn.pdf>
- ²¹⁷ 2AD A.50 Unit History, 26 JAN 1956.
- ²¹⁸ NAA CRS A705 file 9/32/11 (105A), DTS Beaufighter Aircraft – General Technical File, Beaufighter nomenclature, RAF AMCO A.43 and A.44, of 12 APR 1943.
- ²¹⁹ NAA CRS A705 file 9/32/11 (67A), DTS Beaufighter Aircraft – Gen Tech File, Beaufighter marks and engines, c JUN 1943.
- ²²⁰ Barnes, p.307.