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.13 – RAAF Venturas

by John Bennett 2021

At the outbreak of the Second World War in the Pacific, the RAAF's strike force was predominantly the Lockheed Hudson with various models equipping seven squadrons, and the Consolidated Catalina with two squadrons in the long-range overwater role. Domestic production would focus on the Bristol Beaufort, which would replace the Hudson in bomber units from 1943. Also in 1943, Lend-Lease deliveries were made to Australia to equip RAAF squadrons with the B-34 and PV-1 Ventura variants, but ultimately it would only be 13SQN to fly the Ventura here on operations.

The Lockheed Model 37 / V-146 Ventura was designed for the RAF by the Lockheed Aircraft Corporation – developed from the Model 18 Lodestar commercial airliner – with production assigned by Lockheed to its Vega Airplane Company subsidiary. The Ventura was required by the RAF to replace the Hudson (itself a development of the Lockheed Model 14) and initially used as a bomber over continental Europe until progressively transferred to patrol duties. Venturas were manufactured by Lockheed's Vega factory at Burbank, California (only 2km from the parent Lockheed plant), which finally in 1943 became Lockheed Plant A-1.[1] With Japan entering the War, RAF production Ventura Mk.IIs were taken over by the USAAF on the line as the "Model 37", then followed by Lend-Lease production Ventura Mk.IIAs in 1942, which became the B-34 Lexington.

[from AHSA site]

The restored PV-1 Ventura 'A59-67 SF-F', now in RAAF Museum storage

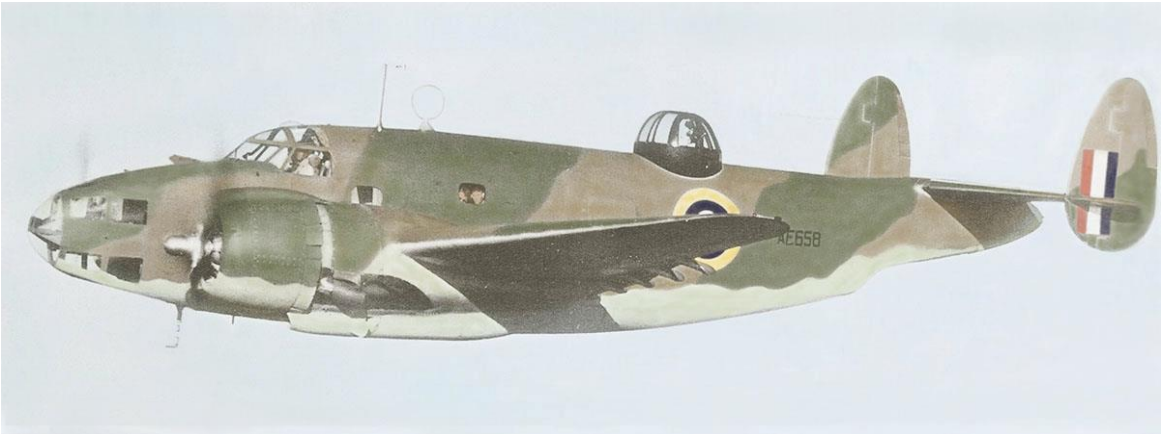
In Australia, the RAAF's first deliveries were the B-34 Ventura Mk.IIAs. These had been diverted from RAF contracts to USAAF training roles, where as the Lexington it was re-designated as the RB-34A (the 'R' prefix referring to a 'Restricted', non-combat role [2]). These first twenty for the RAAF, serialled **A59-1 to A59-20**, were delivered from MAY 1943 and were in such poor condition, having seen prior extensive USAAF service as crew trainers, that they were generally being withdrawn from service by MAY 1944.

The most successful variant of the Ventura was the US Navy PV-1. 55 new-build PV-1s were delivered over 1943/1944, serialled **A59-50 to A59-104**. In RAAF service, all were known as Venturas – in the RAF, early models were the Ventura Mk.I or Mk.II, with the introduction of Lend-Lease became the B-34A Mk.IIA, and the RAF referred to the ultimate PV-1 variant as the Mk.V, later GR.V.[3] This article will concentrate on RAAF Ventura use with 13SQN in North-Western Area (NWA) operating mainly from Gove NT. However, two RAAF Article XV units, 464SQN in UK with the Mk.I/II, and 459SQN with the Mk.V in the Mediterranean, also operated the Ventura in the bomber and patrol roles.

RAAF LEND-LEASE VENTURA DELIVERIES

Although the first RAAF operation of Venturas was by 464SQN in Europe from RAF orders, all those delivered to 459SQN in the Middle East and the RAAF in Australia were Lend-Lease deliveries. To Australia, these commenced in MAY 1943, comprising twenty **RB-34A Ventura Mk.IIA,** allocated in APR/MAY 1943 by **MAC Air Case 126**.[4] These were delivered concurrently with the first batch of 19 diverted USN **PV-1 Ventura Mk.V** under Lend-Lease **Case 200** 1943 Allocation, which were followed by a further 36 PV-1s in the 1944 Allocation, making a total of 55 PV-1s for the RAAF.

The first 675 Venturas were British Purchasing Commission (BPC) orders for the RAF, comprising 300 Mk.I and Mk.II, msn 137-4001 to 137-4300, serialled **AE658-AE957** – 188 as Mk.Is AE658-AE845, and the final 112 as Mk.IIs AE846-AE957. Of these, 16 were lost enroute before delivery, 42 were held in Canada, and 82 diverted to SAAF.[5] The next 375 were follow-on Ventura Mk.II msn 137-4301 to 137-4675 serialled **AJ163-AJ537.** Of these, AJ235-AJ442 were diverted to the USAAF, and AJ511-AJ537 to the USN; only 41 reached RAF units. [6]



[Colourised image from Pearcy, p.86]

The first RAF Ventura AE658, a BPC-contracted Mk I, maiden flight on 31 JUL 1941

By the time the Lend-Lease Act came into being on 11 MAR 1941, the BPC had already placed these substantial orders for much-needed US aircraft, to now be supplemented by Lend-Lease orders. Lend-Lease deliveries required USAAF designations and serial numbers as an indication they had been purchased with US funds.[7] Initially this involved a further 200 Ventura Mk.IIs msn 137-4676 to 137-4875, which were designated as the B-34 Ventura IIA and serialled **FD568-FD767,** with USAAF serials **41-38020 to 41-38219**. Of these, 20 were diverted to the RAAF and 23 to the RNZAF, but most were absorbed into USAAF training roles. Next was the long production run of 1600 PV-1 Venturas for the USN and Lend-Lease customers. While most of these remained with the USN, 387 were allocated to the RAF, but not all were received with diversions to the USN, RCAF and SAAF. The RAAF Lend-Lease deliveries are tabled below.

Lend-Lease Requisition	Variant	Delivery [8]	No. and US Serials	RAAF Details
41018 Contract DA-152 [9] **Case 126/Indent 927A**	**RB-34A**	MAY 1943 – AUG 1943	**1942 LL Allocation** **20** aircraft from batch 41-38051 to 41-38172	RAAF **A59-1 to A59-20**, msn 137-4707 to 137-4828; many hours flown in US,[10] fitted with ASV Mk.II (Aus).
N-517 Contract No A(S)198 **Case 200/Indent 2094AA**	**PV-1**	JUN 1943 – FEB 1944	**1943 LL Allocation** 23[11], but reduced to **19** in JAN 1944, Bu33316/48855	RAAF **A59-50 to A59-68**, msn between 237-5325 and 237-6091, fitted with ASD radar.
N-518 Contract No A(S)284		FEB 1944 – JUL 1944	**1944 LL Allocation** **36**[12], USN Bu48899/49556	RAAF **A59-69 to A59-104**, msn between 237-6135 and 237-6372.

Data plate 137-4506 for Ventura Mk.II AJ368 cJUL1942 *[Air Classics, MAR 2017]*

There is often discussion of whether to use an aircraft's individual identity 'c/n' or 'msn'. Both mean the same thing – c/n is 'constructor's number', msn is 'manufacturer's serial number' – which is the identity located on an aircraft's data plate. This never changes through the lifetime of the aircraft, even though an aircraft may change owners/operators, and change its external identity serial number (s/n) or registration. It basically comes down to what country the aircraft was manufactured in, and 'c/n' has typically been used for British aeroplanes, and 'msn' for airplanes from the US. In past articles in this series for Avro, Hawker and DH products, I have provided the term c/n. As the Ventura was a Lockheed product, the term msn is used. This is covered in good detail on Ron Cuskelly's site in a dissertation with the late Trevor Boughton: *The Lockheed File,* C/N v MSN - The Lockheed File (adastron.com)

Delivery of Case 126 Indent 2094A – 1942 LL Allocation of RAAF B-34s

This allocation of the first RAAF Venturas were for 20 Lend-Lease B-34As, with USAAF serials between 41-38051 and 41-38172. This list was attached to Washington Embassy letter to RAAFHQ of 21 MAR 1944, for Case 126 was now Indent No.2094A, having originally been Indent 927A. This advised the B-34 deliveries listed in sailing order, and the assigned RAAF serials **A59-1 to A59-20** were allocated on arrival in Australia.[13] So what this list shows is the delivery order, and RAAF serials have been inserted beside the relevant USAAF serial.

RAAF No.	SERIAL NO.	CV NO.	BLADING	SAILING	SIGNAL TO RAAF HQS	CONFIRMATION OF RECEIPT SIGNALS
A59-2	41-38054	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-4	41-38060	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-5	41-38067	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-6	41-38079	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-7	41-38085	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-8	41-38086	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-9	41-38108	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-3	41-38059	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-11	41-38057	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-1	41-38051	100	LL1	362	WL 236 3/5	WN 181 23/7
A59-15	41-38066	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-16	41-38069	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-17	41-38091	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-10	41-38121	100	LL1	362	WL 236 1/6	WN 181 23/7
A59-12	41-38062	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-13	41-38064	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-14	41-38065	97	LL1	391	WL 976 1/6	WN 908 2/7
A59-19	41-38130	163	LL1	670	WL 48 20/7	
A59-20	41-38172	163	LL1	670	WL 48 20/7	
A59-18	41-38125	163	LL1	670	WL 48 20/7	

[NAA A1695 7/205/EQ Pt.2 (171A p.3)

[Colourised from adf serials]

RB-34s storage at 2AD Richmond – the rear aircraft is A59-20 (nose number '172'/41-38172) still with USAAF fuselage star

Ten RB-34s were stored for disposal at Richmond.[14] The engine cowl art on the closer RB-34 shows a lady riding a bomb, colours are estimated.

Delivery of Case 200 Indent 2094A – 1943 LL Allocation of RAAF PV-1s

This allocation of the first RAAF Lend-Lease PV-1s had been for 23 aircraft in APR 1943, but in JAN 1944 was reduced to 19 aircraft,[15] with USN serials between Bu33316 and Bu48855. The RAAF Washington signal WL 66A dated 8 FEB 1944 advised these deliveries listed in order of USN Bu serials, which did not necessarily sequentially tie in with the RAAF serials **A59-50 to A59-68**, which were allocated on arrival in Australia at 2AD Richmond.

VENTURA (PV-1) CASE 200 TOTAL 23

U. S. SECRET
BRITISH SECRET

RAAF No.	U.S.N. SERIAL NUMBER	LEFT WEST COAST	AT HONOLULU	DEPARTED HONOLULU	SIGNAL TO RAAF HQRS.	SIGNAL ACKNOWLEDGING RECEIPT
A59-50	May 33321		12.6.43	20.6.43	WL 546 26/6	(WN 854 28/6 (WN 899 1/7
A59-51	" 33316		12.6.43	23.6.43	WL 546 26/6	WN 899 1/7
A59-52	June 33444	3.7.43	14.7.43	16.7.43	(Naval Message	
A59-53	" 33446	3.7.43	14.7.43	16.7.43	(170015	
A59-55	July 34651	1.8.43	17.8.43	22.8.43		WN 653 26/8
A59-54	" 34652	1.8.43	17.8.43	20.8.43	(Naval Letter	
A59-56	Aug. 34754			14/9/43	(44-3/VV 27/8 (Refer WL 904	WN 680 28/8 WN 963 22/9
A59-57	" 34755		25.9.43	1.10.43	(29 Sept. WL 30 4/10	
A59-58	Sept. 34858	12.10.43	18.10.43	22.10.43	(WL 382Q 20/10 (WL 503Q 23/10	WN 393 26/10 At Alameda 16/9
A59-60	" 34859	12.10.43	18.10.43	20.10.43	WL 575 27/10	At Alameda 17/9
A59-59	" 34860	12.10.43	18.10.43	22.10.43	WL 503Q 23/10	(WN 393 26/10 (At Alameda 17/9
A59-61	Oct. 34992	2.12.43	9/12 app.	20/12	(WL 441Q 2/12 (WL 855A 21/12	(Departure Signal (WL 855A 21 Dec.
A59-62	" 34994	2.12.43	9/12	18/12	(WL 441Q 2/12 (WL 888A 22/12	(Departure Signal (WL 88A 22 Dec.
A59-63	" 34995	2.12.43	9/12	20/12	(WL441Q 2/12 (WL 855A 2/12	(Departure Signal (WL 855A 21 Dec.
A59-65	Nov. 48748	31.12.43	8.1.44	12.1.44	WL 419Q 12/1	WN 761Q - 10/2/44
A59-64	" 48749	31.12.43	11.1.44	11.1.44	WL 380A 11/1	WN 420Q - 15/1
A59-66	" 48750	31.12.43	8.1.44	12.1.44	WL 419Q 12/1	WN 761A - 10/2/44
A59-67	Dec. 48854	21.1.44	29.1.44	2.2.44	WL 951A 2/2	WN 761Q - 10/2/44 WN 813Q - 15/2/44
A59-68	" 48855	21.1.44	1.2.44	8.2.44	WL 66A 8/2	WN 813Q - 15/2/44

CASE COMPLETE

R.A.A.F. HEADQUARTERS ADVISED WL 66A 8/2

[NAA A1695 7/205/EQ Pt.2 (174C), via GRB]

There is mention in these files of Venturas ex-Burbank factory inducted into the **Alameda Modification Centre** prior to departing for packing depot in San Francisco. These dates show shipping ex-SF to Honolulu. RAAF then flew the Venturas to Richmond.[16]

VENTURA DEVELOPMENT

A British contract for the Lockheed Model 37 – a military version of the Lodestar – was placed in MAY 1940, its design incorporating all the experience gained with the earlier Hudson. AE658 was the first of a contract for 675, and first flew on 31 JUL 1941.[17] This order came from the British Purchasing Commission (BPC), and Lend-Lease orders followed. The RAF had generally been satisfied with the Hudson, and as aircraft with greater capability were required urgently, the Lockheed development was seen as a quick ideal solution.

Deliveries for the RAF commenced over the first half of 1942 to equip light bomber squadrons – and because of the US's sudden dire situation, some were diverted via Reverse Lend-Lease to the USAAF as the B-34 Lexington, and to the USN as the PV-3 Ventura. (When supplied under Lend-Lease, the RAF Ventura Mk.II became the Mk.IIA, and had the US designator B-34 and USAAF serials; similarly the RAF Ventura GR.V had the US designator PV-1 and USN Bu serials.) British military aircraft of the period were given a name (often an American place name for US aircraft), to which a mark number was added in Roman numerals. From 1943, a role prefix was added to the mark number, such as 'GR' for General Reconnaissance for the Model 237 PV-1 Ventura, which became known as the GR.V.[18]

[Colour image from du Plessis Collection]

Lockheed production of Hudson Mk.Vs for the RAF APR 1941, at Floyd Bennett Field NY

AM665 was from the RAF BPC order for 390 Hudson Mk.Vs (AM520 to AM909).[19] The second half of the order was subsumed by Lend-Lease, and designated A-29.[20] Six were transferred to the RNZAF as NZ2001/NZ2006 and arrived at Hobsonville in MAY 1941. All are camouflaged in the RAF's *Temperate Land Scheme* A.D.1159 'A' scheme of *Dark Green (DG)* and *Dark Earth (DE),* as from **JAN 1941** the "mirroring" of A.D. patterns had been discontinued.

Before Lend-Lease, all of the US aircraft in RAF service had been paid for by Britain, with manufacturers following the contracted painting instructions of the customer, as close as possible to colours being applied to UK built aircraft. Lockheed had most probably sourced its paint and dope finishes from DuPont, as had Curtiss for P-40 production, but details relating to the Hudson remain elusive.[21] US paint manufacturers would match "equivalent" colours very closely to those prescribed by the Air Ministry MAP colour, and DB-7/A-20 historian Mark Harbour, records the two paint suppliers for the Boston – Fuller for Douglas production and DuPont for Boeing – had only slight colour differences, more noticeable when new, but almost indistinguishable as they faded.[22] The actual MAP colour samples were not available for reference at that time by US manufacturers, and probably Curtiss was not consistent in specification and batch control, so generally they were not *exact* matches.[23] When Lend-Lease was introduced, the US military paid for the aircraft – production for Commonwealth countries was from Requisition numbers and Contracts, aircraft received US military designations and serial numbers, and the US painting needs took precedence.

TOTAL VENTURA PRODUCTION

Below is a list of total Ventura production at Burbank over 1941-1944 compiled from several referenced sources.

msn	Serials	Number	Production Dates [1]	Details [2]
Model 37 VENTURA Mk.I				
37-4001 / 4188	AE658/AE845	188	AUG 1941/FEB 1942	15 to 464SQN RAAF UK.
15 aircraft lost prior to delivery.				
Model 137 VENTURA Mk.II				
137-4189 / 4300	AE846/AE957	112	FEB 1942/JUN 1942	15 to 464SQN RAAF UK.
137-4301 / 4675	AJ163/AJ537	375	MAY 1942/SEP 1942	15 to 464SQN RAAF. Last 27 to USN PV-3.
10 aircraft lost prior to delivery. **USAAF impressment.** USAAF took 264 as "Model 37", for training roles in aircrew navigation and gunnery instruction, some as target tugs. All had the British Boulton-Paul dorsal turrets removed; some were fitted with the US Martin turret, and AJ288 (msn 4426) was the first with the Martin250CE turret, delivered mid-1942. 27 to the USN as PV-3 Bu33925/Bu33951.				
Model 137 B-34 LEXINGTON (VENTURA Mk.IIA)				
137-4676 / 4875	41-38020/ 41-38219	200	SEP 1942/NOV 1942	20 RB-34A to RAAF as **A59-1/A59-20.**
Most **B-34s** were impressed as USAAF trainer sub-variants B-34A-1-VE, B-34A-2-VE, B-34A-3-VE, B-34A-4-VE and B-34B-1-VE. The designator **RB-34** was used from OCT 1942, the 'R' indicating "Restricted" for a. non-combat role. Future LL deliveries were for the USN production variant the PV-1.				
Model 137 O-56 / B-37 LEXINGTON (VENTURA Mk.III)				
137-1001 / 1018	41-37470/ 41-37487	18	JAN 1943/APR 1943	550 ordered as 41-37470 to 41-38019, but final 532 cancelled.
B-37 originally designated O-56 ("O" for observation), which was cancelled before delivery; also designated Model 137-96-03. As all retained by USAAF, RAF serials EW323/EW340 were not taken up.				
Model 237 PV-1 VENTURA Mk.V				

[Colourised from ww2bombers]

Bu29767 just off the Burbank production line in early 1943, with msn 4920 visible

237-4876 / 5075	Bu29723/Bu29922	200	DEC 1942/MAR 1943	First flight 3 NOV 1942. All to USN, none to RAF or RAAF.
237-5076 / 5475	Bu33067/Bu33466	400	MAR 1943/JUL 1943	Some the RAF/RCAF with FN serials, and FP537/FP548. RAAF deliveries **A59-50 to A59-53** JUN/JUL 1943. USN blue/grey cam changed approx MAY 1943 at **Bu33400**.
237-5476 / 5887	Bu34586/Bu34997	412	JUL 1943/NOV 1943	Some RAF FP549/FP684; JS889/JS897. RAAF deliveries **A59-54 to A59-63** AUG/DEC 1943.
237-5888 / 6175	Bu48652/Bu48939	288	NOV 1943/FEB 1944	Some RAF JS898/JT838. RAAF deliveries **A59-64 to A59-73** JAN/FEB 1944.
237-6176 / 6475	Bu49360/Bu49659	300	FEB 1944/MAY 1944	Some RAF JT839/JT898. RAAF deliveries **A59-74 to A59-104** MAR/JUL 1944.
	Total PV-1 Production	**1600**	1600 made over 18 months equates to approx. average 90/month.	

Most production data comes from the excellent Ventura site *ww2bombers*; cross referenced to Joe Baugher's *US military serials* databases, Robertson's *British Military Aircraft Serials*, Andrade's *US Military Aircraft Designations and Serials*, and Pearcy's *Lend-Lease Aircraft*.

[1] **Production dates** are interpolated in some cases from known data points.

[2] **Article XV Squadrons:** RAAF 464SQN UK and 459SQN ME data taken from the *adf-serials* database.

VENTURA Mk.I

[Image Lib of Congress LC-USE6-D-006034]

Lockheed Burbank production of Ventura Mk.Is for the RAF JUN 1941

This JUN 1941 image was after the introduction of the Lend-Lease Act of 11 MAR 1941, and before the maiden flight in JUL 1941.

The **Model 37 Ventura Mk.I** had two 1850hp Pratt & Whitney Double Wasp R-2800-S1A4-G radials. This production was for the first mid-1940 British Purchasing Commission (BPC) which order totalled 300 Venturas, which included 188 Mk.Is (**AE658 to AE845**, msns 37-4001 to 37-4188). All Mk.Is went to Commonwealth air forces – 80 were received by the RAF, 71 to South Africa and 21 to Canada. Others were lost before delivery.[24] First flight of AE658 was on 31 JUL 1941,[25] and first deliveries to Britain were in APR 1942, as the Ventura Mk.I equipped 2 Group's bombing wing at Feltwell, Norfolk, comprising 464SQN RAAF, 487SQN RNZAF and 21SQN RAF – 15 serving on 464SQN.[26]

[A Lockheed colourised image, ww2bombers]

The first RAF Ventura Mk.I AE658 maiden flight 31 JUL 1941, fitted with the British Boulton-Paul turret

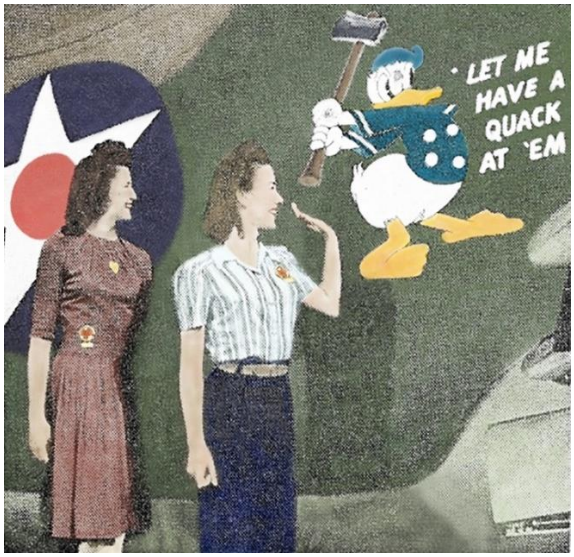
By JUL 1941, camouflage was the now standard A.D.1159 'A' scheme – "mirroring" had been discontinued in JAN 1941. Lockheed's colourisation of this maiden event incorrectly camouflaged the *DG* too bluish, *DE* with a yellowish-tint towards a tan, with all-over *DG* on the horizontal tailplane. The B-roundel on the upper wing has no *Red*, and *Red* on the A1 roundel is too large and bright.

Vega Airplane Company. By 1940, Lockheed was building the Hudson and the P-38 Lightning in its Burbank Plant B-1 and did not have the capacity to build the Ventura there, so decided to build the 'Model 37' in the Vega Airplane Company's Plant A-1 at the Union Air Terminal in Burbank. The Vega Airplane Company, formed in AUG 1937 as the AiRover Company, was renamed the Vega Airplane Company in 1938, as a wholly owned subsidiary of Lockheed, having been established to build light, general aviation aircraft. Vega was merged with Lockheed on 31 DEC 1941 and finally absorbed in NOV 1943.[27]

VENTURA Mk.II

The **Model 137 Ventura Mk.II** had 2000hp Pratt & Whitney Double Wasp R-2800-31 radials, with 112 built from the original 300 order (**AE846 to AE957**, msn 137-4189 to 137-4300). A further BPC order for 375 Mk.IIs (**AJ163 to AJ537**, msn 137-4301/137-4675) increased Mk.II production to 487 aircraft. In addition to the more powerful engines, the Mk.II had a larger bombbay. Most were repossessed by the USA – 264 to the USAAF as the 'Model 37' (AJ235-AJ442, see AJ288 and AJ354 below). However, many Mk.IIs went to Canada and South Africa and ten crashed before delivery – but enough Mk.IIs did reach Britain to re-equip 2 Group's Feltwell Wing, with 30 reaching 464SQN.[28]

These Mk.IIs requisitioned by the USAAF as 'Model 37s' in 1942 retained their RAF serials and the British *Temperate Land Scheme* (TLS) A.D.1159 scheme of *Dark Earth* and *Dark Green*. The PV-3 designator applied to the last 27 Ventura Mk.IIs from the BPC contract for AJ511 to AJ537 taken over by the USN from OCT 1942 as Bu33925 to Bu33951. As RAF Ventura Mk.IIs were repossessed by the USAAF in early 1942, RAF camouflage and serial numbers were retained. They received the contemporary US National Markings, which include the *Red* central disc in the *White* star in the *Blue* cockade. This *Red* disc was removed in MAY 1942 to avoid confusion with the red circular Japanese *Hinomaru*, however this removal did occur in the field several months earlier than MAY, in late MAR 1942.[29]



[Colourised from rcafno128sqn site]

[rcafno128sqn site colour image]

1942 Ventura Mk.II production – RAF camouflage, *Reverse Lend-Lease* requisition by USAAF

The Disney aircraft art on the Burbank was typically applied to the starboard fuselage side near the cockade. The initial Mickey Mouse and Donald Duck artwork was directed at Hitler and Nazis, probably the intent of ***"Let Me Have A Quack At 'Em"*.** Soon into 1942, the artwork became anti-Japanese, in this case ***"A Token for Tokio"*** for the selling of government War Bonds. The *Red* circle in the *White* star was discontinued by War Department Circular #141, 12 MAY 1942: "The *red* circle in the center [sic] of the insignia as used at present will be eliminated. The new insignia will therefore be a five-pointed, *white* star within a *blue* circle." [30]

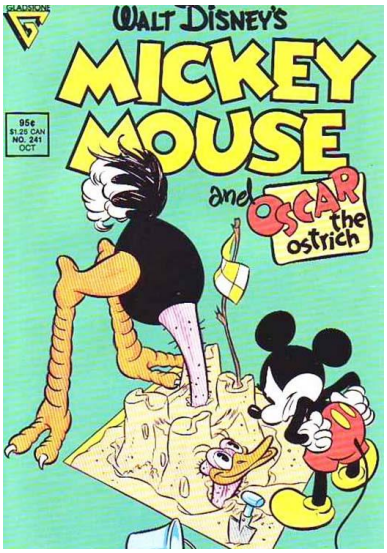
This Donald Duck artwork was during RAF Ventura Mk.II production in 1942, but shows the repossession of these desperately needed bombers by the USAAF. This is obviously ***after*** the MAR 1941 LL Act, and ***during*** the requisitioning of Venturas for the USAAF in early 1942 after Japan had entered the War, but ***before*** the MAY 1942 elimination of *Red* disc in the US – therefore assessed as 1st or 2nd quarter of 1942. (Aircraft in the field had the small circle deleted from 28 MAR 1942.) So these are Ventura Mk.IIs repossessed by the US as 'Model 37s' prior to B-34 production starting cSEP 1942, but already marked with US markings on the production lines at Burbank.

Later, in JUL 1943, as PV-1 deliveries were underway to the South Pacific, many RNZAF Venturas bore the Lockheed-Vega Disney studios cartoons on their rear fuselage sides. As most of these were now sharply anti-Japanese, they were ordered to be painted over before the aircraft headed to the operational area due to the fear that if downed, and the crew captured, these cartoons wouldn't help to enhance their treatment in enemy hands. Most of these painted-over areas show as a large patch of fresh paint in photos taken at the time.[31] The RNZAF Venturas were delivered at the same time as the RAAF PV-1s, but not much of the Disney artwork survived on RAAF aircraft, there being only a couple of examples.

Matching RAF Colours. A problem at the US factories was trying to match local paints to the RAF specifications, where probably Du Pont was the main supplier. To try to match the British Ministry of Aircraft Production (MAP) colours, Du Pont used *Dark Green* (DuPont 71-013), *Dark Earth* (71-009), over *Sky Type S Gray* (71-021).[32]

VENTURA Mk.II DISNEY ARTWORK 1942

As RAF Ventura Mk.IIs were repossessed by the USAAF, RAF camouflage and serial numbers were retained but the US National Markings were applied, and later the RAF camouflage was replaced by the more usual *Olive Drab*. Early during this repossession of RAF aircraft was when Lockheed artist **George 'Randy' McGraw** began his artwork. With the Disney Studios located nearby, the Disney characters painted by McCraw were always mistaken for official Disney art. But he worked for Lockheed-Vega in Paint Shop Dept. 39 at Burbank, and had been assigned to paint the USAAF white stars, with inner red circle, on the fuselage of the new production Ventura aircraft. In early APR 1942, he selected a clean section of Ventura fuselage where he went to work on his first actual painting. His boss suggested he paint more of the drawings, and to assist with ideas, suggestion boxes were set up in various sections of the Vega plant. Three weeks later Randy had over 100 suggestions a day pouring in and his approved drawings became a full time job. To assist him, little remarks came with each artwork. For the many Walt Disney created characters painted, special permission was given to Randy and the Vega Company by Walt himself. Each of the Ventura paintings left the plant for parts unknown, which included USN, RAF, RAAF, RNZAF and RCAF.[33]



[Colourised from US National Archives No.196380, via ww2bombers] *[internet image]*

RAF camouflaged Ventura Mk.II for the USAAF marked with Oscar the Ostrich MAY 1942

The caption to this image gives the name as "Rudi the Ostrich", which must have changed because Mickey Mouse comics called him "Oscar". Perhaps the forerunner of the Warner Bros "Roadrunner".

Mickey Mouse was a favourite. Oscar the Ostrich, above, became known as Mickey's ostrich. But the most popular Disney characters applied to the side fuselages of Venturas were Mickey Mouse and Donald Duck. While Mickey was somewhat subdued as a mild-mannered guy, Donald could always lose his temper and became more popular as an offensive type looking for a fight, which became particularly apparent when applied to Navy PV-1s.

[Both colourised from usaaf-nose art.co]

"*A Ventura Gosh!*" and "*Goodby [sic] Hitler!*" from RAF production, although possibly diverted from the Lend-Lease B-34 line

MODEL 37s – REPOSSESSED RAF VENTURA Mk.IIs 1942

As RAF Ventura Mk.IIs were repossessed by the USAAF, RAF camouflage and serial numbers were retained. The British Boulton-Paul dorsal turrets were not liked by the Americans and the US turret was adapted for Ventura use, but was not always required for the USAAF training roles undertaken by these 'Model 37s'. (It was not until the Lend-Lease contracts that the aircraft became the B-34 Lexington in the USAAF, and the Ventura Mk.IIA in the RAF.)

[Colourised from GRB Collection]

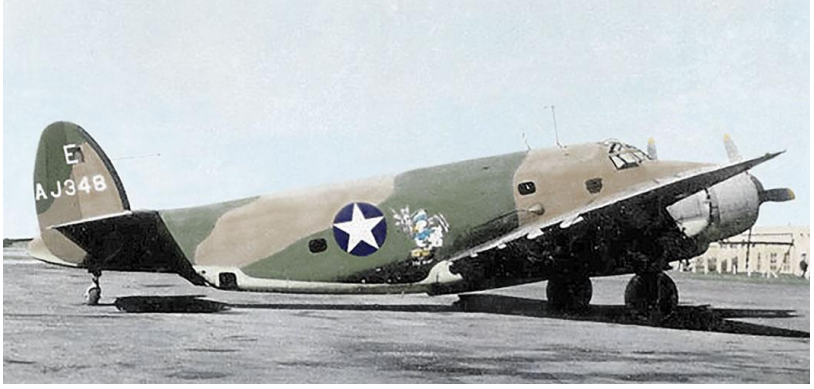
RAF Ventura II AJ303 msn 4441 "41", Martin 250CE-13 turret

Inner port fin flash appears overpainted. Msn in *Yellow* on fuselage and nose.

[Colourised from USAF Museum 060713-F-1234S-017]

AJ354 msn 4492 repossessed by USAAF in SEP 1942

AJ354 on tail in *White*, with "G" base code.



[Colourised from ww2bombers]

AJ348 msn 4486, no turret, 'E' base code for Eglin, Donald Duck artwork

[Colourised from GRB Collection]

Crashed Mk.II target-tower AJ396 msn 4534 FEB 1943

The above images of RAF Mk.II Venturas, that had been repossessed by the USAAF off the production line over JUL/AUG 1942, were re-marked with the new US National Marking at that time – the *White* star on the *Blue* circle.

[Colourised from ww2bombers]

[Colourised from ww2bombers]

Ventura Mk.II AJ288 msn 4426 requisitioned by USAAF, with the new US Martin turret

Hitler ranting and pulling his hair out – "***Yep! We're get'en in his hair***". While Hitler was the target on RAF marked aircraft in the early War years, with Japan's entry then this was switched to the Japanese, particularly with USN PV-1s.

The somewhat antiquated Boulton-Paul 0.303 turret was not favoured by the US, and the Martin C250CE-13 with .50-cals was introduced. This top turret was assessed as one of the best defensive installations of any Allied aircraft, being electrically controlled with a gyro-computing gunsight; ammunition capacity was 400 rounds per gun.[34]

RB-34-VE/LO LEXINGTON 1942

The introduction of Lend-lease from APR 1941 necessitated aircraft production allocated US military designators and US military serials – USAAF Fiscal Year (FY) number allocations, or USN Bureau of Aeronautics (Bu) serials. Following on the Lockheed/Vega production line at Burbank was the B-34 Lexington, basically the Ventura Mk.II with some American equipment and a new turret. The continuing RAF deliveries were known as the Ventura Mk.IIA, but of the production run of 200, **134 went to the USAAF with US markings** applied on the production line. Like the earlier BPC-ordered Mk.IIs, the B-34 was also known by Lockheed as the Model 137. The 200 B-34s produced (msn 137-4676 to 137-4875) were USAAF **41-38020 to 41-38219**, RAF serials **FD568 to FD767**, and delivered from Burbank over the 3rd and 4th quarters of 1942. B-34 production retained the RAF green/brown camouflage, but some were overpainted with *Dark Olive Drab/Neutral Gray* (OD/NG) USAAF camouflage, as seen below on 41-38206 (training number M-127).

Designators. The official designator was initially the B-34-VE (Lockheed-Vega's 'VE' manufacturer code for Burbank was still in use while these aircraft were on the line and being replaced by Lockheed's 'LO'), and with sub-types B-34A and B-34B allocated to aircraft repossessed for USAAF training, were the 'Lexington'. This name was not adopted by the RAF, which continued using Ventura with mark numbers for all variants. In American service, the B-34 was used little operationally on coastal patrols, being relegated to training roles and the designator became RB-34 in OCT 1942, the 'R' prefix indicating a 'Restricted', or non-combat role.[35] The B-34 sub-variant 'Blocks' were: **B-34A-VE** trainers for the USAAF, **B-34A-1** 43 to RCAF and 23 to RNZAF, **B-34A-2** 57 for bomber training**, B-34A-3** 28 for gunnery training, **B-34A-4** 16 as target tugs, **B-34B-1-VE** 13 navigation trainers; it appears the 20 **B-34A-VE** models came to the RAAF.[36] Many for the RCAF were used by 34OTU at Pennfield Ridge, New Brunswick, for EATS aircrew training and appeared to be the later production aircraft, but there were no specific serial batches matching the Block numbers.

The B-34-VE was powered by the same 2000hp Pratt & Whitney Double Wasp R-2800-31 radials with four 0.5-inch guns (two in the nose and two in the dorsal turret) and four 0.3-inch guns (two nose and two ventral) with a 3000-lb bombload. The most obvious external difference from earlier production was the Martin dorsal turret, which was also retrofitted to some earlier 'Model 37' (i.e. Ventura Mk.IIs) reclaimed from the RAF for USAAF gunnery training.

[Colour image from Archer p.86]

USAAF RB-34A 41-38206 coded M-127 of Midland Field, Texas, 1943, overpainted with *Olive Drab* and *Neutral Gray*

This aircraft was the 187th B-34, produced in late 1942 just before PV-1 production commenced. The 'M' fuselage base code indicated Midland Field, an RB-34 training base within the Central Flying Training Command.[37] In late 1943, this aircraft was transferred to the RCAF as FD754 (as did 41-38165, M-125, as FD713).[38] While Model 37s had typically retained RAF green/brown camouflage, some B-34s were overpainted with US *Dark Olive Drab 41/Neutral Gray 43,* as was B-37 production.

Lend-Lease. Following Pearl Harbor in DEC 1941, RAF Ventura Mk.IIs were repossessed by the USAAF during 1942 as was most of that year's production of the B-34. Under the APR 1941 Lend-Lease Act, all procurement had been through the Air Corps – USAAF after 20 JUN 1941 – using US designations and serials. Up until this stage, all aircraft were on a British direct purchase orders and flown with RAF (or RN) serial numbers, and so had received no USAAC serial.[39] With Lend-Lease, even though a specific airframe was intended for Britain (being equipped to meet RAF requirements and to carry RAF markings and serial number), it now had a US designation and serial. With most 1942 production Venturas being repossessed for USAAF training, US markings were being applied on the line.

USAAF B-34 LEXINGTON TRAINERS 1942-1943

With the Japanese attack on Pearl Harbor in DEC 1941, the US forces had to ramp up its training and aircraft production exponentially. This accounted for much of the British orders for Ventura IIs and B-34 Ventura IIAs being repossessed for the USAAF training system.

Bombardier-Navigator Flying Training. The 'backseat crew' navigator aircrew training in the US was conducted in the southern and western fair-weather states, primarily Florida, Texas, New Mexico, Arizona, Nevada and California. The basic nav trainer flown was the Beech AT-11 Kansan (a version of the Beech 18), then with more advanced training on the Lockheed platforms, the AT-18 and A-28 Hudson, and RB-34 Lexington. These schools were primarily within the USAAF Western Flying Training Command and the Central FTC. Large bases that can be associated with the Lexington were Midland TX (with 'M' fuselage codes), while the A-28 variant of the Hudson was used by Mather CA (code 'T') and with AT-18s for navigation training.[40]

Gunnery Training. The "Flexible Gunnery" schools were similarly located in the good weather states, and bases identifiable with the Hudson and Lexington were Buckingham Field FL (coded 'FM' for Fort Myers), Las Vegas NV (coded 'Z') and Tyndall FL ('TY').[41] Other RB-34 images shows tail codes of 'E' for Eglin FL, and 'G' for Kingman AZ, but these may have been "hacks" and not necessarily designated school training equipment.

[Colourised from www.fuselagecodes]

AT-18 Hudson and RB-34 Ventura gunnery trainers, FM-coded at Buckingham Field, Florida

[Colourised from worldwarphotos.info]

USAAF AT-18A Hudson 42-55505/T-108 navigation trainer without turret

RAAF USE OF THE RB-34 FROM 1943

Poor Condition of the RB-34s

When the twenty RAAF Venturas arrived, being ex-USAAF trainers, they were found to be in poor condition. Delivered under Lend-Lease Case 126, these aircraft were truly second-hand and 'pre-loved' – the documentation refers to this variant as the "RB-34".[42] The Air Board would complain to the US about the state of these aircraft, having been "never officially advised that the aircraft…were to be second-hand, it simply being stated that these aircraft were to come from USAAF stocks".[43] What had been assumed was that they were diverted from the USAAF Lend-Lease deliveries ex-factory. However, the hours flown by RB-34s prior to allotment to Australia showed some aircraft had flown up to 387 hours before handover in the US. On arrival at 1AD, these aircraft required "a grand total of 28,994 man hours work before they could be brought into use, this total representing maintenance only not including operational fitment or modification".[44] This represented an average of 1500 man hours per aircraft at 1AD before they could be made serviceable, and although there were similar problems with the A-31 Vengeances that were being received at the same time, the situation was even worse with the Venturas.[45]

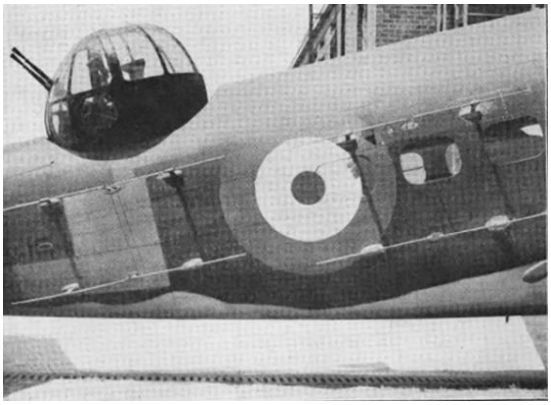
USAAF serials of the RAAF **A59-1 to A59-20** were between **41-38051 and 41-38172**, i.e. spread out throughout this range, as the B-34 batch of 200 aircraft had been serialled 41-38020 to 41-38219.[46] These RAAF aircraft had been in USAAF service over JAN-JUN 1943, and "selected by the USAAF to provide those in best condition and most complete operationally", being flown from Dallas, Texas, to the US West Coast for shipping to Australia.[47] Similarly, the RNZAF experienced the same difficulties – the RNZAF's 23 RB-34s were received from JUN 1943, with some cannibalizing for parts being required to prepare nine aircraft to replace the Hudsons of 4SQN based at Nausori in Fiji. However, these early Venturas proved unsuitable operationally and the unit continued flying Hudsons well into 1944.[48]

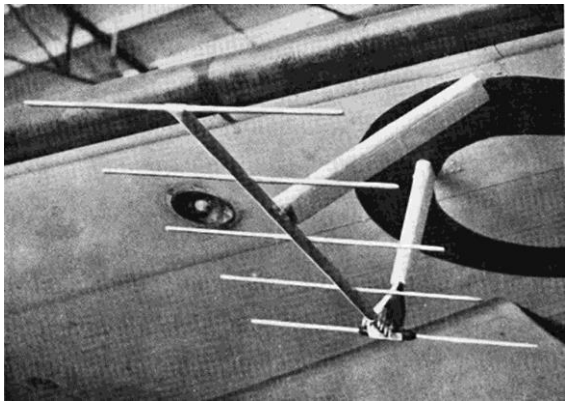
[Colourised from GRB Collection]

RB-34A A59-2 with ASV Mk.II radar fitted, apparently at Laverton

ASV (Radar) Trials OCT 1943

The ex-USAAF RB-34s had not been fitted with ASV – air-to-surface vessel, the early acronym for radar – and it was decided to install the Australian adaptation the British ASV Mk.II to selected RAAF GR aircraft types. These included the Anson, Hudson and Ventura, followed by the Beaufort. Installation was undertaken at 1AD Laverton, with trials conducted by the co-located 1APU. Details of ASV Mk.II (Aust) are in the RAAF Manual ACD 2005(2).[49]



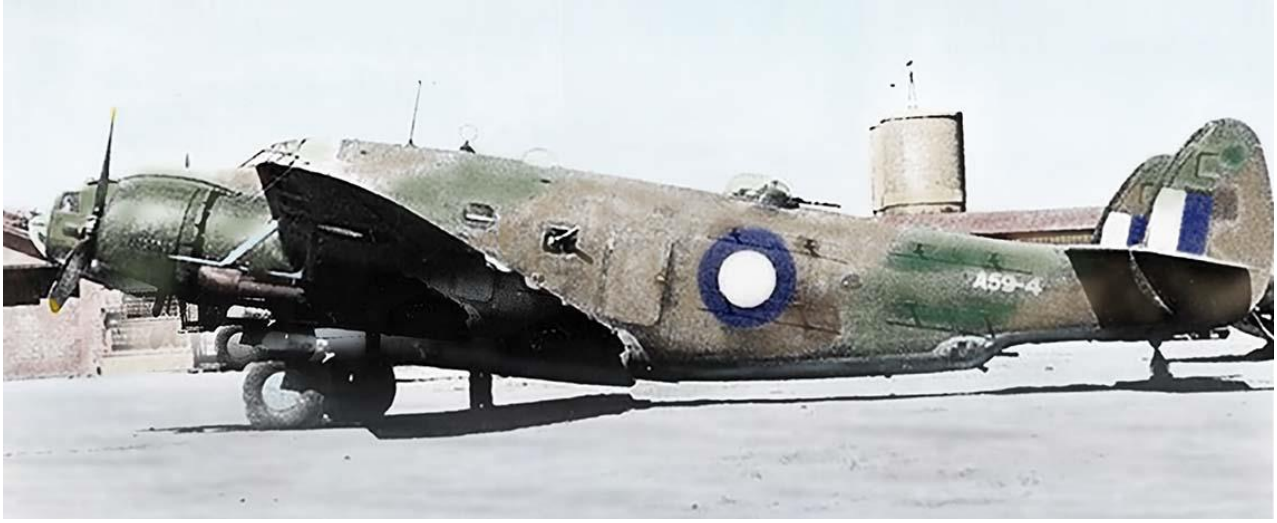


[both images from ACD 2005 (2)]

ASV search aerials on side of Hudson in 1942, and an ASV Yagi array under a Beaufort wing in 1944

RB-34A A59-4 1APU ASV TRIALS – OCT 1943

Anson radar development in the RAAF was addressed in our Anson article, No.5 in this series.[50] The first ASV was fitted to RAAF Anson DG701 by 1AD in JUL 1943,[51] and then fitted to RAAF Ansons from late 1943, with 5 Aircraft Depot (5AD) at Wagga opening a radar repair section in NOV 1943, and over the next months Ansons would undergo the radar modification.[52] Modifications by 5AD went to 71(R) and 73(R)SQN aircraft, and when those units ceased operations in mid-1944, aircraft were transferred to 67(R)SQN. 3CU in Sydney operated Anson EG417 over 1944-45 on behalf of the Radio Physics Laboratory,[53] presumably part of the CSIRO forerunner known as **CSIR**, for ASV development. The E/E.88 for A59-4 had it with **'SDF'** from OCT 1943 supporting the APU trials until MAY 1944. As of APR 1945, some 26 Ansons had been modified and were distributed among RAAF units.[54]



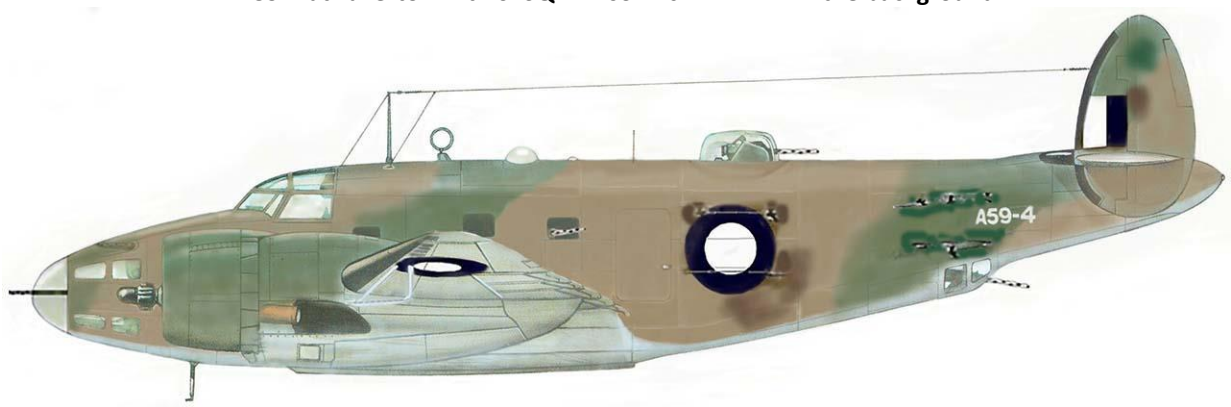
[Colourised from Britmodeller image]

A59-4 at Laverton OCT 1943

Delivered in MAY 1943 in standard RAF camouflage of *Dark Green* and *Dark Earth*, by OCT 1943 **A59-4** was looking a bit patchy. ASV antennas had been added and previous markings had been painted over by *Foliage Green* and *Earth Brown*, and *Sky Blue* added to the undersurfaces. The port beam gun is apparent through the aperture; for ASV trials the starboard gun was removed.

[Colourised from GRB Collection]

A59-4 at Laverton with 67SQN Anson DJ171 MK-D in the background



SQUADRON USE OF THE RB-34 1943-1944

2SQN. 2SQN conducted trials in the NWA operational area with RB-34 **A59-9** over NOV-DEC 1943. While some RB-34s were allotted to 2SQN over this period, these were all cancelled and diverted to 13SQN at Canberra. Because of the considerable prior use in the US, testing with A59-9 by 2SQN proved unsatisfactory.[55] It went unserviceable at Parafield on its return south on 27 DEC, but after this grounding was passed to 1OTU East Sale. It was joined by another, A59-15 in MAY 1944, and these were used for training until stored in 1946. As a result of the NWA trial, 2SQN received Beauforts, but continually pushed to get something more capable, like the B-25 with its firepower and range.

13SQN. Meanwhile 13SQN was working up in Canberra with a flight of 10 PV-1s and 9 RB-34s, receiving its first RB-34s on 28 DEC 1943, with the full allocation of nine by 31 JAN 1944.[56] However, by MAY 1944, the RB-34s had been grounded and during the month all were issued off 13SQN as "operationally unserviceable".[57] MAY 1944 was essentially the end of any hope for operational use of the RAAF RB-34: A59-17 was used for Test Pilot training from JUL 1944, and then by 1AD Ferry Flight from FEB 1945, when virtually all RB-34s were stored awaiting disposal.

[Colourised from QAM image, via Britmodeller]

13SQN A59-11 SF-J with ASV, 1944

There are no written records surviving linking 13SQN codes with airframe numbers, but under magnification this image reveals the serial as A**59-11** which was received at 2AD on 21 JUN 1943, and allotted on 21 JUL for ASV modification with 1AD SEP 1943 to FEB 1944. Then received at 13SQN Canberra on 22 FEB 1944 (being one of nine RB-34s for 13SQN to replace the 'B' FLT Beauforts from the end of DEC 1943). By this stage 'A' FLT had received ten PV-1s, but by 5 MAY all RB-34s had left 13SQN for 2AD, replaced by further PV-1s. A59-11 saw out its service on transport duties with 2AP Ferry Flight until NOV 1944.

7 SQN. In MAY 1944, RAAF Cd had considered force disposition with two squadrons of PV-1s, and 32SQN was selected as the second, as 13SQN deployed to Cooktown. But aerodrome extensions for 32SQN saw this decision changed to 7SQN at Higgins. However, there were insufficient Venturas to fully equip 7SQN, so only one flight would operate the PV-1 until more were available. Three were issued, but plans changed again when the US could not supply our 1945 Lend-Lease Ventura bids, and by 26 JUN the Venturas departed and re-equipment plans were cancelled.[58]

[Bell Vol.2, p.22]

USAAF B-34 with ASV with turret removed OCT 1942 – artwork reads *"Doolittle'll Domore"*

One of the few B-34s modified with ASV for operational anti-submarine patrols in the US. Dana Bell, in *Air Force Colors Vol.2,* assesses the colours to be *US Dark Olive Drab* overpainting of the RAF *Dark Green*, with *Dark Earth* and *Sky*.

RB-37-LO LEXINGTON 1942

The **B-37-LO** was a variant of the B-34 powered by two 1700hp Wright Cyclone R-2600-13 radials, with 550 ordered but only 18 were accepted (41-37470 to 41-37487, msn 137-1001 to 137-1018) and the remainder cancelled. The change of designator was necessary due to the new powerplant – just as had occurred with USAAF receipts of the Hudson: the A-28 had the Pratt & Whitney Twin Wasp R-1830-45 (RAAF Mk.IVA), the A-29 the Wright Cyclone R-1820 (RAAF Mk.IIIA).[59] In addition to the engines, the most noticeable external difference between the B-34 and B-37 was the two additional 0.30-calibre machine guns beam-mounted in recessed positions in the fuselage sides.[60]

The B-37 had originally been intended as the armed reconnaissance variant of the B-34, with the 'Observation' designation O-56-LO. But in OCT 1942, the designation was changed to RB-37 – like the RB-34, the 'R' designator prefix was used by the USAAF over 1942-47 for 'Restricted', referring to non-operational roles of trainer and target-tug.[61] Through its continually changing designators, the RB-37 has been referred to as the Lockheed Model 437, although the Model 137-96-03 designator appears more accurate, and the O-56, before becoming the RB-34B, then B-37 – the B-34 designator could not be retained as the change had been made to the Cyclone R-2600 engine – and ultimately in 1943 the RB-37, as it was realised there was no operational role for the aircraft. (Adding to the confusion, the RB-34B designation was reassigned to modified RB-34As for use as navigation trainers.)

[Colourised from USAF Museum 060713-F-1234S-025]

USAAF RB-37 Lexington '01' msn 137-1001 41-37470 in 1943 – USAAF colours *Dark Olive Drab* over *Neutral Gray* with decals

The fuselage National Marking is obviously a decal, and some US manufacturers would supply decals in the delivery crate to allow customers to mark up their aircraft – and the supply by Curtiss of P-40 markings during 1942 has been an issue discussed in other forums. In the US military, the USAAF Specification 98-24102-L *Insignia For Aircraft*, issued on 10 NOV 1942, stated that decalcomania transfers could be used if approved by the USAAF.[62] For the USN, the Army-Navy Aeronautical (ANA) Specification AN-1-9, *Insignia; National Star (For Airplane Exterior)*, dated 1 MAR 1943 (with an effective date of 1 SEP 1943), authorised in the USN the use of *decalcomanias* for the national aircraft insignia. These were available in gloss or specularity (matt) to match adjacent surfaces.[63]

First flight of the B-37 was on 21 SEP 1942, with the last of 18 delivered in APR 1943.[64] The main visual external difference of the B-37 from the B-34 was the beam gun position, with one each side. These had been built to a USAAF requirement and were painted in the contemporary camouflage – *Dark Olive Drab No.41* upper surfaces (FS 34087 is evidently close), and lower surfaces in *Neutral Gray No.43* (which FS 36173 is close).[65]

An Apology. It was over fifty years ago, in my young AHSA years, that I provided (together with Al Bovelt) our details of WWII RAAF aircraft for René Francillon's 1970 '*Aero Pictorials 3*' book, *The RAAF and RNZAF in the Pacific*. Unfortunately the details I did provide and that were published, stated the RAAF Venturas as **B-34s** (A59-1 to A59-20), **PV-1s** (A59-50 to A59-63), and **B-37s** (A59-64 to A59-104).[66] This was an error on my part, as there were no B-37s delivered to the RAAF, with only 18 ever produced. Under the Lend-Lease deliveries, this last mentioned batch of Venturas for the RAAF were, of course, PV-1s. There, I've come clean, my apologies.

US *"STARS"* AND NO BARS 1942

While Ventura production was underway at Burbank over 1942, there were changes occurring with the US National Marking, which would impact Model 37, B-34, B-37 and PV-1 production. Firstly in MAY 1942, the *Red* centre was removed from the star to avoid any confusion with the Japanese *hinomaru* circle marking. However, the danger of a *Red* circle was recognised on the front-line several months earlier, and was eliminated in the field from MAR 1942.

Until 28 MAY 1942	28 MAY 1942 – 29 JUN 1943
Insignia Spec 241102K	**Insignia Spec 241102K #3**
	

[historylink101.com colour image]

The elimination of *Red* from the cockade

The US Navy had recognised the need for clear identification – this was not only in 1942 with confusion of the *Red* centre dot, but prior to this, when the Atlantic prewar 'Neutrality Patrols' had ***two roundels*** marked on each side of the aircraft fuselage.

[colour image from historylink101.com]

USN PV-1 Ventura still with dual Neutrality Patrol roundels which were retained until late 1943

Neutrality Patrols

Although the US was officially neutral until 7 DEC 1941, the US Navy really entered World War II on 5 SEP 1939 when the US initiated **Neutrality Patrol** operations in the Caribbean and in waters 200 miles off the coasts of North and South America looking for German raiders and submarines. The information considered here comes from a 1991 US Naval Academy paper entitled *"The USN and the Neutrality Patrol, and Atlantic Fleet"*.[67] US President Roosevelt had been considering patrolling operations for several months prior to the start of war in Europe – for instance, on 20 APR 1939 he had told Cabinet that he wished to establish "a patrol from Newfoundland down to South America and if some submarines are laying there and try to interrupt an American flag and our Navy sinks them it's just too bad." He did not clarify whether this was to uphold *American neutrality* or *assist the Anglo-French alliance*.

With War in Europe, from MAR 1941 there was increased Anglo-American collaboration, the US Atlantic Fleet patrols became more aggressive doubling in size, the Lend-Lease Bill of 11 MAR 1941 provided new means of assisting the British, by APR 1941 USN ships were locating and broadcasting positions of Axis ships in Neutrality Zone to the British – there was *little public pretence of any hint of neutrality*, even by the White House. In these "short-of-war" months prior to Pearl Harbor, the USN trained the RCN in escorting convoys, and developed its radar, sonar and ASW doctrine while Britain shared its code-breaking Enigma 'Special Intelligence'.

In SEP 1941, Roosevelt modified previous convoy escort instructions and authorised US warships to escort convoys in which there were no US-flagged vessels. There has always been conjecture that the US knew of the impending attack on Pearl Harbor, and let it happen so the US could be dragged into war in the face of the home non-interventionalists. Pearl Harbor certainly took the weight off Churchill – at last the US "dropped its *figleaf of neutrality*".

US *"STARS-AND-BARS"* 1943

A US study in 1943 discovered that the *Red* dot being removed in 1942 hadn't been the issue – as the ***colour*** couldn't be determined from a distance anyway, however the ***shape*** of a marking could be. From trials with several variations including an oblong roundel with two stars, the study recommended using *White* bars flanking the sides of the existing roundel, all with a *Red* outline, becoming official in JUN 1943.[68] So when 'bars' were added to the star, it was strange that ***Red*** was selected, but then probably in reaction to complaints from the Pacific theatre, in AUG 1943 the ***Blue*** bars were introduced in AUG 1943 [69] – the *Red* bars only lasted a little over a month.

29 JUN 1943 – 14 AUG 1943	From 14 AUG 1943
AN-1-9a	**AN-1-9b**
	

[Colour image, US Nat Archives No.80-G-K-8133] *[www.norpacwar]*

The shortlived *Red* bars makes it helpful for the dating of images

The images are of US Navy PV-1s on Adak in the Aleutians in JUL 1943. All aircraft shown are in the old USN *'blue/gray'* PV-1 camouflage, which was changed on the Burbank line in about MAY 1943 to the newer 'four-shade' camouflage. Left is USN bomber squadron VB-135 side number '7' (for '7V') with *Red* outline and still the double Neutrality fuselage roundels. Right, is the similarly marked VB-136 '9V' Bu29803 loading bombs. With USN squadron procedure, side numbers were re-allocated after an aircraft loss, and when Bu29847 (the previous '9V') disappeared on an operational search in MAY 1943, its '9V' replacement was Bu29803.[70]

[Colour image from ww2bombers]

PV-1 ready for delivery: later 4-colour scheme adopted in the 2nd quarter 1943, and with bars from 14 AUG 1943

For the USN PV-1 Ventura, the roundel diameter was 40", the bars were each 20" long and 10" high, with a 2.5" *Blue* surround.[71]

PV-1 VENTURA PRODUCTION 1943

In JUL 1942, the US Navy completed an agreement with the USAAF to acquire the Ventura as land-based patrol aircraft to supplement the PBY Catalina.[72] Production of the Navy's PV-1s commenced immediately with the first batch of 200 Lockheed 'Model 237s' (Bu29723/Bu29922, msn 237-4876 to 237-5075). The 'PV-1' designator was the typical USN convoluted mix of letters and numbers (which was changed to a more logical and joint-service system in 1962) – 'P' referred to a Patrol aircraft, 'V' as the first Vega patrol design, and '1' as the first sub-type. PV-2 applied to the redesigned model with larger wing and fin area, the Harpoon. The PV-3 was 27 Lend-Lease Ventura Mk.IIs AJ511/AJ537 requisitioned by the USN as Bu33925/Bu33951[73], which served on Atlantic patrols from OCT 1942 Of course the subsequent patrol production from Burbank were the P2V Neptune and P3V Orion – later redesignated in 1962 as the P-2 and P-3 respectively.

The first PV-1 Ventura (Lockheed Model 237-27-01) patrol bomber, powered by the same P&W R-2800-31 "Double Wasps" (i.e. Twin Row Wasps), flew on 3 NOV 1942 and Burbank deliveries commenced from DEC 1942 for the USN – production of the PV-1 extended until MAY 1944.[74] PV-1 modifications consisted of replacing some USAAF equipment with Navy equipment; increasing the fuel capacity by 20 percent; standardising the armament to two fixed forward-firing 50-caliber (12.7 mm) machine guns in the upper decking of the nose, two 50-caliber machine guns in the Martin dorsal turret, and two flexible 30-caliber (7.62 mm) machine guns in the ventral tunnel position; and modifying the bomb bay for 3,000LB (1,361 kg) of bombs, or six 325LB (147 kg) depth charges or a torpedo. While the clear nose cone was replaced by the ASD-1 search radar in a solid plexiglass nose cap, these initial PV-1s retained the side window glazing in the nose and the flat bombardiers window in the floor.[75]

[Colourised from Sqn/Signal No.48, p.9]

Early USN PV-1 Bu29767 (rudder msn '20' for 4920) at the Los Angeles Burbank factory, JAN/FEB 1943

The Lockheed-Vega factory, manufacturer of the Ventura, was adjacent to the Disney Burbank studios, and many of the aircraft carried Disney cartoon character fuselage artwork. Here it is Donald Duck as a jack-in-the-box, labelled *"Surprise!"*. The first 200 PV-1s were serialled Bu29723 to Bu29922 (msn 237-4876 to 237-5075), and this PV-1 was the 45th, msn 4920, which was Bu29767. Markings are the early PV-1 scheme of USN *Blue Gray* over *Light Gray*, and a common trait of the 'last two' of the msn in *Yellow* on the rudder. This is carrying the standard underwing, pylon-mounted 165-gallon drop tanks.[76]

The above image shows the early production PV-1 with nose glazing of four windows per side for the bombardier station behind the nose radome, inherited from the British Venturas. With the glazed "greenhouse" nose, a rudimentary folding co-pilot seat had been fitted to allow the access to the nose compartment. The solid nose of the PV-1, while containing the radar, also had sighting aids for aerial cameras operation. However, on late production PV-1s, the bombardier position was replaced by three 0.50" machine guns, and these aircraft could also carry eight 5" HVAR (high-velocity aerial rockets) under the wings.

While an advantage of the Ventura had been its high speed, the 'hot' Ventura came as something of a shock to pilots accustomed to the docile Hudson, causing a number of training accidents.[77] Training of course prepared aircraft and crews for operations – with the PV-1, the first US Navy squadrons were in the North Pacific, with bomber units VB-135 and VB-136 deployed in the Aleutians from APR 1943.

While the earlier RAF Ventura Mk.IIs and B-34s were repossessed by the USAAF in 1942, they retained RAF *green/earth* camouflage and serial numbers. However, PV-1 production from late 1942 was initially only for the USN – the first production batch of 200 had not been available for Lend-Lease customers being all desperately required by the USN – and the naval *bluish* camouflage and Bureau (Bu) numbers would then be standard for all future Ventura production. This early ***'blue-gray'*** camouflage marked the first batch of 200 PV-1s, followed by approximately 200 of the second batch, with colours changing during production to the ***4-shade 'non-specular'*** in about APR 1943 – and this appears to have occurred around aircraft Bu33400**.**

So the USN camouflage scheme was the standard for when foreign deliveries of the PV-1 commenced from about MAY 1943. So no matter what colour you wanted your Ford it would be black, or in the case of the Ventura, it would be blue. This involved delivery or assembly in the Lend-Lease customer's country and repainted as required for its operating theatre. In Britain, Venturas would be inducted into an RAF Maintenance Unit and normally receive the RAF *greenish/grey Temperate Sea Scheme (TSS)* camouflage – below is a great example, **FN957** after UK assembly and before receiving its *TSS* for operations in the Middle East with **459SQN RAAF**.

[Colourised from IWM12209F, via ww2bombers]

Early RAF PV-1 Ventura GR.V FN957 (ex Bu33081 msn 5090) in MAY 1943 at Speke, Liverpool, with Donald Duck artwork
The RAF type C1 markings were probably applied at the Lockheed reassembly plant at Speke on delivery, this was the 15th PV-1 of the second production batch of 400 aircraft.

Europe. In its intended role as an RAF bomber, the first unit – 140 Wing at Feltwell, Norfolk, comprising 21SQN RAF, 487SQN RNZAF and 464SQN RAAF – entered combat on 3 NOV 1942 with 21SQN attacking railway targets near Hengelo, the Netherlands. On 6 DEC 1942 the Wing provided 47 Venturas for a low-level daylight raid on the Philips radio and valve factory at Eindhoven, which was considered a success, although nine of the Venturas were lost and 37 damaged, leaving only one aircraft unscathed. After this the aircraft switched to medium level operations. But the Ventura in this role had entered service too late – it was already heading towards obsolescence, as in MAY 1942 the Mosquito B.Mk IV had entered service and re-equipped 140 WG in mid-1943.[78]

Middle East. The later PV-1 variant, known in the RAF as the Ventura GR.V, was used for anti-submarine operations over the Mediterranean, and as a naval patrol aircraft the Ventura proved a success. 459SQN RAAF Venturas were employed in this theatre from DEC 1943. The PV-1 used the same engines as the Ventura II, but had room for 1,607 US gallons of fuel (an increase of 263 gallons over the B-34/Ventura II) and was armed with 0.50" machine guns (two fixed forward guns, two in the dorsal turret, plus two 0.303" in the ventral tunnel position), while the bomb bay was modified to allow carriage of six 325LB depth charges or one torpedo. However, 459SQN would soon swap its Venturas in JUL 1944 for the Baltimore, serving alongside the similarly-equipped 454SQN.

Atlantic. The USN **PV-3s** (the last 27 Ventura Mk.IIs from the BPC contract taken over in OCT 1942) served on Atlantic patrols from late 1942, mainly with VP-82 and VP-93 from Argentia NAS in Newfoundland. In MAR 1943, when equipped with the PV-1, VP-82 became VB-125 and VP-93 became VB-126.[79] The external difference of the PV-3 had been its lack of dorsal turret, while production PV-1s from DEC 1942 had the Martin turret.

North Pacific. The *first deployment of Venturas to the Pacific* was to the bleak, fog-shrouded Aleutian Islands. USN bomber squadron VB-135 deployed north in APR 1943 arriving at Adak, midway along the Aleutian chain, to conduct patrols and photo reconnaissance. The high-speed PV-1 was capable of outrunning and sometimes shooting down enemy fighters.[80] Soon the sister squadron VB-136 reached Adak, and VB-135 redeployed to Amchitka, 185 miles further west. The unopposed invasion of Attu had enabled US Army engineers to construct the airstrip, from which PV-1s operated from AUG 1943 – the airstrip was described as "a fog with an island in the middle".[81] Operating from Attu enabled bombing attacks on the Japanese Kuriles (1,500 mile round trip, all over open water), and this became the main role of the Attu-based PV-1s. An innovation was to sometimes task PV-1s as radar bombing pathfinders for attacks by B-24s and B-25s against the Kuriles. One further hazard for the USN crews was that if a diversion became necessary at the western extremities of their missions, they faced internment by the Soviets, who had remained strictly neutral in the fighting with Japan.[82] The crews' treatment as virtual POWs by the Russians was harrowing, and these personnel eventually returned via Europe. The Aleutian weather however constituted a much greater threat than the Japanese, and the PV-1 squadrons lost more men and aircraft to the weather than to the enemy.[83]

[Colourised from Squadron Signal p.27]

NORTH Aleutian-based PV-1s of VB-136 'X5' Bu29768, 'X4' and '18', from Adak cMAY 1943

South Pacific. The first PV-1s to the South Pacific were VB-137 in Samoa in MAY 1943, and by OCT 1943, the USMC deployed Ventura night fighters to Henderson Field in the Solomons, then on to Bougainville. The radar-equipped PV-1 possessed the speed, manouevrability and firepower, and soon Marine Squadron VMF(N)-531 scored its first skill in NOV 1943 – when relieved in JUN 1944, the unit had twelve confirmed night kills as pioneers in a complex new form of warfare; this adaptability of the Ventura showed it in a role that its designers had never contemplated.[84] By OCT 1944 US forces were advancing towards the Philippines, and PV-1s were soon established in New Guinea, at Los Negros (in the Admiralties), and then to the NEI at Morotai (in the Halmaheras). By MAR 1945, PV-1s were based at Clark Field (on Luzon), and were ranging out against Japanese shipping. These Philippine and Mototai-based USN Venturas then supported the Australian-led *OBOE* operation over MAY/JUL 1945 to secure Borneo.[85]

[HowdiColourImage]

SOUTH USN PV-1 on Espiritu Santo, Vanuatu, in 1944

464 SQUADRON

On 1 SEP 1942, 464 Squadron was formed at Feltwell, Norfolk, as a light bomber squadron, within 2 Group **Bomber Command**, equipped with both Ventura Mk.Is and Mk.IIs. The first raid that the unit took part in set the scene for the high quality performances which were to become the norm for 464 throughout the War. On 6 DEC 1942, fourteen Australian Venturas combined with other aircraft of **140 Wing** from 487SQN RNZAF and 21SQN RAF to attack on the Philips Radio Works at Eindhoven, Holland. This was a daylight, low-level raid in the face of accurate flak with high losses, but with the operation considered a success. While operating the Ventura from Norfolk RAF bases at Feltwell and from APR 1943 Methwold, 464 attacked the engine sheds at Bruges, enemy shipping, oil refineries, railway yards, Rotterdam dockyards, the Zeebrugge coke ovens, and the Luftwaffe assembly sheds at St Omer. However, the majority of missions were airfield attacks against occupied Europe. Other operations were against the steel works at Ijmuiden, Holland, in MAY – then during operations, 464SQN was visited by the King and Queen, on 26 MAY 1943.[86]

[Colourised from ww2aircraft.net]

AJ466 SB-H during the Royal Visit to 464SQN, RAF Methwold on 26 MAY 1943

On 1 JUN 1943, 464 transferred to **Fighter Command** as part of the 2nd Tactical Air Force, and was advised of re-equipment with Mosquito fighter bombers. Moving to Sculthorpe aerodrome on 21 JUL 1943, the first of the new Mosquitos arrived in AUG 1943. By 31 AUG 1943, 464 had flown 321 sorties and 170 000 operational miles in its year on Venturas, and the last Ventura was flown out on 22 SEP and Mosquito operations began in OCT. As the Mosquito was a two-seat aircraft, wireless operators and air gunners were posted out. Ops continued as intruder raids against convoys, supply trains, rail marshalling yards and road junctions, and soon with the JUN 1944 Normandy landings, targets became troop installations and bridges to support the landings. 140WG became renowned for its precision low-level raids – attacking Amiens Prison, Belgium, on 18 FEB 1944, Gestapo HQ at Aarhus, Denmark, on 31 OCT, then Copenhagen on 21 MAR 1945. In FEB 1945 464SQN moved to France, disbanding at Melsbroek in Belgium on 25 SEP.

464 Squadron Codes – from SEP 1943

464SQN Code	Serial	Details and Name	464SQN Code	Serial	Details and Name
SB-A	AE685		SB-N	AE847	AE876; AJ212; AJ213
SB-B	AE695		SB-O	AE853	*"Whakatangata"*
SB-C	AE880	AJ224	SB-P	AJ491	
SB-D	AJ231		SB-Q	AE688	AE702
SB-E	AE937	to SB-T; AE945	SB-R	AE684	AJ453
SB-F	AJ174	*"ANZ"*	SB-S	AE908	
SB-G	AE939		SB-T	AE937	
SB-H	AJ466		SB-U		
SB-I			SB-V		
SB-J	AE854	*"Joybelle"*	SB-W		
SB-K			SB-X		
SB-L			SB-Y		
SB-M	AE719	AE751; AJ223	SB-Z		

References for 464SQN codes: *adf serials* A59 database, imagery. Codes separated by the roundel, 'SB' ahead of the roundel.

464 SQUADRON VENTURA Mk.II AE939 / SB-G

464SQN flew the Ventura for twelve months, from SEP 1942 against continental Europe until replaced by the Mosquito in SEP 1943. 464SQN started with both Mk.Is and Mk.IIs – *adf-serials* lists 464SQN receiving 15 Mk.Is and 30 Mk.IIs – the difference being the engines and the bomb bay. (Ventura deliveries for Britain were shipped to Liverpool and then erected at the nearby Speke aerodrome.) At Feltwell, Norfolk, 464SQN formed 140 Wing with 487 RNZAF and 21 RAF Squadrons, moving to nearby RAF Methwold on 3 APR 1943, then becoming part of Fighter Command and transferring to RAF Sculthorpe on 21 JUL for re-equipment with the Mosquito.

[IWM colour image]

Ventura II AE939 SB-G, based at Feltwell, Norfolk JAN 1943

[Colourised from AWM UK0312]

AE853 SB-O *"Whakatangata"* at Methwold, Norfolk, JUL 1943
Mixed RAAF and NZ crew, the motif was a kiwi on a boomerang.

[Colourised from IWM HU81281 via ww2bombers]

AE854 SB-J *"Joybelle"* at Methwold, JUL 1943
"Joybelle", "Joe" the gremlin, colours Southern Sky DK72047

459 SQUADRON

459SQN was formed on 10 FEB 1942, at Burg-ci-Arab, Egypt, as a Hudson GR naval co-operation unit for the Eastern Mediterranean. The major role was attacking the Axis effort to reinforce its supplies at El Alamein by 'F-boat' convoys from Tobruk to Mersa Matruh, with these attacks successfully weakening enemy reinforcements destroying a vast amount of supplies. One claim was in SEP 1942 when a 459SQN Hudson was credited with probably sinking a destroyer near Tobruk. At this stage, 459SQN was considered a young unit composed entirely of pilots trained under the EATS. 23 OCT 1942 marked the decisive Allied offensive that opened at El Alamein, and by early NOV, the enemy were in retreat – as the ports were recaptured, 459SQN roles were to escort troopships, tankers and supply vessels, and attack enemy shipping. Moving initially to Gambut in Libya in DEC 1942, and 459 was then truly mobile operating from airfields in the Western Desert, Cyprus, Palestine, Southern Arabia and Eritrea. MAY marked a complete year of operations, a total of 6775 operational hours from 1294 sorties. In JUN 1943 a Hudson sank German U-boat U-97: the crew comprised Dave Barnard, George Crisp and Brian Cobcroft (see Ventura next page). 454SQN had formed with Blenheims and as part of 235WG, both units worked together, tasked with anti-submarine and convoy escort work. Night bombing commenced in the Aegean and on the Axis-defended islands of Crete, Rhodes and the Dodecanese.

In **DEC 1943, Ventura Mk.V** aircraft arrived and conversion commenced, and night bombing operations would continue against Rhodes and the Aegean. In APR 1944, 459SQN moved to Palestine at Ramat David, and shortly after to St Jean (near Haifa). In JUL 1944, Venturas were replaced by Baltimores and moved to Berka in Cyrenaica, and bombing continued in the Aegean and against Rhodes. On 16 FEB 1945, 459SQN moved to Almaza (Beirut), but the plan to relocate the unit to Britain within Coastal Command for 'Leigh Light' Wellington night GR duties. This plan was however cancelled, and on 10 APR 1945, 459SQN disbanded.[87]

[du Plessis WWII colour collection]

Beautiful colour image of Hudson VI AE626, of ME Comms FLT Egypt, summer 1942

This shows well *Temperate Sea Scheme (TSS)* adapted for the Middle East: the green tonal value of the *Dark Slate Grey* is apparent, with the rich darker blue *Azure* undersurfaces. Still wearing type-A1 roundels, these changed in JUL 1942 to type-C1 roundels.[88]

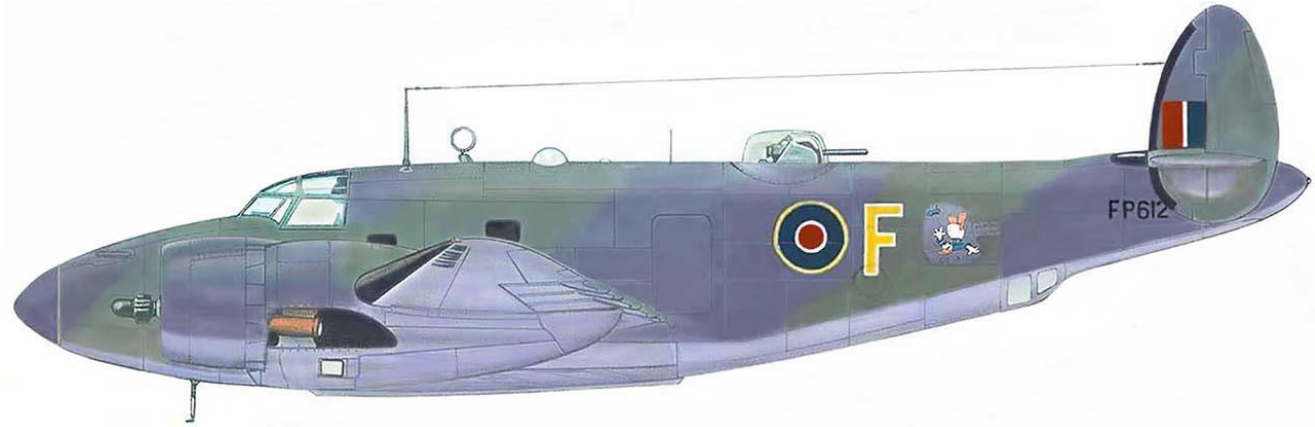
459 Squadron Codes – from DEC 1943

459SQN Code	Serial	Details and Name	459SQN Code	Serial	Details and Name
A	FP562	FP592, JS838	N	FP547	
B	FP544	JS937	O	FP556	
C	FP541	JT835	P	JS899	
D	FP653	CO's *"You Beaut"*, JT809	Q	FP569	
E	FP537	JT824	R	FP542	JS960
F	FP612	Donald Duck *"Air Pockets"*; JS961	S	FN997	FP543
G	FP609	JS916	T	JS926	
H	FP604	JS982, JT892	U	JS980	
I	FP599		V	JT834	
J	FP670		W		
K			X		
L	JS908		Y		
M			Z	FP631	

Records indicate that 459SQN received 46 Mk.Vs. References for known 459SQN codes: *adf serials* A59 database, imagery. The unit did not use a dual letter squadron code on Venturas, just a single letter codes behind the roundel.

459 SQUADRON PV-1 VENTURA GR.V FP612 / 'F' MAR 1944

459SQN operated the Ventura GR.V (the PV-1) only for six months between DEC 1943 to JUL 1944; nominally a GR squadron, the role was primarily bombing, often by night. **FP612** was from the RAF Lend-Lease PV-1 batch FP549/FP684, Bu34586/Bu34967, being ex-Bu34764 (msn 237-5654).[89] This was manufactured in the USN 4-colour scheme, but of course changed to RAF *Temperate Sea Scheme (TSS)* with C1-type roundels. The 459SQN Unit History shows it on strength from JAN 1944 (replacing Hudson FK579 as 'F'), until APR 1944 (JS961 became the new 'F').



[Colourised from AWM 2018.125.4.124] *[Colourised from AWM 2018.125.4.122]*

'F' crewmembers MAR 1944 and the Donald Duck "Air Pockets" artwork

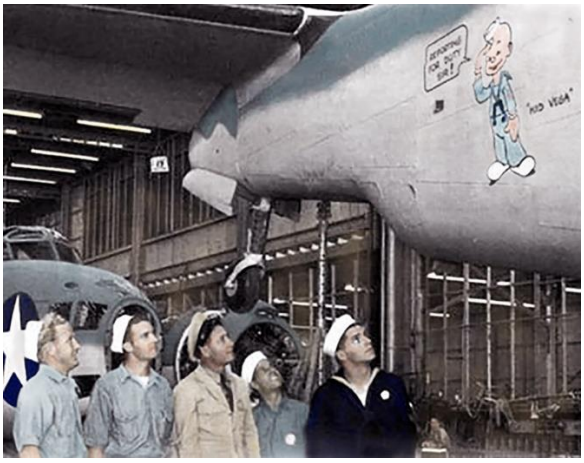
The AWM image 2018.125.4.124 shows PLTOFF Dave Barnard's crew annotated "Shorty, Crisp and Geoff Tuxford while Brian Cobcroft on course" – Barnard's normal crew was George Crisp, Brian Cobcroft, and "Shorty" Purcell. It was not until late FEB 1944 that Tuxford substituted for Cobcroft in Barnard's crew and in **MAR 1944** they all flew FP612/F.

Ventura GR.V FP612/F *[Colourised from adf-serials]* **FP653/D *"You Beaut"*** *[Colourised from adf-serials]*

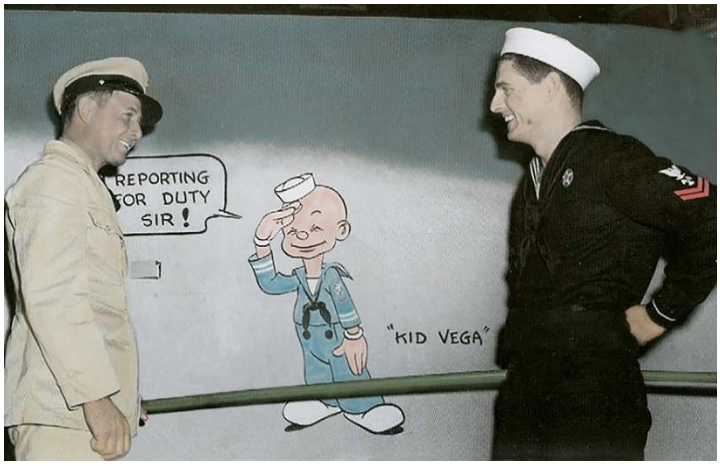
Not a great image to colour, but shows the sharp demarcation of the *Azure*. Colours of 'D' nose art from Red Roo decal 72161

THE SECOND PV-1 – Bu29724 "*Kid Vega*" 1942/1943

Bu29724 (msn 237-4877) is shown here on the line in late 1942 rolling out at Burbank, and on its maiden flight in early 1943. It was the second PV-1, the first batch of 200 being serialled Bu29723 to Bu29922, all for the USN. To mark deliveries of the first PV-1s to the USN, the second aircraft **Bu29724** was marked by a specially designed Disney character, "*Kid Vega*". Production was soon ramped up to some three to four PV-1s per day, with the next batch of 300 (Bu33067 to Bu33466) rolling off the line from APR 1943 – the first PV-1s for the RAAF were from this batch (**A59-50, A59-51**), delivered in JUN 1943.



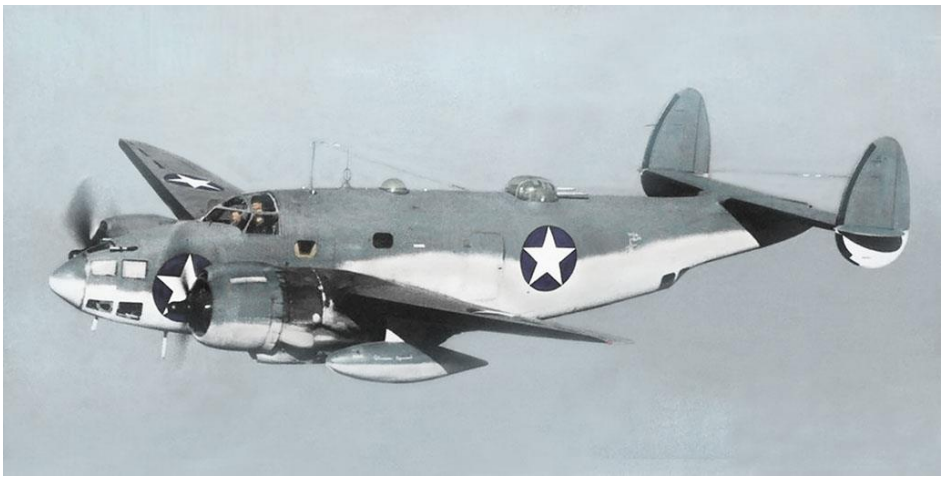
[Colourised from Lockheed, via ww2bombers]



[Colourised from rcafno128sqn site]

PV-1 Ventura Bu29724 with Disney's *'Kid Vega'* starboard fuselage art late 1942

From the first PV-1 batch, *Kid Vega* shows the early glazed bomber nose windows of the next aircraft on the line, presumably Bu29725, and the forward USN star when Venturas carried two cockades per side – the first RAAF PV-1 **A59-50** was delivered in this style of USN marking. These 8-position national insignias were carried over from the pre-war 'Neutrality Patrol' days.[90]



[Colourised from USN AN-61580]

Bu29724 maiden flight beginning of 1943 showing port side, and below the starboard *Kid Vega* artwork

[Colourised from USN AN-61582]

These 8-position national insignias were carried over from the pre-war 'Neutrality Patrol' days. Bu29724 was with USN squadron FAW-9 HEDRON (Fleet Air WG HQ SQN), when it was badly damaged in a taxy accident at Floyd Bennett Field NY, on 26 SEP 1944. Although there was substantial damage to aircraft, the crew was unhurt, and the aircraft presumably was SOC.[91]

PV-1 VENTURA COLOURS 1943

[Colourised from ww2bombers]

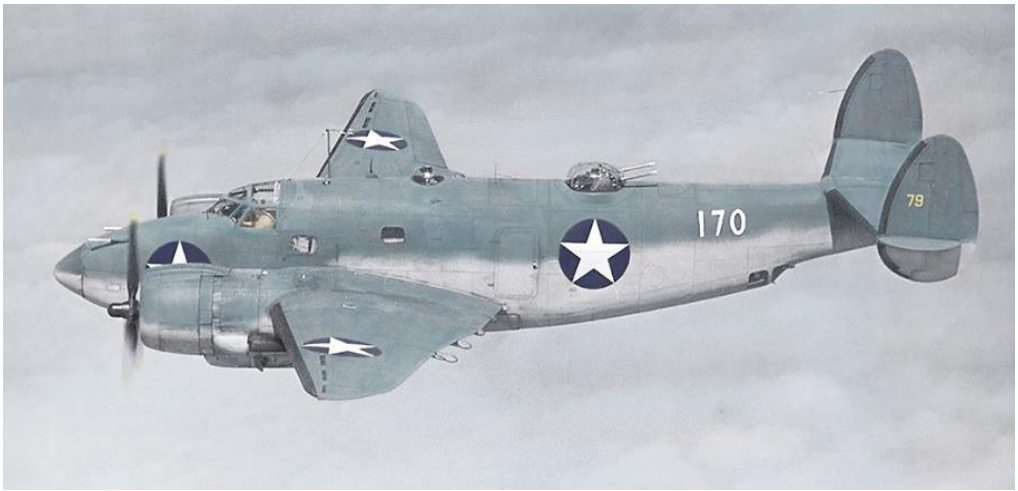
Early production PV-1 Bu29767 msn 4920 (with *Yellow* msn and '20' on the rudder) at Burbank JAN 1943

The first batch of PV-1s left the plant in this *blue/gray* camouflage scheme, which was in accordance with the **USN 8/20/1941** standard.[92] These also were marked with eight "Star in Circle" US National Markings, four on the fuselage, and four on both wing surfaces. Wing markings were changed on 1 FEB 1943 to only retain one marking on the upper left and one on the lower starboard – which has remained to this day. Officially termed *Blue-Gray M-485* over *Light Gray M-495*, this remained until early 1943. For the PBY Catalina, *Blue Gray/Light Gray* had been the standard camouflage scheme from 1941, and the RAAF's Lend-Lease PBY-5 and PBY-5A aircraft (A24-31 to A24-114) were delivered in these colours. The early PV-1s coming off the production line in JAN 1943, with the original glazed bomber nose, were delivered in this two-colour *Blue Gray/Light Gray* scheme.[93]

***Blue Gray M-485* (later FS595a 35189)** ***Light Gray M-495* (later ANA 602)**

These colours were USN ship colours, used before the aviation ANA Bulletin colours were specified in 1943

The Official USN & USMC Aircraft Colour Guide Vol 2 1940-49 equates the USN aircraft colours to ship colours, and compares these to the later Bulletins and specifications. For ***M-485 Blue Gray*** a sample from the National Air and Space Museum matches to FS35189 (as the closest equivalent in Federal Standard 595a). ***M-495 Light Gray*** was adopted in ANA Bulletin No.166 of 4 DEC 1943 as 602 *Light Gray* (not carried over to the FS595a spec, but combined with ANA 620 *Light Gull Gray,*[94] equivalent of FS36440).



[Colourised from warbird info exchange]

USN Bu 33170 ('170' side number) msn 5179 ('79' on fin) c MAY 1943

The first two PV-1s for the RAAF, **A59-50 and A59-51**, were delivered in this scheme in JUN 1943, but the remainder delivered from JUL 1943 were in the new graduated 4-shade "non-specular" scheme. From available imagery, this changeover to the '4-shade' apparently occurred around **Bu33400** off the production line in **MAY 1943.**

PV-1 DISNEY ARTWORK AT BURBANK

Fortunately for the Lockheed Vega plant, the Disney studios was right next door in Burbank and whenever an artist had free time, he would stop by and paint cartoon characters on the noses and fuselages of aircraft that came off the assembly line. In this case, PV-1 Venturas were being built and the bulk of the characters were Donald Duck and his friends. Occasionally a new character was created, often with a pithy slogan against the axis, and soon there was "Kid Vega", the eager young naval rating.[95]

Although Mickey Mouse had been the most famous star at Walt Disney studios, he was replaced by Donald Duck in early 1940, and the beginning of WWII. Character analysis played an important part in the Disney design team of artists who created over 1,200 military insignia from 1940 to 1945. Mickey was the clean living, bashful around girls, small-town guy who never took a belligerent stance, and simply could not appear in war like poses; Donald became the Disney war hero, cocky, show-off, get-in-your-face type guy. Donald not only took over the lead in Disney war films, he appeared in the most military insignia. Much of the Ventura artwork was created by artist George 'Randy' McCraw, as shown previously. Today the complete 1,200 plus military collection is housed in the Walt Disney Archives in Burbank, but not open for public viewing. For every Walt Disney military design created at Burbank, another ten nose art creations were painted on the War front. The effect of Disney in WWII was huge and probably not given the full credit it deserves.[96]

Many USN aircraft carried Donald Duck and Mickey Mouse fuselage artwork, which was particularly prevalent on the PV-1 Venturas. This also extended to the RAAF – **13SQN A59-85 SF-R**, which had "*The Reluctant Dragon*" (a 1941 Disney movie), and a **459SQN PV-1 FP612/F** was marked with Donald Duck complaining about 'airpockets'.

[Colourised from Air Classics, MAR 2017, p.30]

HEDRON 'X5' Bu29768 in Aleutians, Donald on the phone: "*Hello Tojo, will be right over with a little present for you*" 1943

Previously with USN bomber squadron VB-135, joining HEDRON in MAY 1943 in the Aleutians – on the bomb is "Block Buster".

[Colourised from Stanaway p.36]

HEDRON PV-1 'X12' Bu33118 (previously 4V VB-136): "*Dang, I can beat a dozen Japs by myself*" 1943

This too was an early PV-1 with HEDRON, after the application of the national 'bars', and probably c AUG 1943. This early USN *blue/gray* was changed on the production line cMAY 1943, and with the *blue/white* National Markings which changed only briefly in JUN/JUL 1943 with the *Red* surround.[97] Go Mickey!

USN side numbers. If a side number appeared as just a digit, like '19', it is documented in squadron records as '19V'. The 'X' codes were assigned to Fleet Air Wing FAW-4 HEDRON aircraft, this was the wing Headquarters Squadron, however these are often captioned as being on strength with VB-135 or VB-136.

[Colourised from usaaf-noeart.co.uk] *[Colourised from usaaf-noseart.co]*

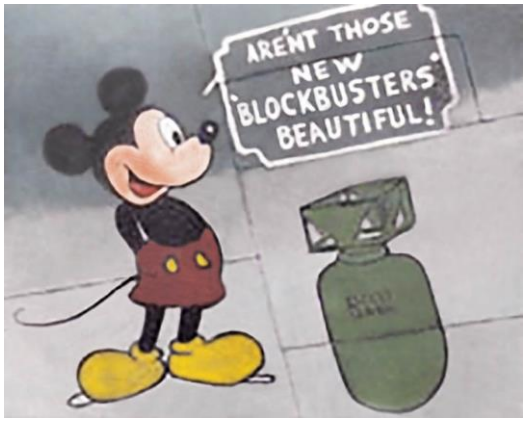
Bu29769 '19V' of VB-135 Aleutians, "*Go Get 'Em Pal!*" 1943 **Old coloured USN PV1 – *"I'm Savin' Somethin' Fer Tha Japs"***

Heading for a Navy unit, this early PV-1 Ventura featured artist George McCraw's cartoon of Donald Duck diving below the surface with a bomb. The USAAF high command had frowned upon the use of land-based bombers by the Navy, and it was only after production of air force Lexingtons/Venturas was underway, that the maritime PV-1 variant was adopted for naval land-based anti-shipping and maritime patrol.[98]

[Colourised from rcafno128sqn site]

Lockheed-Vega handover of the 1000th Ventura – a PV-1, in chronological sequence this should be Bu29830 (msn 237-4983)

This is assessed as FEB/MAR 1943. The artwork shows Donald Duck (in sailor suit of course) representing the USN, Mickey representing the USAAF, and Goofy representing the RCAF and RAF. This aircraft was certainly from the first PV-1 production batch, Bu29723 to Bu29922, showing the early *Blue Gray/Light Gray* camouflage.



USN '11V' Bu33278 VB135 in 1944 2nd tour, MM Jap Huntin' *[Colourised from norpacwar]* **MM *"Are'nt Those New 'Blockbusters' Beautiful!",* PV-1, by George McGraw** *[Colourised from USAAF nose art.co]*

LATER PV-1 VENTURA 4-SHADE 'NON-SPECULAR' 1943-44

The colour changeover, implemented by USN directive **SR-2C in FEB 1943**, had inherent delays – imagery narrows this to around Bu33400 coming off the line in **MAY 1943**. Below is a Lockheed publicity shot of **Bu33405** in the new scheme, assessed to have been MAY 1943 – so **Bu33405** may very well have been the first in new camouflage.

[Colourised from warbirdinfoexchange]

USN msn '14' on the fin was probably msn 5414 Bu33405, and possibly the first 4-shade PV-1

This changeover of USN camouflage had become apparent in Australia as the **JUL 1943** deliveries of **A59-52** and **A59-53** (Bu33444 and Bu33446) were in these ***new colours***, and concurrently being delivered to the RNZAF Bu33430/33442 naturally in these new colours too. Imagery exists of the nine aircraft for NZ, but not for these first two for the RAAF. The next USN PV-1 production contract (Bu34586 to Bu34997) had LL deliveries from **AUG 1943** to NZ from NZ4519 (Bu34642), and to the RAAF as A59-54 (Bu34652) and A59-55 (Bu34651), all of course in the new scheme, as were all subsequent RAAF PV-1 deliveries.

The new scheme was upper surfaces in two dark blue variations of ***ANA 606 Sea Blue*** (semi-gloss on top of flying surfaces) [FS25042], and ***ANA 607 Sea Blue*** (non-specular on top of fuselage) [FS35042]; **ANA 608 *Intermediate Blue*** (for the sides) [FS35164]; and non-specular ***ANA 601 Insignia White*** (on the undersides) [FS37875].[99] The 'non-specular' was the term officially used in reference to camouflage finishes which provided a non-reflective or ***matt*** surface.[100] It can be seen why this is sometime referred to as a 'four colour scheme' or a 'three colour scheme' – I have used the former. On the PV-1, *White* counter shading was used on the fuselage under the wings and tailplanes.

This PV-1, being painted in the new 4-colours, was msn 5447, i.e. Bu33438 cJUN 1943 *[Colour images from historylink101]*
Coincidently, Bu33438 was delivered to the RNZAF, being received in JUL 1943 to become NZ4514.

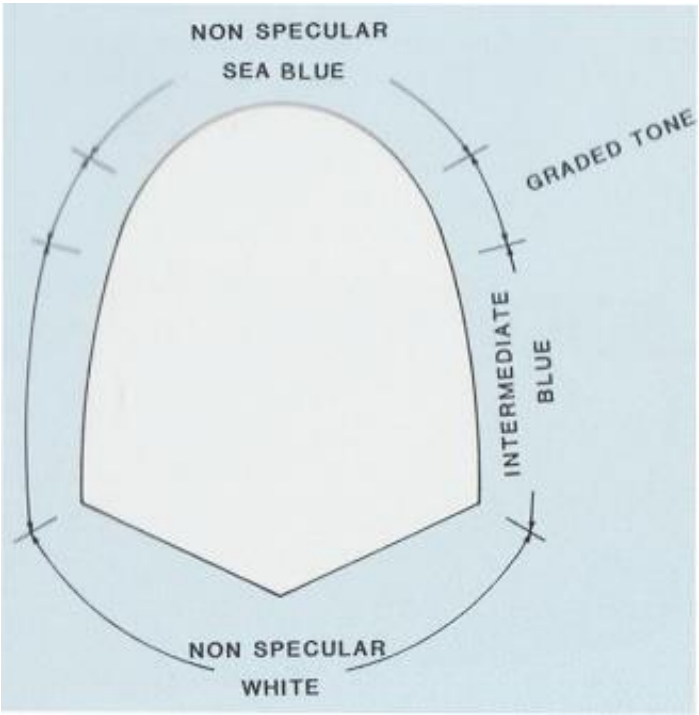
[ww2bomber colour image]

USN 4-colour camouflage on PV-1 msn fin number '25'

This image of PV-1 '25' could be a PR shoot of the new USN markings – 4-shade camouflage introduced cMAY 1943 with star and bars introduced in AUG 1943 – and could possibly be msn 237-5625 Bu34735 of the third PV-1 batch, and delivered cAUG 1943.

Counter-shading blending colours on a round surface together minimised the shadows by lightening the colours. All horizontal wing surfaces seen from above were finished in semi-gloss *Sea Blue* (the slight shine of these surfaces tended to match the changing shine of the sea), and care was taken not to apply this to the rounded fuselage surfaces which could cause glare.

Non-specular Sea Blue was applied over the top of the fuselage and around leading edges, extending about 5 percent aft on the top surface. All surfaces viewed from below were painted non-specular *Insignia White*. Vertical surfaces of the of the fin and rudder were finished in *Intermediate Blue*, with the sides of the fuselage were graduated from the *Sea Blue* down to the *White* so there was no noticeable demarcation in colours. Care was taken not to let the *White* move up the side beyond a tangent 30° (see below) from the horizontal to eliminate glare; engine nacelles were treated the same as the fuselage.[101]



[Elliott, p.35]

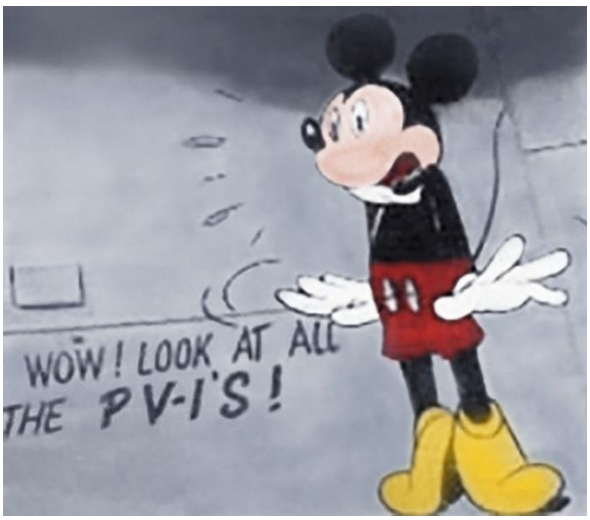
USN fuselage cross-section for camouflage of large fuselage aircraft (Ventura)

MICKEY MOUSE ON PV-1 4-SHADE 1943-44

Anti-Japanese: Most RNZAF Venturas bore the Lockheed-Vega plant added Walt Disney studios cartoons on their rear fuselage sides. As most of these were sharply anti-Japanese, they were ordered to be painted over before the aircraft headed to the operational area due to the fear that if downed, and the crew captured, these cartoons wouldn't help to enhance their treatment at the hands of the Japanese. Most of these painted over areas show as a large patch of fresh paint in photos taken at the time.[102] The RNZAF Venturas were delivered at the same time as the RAAF PV-1s, and while some did, not much of the Disney artwork survived in the RAAF.

[Colourised from usaaf-noseart.co]

New USN PV1 – *"We've Got Their Number But We Cant Reach It"*



[Colourised from usaaf-noseart.co]

New USN PV-1, Mickey Mouse was impressed by the PV-1 line

Probably second PV-1 batch Bu33067/33466 after the colour scheme changed in mid-1943

[Colourised from usaaf-noseart.co]

New USN PV-1, Mickey Mouse "*That's The Finish For That Sub Pilot!*"

RAAF PV-1 DELIVERY SCHEMES

Like the RAAF, the RNZAF first received Lend-Lease RB-34 Lexingtons from MAY 1943 before its PV-1 Venturas, and as with the other Commonwealth countries, all models were known as the Ventura. Both the RAAF and RNZAF received its first Lend-Lease PV-1s in JUN 1943, which having been shipped to Hawaii, were flown south across the Pacific. From this stage, the RNZAF received nine aircraft per month, and the RAAF two – probably as Australia was receiving so many other Lend-Lease deliveries. These early deliveries are significant as they were at the change-over of the USN camouflage scheme from the *'blue-gray'*, to *'four-colour' non-specular* (the 4th colour being the upper surface *semi-gloss Sea Blue*, differing from the upper fuselage *non-specular Sea Blue* [103]).

SOUTH PACIFIC PV-1 DELIVERY SCHEMES			
RB-34. Australia and New Zealand first received the ex-USAAF RB-34 Lexington – known in the Commonwealth countries as the 'Ventura' – under Lend-Lease, before the PV-1 deliveries. The 20 RAAF aircraft were serialled **A59-1 to A59-20**. The 23 RNZAF aircraft were NZ4583 to NZ4605; details of RNZAF Venturas are recorded in *adf-serials*.[104]			
PV-1. The first PV-1 contract was for 200 aircraft (Bu29723 to Bu29922) for USN deliveries only; the next was a USN/Lend-Lease contract for 400 PV-1s (Bu33067 to Bu33466, msn 237-5076 to -5475),[105] and during this production run in approximately MAY 1943, the USN camouflage scheme was changed.			
Receipt Date	**RAAF**	**RNZAF**	**Scheme**
JUN 1943	Bu33321, Bu33316 Became **A59-50, A59-51**	Between Bu33303 and Bu33320 Became NZ4501 to NZ4509	All delivered in early *'blue-gray'* camouflage.
JUL 1943	Bu33444, Bu33446 Became **A59-52, A59-53**	Between Bu33430 and Bu333442 Became NZ4510 to NZ4518	All RNZAF aircraft delivered in newer *'4-shade non-specular'* camouflage; assessed RAAF aircraft were as well.
The third PV-1 contract was for 412 PV-1 aircraft, Bu34586 to Bu34997 (msn 237-5476 to -5887).			
AUG 1943	Bu34652, Bu34651 Became **A59-54, A59-55**	Between Bu34642 and Bu34650 Became NZ4519 to NZ4527	All aircraft delivered in newer *'4-shade non-specular'* camouflage.

USN Schemes. The two RAAF PV-1 delivered in JUL 1943, **A59-52** and **A59-53** (Bu33444 and Bu33446) were apparently not in the earlier scheme, ***but*** more likely were new-coloured aircraft, as Bu33430/33442 for NZ were *concurrently* being delivered and are confirmed by imagery in this 4-colour camouflage. The next USN PV-1 contract (Bu34586 to Bu34997) provided LL deliveries in **AUG 1943** to NZ from NZ4519 (Bu34642) and to the RAAF as **A59-54** (Bu34652) and **A59-55** (Bu34651), all of course in the new scheme, as were all our subsequent PV-1 deliveries.

[Colourised image by Rarity, via adf-serials]

3SQN RNZAF PV1s in APR 1945 NZ4633, NZ4617, NZ4625, NZ4629 and NZ4632

These aircraft were all received in mid 1944. RNZAF roundels were in six positions and were in the *Blue/White/Blue* RNZAF style with a narrow *Yellow* surround on the fuselage only. Note that the rubber de-icing boots have been removed. When in the operational area, from a local RNZAF order of 9 DEC 1943, aircraft received US-style *White* bars to the roundels. Although NZ4633 is still in the delivery US 4-colour camouflage, RNZAF repaints were in *NZ Blue Sea Grey* with *NZ Sky Grey* undersurfaces.[106]

KIWI PV-1 FUSELAGE ART

As mentioned, the closeness of the Lockheed-Vega to the Disney studios in Burbank had resulted in many of Walt Disney's cartoon characters appearing on Ventura fuselages, occasionally as nose art but in particular on the rear fuselage aft of the USN cockade, or the RNZAF roundel. Mickey Mouse and Donald Duck were both popular. For the RAAF in Australia, known Disney artwork was '*The Reluctant Dragon*' on A59-85 and *'Lady'* on A59-64.

[internet image]

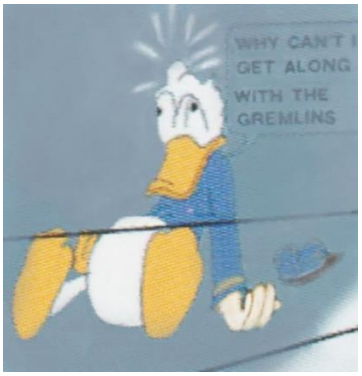
[Colourised from Classic Warbirds No.8]
1943, possibly Whenuapai. Reads "M. Mouse Loans The Axis is living in borrowed time an- we're gonna foreclose". The first nine PV-1 Venturas (NZ4501/NZ4509) in mid 1943 wore this original USN *blue-gray* camouflage scheme,[107] as shown here.

[Colourised from Warbirds No.8]
A newly delivered PV-1 to Whenuapai 1943. Our NZ listings in *adf-serials* show the first nine NZ PV-1s were delivered in JUN 1943, and this aircraft apparently too is in the *blue-gray* camouflage and would be in this batch.

[Colourised from Warbirds No.8]
NZ4516, at Whenuapai, delivered JUL 1943, msn 5449, note the repainting of a smaller roundel. Evident too is the later fuselage 4-coloured USN camouflage – NZ PV-1s that were delivered **from JUL 1943** (in batches of nine) were received in this later 4-colour scheme.

[internet image]

[Colourised from Classic Warbirds No.8]
NZ4540 '43' msn 5743/Bu34853 delivered in OCT 1943, 2SQN with a running Donald. Crashed landed New Georgia, MAR 1944.



[Colourised from Warbirds No.8] *[Artwork by Classic Warbirds No.8, p.42]*
NZ4525 2SQN RNZAF Ohakea, SEP 1943, msn 5538 Bu34648. 4-colour USN scheme: "Why Can't I get along with the *[blanked]* gremlins".

NZ4516 *"Patua Te Ra"* of 1SQN RNZAF being bombed-up at Henderson Field, Guadalcanal, in DEC 1943, by armourers of 10 Servicing Unit (10 SU). The nose art translates as "Striking the Sun", noted in *Classic Warbirds* No.8 p.38; msn 5449, Bu33440.

[Colourised by Rarity, from "Colourised RAF Fighter and Bomber Cd 1939-45"]

NZ4512 *"Slippery Sam"* 1SQN RNZAF at Henderson Field, Guadalcanal, OCT 1943 msn 5443 Bu33434 (often misidentified as NZ4511) has been reidentified in 2018; as NZ4512.[108] *Classic Warbirds* No.8 p.37, notes the hand painted *Intermediate Blue* on the plexiglass nose cone, but on its cover has a very bright, *too-bluish* colourised rendition, here is closer to the shade of USN *Intermediate Blue*.

[Colourised by Classic Warbirds No.8]

PV-1 VENTURAS TO CANADA


[Both images from colour video, Canadian archives]

RCAF PV-1 in the early PV-1 *two-gray* colours, in 1943

Interesting too, are the RAF style roundels: Type A1 with *Yellow* surrounds are on the fuselage, Type B on the upper wings. An individual squadron code letter' possibly with 145SQN RCAF, is marked in *Grey* aft of the roundel. Many Australian aircrew from EATS were trained on Canadian Venturas of 34OTU at Pennfield Ridge, New Brunswick.


[Colourised fromrcafno128sqn.files]

RCAF PV-1 Mickey Mouse in *"Fantasia"*, with 149SQN RCAF

Over AUG-NOV 1943, 149 (Sea Wolf) SQN RCAF operated from Annette Island. The above photo on Annette Island in AUG 1943 shows 'Randy' McCraw's rendition of Mickey Mouse from the 1940 movie *Fantasia*, where Disney combined classical music with animation. Here, Mickey is about to conduct a symphony, possibly at the film's opening Bach arrangement. Many of 149SQN's Venturas carried McCraw's Disney nose or fuselage art.[109]

RAF AIR DIAGRAM CAMOUFLAGE SCHEMES

Aircraft Design Memorandum No.332 (Issue 3) of 15 NOV 1940 [110] listed the RAF Air Diagram (A.D.) numbers for camouflage schemes for the different types of aircraft. The design of camouflage or other external colours scheme were to be in accordance with the appropriate A.D. The first three camouflage drawings were prepared in JUN 1936.[111] Shown below are RAAF examples that were subsequently added from RAAFHQ messages SAS.9984 (DTS 368/41) in DEC 1941 (DC-2, Anson, Wirraway, Battle), then additionally SAS.7396 (DTS 280/42) in JUN 1942 (Hudson and B-17).[112] This final list was consolidated for all types by the AGI C.11 (*Issue 4*) in JUL 1942.[113] However, there was still a shortage of the drawings in Australia, and the AGI directed that some aircraft should use the closest drawing available. RAAF camouflage was added to Demons from SEP 1939, and the first reference to an "A.D." in RAAF documentation was the Seagull's A.D.1174 in DEC 1939.[114] Some A.D. schemes were similar.

Air Diagram No.	Types of Aircraft	RAAF Examples
A.D.1157	JUN 1936. Twin-engined monoplanes – bombers, general reconnaissance, transports (span 75' and over)	Douglas DC-2, DC-3
A.D.1158	JUN 1936. Cancelled, and included in A.D.1160	
A.D.1159	JUN 1936. Twin-engined monoplanes – bombers, general reconnaissance, transports, army co-op aircraft (span less than 75')	Anson, Hudson, Beaufort,[115] Beaufighter

RAF Hudson Mk.III in US before delivery c1941 in A.D.1159 'A' Scheme *[du Plessis collection]*

The A.D.1159 was the scheme used for the Ventura, but by the time first deliveries were made to Britain in 1942, "mirroring" had been discontinued and the pattern standardised on what had been this 'A' scheme.

A.D.1160	MAR 1937. Single-engined monoplanes – army co-op aircraft, fighters	Wirraway, Battle, Hurricane [116]
A.D.1161	c 1938. Four-engined monoplanes – bombers, GR, transports	B-17 Fortress
A.D.1162	c 1938. Single-engined biplanes – army co-op aircraft, fighters	Demon
A.D.1163	FEB 1939. Four-engined monoplanes – general reconnaissance (flying boats)	
A.D.1164	FEB 1939. Twin-engined monoplanes – general reconnaissance (flying boats)	Catalina
A.D.1165	FEB 1939. Twin-engined biplanes – general reconnaissance (flying boats)	Seagull V *[prior to A.D.1174]*
A.D.1166	FEB 1939. Twin-engined biplanes (sesquiplane) – GR (flying boat)	
A.D.1167	Single-engined monoplanes – communications aeroplanes, trainers	Wackett
A.D.1168	Twin-engined monoplanes – communications aeroplanes, trainers	Oxford
A.D.1169	FEB 1939. Single-engined biplanes – communications aeroplanes, trainers	Tiger Moth
A.D.1170	Single-engined monoplanes – target towing	
A.D.1171	FEB 1939. Single-engined biplanes – target, pilotless aeroplanes	
A.D.1172	Single-engined biplanes – Fleet Air Arm	
A.D.1173	Single-engined monoplanes – Fleet Air Arm	
A.D.1174	MAR 1939. Single-engined biplanes – general reconnaissance, FAA	Seagull V
A.D.1175	Twin-engined biplanes – communications aeroplanes, trainers	
A.D.1176	Cancelled, and included in A.D.1159	
A.D.1291	Four-engined biplanes – communications aeroplanes, replaced A.D.1177	D.H.86

"Mirror" and "Shadow Compensating". Where the Air Diagram showed two variations of the scheme, being "**mirror**" images of one another, the variations had been allocated to aircraft as directed in the manufacturers' contract instructions: this instruction was discontinued in **JAN 1941**. In addition, biplanes had a "**compensating scheme**" with lighter camouflage shades for the areas in shadow from the wings: this instruction was discontinued by the RAF in **DEC 1940**.

EVOLUTION OF RAAF VENTURA MARKINGS

In past articles in this series, individual aircraft camouflage and marking details for each RAAF type from entry into service (often resulting from the origin of the aircraft), through RAAF operations, to final changes at the end of the War. Below is a chronology of RAAF policy generically – and for the Ventura specifically – from the RAF battle over Europe, Japan's entry into the War on 7 DEC 1941, and the changing USN colours over 1942-43. Initially Ventura production had been for RAF contracts, and followed Lockheed Burbank production of the Hudson camouflaged in the *Temperate Land Scheme (TLS)* A.D.1159 pattern (identified as the 'A' pattern on the official AIRMIN Diagram[117] where *green/brown* demarcation *sloped forward on the port fuselage, aft on the starboard*). 'A' scheme had been chosen after the "mirroring" requirement was cancelled, and then standard on Ventura production over 1941-42.

Year	Change	Policy and References
1941	**JAN 1941.** The RAAF had adopted RAF camouflage schemes, and largely too the colours and policy. RAF camouflage colours had been introduced into factory production lines in 1936.[118] The requirement for "mirror" A and B patterns on alternate aircraft was cancelled by the RAF in JAN 1941.	
1942	**JUN 1942. Deletion of *Yellow* from RAAF roundels.** The RAF had introduced this *Yellow* outer ring in MAY 1940, the RAAF in OCT 1940.	**RAAFHQ DTS 280/42 of 18 JUN 1942,** filed on 1/501/329(63A); 1TG signal T.670 19 JUN 1942; Signal School Point Cook A.50, 29 JUN 1942.
	JUL 1942. The *RAAF Technical Order, Aircraft General Instruction (AGI) No.C.11* was changed by *Issue 4* of 31 JUL 1942, for operational aircraft to retain *Red/White/Blue* National Markings, and drop the *Yellow* outer ring – but there were unintended consequences. ○ Upper surfaces – *Red* deleted, *White* diameter to be 2/5 of *Blue* – the first directive of the 'Pacific' Roundel. (*Red* deleted because of the 26 JUN 1942 USN fighter attack on a RAAF Catalina.)	**RAAFHQ Technical Order AGI No.C.11 (*Issue 4)* of 31 JUL 1942.** RAF ADM.332 (Issue 3) became the Appendix I to this new AGI, listing the different camouflage schemes.
	○ Fuselage sides – *Dull Red, White,* and *Dull Blue* roundels in the 1:3:5 proportions. ○ Undersurfaces – *Dull Red, White,* and *Dull Blue* roundels for fighters, but not bombers or seaplanes. ○ Fin markings – all aircraft marked with *Dull Red, White* and *Dull Blue* stripes of the same width, with *red* leading. Note *Red* would soon be deleted.	Colours were specified as *Matt Dull Red* K3/214 or K3/199, *Matt Dull Blue* K3/196 or K3/197.
	TLS Camouflage Colours ***Dark Green 33B/202.***[119] Introduced to the RAF in 1936, *Dark Green* for upper camouflage pattern. Equivalent US ANA Spec 613, DuPont 71-003 (later to BS381c No.241 *Dark Green,* FS595b 34079, or 34087 tending toward US OD42). ***Dark Earth 33B/199.*** Introduced 1936, *Dark Earth* upper camouflage pattern. Equivalent US ANA Spec 617, DuPont 71-009 (later to BS381c No.450 *Dark Earth,* FS595b 30118).	
	Sky 33B/337. Introduced to the RAF from NOV 1939 as the undersurface shade for camouflaged aircraft.[120] Equivalent to US ANA Spec 610, DuPont 71-021 (later to BS381c No.210 *Sky,* FS595b 34424).[121] *Sky* not used by RAAF, preferring the richer tone *Sky Blue* K3/195.	**AMO 39/A.154 amendment of 21 NOV 1939** introduced *Sky Type S.*
	SEP 1942. Deletion of *Red* from RAAF roundels. On 19 SEP 1942 *Red* was dropped completely from National Markings – the RAAF 'Pacific' *Blue* and *White* roundel with the *White* diameter 3/5 (3:5) of the *Blue*. Roundels in six positions, with *Blue/White* fin stripes – specified colours *Matt White* K3/170 and *Matt Dull Blue* K3/197. *Yellow* surround of the 'type-A1' fuselage roundel had been overpainted in AUG 1942 with camouflage paint.	**RAAFHQ message T520, file 0947/19 (30A), of 19 SEP 1942.**

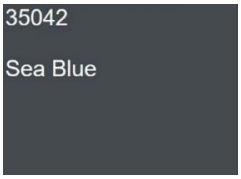
1943	**MAY 1943.** The first RAAF RB-34 Venturas arrived in RAF ***Temperate Land Scheme (TLS) Dark Green/Dark Earth.***	

RAF *Temperate Land Scheme* Camouflage

MAP *Dark Earth*	**MAP *Dark Green***	**MAP *Sky Type S***	**RAAF K3/195 *Sky Blue***

When aircraft underwent repair or refurbishment at RAAF Aircraft Depots (AD) or Repair and Salvage Units (RSU), RAF Ministry of Aircraft Production (MAP) *Dark Earth* would be replaced by RAAF *Earth Brown* (K3/178), and MAP *Dark Green* by *Foliage Green* (K3/177). MAP *Sky* undersurfaces had typically been overpainted by RAAF *Sky Blue* (K3/195) on arrival. With prior USAAF service, some RB-34s may have had the *DG* overpainted by the acceptable replacement, *US Dark Olive Drab*, which was considered close enough to RAF *Dark Green*, so was substituted from MAR 1942, when available stocks of MAP *Dark Green* were exhausted.[122] The US Joint Aircraft Committee (JAC) was established in SEP 1940 to coordinate the production efforts of the Army and Navy, and Britain – and standardising camouflage colours and schemes from MAR 1942. For instance, any ship-based aircraft or flying boats would be painted the USN colours *Blue Gray* on upper surfaces and *Light Gray* on undersurfaces. Land-based aircraft would be USAAF *Olive Drab* on top, and *Neutral Gray* underneath. When early aircraft were destined for the RAF, *TLS* would be used with American paint equivalents to *Dark Earth*, *Dark Green* and *Sky*. RAF colours were identified by the name, but have inventory stock numbers (the 33B/ vocabulary) which varied with the amount that was ordered.

	JUN 1943. The first RAAF PV-1 Venturas arrived in USN *Blue Gray* over *Light Gray* camouflage and in US markings. **JUL 1943.** RAAF roundels had often been converted from RAF roundels in 3:5 and 2:5 ratios; some in 1943 were 1:2 ratio, from converting RAF type-C1 roundels. Initially for Venturas, 48" 3:5 roundels were applied on arrival by 2AD.  **Ratio of the *White* to the *Blue* – 3:5 and 2:5** **JUL 1943.** By now PV-1 Ventura deliveries from Burbank were in the new USN *4-colour scheme*, and those delivered to the RAAF from this month (A59-52 on) were in this new scheme.	**USN Standard 8/20/1941.**[123] **RAAFHQ AMEM DTS 1/501/329 SAS 13552, 8 JUL 1943,** adapted from RAF AMO A.664/42, of 2 JUL 1942. Further, in NOV 1943 SEAC specified the size of its new roundel (**based on that of the RAAF**) and fin flashes – (RAF) **Air Force Order (India) No.357**.[124] **USN Directive SR-2C dated 5 JAN 1943.**[125]

USN *Blue/Gray* Camouflage to MAY 1943		**USN *4-shade "Non-specular"* from MAY 1943**	
			
USN *Blue Gray M-485*	**USN *Light Gray 602 M-495***	**USN *Sea Blue***	**USN *Intermediate Blue***

1944	**JAN 1944.** From early 1944, arrival of PV-1s ferried from Hawaii, still in US markings, apparently had 'reversed' fin flashes incorrectly applied (*Blue* leading). Later in Australia, a smaller 40" RAAF 3:5 roundel was applied over the US star, to provide a unique marking of RAAF roundel with 'bars'. **MAY 1944.** Revision of AGI "Camouflage Schemes and Identification Markings". Overall *Foliage Green* for GR/B. **NOV 1944.** PV-1 Ventura A59-102 was converted to a transport in NOV 1944 (ADAT registration VH-RGW), and stripped to natural metal to become the VIP transport with 4CU for AOC RAAF Command (AVM Bostock) until 1946.	**RAAFHQ T.O. AGI Pt 3(c), Instruction 1, file 150/4/5056 (1A), of 26 MAY 1944. Also issued as DTS Special Instr Gen/34 of 1 MAY 1944.**

A59-50 PV-1 IN USN *BLUE GRAY / LIGHT GRAY* – JUN 1943

A59-50 – Bu33321, msn 5330 – was received at 1AD Laverton in JUN 1943. PV-1s were delivered, flying from Hawaii, in USN markings with the first two aircraft in the early *Blue Gray/Light Gray* camouflage and with the "double Neutrality cockades". The msn last two "30" was marked on the fin in normal Lockheed/Vega fashion in *Yellow*, and the RAAF **A59-50** serial (apparently added here at Laverton in a hard-to-read *White*). The next aircraft **A59-51** was marked a little more legibly in *Grey*. These USN cockades were larger than the later 40" diameter "star-and-bar" markings, so probably were 45" in diameter,[126] and normally the RAAF 3:5 roundel was directly overpainted on the rear fuselage, but later images of A59-50 after a repaint show a much smaller roundel, marked high on the fuselage.

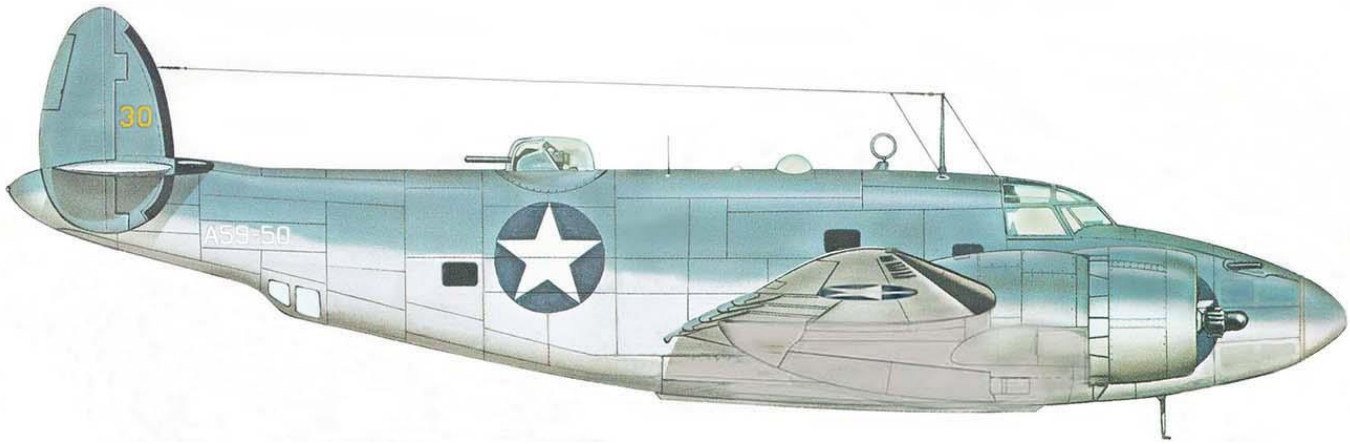
[Colourised from GRB Collection]

A59-50 on delivery to 1AD in JUN 1943 still in USN markings and with the double Neutrality cockades

1APU aircraft in the background include Beaufighter A8-1, Lancaster ED930 (later A66-1), and a Boomerang. A59-50 was delivered to 1AD Laverton in USN markings, and the starboard image below was taken at the same time as its RAAF induction.

[Colourised from GRB Collection]

A59-50 in *White*, at 1AD Laverton, received in USN markings with the "30" / 5330 msn on the fin



A59-50 PV-1 IN USN *BLUE GRAY / LIGHT GRAY* – 1944-1945

By DEC 1944, **A59-50** had received a repaint and a partial transport conversion for 1AD Test & Ferry FLT for escort duties. The demarcation between the two camouflage colours in the repaint does not have the feathering when delivered. An unusually small 3:5 fuselage roundel applied – apparently only 32" diameter – with serial in *White*. De-icing boots removed from mainplanes, but are still on the fin.

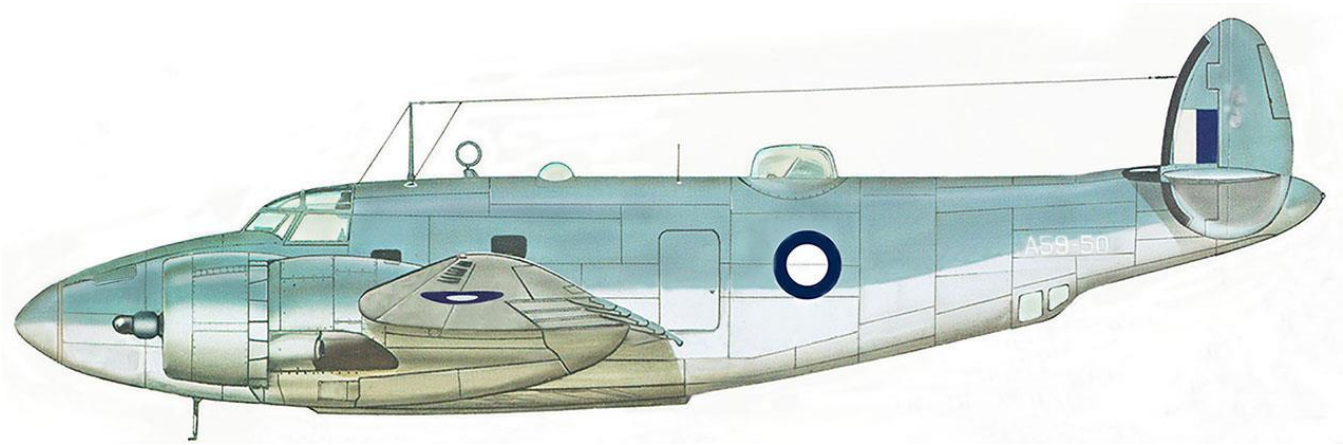
[Colourised from SLNSW FL9535240, via GRB]

A59-50 1AD Test & Ferry FLT at Merauke escorting 452SQN from Sattler to Morotai DEC 1944

The above AWM image is via the NSW State Library and shows the crew's washing line, with below the crew resting.

[Both colourised from AHSA site]

A59-50 with resting Ventura aircrew and Spitfire pilots

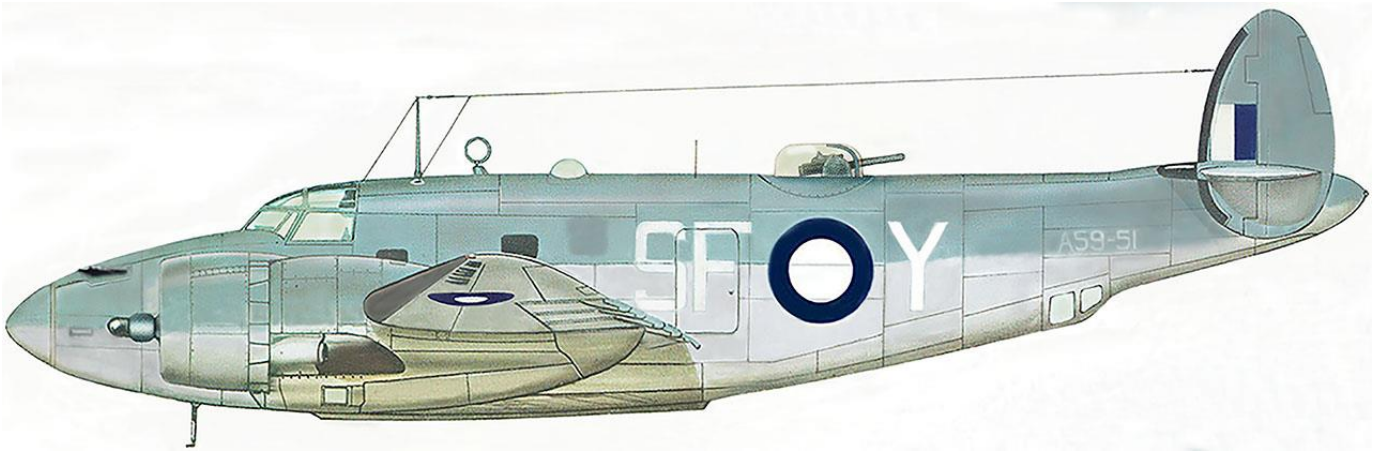


A59-51 / SF-Y PV-1 IN USN *BLUE GRAY / LIGHT GRAY* – 13SQN 1943

Squadron code letters were introduced to the RAAF in JAN 1943 by AFCO 3/43. **A59-51** (Bu33316) was the only *Blue Gray/Light Gray* PV-1 delivered to 13SQN, received by the unit in SEP 1943 and allotted the code **SF-Y**. An accident occurred on 25 OCT 1943 at Bundaberg when it taxied into a hole and the port gear collapsed. **A59-51** had larger 48" 3:5 roundel than shown on A59-50; this large 48"-diameter roundel was painted directly over the USN 45" star cockade; fin flash was 32" high x 30" wide; code letters maintain the 8x5 ratio at 40" high and 25" wide in a 5" stroke. The light discolouration below the cockpit is from overpainting of the forward USN star cockade. The undersurface *Light Grey* demarcation is not as sharp as on A59-50 (after its repaint), the **SF-Y** code appears *White* (with no hint of a *Black* outline at this stage, as has been discussed), and serial number marked in *Medium Sea Grey*.

[Colourised from ww2bombers]

A59-51 SF-Y port undercarriage collapsed in taxy accident at Bundaberg QLD, on 25 OCT 1943



As previously related, A59-50 and A59-51 were the only two PV-1s delivered to Australia in this early two-colour *'blue/gray'* scheme. Of the two, the only one to serve with 13SQN was **A59-51**. The 13SQN *A.50 Unit History* shows the first PV-1s received by the unit at Canberra were A59-52 and A59-53 in AUG 1943, next **A59-51** and A59-54 on 10 SEP 1943. After its accident at Bundaberg on 25 OCT 1943, **A59-51** went for repair at 3AD Amberley and then 2AD Richmond. This ended its short 6-week career on 13SQN as it then went for comms duties with 11CU in MAY 1945, returning to 2AD in MAR 1946 for long-term storage. In MAR 1944 **A59-66** joined 13SQN as the new SF-Y.

13 SQUADRON

13SQN was formed as a GR unit at Darwin on I JUN 1940, with Ansons and personnel from 12SQN, for maritime patrols and searches. Receiving its first Hudsons from AUG 1940, 13SQN surveyed local airfields and then those further afield in northern WA. By early 1941 airfields at Drysdale, Milingimbi and Bathurst Island were designated as Advanced Operational Bases, familiarisation flights were undertaken to the NEI, and the Hudsons were fitted with dorsal Boulton-Paul gun turrets. With the outbreak of war with Japan imminent, on 6 DEC 1941, 13SQN 'A' and 'C' Flights moved to the NEI, and were soon declared operational at Laha on Ambon, and then Namlea. On 6 JAN 1942, the Japanese bombed Laha and the raid highlighted the lack warning facilities. Sustained heavy attacks from 11 JAN saw 13SQN evacuate to Darwin by the end of the month. On 8 FEB 1942 two Flights moved further inland to Daly Waters, then during the first bombing of Darwin on 19 FEB, all 13 SQN aircraft were airborne assisting in the evacuation of Timor. 13SQN sustained heavy losses over this period, and over the next months only a few serviceable Hudsons were available each day, often despatching lone aircraft to attack heavily defended positions. While Japanese attacks continued on Darwin, Broome, Derby and Katherine, 13SQN regrouped and on 2 MAY 1942 moved to its new base at Hughes, maintaining recce flights and the bombing of enemy establishments.

13SQN relocated to Canberra and rearmed from JUL 1943, with 'B' FLT Beauforts and 'A' FLT PV-1 Venturas. The Beauforts were replaced by RB-34s in early 1944, soon found to be unsuitable and grounded in MAY 1944. 13SQN fully equipped with PV-1s and moved north to Cooktown in JUN 1944. The time at Cooktown was short, as the unit moved again in AUG 1944 to Gove, NT. From Gove, 13SQN operations consisted mainly of maritime patrol and escort duties, and after operating from Gove for ten months, moved to Morotai in JUN 1945, where it remained until the end of the War. Moving then to Labuan on the west coast of Borneo, 13SQN commenced operations on 16 AUG with leaflet dropping, and some Venturas were refitted for temporary transport duties for the repatriation of servicemen and POWs. After a visit by Admiral Louis Mountbatten in DEC to address a parade, 13SQN disbanded on 11 JAN 1946.[127]

13 Squadron Codes – from 1943

13SQN Code	Serial	Details and Name	13SQN Code	Serial	Details and Name
SF-A	A59-81	A59-103 '*Ye Boss*'	SF-N	A59-84	
SF-B	A59-79	A59-101	SF-O	A59-60	A59-67
SF-C		not used	SF-P	A59-67	A59-59, A59-75
SF-D	A59-77	A59-81 '*Wiff Oh*'	SF-Q	A59-75	A59-71
SF-E	A59-76		SF-R	A59-83	A59-85 '*The Reluctant Dragon*'
SF-F	A59-72	*'Southern Job'*, A59-73 poss	SF-S	A59-57	A59-104
SF-G	A59-69	A59-86	SF-T	A59-56	A59-98
SF-H	A59-64	spaniel artwork	SF-U	A59-62	*[originally A59-55?]*
SF-I		not used	SF-V	A59-63	*[originally A59-54?]* A59-89
SF-J	A59-11	A59-78	SF-W	A59-53	A59-84, A59-53
SF-K	A59-67	A59-99	SF-X	A59-52	A59-61
SF-L	A59-68		SF-Y	A59-51	A59-66, A59-70
SF-M	A59-99		SF-Z	A59-65	

References for 13SQN codes are primarily Garry Shepherdson's unique research of signal traffic, together with surviving imagery. Many code letters were *Yellow* thinly outline in *Black*, and always read, for example, SF*A on both sides.

PV-1 A59-57 SF-S without turret in early 1945 *[Colourised from GRB Colln]*

A59-57 joined 13SQN as original equipment in OCT 1943, but by this stage its paint has faded, the de-icer boots removed, and it still retained the original 1943 applied markings, also keeping its SF-S code until replaced by A59-104 in APR 1945.

'SF' CODE LETTER COLOURS

Squadron code letters were introduced to the RAAF in JAN 1943 by AFCO A.3/43, with 'SF' allocated to 13SQN. Although some Venturas were briefly received by 2SQN ('KO') and 7SQN ('KT'), plans were changed and there is no record of RAAF Venturas carrying these code letters. Below, Beaufort code letters SF-H on A9-380 are possibly *Yellow*, and in the far background is an early scheme PV-1 – the only one with 13SQN was A59-51 – and its code SF-Y was marked in *White*. Conversely, Pentland in his Vol.2 (p.87) declared 13SQN Venturas had ***both*** *White* code letters thinly outlined in *Black*, and *Yellow* codes thinly outlined in *Black*. This has also been addressed by the *adf-serials Newsletter* Vol.11 Issue 3 2021 (pp.90-91) at ADF-Serials Telegraph

[Colourised from Pentland Vol.2, p.67]

Beaufort A9-380 SF-H with PV-1 Venturas, as 13SQN re-equipped at Canberra cSEP 1943

13SQN began to re-equip at Canberra over JUL/AUG 1943, 'A' FLT with PV-1 Venturas, and 'B' FLT with Beauforts. The allocated codes over this early period are largely unknown – but **A9-380 was SF-H**, and **A59-51 was SF-Y**. It is probable that 'B' FLT had Beauforts coded from SF-A, and 'A' FLT Venturas coded backwards from SF-Z. When 'B' FLT Beauforts were exchanged for RB-34s from DEC 1943, the RB-34s would have assumed the Beaufort codes, and at least one RB-34 was known to be coded **SF-J**.

Year	Code Colour	Reference	Reference Details
1942	***Medium Sea Grey*** **K3/183**	RAAF **AGI No. C.11** ***Issue 4,*** dated 31 JUL 1942.	Specified any identification individual letters and numbers to be marked in "Colour Identification *Medium Sea Grey*" – this is prior to allocation of unit two-letter codes.
1943	***Yellow*** **K3/185**	During AUG-DEC 1943, 13SQN was regrouping at Canberra and operating both Beauforts and Venturas. No RAAF authority for *Yellow* codes sighted – this could have been an unofficial 13SQN and 2SQN practice.	Pentland Vol.1 (p.129) identified 13SQN Beaufort A9-380 with *White* SF-H codes thinly outlined in *Black* (claimed as a practice on the unit in 1943). Vol.2 (p.67) nine years later, Pentland's research pointed to the same aircraft: "***yellow code letters were thinly outlined in black, a practice in the squadron***". This also was extended to Venturas in 1944 (p.87) with an image of A59-62: "***Its yellow codes were thinly outlined in black***"; *Classic Warbirds No.8* (Laird, p.62) also claims 13SQN **A59-61** had *Yellow* codes.
1943	***Sky Blue*** **K3/195**	**AFCO A.3/43** dated 4 JAN 1943.	This Confidential Order which allotted the two-letter Code allocations for each Squadron and Unit, and specified codes to be in *Sky Blue*, when previously individual code letters from AGI C.11 of JUL 1942 had been in *MSG*.
1944	***Medium Sea Grey*** **K3/183**	**AGI Part 3 (c) Instruction No.1**, dated 26 MAY 1944.	This Instruction listed the Ventura as a "GR/B" to be in camouflage scheme Appendix C: this was overall *Foliage Green* K3/177 with *MSG* codes, however PV-1s retained USN *Blue* camouflage. *Black* codes were to be on aluminium finishes, but not sighted on 13SQN Venturas.
1945	***Medium Sea Grey*** **K3/183**	**AFCO A.11/45** of 26 APR 1945. This Confidential Order replaced AFCO A.3/43.	"The colour of code letters is to be "black" for uncamouflaged aircraft, and "medium sea grey" for aircraft painted in foliage green, night, or PRU blue."

Note:

Sky Blue was for aircraft undersides and code letters, but was known to fade. In MAY 1944: "*Azure Blue* is to replace *Sky Blue* as it has been found that the latter colour fades to a whitish colour in Northern Areas." Beaufighters, from APR 1944 *Azure Blue* K3/316 was to have replaced *Sky Blue* on undersides,[128] this was soon overtaken by the MAY 1944 AGI, specifying overall *Foliage Green.*

Thoughts on Yellow codes

In the last edition of the Newsletter www.adf-serials.com.au/newsletter/ADF-Serials Telegraph Vol 11 Iss 4 v2c.pdf, ***Garry Shepherdson's*** *article on 2SQN Beauforts* discussed code letter colours:

"When Beaufort aircraft served with 2SQN, the officially approved colour for code letters was *Sky Blue* (K3/195). This was stipulated, "for all aircraft", in AFCO A3/43, paragraph 8.[i] The approved colour for serial numbers had been "grey" since AGI C.11 Issue 3 of 3 OCT 1940,[ii] and renamed *Medium Sea Grey* (K3/183) since AGI C.11 *Issue 4* of 31 AUG 1942.[iii] These too were the official code letter and serial number colours for the first few months of Beaufort operations by 1SQN in North Western Area. Photographic evidence is very sparse but, what little there is suggests that at least one of 2SQN's Beauforts wore what I believe were *Yellow* code letters, thinly outlined in *Black*. This, according to Geoffrey Pentland (with regard to 13SQN), was "a practice in the squadron".[iv] 2SQN received seven of its Beauforts from 13SQN with six of those aircraft being amongst the very first received. These aircraft are likely to have been handed over still wearing their former identities and, if they had been applied in the peculiar way claimed by Pentland, then the existence of such a style would have become known and the idea of perhaps implementing it themselves might have been formed. The only photographic evidence (that I know of) of a 2SQN Beaufort wearing this style of code letter was A9-576. It was not one of the former 13SQN machines. At least one of 2SQN's Beauforts had apparently *Medium Sea Grey* codes. *Sky Blue* was the official colour but whether *Sky Blue* was the norm at 2SQN as it should have been at that time isn't known. See my previous article, "*Notes Regarding No. 2 Squadron B-25s*" in ADF-Serials Telegraph Volume 11, Issue 3, pages 87 to 93. On 26 MAY 1944, a new AGI regarding aircraft camouflage and markings was released and in it, *Medium Sea Grey* (K3/183) was stipulated for all identification markings (i.e. code letters and serial numbers).[v] These were the camouflage and markings instructions in force for the remainder of 1SQN's Beaufort operations. Due to the definite lack of photographic evidence to the contrary, it seems reasonable to assume that code letter colours were applied by 1SQN in accordance with AGI C11 *Issue 4* of 31AUG42 and AFCO A3/43 and remained until sometime after these were superseded being then replaced by those applied in accordance with the revised AGIs. That, of course, should have been the position relative to 2SQN too, except for a few images being available which show contravening styles. Given the (albeit sparse) evidence of 2SQN Beauforts carrying alternative code letter colours and the much more prolific recording of the variety of code letter colours/styles employed on their B-25s, one should not rule out the (perhaps remote) possibility that 1SQN may have applied non-standard identification markings to some of their aircraft from time to time. Evidence, however, is lacking."

Notes: [i] AFCO A3/43 – *Code Letters for Operational and Reserve Squadrons* dated 4/1/43 in AFCO – Series A and B – and Index, 1943; NAA: A7674/3.

[ii] RAAFHQ AGI No.C.11, *Issue 3*, Technical Order, *Standard Aircraft Finishes, Markings, and Markings of Unit Equipment* in AGI C.11 *Standard Aircraft Finishes Markings*; NAA: A705, 150/4/852.

[iii] Reproduced in full in Ian K Baker, AHCB73 – *RAAF Colour Schemes & Markings, 1921-1951 Part 6b* (2011) pp.13-18.

[iv] Geoffrey Pentland, *RAAF Camouflage & Markings 1939-45 Vol 2* (1989), pp.67, 87.

[v] RAAFHQ AGI Part 3, Sec(c), Inst No.1, *"Camouflage Schemes and Identification Markings"*, NAA: A705, 150/4/5056.

So, several sources relating 13SQN codes point to them being *Yellow* (Pentland and Laird), and several clear monochrome images of 13SQN PV-1 Venturas during the workup period at Canberra (AUG 1943 to JUN 1944) show code letters which are definitely a different hue from the colour of the fuselage roundel *White*. Below is an image to illustrate this tonal variation showing the brightness of the *White*.

This piece of modern art is from an image of PV-1 A59-56 SF-T at Canberra in 1944

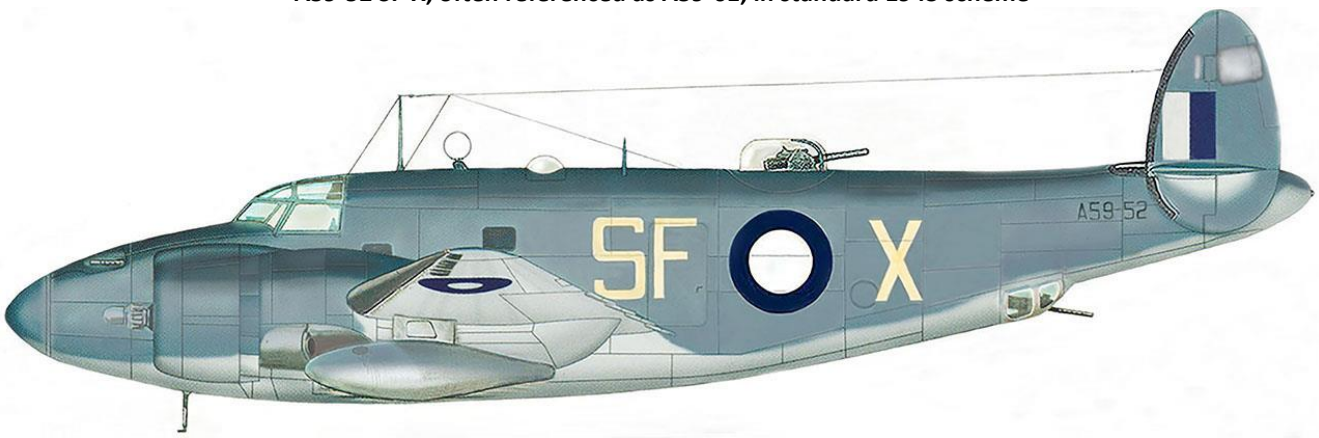
On the left is the fuselage roundel *White*, with part of the code letter 'F' transposed to show its definitely different hue in monochrome shades of grey. To the right is a larger image of 'F' (also highlighting its thin *Black* outline). Between the two images is the bottom of a propeller tip, the only known external part of the PV-1 that can be confirmed as *Yellow* – hence assessed as a *Yellow* code letter. By the way, the connection to Beauforts is because 13SQN at Canberra operated 'B' FLT with Beauforts from JUL 1943, and from AUG 1943 'A' FLT with PV-1s. From the end of DEC, the Beauforts were passed to 2SQN, as 'B' FLT received RB-34 Venturas. These proved unsuitable, sent to 2AD in MAY 1944, and more PV-1s arrived to equip 'B' FLT – by the end of MAY, 13SQN had 18 PV-1s on strength.[129]

A59-52 13SQN PV-1 SF-X – 1944

SF-X is often cited as **A59-61**, but during its early period at Canberra in 1943 I believe it was **A59-52**. **A59-52** joined 13SQN on 15 AUG 1943, crashing at Canberra on 10 NOV, and sent for repairs to 14RSU at Mt Druitt on 7 JAN 1944. **A59-52 was then replaced by A59-61** on 13SQN on 20 JAN 1944, and apparently inherited the SF-X code. A59-61 moved north to Cooktown in JUN 1944 where it definitely was SF-X – retaining this code for the rest of the War.

[Colourised from RAAF image]

A59-52 SF-X, often referenced as A59-61, in standard 1943 scheme



A59-52 was in the **2AD standard**-applied markings for the first '4-color non-specular' camouflaged PV-1s delivered to 13SQN Canberra over AUG-NOV 1943 (except for A59-51 SF-Y which was in the earlier *blue/gray* scheme). From surviving imagery it appears the aircraft of this '1943 Canberra group' (serialled **A59-52 to A59-60**) had a standard 48" roundel in 3:5 proportions, correctly applied flashes *inside and outside* each fin, and serial numbers in *Black*.[130] The 13SQN codes were a standardised size and form, and it appears that most aircraft at this stage had letters in *Yellow* with a thin *Black* outline. Marking sizes of the '1943 Canberra group' below are from measurement:

Roundels – Pacific roundels 48" diameter (121.9 cm) 3:5 on fuselage and, apparent in these images, 2:5 on the wings. The USN fuselage roundel was 40" diameter[131] (soon to have "bars" added either side), so the RAAF 48" roundel was painted over the star. Later with 1944 deliveries, the USN bars were retained with the RAAF roundel, requiring the RAAF 3:5 to be shrunk to 40".

Fin flash – 'standard', i.e. correct form with *White* leading, 32" (81.3 cm) high x 30" (76.2 cm) wide.

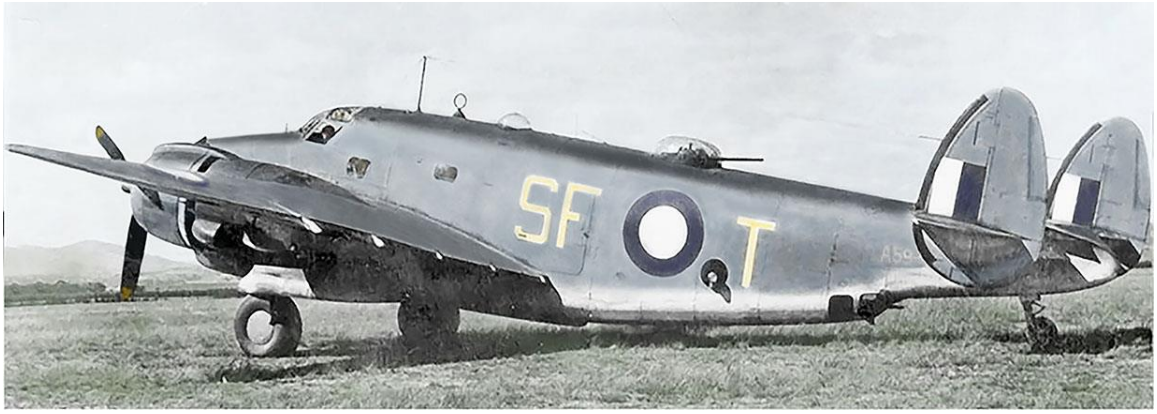
Squadron codes – letters 40" (101.6 cm) high x 25" (63.5 cm) wide, in 5" (12.7 cm) stroke (i.e. the standard 8 x 5 ratio).

All these aircraft were accepted through 2AD, probably accounting for the standardisation of markings. There are discrepancies – for instance when A59-56 was delivered its serial was *Grey*, but after a landing accident in DEC 1943 it was repaired on 13SQN and serial changed to *Black*, although not in the standard serial font.

Later aircraft in the A59-6x and A59-7x blocks had the US 'star' overpainted and retaining the 'bars' (see A59-64 and A59-75), probably on arrival at 2AD; fin flash reversal of colours with *Blue* leading was perhaps incorrectly applied on reassembly in Hawaii prior to the Pacific crossing; the 'last two' of the msn was often retained on the tail.

A59-56 13SQN PV-1 SF-T – 1943-1944

One of the early 13SQN PV-1s at Canberra in OCT 1943, **A59-56** is fitted with a port waist gun position. Later this tended to be removed and panelled over. Unusually, the serial was in grey – probably *Medium Sea Grey*.



[Colourised from GRB Collection]

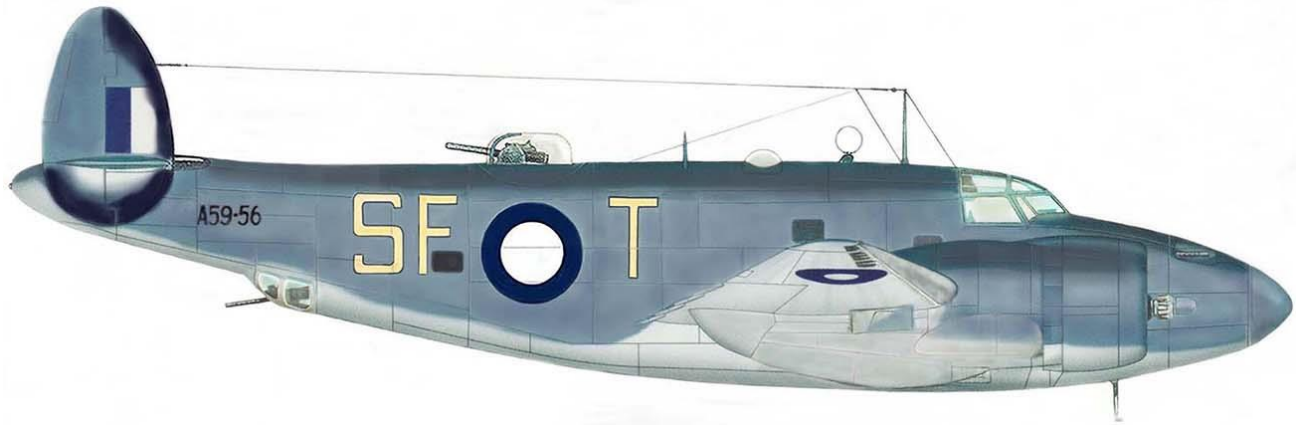
A59-56 SF-T at Canberra over 1943-44

A59-56, received by 2AD from Hawaii on 21 SEP 1943, was delivered to 13SQN at Canberra on 1 OCT. After a landing accident at Canberra on 29 DEC 1943, damaging the airframe but repairable on 13SQN, A59-56 remained on the Squadron until OCT 1944 in NWA. When at Gove NT, A59-56 went for repairs with 14ARD at Gorrie NT over OCT-DEC 1944, then returned to 13SQN, but lost when it crashed in the sea on 28 JAN 1945; A59-98 then became SF-T.

[Colourised from RAAF image]

'B' FLT A59-56 SF-T at Canberra early 1944, with a 'A' FLT RB-34 behind

Taken after the upper image, as the rubber boot de-icers have been removed, the painting of the fin leading edge is obvious. After a landing accident at Canberra in DEC 1943, **A59-56** was repaired on 13SQN, and the serials apparently re-applied in *Black*, but in this non-standard font. The RB-34 in the background helps to date this image as JAN-MAY 1944.



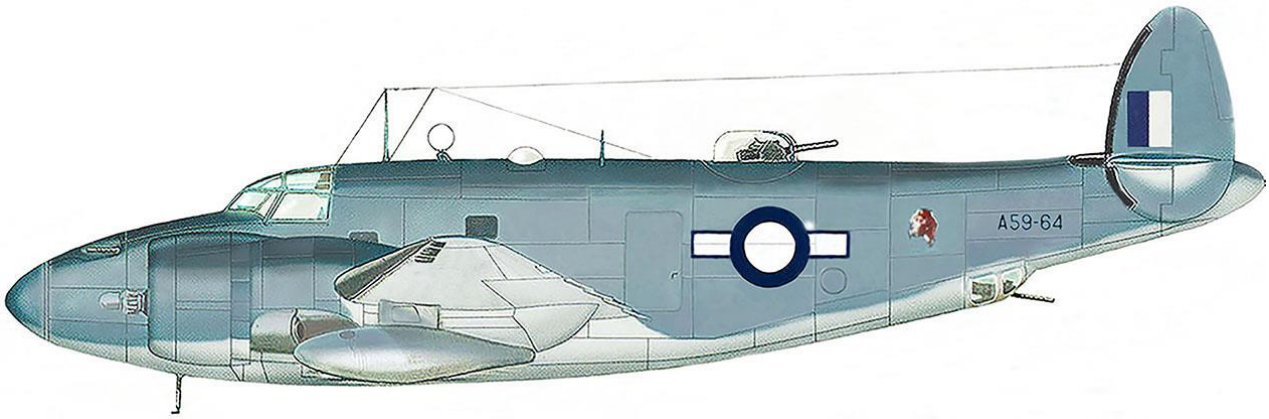
A59-64 PV-1 IN USN 4-COLOUR CAMOUFLAGE – APR 1944

A59-64 (Bu 48749) had been allotted to 13SQN in JAN 1944, and then to 32SQN, Camden, in MAR 1944. However, in APR 1944 RAAF Command decided not to proceed with re-arming 32SQN with Venturas – just as **A59-64 and A59-68** arrived at 32SQN on 12 APR 1944. There are no details of Venturas with 32SQN, as the allotment of A59-64 to 32SQN was cancelled that very same day the aeroplane had arrived at the squadron! Three days later, on 15 APR 1944, A59-64 was issued to 13SQN.[132] **A59-64 became SF-H** for the 13SQN move to Cooktown in JUN 1944.

[Colourised from Stanaway p.64]

PV-1 Ventura A59-64, with Disney spaniel *'Lady'* fuselage art, probably at Camden APR 1944

Before receipt on 13SQN, as codes not yet added, showing several departures from standard markings. This was one of the rare aircraft to retain original Disney artwork from Burbank to reach Australia; it featured the 'reversed' fin flashes (*Blue* leading) that may have been hurriedly and incorrectly applied in Hawaii before ferrying to 2AD on delivery; it had the 'bars' of the USN marking still applied with RAAF 3:5 roundel applied over the 'star'. The USN 40"-diameter cockade has been overpainted by a 40" 3:5 RAAF roundel, retaining the same size 'bars' – each were 20" long (half diameter of the roundel), 10" high (half radius).[133] This image shows no roundel under the ***port*** wing – from FEB 1943 the USN only had markings under the ***starboard*** wing.[134]



[Colourised from Stanaway p.64]

***Spaniel's incription reads* "Honest - I Tho't it was Hitler"**

The meaning of this is unclear – perhaps a reference to the dog making an indiscretion on someone's leg, much like the infamous '*Snifter*'. This was Disney artwork of a spaniel "Lady" added at Burbank, and this character ultimatley became '*Lady*', in the movie '*Lady and the Tramp*'.[135]

US 'star and bars', introduced on 14 AUG 1943

On the PV-1 the US fuselage star was 40" (101.6cm) diameter, located 72" (182.88cm) from stabilizer. On the mainplane the star was again 40" diameter, and 108" (274.32cm) from tip.[136] It appears in some images that sometimes the 'bars' were retained on RAAF Ventura wings (see A59-75).

A59-75 13SQN PV-1 SF-Q – OCT 1944

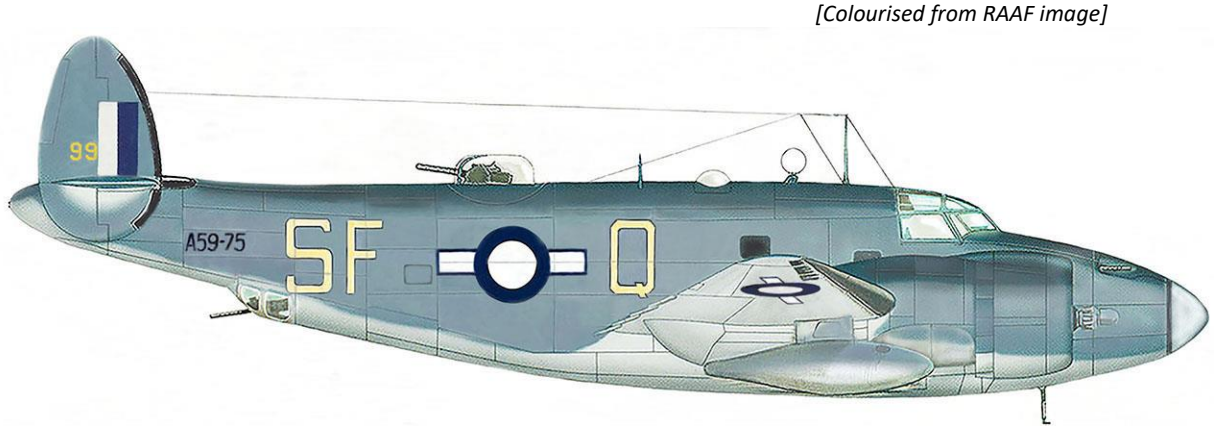
The RAAF adaptation of the **US 'star-bar'** PV-1 roundel is not documented, but was apparently applied to the 1944 delivered aircraft (serialled Bu48xxx and Bu49xxx, A59-6x and A59-7x), with probably a 3:5 40" RAAF roundel simply applied on arrival at 2AD over the 40" US star.[137] RNZAF aircraft did retain, or reapply, the *White* 'bars' on their aircraft before going into combat.[138] The USN PV-1 marking was 40" (101.6cm) fuselage diameter, placed 72" (182.9cm) from stabilizer; the wing roundel also 40" diameter, 108" (274.3cm) from the tip.[139]

[Colourised from RAAF image]

A59-75 SF-Q '99' (msn 6199) wheels up landing at Gove on 2 OCT 1944

40" roundels, roundel under starboard wing and above the port, narrow tall flash reversed, *Yellow* '99' msn on rudder. Interestingly, the silhouette of the APS-1 radar scanner can be seen through the translucent plexiglass nose cone.

[Colourised from RAAF image]



A59-75 – In MAY 1944, RAAF Cd planned re-equipping 32SQN as a second PV-1 squadron, which was soon changed to 7SQN based at Higgins. On 11 MAY, RAAFHQ advised that the number of Venturas expected to be available by late 1944 was only 53, insufficient for two full squadrons, so RAAF Cd agreed rearming one Flight of 7SQN, with a Flight continuing with Beauforts until further Venturas became available. This plan was to rearm 7SQN with 10 Venturas, estimated to be by approximately 1 JUN, with three identified: the first **A59-68** was received by 7SQN on 2 JUN, the second **A59-70** the following day. The third aircraft, **A59-75**, received minor damage enroute and was diverted to 13ARD at Breddan (Charters Towers) on 31 MAY for repairs, after which it was to be forwarded to 7SQN. By 7 JUN NEA HQ Headquarters confirmed that 7SQN would now consist of one Flight of nine Venturas and the establishment altered to provide for 'A' FLT with Beauforts and 'B' FLT with Venturas. However, the next day RAAF HQ confirmed that 7SQN was to revert to an all-Beaufort unit because the US could not supply sufficient Venturas, and those allocated were required as wastage replacements for 13SQN. By 26 JUN, A59-68 and A59-70 were flown to 13ARD joining **A59-75**. Six other Venturas were allotted to 7SQN but their delivery was cancelled before being received.[140]

A59-85 13SQN PV-1 SF-R *"The Reluctant Dragon"* – NOV 1944

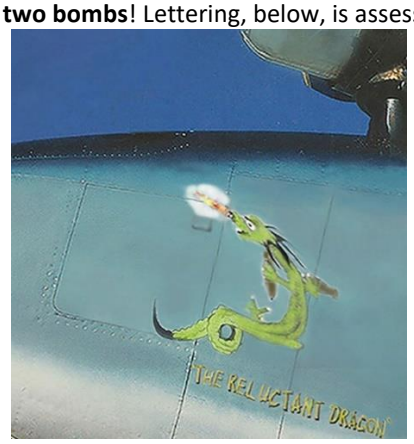
A59-85 still the 'reversed' fin flash with *Blue* leading, no turret, patchy paint on rear fuselage, and by NOV 1944 the fuselage and wing roundels had changed to the new standard of 2:5 proportions. 13SQN code letters were still outlined thinly in *Black*, and apparently still in *Yellow,* and serial number was *Black*, consistent with most Venturas.

[Colourised from adf-serials]

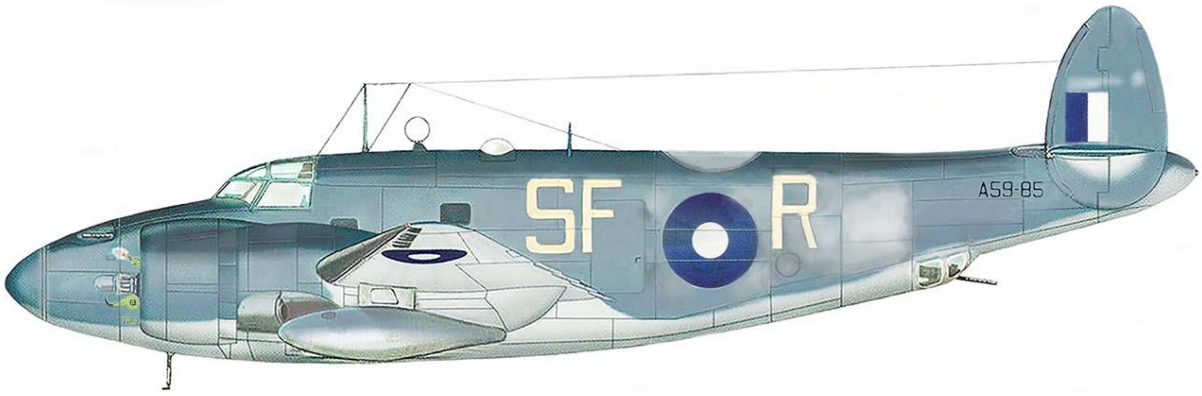
[Colourised from RAAF image]

"The Reluctant Dragon", without turret, named from a 1941 Disney movie, but a different character to the peace-loving dragon, and so this artwork is unlikely to have come from the Burbank studios. The colouring of the dragon is described by Ian Baker in *AHCB 79*:[141] "He was green with black outlining and details, with white claws, blowing red flames and white smoke." *The Classic Warbirds* interpretation gives some *Yellow* and *White* detailing of scales on the dragon's *Green* body.[142] These sources omit, as shown in the AWM image, that the fire-breathing dragon is **holding two bombs**! Lettering, below, is assessed as *Yellow*.

[AWM P00590.006]



A transposition of the colourised nose art



A59-89 13SQN PV-1 SF-V – 1945

A59-89 was one of the few overall *Foliage Green* PV-1s, and possibly the only on 13SQN. The AGI of 26 MAY 1944 *Appendix C* stipulated overall *Foliage Green* for attack aircraft and GR/B, with *'Identification Markings'* – the serial number and aircraft code letters – in *Medium Sea Grey*, which is shown here, and not the 13SQN *Yellow* codes.[143] National Markings are small 2:5 roundels and a tall narrow 'reversed' fin flash. The port side nose art appears to be a Pluto-style dog's head in *Yellow* with *Red* tongue (referenced to *Southern Sky Decals sheet DK72047*).

[Colourised from AWM P00590.005]

13SQN A59-89 SF-V at Gove in mid-1945, in overall *Foliage Green* after the MAY 1944 AGI

A59-89 was originally one of the PV-1s allotted to 7SQN in MAY 1944, but this was soon cancelled, and stored with 2AD and it is probable this was the stage it was repainted from USN delivery colours to *Foliage Green* – but very strange that an AD would mark the wrong 'reversed' fin flash. A59-89 served then at Point Cook with CFS from OCT 1944 until MAR 1945, being received by **13SQN in JUN 1945**, serving until 2AD storage in JAN 1946 – and going the way of most Venturas, being scrapped in 1948.[144]

A46-11 and A59-89 at CFS Point Cook 6 FEB 1945, visit of Duke of Gloucester *[Colourised from AWM VIC 0100]*

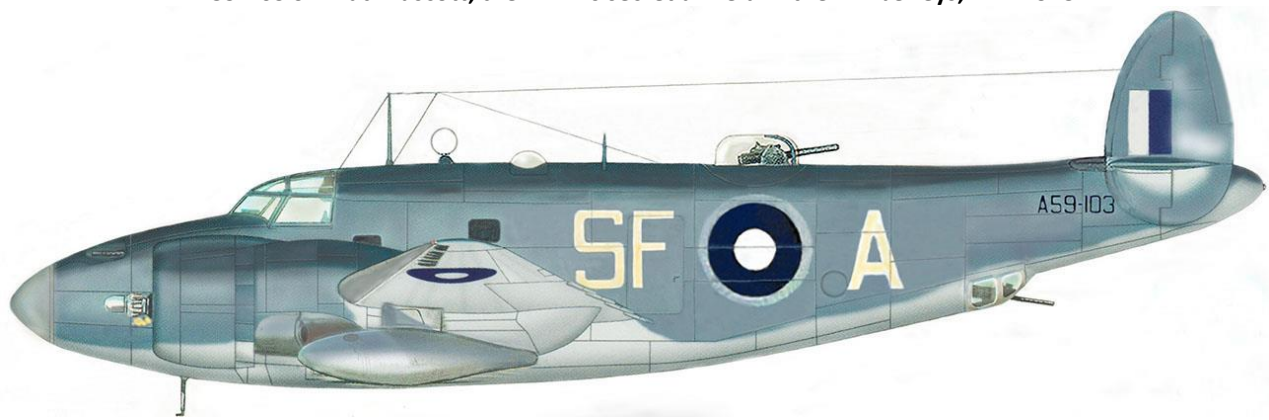
At CFS Point Cook, A59-89 carried the small 2:5 roundel and 'reversed' fin flash – it is hard to imagine this was applied by 2AD !

A59-103 13SQN PV-1 SF-A *"Ye Boss"* – APR 1945

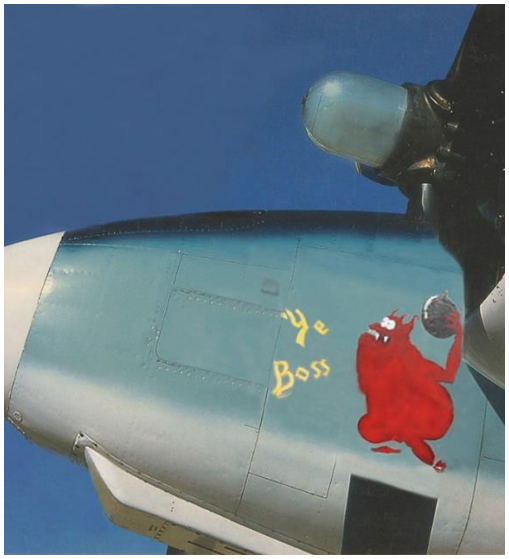
A59-103 SF-A was the CO's aircraft in 1945, serving on 13SQN over JAN-MAY 1945. After work by 14ARD at Gorrie, A59-103 returned to 13SQN in AUG, until its long-term storage at 2AD from JAN 1946, the scrapping in 1948.

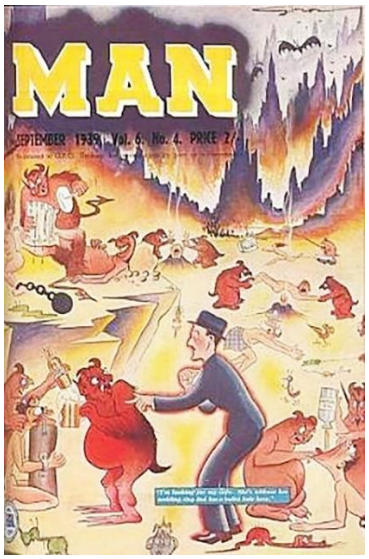
[Colourised from adf-serials image]

A59-103 SF-A at Truscott, the RAAF's secret airfield in the Kimberleys, APR 1945



Delivered in standard USN *'four-colour non-specular'* camouflage, the 1944 style 2:5 roundel was applied but with overspray marks below, and probably *Yellow* codes. The fin flashes are correct (i.e. with *White* leading), but now only on the outer fin sides, and *White* spray marks on the rudder. The rubber leading edge de-icer boots have been removed. Unfortunately, as with much of the Ventura imagery, the *red devil 'Ye Boss'* port nose art is not visible, typically hidden behind the port engine. Below are some images to discuss this artwork, and the actual monochrome photograph has been colourised as *Red* and transposed onto the nose of a restored PV-1.





[AHMWA P004627 via Shep] For this article, the marking transposed onto a warbird *[MAN magazine SEP 1939 cover]*

A59-103 SF-A *"Ye Boss"* devil 1945 – with the inspiration from wartime MAN magazine

The colours for this nose art have been referenced to *Southern Sky Decals sheet DK72047*. A similar "*Ye Boss*" devil has also been seen in the Vengeance article, on 12SQN NH-A A27-200.

13SQN VENTURA SEXY LADIES – 1944

Because of the way Ventura nose art is often hidden behind the port engine and as a trial for illustrating nose art, here are examples of the actual monochrome photographs colourised and transposed onto the nose of a restored PV-1. Note that the bottom propeller blade has had to be partly removed to show the illustrations.

[warbirdsonline]

A59-72 *"Southern Job"*

Colouring of the monochrome nose art has used the *Southern Sky Decals sheet DK72047* as a reference.

[AWM P00590.004]

A59-81 *"Wiff Oh"*

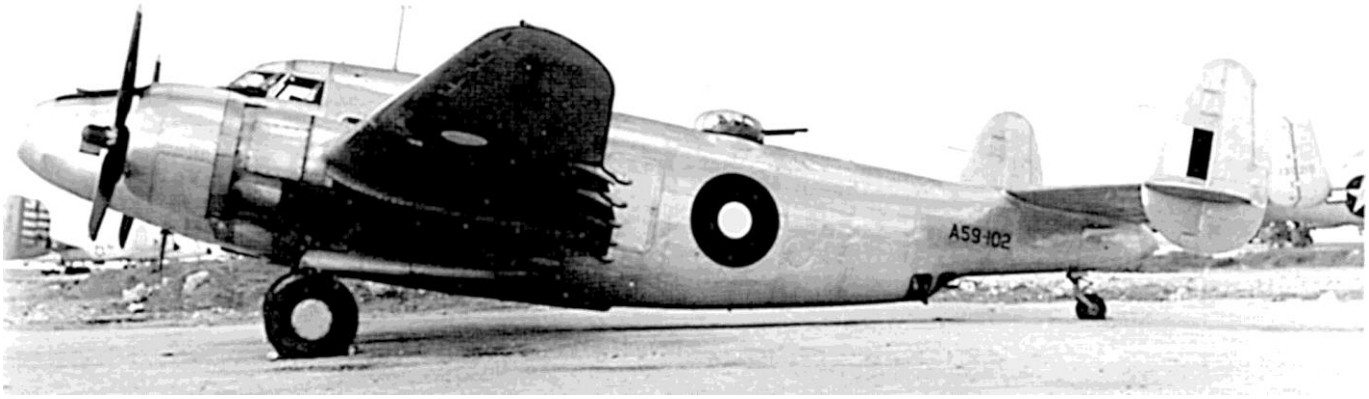
In addition, an unidentified 13SQN PV-1 was marked with the name *"Shanghai Lil",* which came from a James Cagney movie poster of that time.

[RAAF image] *[wartime movie poster]*

"Shanghai Lil"

***"Shanghai Lil"* here in 1945 parked beside '67' on rudder (msn 6367) A59-104** *Yellow* colour of nose art is estimated

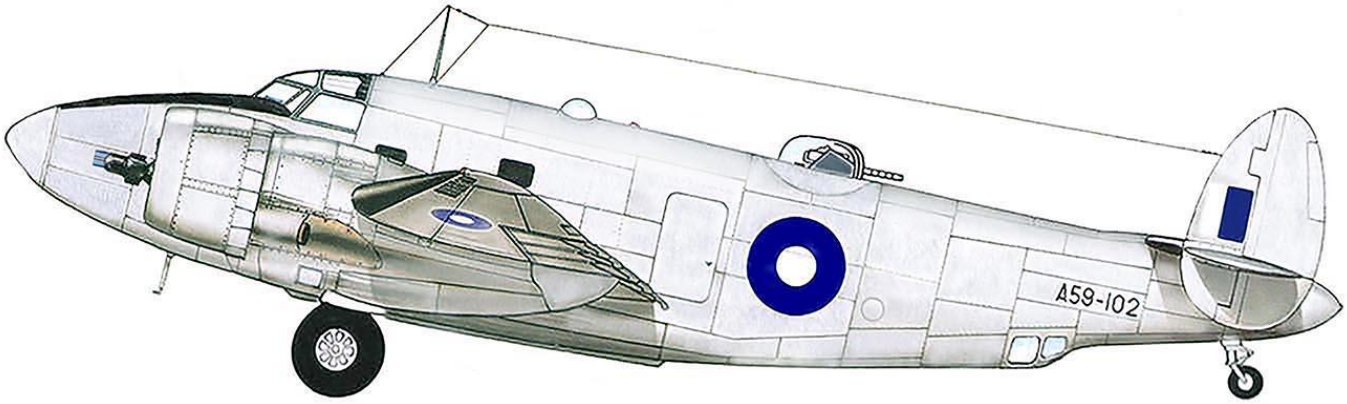
A59-102 – 4CU VENTURA STRIPPED TO SILVER TRANSPORT 1944-1946

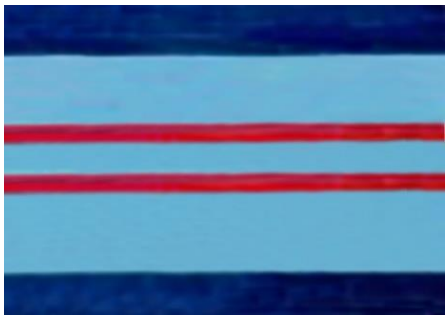


[adf-serials image]

PV-1 Ventura A59-102 at Iwo Jima as a VIP transport in JUL 1945

A59-102 (ADAT registration VH-RGW) became the VIP transport with 4CU for AOC RAAF Command (AVM Bostock) over late 1944 into 1946, replacing the earlier Hudson A16-55 of 4CU (in use from 1943 as VM-B), with its VIP seating removed for fitting to the Ventura.[145] Markings over 1944-1945 show the 2:5 *Blue/White* roundels and of course *Black* serials as required for natural metal aircraft. Just visible in the image behind the spinner is the AVM's pennant on the port nose (and an image below also marked on the starboard).



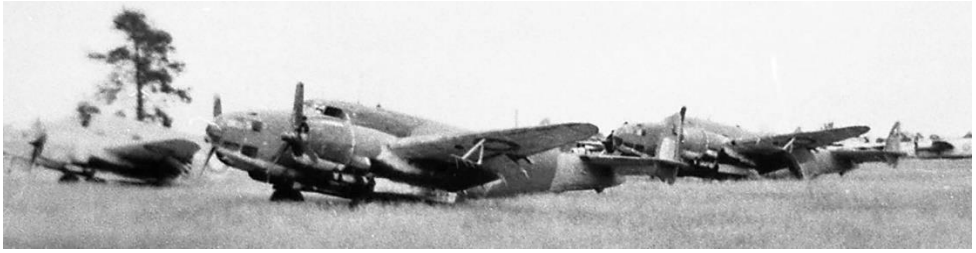


Starboard nose A59-102 *[Colourised from GRB Coll],* **with the VIP 2-star Air Vice-Marshal pennant for the AOC**

No 4 Communication Flight (4CF) was formed at Archerfield on 7 SEP 1942, and renamed No 4 Communication Unit (4CU) on 25 NOV 1943. The Unit disbanded on 16 APR 1946. Aircraft types operated were Anson, Tiger Moth, Norseman, Vengeance, Wirraway, Kittyhawk, Hudson, Ventura, Beaufort, 'Beaufreighter' and Beaufighter. 4CU operated two Venturas, A59-86 and A59-102.[146] In SEP 1945 **A59-102** went to 2AD for major modifications, and returned to 4CU in NOV 1945 without guns, and the turret removed.

DISPOSALS AND SURVIVORS

With Peace, thousands of aircraft were retained in "War Storage" – totalling over 3,000 aircraft up to the end of 1948, including 52 Venturas.[147] Ten of the RB-34s were stored at 2AD Richmond; at least five at 1AD Det Tocumwal.



[adf-serials]

Three RB-34s, several with ASV, at Tocumwal – these could include A59-2, A59-6, A59-13, A59-16 or A59-17

Most PV-1s went for long-term storage at 2AD Richmond, shown below – *Adastron site* assesses this to total 39.

[RAAF image]

Venturas out to graze 2AD Richmond c1947

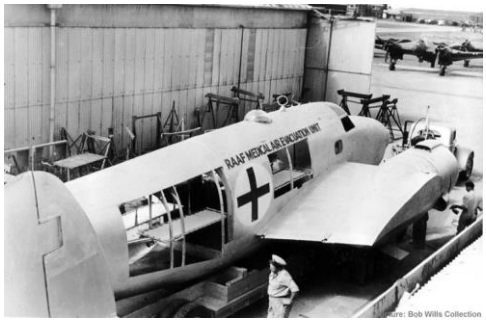
SF-H in the foreground is **A59-64** *"Lady"*, which went to 2AD storage from 13SQN in FEB 1946, and passed for scrapping in 1948.

One of the PV-1s slated for scrapping at Laverton was **A59-90**, which underwent trials on methods to extract crew from a crashed aircraft.[148] On 13 APR 1948, two Venturas (A59-63 and A59-90) were issued free of charge to the DCA for training purposes. Both departed Laverton by road on 15 OCT 1948, and the 'training' turned out to be for the development of a new Rescue and Fire Fighting tender, which came to be known as the *Monegeetta Monster*.[149]

[John Hopton image via Ron Cuskelly]

A59-90 at Monegeetta army camp for crew evacuation trials, c1948

Another unusual fate was that of a Ventura modified as a RAAF 'Medical Air Evacuation' ambulance display. The aircraft is assessed as **A59-61** which was in storage at 1CRD Werribee, and transported from Werribee to Point Lonsdale on 13 JAN 1947. Last recorded sighting was in 1956, after which it was probably scrapped.[150]



[adf-serials]

[adastron site]

The modified Ventura ambulance, at 1AD Laverton 1945…surviving at Point Lonsdale with the lighthouse keeper, here 1956

EX-RAAF PV-1 A59-96 AT QAM CALOUNDRA

PV-1 **A59-96**, msn 6371 Bu49555, survives with the Queensland Air Museum (QAM) at Caloundra. Received at 2AD in JUN 1944 and immediately stored by 2AP at Bankstown, it moved to 2AD Care and Maintenance at Evans Head – its continual storage accounting for its longevity and survival. Typical of retired Venturas in 'Cat E' long-term storage, in 1948 A59-96 was passed to DAP at Evans Head, which recorded disposal completed on 5 MAR 1949.[151]

[adf-serials images]

A59-96 awaiting restoration at QAM in 2002 **A59-96 at Caloundra in 2004**

From 1949 as a backyard play house in Brunswick Heads NSW and then as a shed, the fuselage was acquired in 1978 for removal to Chewing Gum Field Air Museum, Tallebudgera QLD – fortunately ultimately to the hands of QAM at Caloundra QLD in 1991.

[QAM site images]

A milestone, on its own wheels in FEB 2006…. **And in 2015 with both engines installed**

A59-96 was trucked from Tallebudgera to Caloundra in MAY 1991, consisting of just of the gutted fuselage, the long-term restoration commenced.[152] Displayed early in this process as USN 49555 on the port side, and A59-96 on the starboard, the fuselage was fitted over 2014-2015 with Lockheed L18 Lodestar wings acquired from the US.[153]

Moved into QAM Hangar 2 in JUN 2017, here on display in 2018 *[adf-serials images]*

QAM has done a beautiful restoration of the interior *[adf-serials images]*

EX-RAAF PV-1 A59-73 AT GOVE

PV-1 **A59-73,** msn 6142 Bu48906, was received in MAR 1944, not being received by 13SQN until JUN 1945, becoming SF-F, but in AUG 1945 was damaged by fire during maintenance, and subsequently abandoned at Gove as 13SQN moved north to Labuan.[154] In the hands of 8CRD, approval was granted for conversion to components. Being abandoned for many years, in APR 1995 the fuselage and centresection was trucked to RAAF Darwin for restoration by 13SQN reservists, but the condition was determined as beyond restoration, and was eventually trucked back to Gove in OCT 2012**.** The bare metal fuselage remains in a compound at Gove/Nhulunbuy airport.[155]

[adf-serials images]

A59-73 has been in the compound at Gove/Nhulunbuy airport since OCT 2012

PV-1 "A59-67 / SF-F" – Bu33379

"A59-67 / SF-F" was not a RAAF Ventura, having served with the **RCAF as 2221**, and acquired in 1988 as a flying example for the RAAF Museum. PV-1, **msn 237-5378 Bu33379,** was SOC in Canada in AUG 1950, and passed through a succession of owners in the US as N1590V, a civilian executive conversion by Spartan Aircraft Co of Tulsa OK, and then from 1964 as N159V. In SEP 1986 it commenced conversion to military configuration by Aero Nostalgia at Stockton CA for the RAAFM, in exchange for Canberra A84-229. In NOV 1987, it completed its first post-restoration test flight as "A69-67 / SF-F", then over JUN/JUL 1988 was ferried via Oakland, Honolulu, Majuro, Tarawa, Honiara, arriving in Brisbane on 12 JUL 1988.

[RAAFM]

RAAFM VH-SFF near Point Cook

[warbirdsonline]

Good looking "*Wiff Oh*" nose art on the RAAFM VH-SFF

Registered VH-SFF with the RAAF Museum, Point Cook, this Ventura operated in 13SQN markings with assumed serial "A59-67 coded SF-F", named *"Wiff-Oh"*. The original *"Wiff-Oh"* was actually A59-81 SF-D, but a WWII image was taken ***from*** A59-67 and the nose art name was incorrectly assumed to have applied to A59-67. On 19 NOV 1996, VH-SFF belly landed in a field after double engine failure during an air show at RAAF Richmond, and subsequently recovered back to Point Cook for static restoration. On 18 JUN 2002 it was struck off the Register as withdrawn from use, and stored pending a planned rebuild for static display.[156] While it is unlikely we will see "SF-F" airborne again, hopefully it will be seen on static display at the Museum.

EX-RNZAF RB-34 NZ4600 – MOTAT AUCKLAND

RB-34 msn 4773 41-38117, to RNZAF as **NZ4600** in JUN 1943 is now the sole surviving ex-RNZAF Ventura and is on display at the Museum of Transport & Technology in Auckland.[157] SOC NOV 1947, held on a farm 1947-1971, and then to MOTAT for static restoration, using some components of NZ4522.[158]

RB-34 NZ4600 msn 137-4773, Auckland FEB 2009 *[airliners.net]*

NZ4600 at MOTAT, Auckland 1980 *[1000aircraftphotos]*

EX-SAAF PV-1 VENTURAS IN SOUTH AFRICA

There are three ex-SAAF PV-1s that have survived. Of interest are the many detailed closeup images of these at http://www.wildaviation.com/gallery3/index.php/Walkarounds/saafprops/Ventura:

- **6447**/'V' msn 5855 Bu34965 at SAAF Museum Ysterplaat AB, Cape Town, since 1988;
- **6534** msn 6011 Bu48775 at Fort Klapperkop Military Museum (a restored fort in Pretoria), that has also been displayed as '6583' and '6453'; and
- **6432**/'F' msn 5649 Bu34759 at the MOTH Shellhole compound at Lynnwood, Johannesburg ("MOTH" is the veterans' 'Memorable Order of Tin Hats').

Left 6447/ 'V' at SAAF Museum Cape Town; right 6432 / 'F' at Shellhole Johannesburg *[Wildaviation images]*

EX-USAAF RB-34A VENTURA AS "PV-1 S.B.88" AT ORLANDO

RB-34A 41-38032 (marked now as USN "PV-1 S.B.88"), msn 137-4688, went to Cuban AF (as FAEC 215) in AUG 1947 until 1951 – note this s/n was close to RAAF RB-34 **A59-1 (41-38051)**. In 1958 it was converted to a civil Howard 350 'Super Ventura' as N1527V and N1000X, then to open storage at Fort Lauderdale Florida over 1982-93. It was then restored as a PV-1 for USN display at the Sanford Airport Memorial Park FL in 1994, current as "S.B.88".[159]

RB-34A 41-38032 as "PV-1 S.B.88" at Florida's Orlando Sanford Int Airport *[Warbirds online image]*

Lockheed Vega Ventura

> "The RAF despised the Ventura because it was slow, unmaneuverable and inadequately armed. The USN began to use the Ventura just about the time that the RAF was giving it up, and found the patrol bomber speedy, agile and adaptable to heavy armament. Some of the Navy pilots jokingly suggested that the RAF and US Army crews proved the superiority of USN training when the Navy took up the Ventura, designating it the PV-1 and demonstrated its true potential." [160]

Thanks to Shep for his assistance with images and the 13SQN codes, and images from Gordy's *adf-Serials* Contributors' Collection, and also to Ron Cuskelly's *The Lockheed File:* VENTURA - The Lockheed File (adastron.com)
Particularly useful, too, is the ww2bombers site: Lockheed Ventura (e-monsite.com)

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[1] Lockheed Ventura (e-monsite.com)
[2] J M Andrade, *US Military Aircraft Designations and Serials Since 1909*, Midland Counties, Leicester, 1979, p.7.
[3] A Pearcy, *Lend-Lease Aircraft in WWII*, Airlife, Shrewsbury, 1996, p.159.
[4] NAA A1695 7/205/EQ Pt.2 M.140 30 DEC 1943; A1695 6/205/EQ Pt.2(151A) 14 JUL 1943 and (171A) 21 MAR 1944.
[5] B Robertson, *British Military Aircraft Serials 1878-1987*, Midland Counties, Leicester, 1987, p.125.
[6] Robertson, p.128.
[7] Andrade, p.237.
[8] RAAF A59 E/E.88 Aircraft Status Cards.
[9] RAAF L/L B-34 acquisition details per MAC Air Case 126 Indent 927A Air Project # DA-152, covered by NAA A1695 7/205/EQ Pt.2. RAF B-34 L/L acquisition was Mk.IIA requisition 41018, Contract DA-152, in Pearcy p.159.
[10] NAA A10207/B24 Attachment 'A', 6 APR 1944.
[11] NAA A705/9/57/2 Pt.2, AUSTAIR WASH message X.183, 4 APR 1943.
[12] NAA A1196 1/501/519(1A), AUSTAIR WASH WL789, 28 JAN 1944; NAA A1695 7/205/EQ Pt.2 (156A), 25 JAN 1944.
[13] The twenty RB-34s were delivered in three batches of 10, 7 and 3 aircraft. Although the aircraft were delivered to Australia in random USAAF serial order, RAAF serials were issued in sequence with the USAAF serials in each batch. VENTURA - The Lockheed File (adastron.com)
[14] A59 E/E.88 Status Cards, it appears at least a further five were store at Tocumwal.
[15] NAA A1196 1/501/519(1A), AUSTAIR WASH WL789, 28 JAN 1944.
[16] NAA A1695 7/205/EQ Pt.2 (174B), 19 FEB 1944.
[17] Pearcy, p.86.
[18] Andrade, p.237.
[19] Robertson, p.126.
[20] Pearcy, p.137.
[21] I K Baker, *Aviation History Colouring Book 53, Hudson Camouflage Special*, Queenscliff Vic, 2004, AHCB #53, p.5.
[22] Mark Harbour, email to author, 10 OCT 2021.
[23] I K Baker, *Aviation History Colouring Book 51, P-40 Camouflage Special*, Queenscliff Vic, 2003, AHCB #51, p.5.
[24] Lockheed Ventura (e-monsite.com)
[25] Pearcy, p.13.
[26] ADF Serials - Ventura (adf-serials.com.au)
[27] Lockheed PV Ventura/Harpoon by Jack McKillop (microworks.net)
[28] Lockheed Ventura (e-monsite.com) claims 108 went to Canada and 64 to South Africa, and with ten crashing before delivery, only ***ten*** reached the RAF. This cannot be possible, as the *adf-serials* listing gives at least 30 serving on 464SQN in the Feltwell Wing. Robertson, p.126, gives ***41*** serving on RAF units.
[29] AHCB #51, p.3, addressed this. Gordon Birkett had the signal from Archives: NAA A8666 3/215/AIR (54A) HQUSAFIA message 2342 of 28 MAR 1942.
[30] R D & V G Archer, *USAAF Aircraft Markings & Camouflage 1941-47,* Schiffer, Atglen PA, 1997, p.70.
[31] M Laird, *Classic Warbirds – Pacific Twins*, Classic Warbirds No.8, Ventura Pubs, Wellington NZ, 2002, p.60; vencol (hobbyvista.com)
[32] I K Baker, *Aviation History Colouring Book No.51*, 'P-40 Camouflage Special', Queenscliff, 2003, p.7, provides details of Du Pont colours and equivalents. *Sky* was difficult to match, and colours such as *Aircraft Gray* and *Pastel Blue* were used. Bell Vol.1, p.95 gives the FS equivalents to the standard USAAF camouflage colours, stating *Dark OD* 41 is FS34087, but is slightly redder tending towards 34086.
[33] B-17 and Ventura art of Randy McCraw (wordpress.com)
[34] C L Scrivner & W E Scarborough, *PV-1 Ventura in Action,* Squadron/Signal No.48, Carrollton TX, 1981, p.6.
[35] Andrade, p.52. Although all Reverse Lend-Lease Venturas back to the USAAF were known by Lockheed as 'Model 137s', they were referred to by the USAAF as the 'Model 37' or Lexington. The USAAF Restricted 'R' prefix letter was in use from 1942 until 1947; Andrade, p.7.
[36] Lockheed Ventura (e-monsite.com)
[37] 'M' Midland, TX; Bombardier-Navigator Flying Training (fuselagecodes.com). 'E' indicated Eglin in FA; Flexible Gunnery Schools (fuselagecodes.com)
[38] 1941 USAAF Serial Numbers (41-30848 to 41-39600) (joebaugher.com)
[39] Pearcy, p.13.
[40] Bombardier-Navigator Flying Training (fuselagecodes.com)
[41] Flexible Gunnery Schools (fuselagecodes.com)
[42] NAA A1695 7/205/EQ Pt.2 (202A), 25 APR 1944. This document also refers to some Vengeances as the "RA-31", and to the Shrike as the "RA-25A".
[43] NAA A1695 7/205/EQ Pt.2 (M.140), 30 DEC 1943.
[44] NAA A1695 7/205/EQ Pt.2 (126A), 11 DEC 1943.
[45] NAA A10207/B24, unnumbered folios dated 31 DEC 1943 and 6 APR 1944.
[46] 1941 USAAF Serial Numbers (41-30848 to 41-39600) (joebaugher.com)
[47] NAA A1695 7/205/EQ Pt.2 (143A), 3 JAN 1944.
[48] Laird, pp.32-33.
[49] NAA AA1966/5 377, RAAF Manual ACD 2005(2) of JUN 1945.
[50] ADF Serials Telegraph (adf-serials.com.au)
[51] 1AD A.50 Unit History, JUL 1943.
[52] 5AD A.50 Unit History, NOV 1943-APR 1944.
[53] The E/E.88s of two 3CU Ansons are marked for "radar calibration". These aircraft AX237 and EF417 did not undergo the 5AD ASV modifications, so radar trials work may be of a different nature in radar development.
[54] RAAF list "Distribution of Anson Aeroplanes fitted with ASV Mk.II (Aust) as at 14 APR 1945" gives the serials of 25 Ansons, but an earlier 71SQN aircraft AX619 had its ASV swapped over to DJ330 in NOV 1943.
[55] NAA A11093 452/A59(37A) of 5 MAY 1944, p.3.
[56] 13SQN A.50 Unit History, DEC 1943-MAY 1944.
[57] NAA A11093 452/A59(48A) of 21 MAY 1944.
[58] K Gogler, *We Never Disappoint, A History of 7 SQN RAAF 1940-1945*, Air Power Development Centre, Canberra, 2012, pp.105-6.
[59] D Vincent, *The RAAF Hudson Story Book One*, self-published, Adelaide, 1999, p.25; Andrade, p.34.
[60] Scrivner & Scarborough, p.5.
[61] Andrade, pp.7, 53.
[62] Archer & Archer, p.106.
[63] J M Elliott, *The Official USN & USMC Aircraft Colour Guide Vol 2 1940-49,* Monogram, Sturbridge MA, 1998, p.70.
[64] Lockheed Ventura (e-monsite.com)
[65] D Bell, *Air Force Colors Vol.1 1926-1942*, Squadron/Signal, Carrollton TX, 1995, p.95.

[66] R J Francillon, *The RAAF & RNZAF in the Pacific*, Aero Pictorials 3, Aero Publishers, Fallbrook CA, 1970, p.8.
[67] B F Hussey, "The USN and the Neutrality Patrol, and Atlantic Fleet". US Naval Academy Annapolis, Maryland, 1991. apps.dtic.mil ADA 245396
[68] www.norpacwar.com/pv-1-painting-schemes
[69] Archer & Archer, p.8; Elliott pp.70-76.
[70] PV-1 losses | norpacwar
[71] Elliott, pp.76, 81.
[72] Scrivner & Scarborough, p.5.
[73] Andrade, p.208.
[74] Scrivner & Scarborough, p.7.
[75] Lockheed PV Ventura / Harpoon by Jack McKillop (microworks.net)
[76] Scrivner & Scarborough, p.7.
[77] Laird, p.30.
[78] www.201squadronassociation.com/ *"Remembering the Kipper Fleet, RAAF Coastal Command in WWII",* 21 JUN 2014.
[79] J C Stanaway, *Vega Ventura – The Operational Story of Lockheed's Lucky Star*, Schiffer, Atglen PA, 1996, p.24.
[80] Scrivner & Scarborough, p.27.
[81] "Flying the Empire Express", www.usni.org/magazines/naval-history-magazine/2017/february/flying-empire-express
[82] Good sources of information on the USN North Pacific PV-1 operations can be found at the *norpacwar* sites: Hedron | norpacwar; VB-136, 1st tour | norpacwar; VB-135 1st tour | norpacwar; PV-1 losses | norpacwar
[83] Scrivner & Scarborough, p.27.
[84] Scrivner & Scarborough, pp.32-33.
[85] Stanaway, p.52
[86] *Units of the RAAF, A Concise History, Vol.3 Bomber Units*, AGPS, Canberra, 1995, pp.135-139.
[87] *Units of the RAAF, A Concise History, Vol.4 Maritime & Transport Units*, AGPS, Canberra, 1995, pp.104-110.
[88] This was changed by Air Ministry Order **(AMO) A.664/42** of 2 JUL 1942. J Tanner, *British Aviation Colours of World War Two*, Arms & Armour Press, London, 1986, p.21. When this AMO was amended by **AMO A.1092** on 8 OCT 1942, para 2(iv) added: "American types of aircraft will be seen in both USAAC [sic] and USN Air Corps [sic] camouflage and colouring schemes carrying British markings. British types of aircraft will be seen in British camouflage and colouring schemes carrying American markings." Tanner, p.26.
[89] US Navy and US Marine Corps BuNos--Third Series (30147 to 39998) (joebaugher.com)
[90] Scrivner & Scarborough, p.14.
[91] US Navy and US Marine Corps BuNos--Third Series (21192 to 30146) (joebaugher.com)
[92] www.norpacwar.com/pv-1-painting-schemes
[93] Scrivner & Scarborough, p.7.
[94] Elliott, pp.190-194.
[95] 1000aircraftphotos.com
[96] B-17 and Ventura art of Randy McCraw (wordpress.com)
[97] The *Red* surround of the USN star and bars was only briefly in force over 28 JUN 1943 until 31 JUL 1943; Elliott, p.70.
[98] http://www.usaaf-noseart.co.uk/plane
[99] Elliott, pp.190-194.
[100] I K Baker, *Aviation History Colouring Book 32, USN Camouflage & Insignia, 1941-47*, Queenscliff Vic, 1997, p.18.
[101] Elliott, p.35.
[102] Laird, p.60.
[103] Elliott, p.35.
[104] Welcome to ADF Serials (adf-serials.com.au)
[105] US Navy and US Marine Corps BuNos--Third Series (30147 to 39998) (joebaugher.com)
[106] Laird, pp.56-57.
[107] Laird, p.32.
[108] WT Live // Camouflage by Aotea (warthunder.com)
[109] B-17 and Ventura art of Randy McCraw (wordpress.com)
[110] RAF ADM.332 (*Issue 3*) filed as RAAFHQ 150/4/852(12), and also referenced as CD44/41.
[111] P Lucas, *Camouflage & Markings No.2, Scale Aircraft Monographs*, Guideline, Luton, Beds, 2000, p.9.
[112] RAAFHQ file 1/501/329(53A), SAS.9984 also listed as DTS 368/41, of 23 DEC 1941. This message also directed that RAAF *Earth Brown* (K3/178) and *Foliage Green* (K3/177) be used instead of RAF *Dark Earth* and *Dark Green*. RAAFHQ file 1/501/329(63A), SAS.7396 also listed as DTS 280/42, of 18 JUN 1942
[113] RAAFHQ Aircraft General Instruction No.C.11 (*Issue 4*), Appendix I, of 31 JUL 1942.
[114] Australia House London letter AB.2426 700/27, filed as RAAFHQ 1/501/281(25A), of 4 DEC 1939.
[115] Australian DAP production of the Beaufort was unique – odd serial-numbered aircraft were built at Fisherman's Bend, the even numbers at Mascot. Also Fisherman's Bend aircraft had the A.D.1159 'A' pattern, and Mascot aircraft had 'B' pattern, with both schemes retained into 1943 production, until replaced by overall *Foliage Green* in 1944. These 1942 listings of course do not include the Ventura.
[116] In this RAAF 1941 list, of course, neither the Kittyhawk nor Vengeance were listed.
[117] Air Ministry Directorate of Technical Development (DTD) Air Diagram 1159, undated c JUN 1936, illustrates the Blenheim as the example for this pattern, which was adopted in the RAAF by the Beaufort, Beaufighter, Anson, Hudson and ultimately the Ventura. While AHCB #53 pp.1-4, mentions this as the 'B' scheme, this is in variance to the DTD Diagram, which AHCB #14, p.2, identifies as the 'A' scheme.
[118] J Goulding & R Jones, *Camouflage & Markings RAF Fighter Command 1936-1945*, Doubleday, New York, 1971, foreword; Lucas p.85.
[119] Lucas, p.79. The MAP 33B/ stores reference series are stock numbers with the last three digits identifying the size of the paint can – so on the RAF Directorate of Technical Development (DTD) 314 scale, *Dark Green* 33B/201 was for a half-gallon can of varnish, 33B/202 a one-gallon can, and 33B/203 a five-gallon container. Similarly the various size cans for *Dark Earth* were 33B/198 to 33B/200. The DTD specifications for compliance were DTD 314 (matt pigmented oil varnishes), DTD 308 (matt cellulose finish), or DTD 83A (aeroplane doping schemes); *Aircraft Design Memorandum No.332 (Issue 3),* CD44/41, para.4, of 15 NOV 1940, filed on RAAFHQ 150/4/852(12).
[120] Goulding & Jones, p.12.
[121] Equivalent colour references provided in Goulding & Jones, p.48; and Lucas, pp.85-88.
[122] Bell, *Vol.1,* p.84; Lucas, p.88.
[123] www.norpacwar.com/pv-1-painting-schemes
[124] RAAFHQ AMEM D/DTS 1/501/329 SAS 13552 of 8 JUL 1943, specified 32" *Blue* roundel, 12" *White*, i.e. 3:8 (approx 2:5); fin flash 24" (high), 16" wide (8" each colour). If hurriedly repainted, the type-C flash would be asymmetric with 13" *White*, 11" *Blue*.

[125] Elliott, p.34.
[126] USN roundels, or cockades, were sized in 5" increments. Elliott, p.67.
[127] *Units of the RAAF, A Concise History, Vol.3 Bomber Units*, AGPS, Canberra, 1995, pp.38-41.
[128] RAAFHQ Memo 392/44, Ref 25/2/32 of 6 APR 1944, filed as 1/501/329(143A).
[129] 13SQN A.50 Unit History, 31 MAY 1944.
[130] These marking dimensions obtained by mensuration.
[131] Elliott, p.76.
[132] VENTURA - The Lockheed File (adastron.com)
[133] Elliott pp.76, 81.
[134] USN directive SR2c dated 5 JAN 1943 and effective from 1 FEB 1943, cited in Elliott, p.69.
[135] The spaniel was sketched by Disney animator Joe Grant in 1937, based on his own dog called 'Lady'. Grant envisioned a short cartoon about a dog, and by 1940 Walt Disney had imagined expanding the short into a feature and adding a mongrel who might be named Homer or Rags or Bozo, but decided to just go with Tramp. In 1943, Walt read Ward Greene's short story "Happy Dan: The Cynical Dog" in Cosmopolitan magazine, the tale of a stray who revels in his ability to manipulate humans all over town into giving him free meals. Disney bought the film rights, but it took another eight years to merge the dog tales into the *"Lady and the Tramp"* screenplay. In 1953, Walt had Greene expand his story into a novel, so that moviegoers would be familiar with the tale by the time the movie came out in 1955.
[136] Navy ALNAV12 of 28 JUN 1943. Elliott, pp.70-76; and Army AN-I-9b of 14 AUG 1943, Archer & Archer p.153.
[137] It is unlikely the RAAF roundel was applied on reassembly in Hawaii, before the ferry to Australia, as it appears aircraft were delivered in US markings. However, the incorrect tail flashes might have been applied at this stage, as it is unlikely that 2AD would have reversed the flash colours to *Blue* leading!
[138] Laird, pp.39, 56.
[139] Elliott p.76.
[140] Gogler, pp.105-6.
[141] I K Baker, *Aviation History Colouring Book 79, RAAF Colour Schemes & Markings Part 13b*, Queenscliff Vic, 2014, p.11.
[142] Laird, p.47.
[143] RAAFHQ T.O. AGI Part 3, Section (c), Instruction No.1, *Camouflage Schemes and Identification Markings*, dated 26 MAY 1944, filed as 1/501/5056(1A).
[144] A59-89 E/E.88 Status Card.
[145] A59-102's radar equipment (with the exception of the IFF) was also removed in NOV 1944. A705 231/9/1656 Pt.1 (74A), RAAF HQ postagram TJ.375 (PGM) to RAAF Command and 4CU, of 24 NOV 1944.
[146] VENTURA - The Lockheed File (adastron.com)
[147] W Green & J Fricker, *The Air Forces of the World*, Macdonald, London, 1958, p.22. This 1948 total of 3000 comprised 76 Boomerangs, 307 Kittyhawks, 164 Mosquitoes, 199 Mustangs, 399 Spitfires, 300 Beaufighters, 329 Beauforts, 27 Hudsons, 207 Liberators, 32 Mitchells, 228 Vengeances, 52 Venturas, 52 Catalinas, 12 Kingfishers, 12 Mariners, 450 Ansons, 270 Oxfords, 195 Tiger Moths, and 380 Wirraways. The E/E.88 cards provide different the classes of storage.
[148] US Navy and US Marine Corps BuNos--Third Series (39999 to 50359) (joebaugher.com)
[149] The Monegeetta Monster - The Lockheed File (adastron.com)
[150] The Ventura Ambulance - The Lockheed File (adastron.com)
[151] LOCKHEED VENTURA A59-96 (qam.com.au)
[152] Email to author from Ron Cuskelly QAM, 30 OCT 2021.
[153] www.goodall.com.au/warbirds-directory-v6/lockheed.pdf
[154] A59-73 - The Lockheed File (adastron.com)
[155] www.goodall.com.au/warbirds-directory-v6/lockheed.pdf
[156] www.goodall.com.au/warbirds-directory-v6/lockheed.pdf; US Navy and US Marine Corps BuNos--Third Series (30147 to 39998) (joebaugher.com)
[157] Laird, p.30.
[158] Warbird Registry - Lockheed PV-1 Ventura - A Warbirds Resource Group Site
[159] 1941 USAAF Serial Numbers (41-30848 to 41-39600) (joebaugher.com); Microsoft Word - LOCKHEED.doc (goodall.com.au)
[160] Stanaway, p.5.