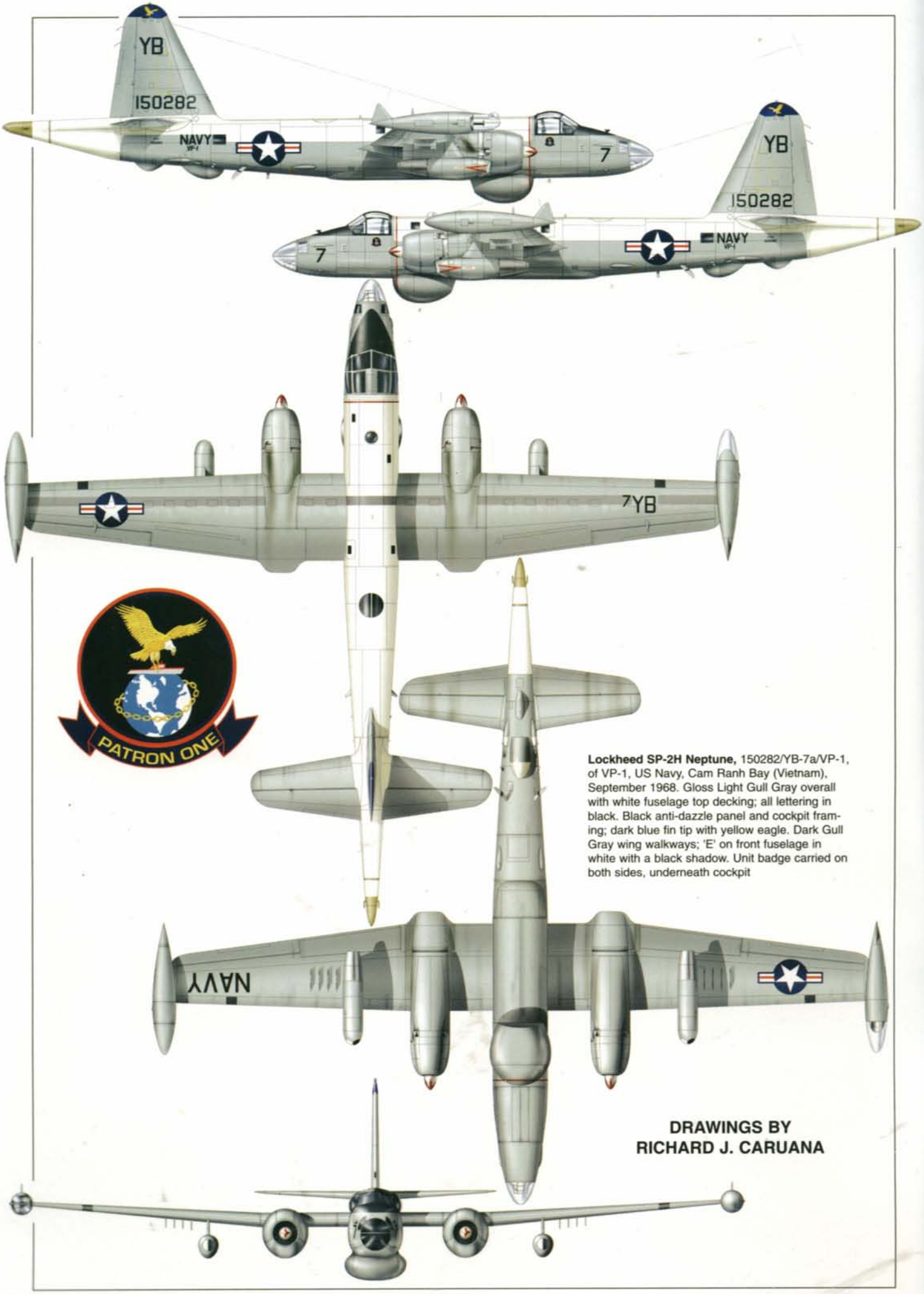
WARPAINT SERIES No.51

LOCKHEED NEPTUNE

By KEV DARLING

P2V-7 Neptune 140963 is shown undertaking a pre-delivery test flight hence the unpainted finish. This particular machine is still in the Mk.3 condition as evidenced by the dorsal turret. (Lockheed-Martin)



Lockheed SP-2H Neptune, 150282/YB-7a/VP-1, of VP-1, US Navy, Cam Ranh Bay (Vietnam), September 1968. Gloss Light Gull Gray overall with white fuselage top decking; all lettering in black. Black anti-dazzle panel and cockpit framing; dark blue fin tip with yellow eagle. Dark Gull Gray wing walkways; 'E' on front fuselage in white with a black shadow. Unit badge carried on both sides, underneath cockpit

DRAWINGS BY RICHARD J. CARUANA

17,50

Lockheed P2V NEPTUNE

BY KEV DARLING

AT the end of World War 2 the aircraft employed on maritime patrols were mainly derived from land based bombers, this background meant that the fitment of dedicated anti-submarine equipment and weapons was restricted. It was also becoming evident that the role of the anti-submarine patrol aircraft had also changed as the emphasis was more on detection and destruction rather than the boredom of convoy escort. The United States Navy had been quick to appreciate these changes and therefore began the search for an aircraft more suited as a dedicated anti-submarine platform.

The Lockheed Aircraft Company stepped forward to offer a design for such a machine as they were depending on two aircraft types to keep their work force fully employed, these being the F-80 Shooting Star, which introduced the American forces to jet aircraft, and the Constellation which became one of the stalwarts of transcontinental air routes.

The company's anti-submarine background began with the Model 414-40 which was later named the Hudson. Designed to satisfy a Royal Air Force requirement for a patrol and convoy aircraft Lockheed reworked the Model 14 transport to include a Boulton Paul gun turret plus other weaponry in both the nose and a weapons bay under the centre fuselage. Deliveries began in 1939 and lead to the Hudson being the first aircraft to capture a submarine from the air.

This view of the first prototype Neptune, designated the XP2V-1, reveals the company logo identifying the type placed prominently on the nose. The tail turret fitted to this machine was a Bell designed unit (BBA)

As the Model 14 was more than capable of further expansion Lockheed proceeded with the development of the Model 18 which featured a fuselage extended by five feet. These modifications resulted in the appearance of the PV-1 Ventura which began to feature dedicated submarine detection systems and the matching weapons. When hostilities ended in 1945 the PV-1

P2V-2 Neptune 39362, W-209, had previously served with various patrol squadrons before being transferred to NAS Willow Grove. Little would change as far as markings went the only obvious changes being the elimination of any trace of the previous owners and the application of a dayglo band round the rear fuselage. (Bill Blunt/BBA)

Patrol squadron VP-7 would operate the P2V-5 from 1953 to 1969. 127743, LB-2, is resplendent in the midnight blue scheme favoured by the US Navy in the early Neptune years. (Bill Blunt/BBA)

Ventura was the most sophisticated anti-submarine aircraft available being used both by the United States Navy and the RAF.

Further changes were wrought upon the PV-1 Ventura by Jack Wassal the Chief Engineer of Lockheeds Vega division. The major modification was to the wing which was increased in area by 135 sq ft. The resulting aircraft became the PV-2 Harpoon which was rolled out in March 1944. The redesigned wing allowed the aircraft to carry an increased load but only sacrificing six mph from the top speed whilst retaining the same engines.

Although these Lockheed aircraft were more than adequate for their assigned role it quickly became recognised that a completely different aircraft would be needed to prosecute the anti-submarine war in the Pacific against Japanese forces.

Design work for such an aircraft, based on design V-146 began at the Vega division in 1942 under the guidance of Jack Wassal as Project Engineer and Mac V.F. Short the Vice President of the division. As builders of aircraft for the US Navy Lockheeds were more than aware of the service's requirements thus the initial phase started with the premise that such an aircraft would need long range, good loiter time, slow landing speed plus the ability to carry a large and varied weapons load. Development was slow as the division had to concentrate its efforts on the Ventura and Harpoon thus the new anti-submarine aircraft was delayed.

As the war progressed the emphasis changed in the favour of a long range patrol aircraft so that the P2V project could be brought to the fore. In support of this the US Navy issued Contract NOa(s) 375 for the development, production and delivery of two prototypes and Contract NOa(s) 3297 for 13 pre-production machines.

The design philosophy exercised by Lockheeds included improved production techniques this in turn reducing the price per unit. Supporting this theory was the design of the fuselage which was curved mainly in one direction which reduced production costs, a similar exercise surrounded the manufacture of the centre wing and mid-fuselage sections, including the bomb bay, to a continuous cross section this also reduced manufacturing costs. Sub-assembly manufacture also meant that final assembly of the complete aircraft was speeded up, this also allowed for faster maintenance. It meant that an engine change could be carried out in 30 minutes, a propellor unit in 22 minutes and an outer wing panel in 79 minutes.

Such was the speed of manufacture that the first prototype, BuNo. 48327, was ready for its maiden flight on 17 May 1945 this duly being undertaken by Joe Towle and Harold Johnson from Burbank, California. The initial post flight test reports praised the aircraft's performance and manoeuvrability.

From the outset the Neptune was a mid-wing design which would be needed as the Neptune was to go though nine basic permutations and numerous sub-versions. Beginning in 1944 and ending in 1957 the US Navy placed 24 orders which would total $750 million.

FIRST PROTOTYPE AND CONSTRUCTION

The XP2V-1 Lockheed Model 026-52-02

The Neptune was a mid-wing monoplane using a tricycle undercarriage. Wing span was 100 feet with an area of 935 sq ft which

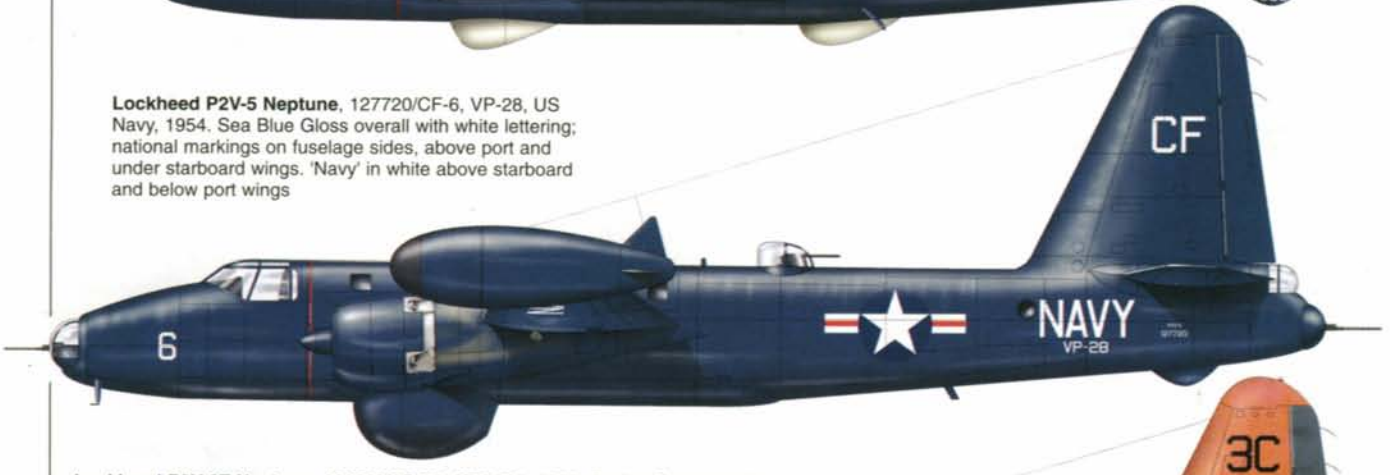
The P2V-3C version of the Neptune was optimised for carrier launching thus the nose and dorsal weaponry were deleted. Prominent on the fuselage sides are the mounts for the RATO bottles, a needed extra for such a departure. (Bill Blunt/BBA)

LOCKHEED NEPTUNE CAMOUFLAGE AND MARKINGS

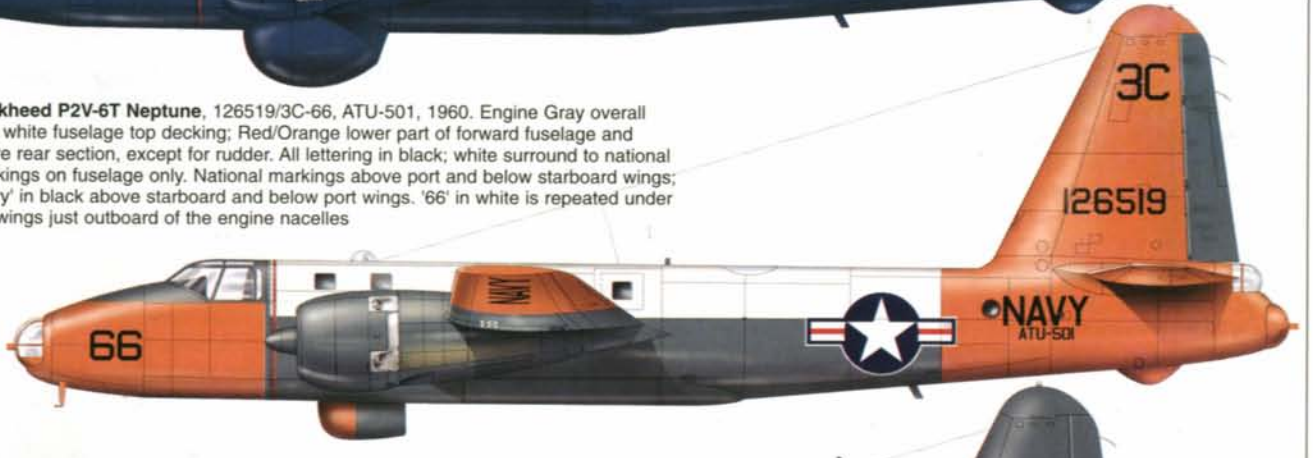
Drawings by Richard J. Caruana

Above: Lockheed P2V-1 Neptune, 89082 'The Turtle', US Navy, as it appeared in May 1949. Sea Blue Gloss overall with white lettering; national markings on fuselage sides, above port wing and below starboard wing. Note side windows covered over; 'Turtle' motif on both sides of nose
Below: Lockheed P2V-2 Neptune, 39365/365, USMC, Quantico, 1949. Sea Blue Gloss overall with white nose and all lettering; national markings on fuselage sides, above port and below starboard wing. 'Marines' in white above starboard and underneath port wing

Lockheed P2V-5 Neptune, 127720/CF-6, VP-28, US Navy, 1954. Sea Blue Gloss overall with white lettering; national markings on fuselage sides, above port and under starboard wings. 'Navy' in white above starboard and below port wings



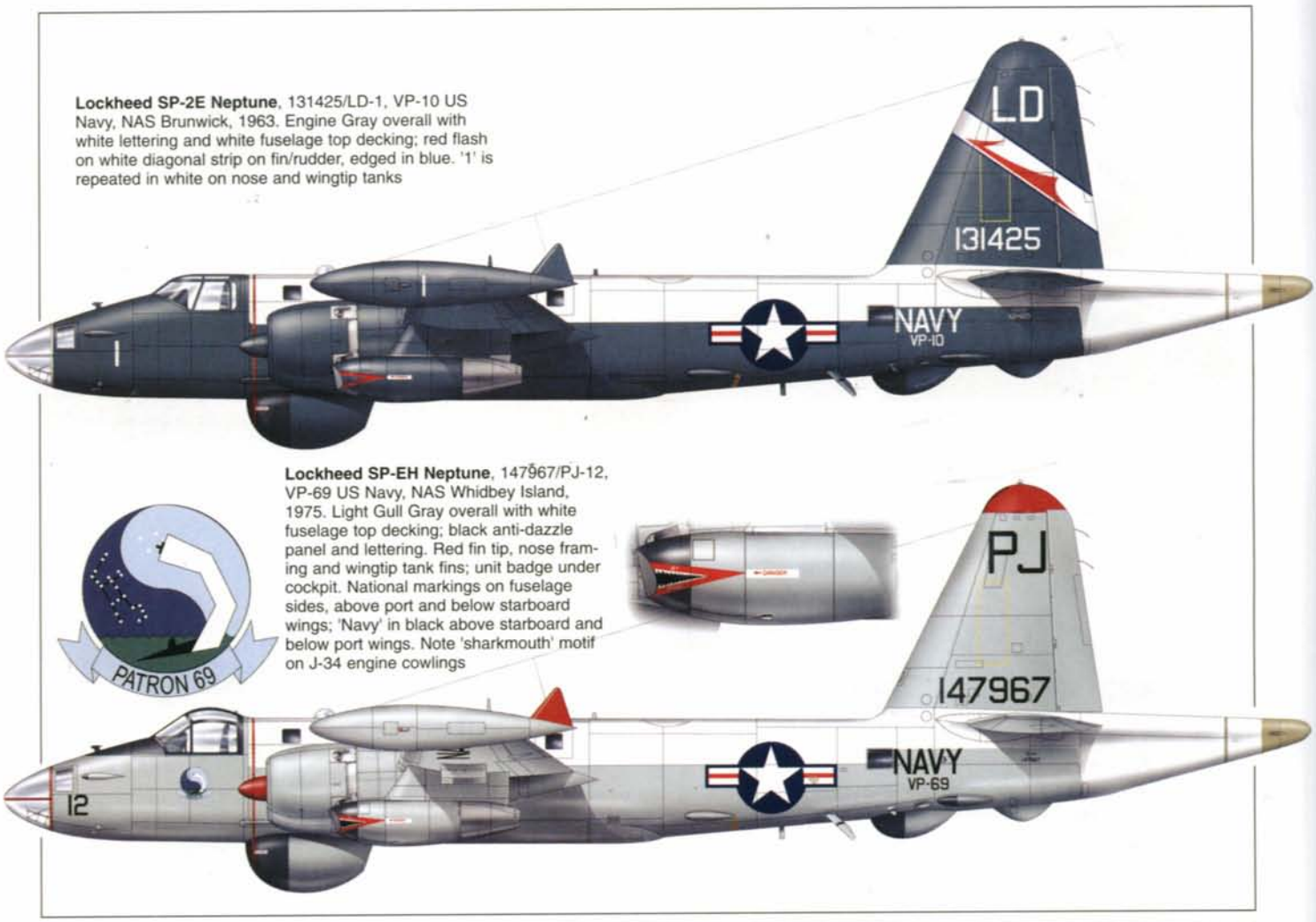
Lockheed P2V-6T Neptune, 126519/3C-66, ATU-501, 1960. Engine Gray overall with white fuselage top decking; Red/Orange lower part of forward fuselage and entire rear section, except for rudder. All lettering in black; white surround to national markings on fuselage only. National markings above port and below starboard wings; 'Navy' in black above starboard and below port wings. '66' in white is repeated under the wings just outboard of the engine nacelles



Lockheed P2V-7S Neptune, 135552/YC-7, PV-2 US Navy, NAS Whidbey Island, 1963. Engine Gray overall with white lettering and blue spinners; national markings above port and below starboard wings. 'Navy' in white above starboard and below port wings; note '7' on rear ventral bumper

Lockheed SP-2E Neptune, 131425/LD-1, VP-10 US Navy, NAS Brunwick, 1963. Engine Gray overall with white lettering and white fuselage top decking; red flash on white diagonal strip on fin/rudder, edged in blue. '1' is repeated in white on nose and wingtip tanks

Lockheed SP-EH Neptune, 147967/PJ-12, VP-69 US Navy, NAS Whidbey Island, 1975. Light Gull Gray overall with white fuselage top decking; black anti-dazzle panel and lettering. Red fin tip, nose framing and wingtip tank fins; unit badge under cockpit. National markings on fuselage sides, above port and below starboard wings; 'Navy' in black above starboard and below port wings. Note 'sharkmouth' motif on J-34 engine cowlings



VR-23 was the recognised operator of this P2V-3 coded RK-1. Although identified as a reconnaissance unit very little is known about its actual role. (Bill Blunt/BBA)

resulted in a wing loading of 63 lbs/sq ft. The fuselage length was 75 feet while the fin tip had a nominal height of 28.5 feet depending on fuel and weapons loading.

One of the innovations incorporated into the Neptune from the outset was the 'varicam' variable tailplane to take account of changes in weight and the centre of gravity. A mechanically driven/electrically controlled system the 'varicam' avoided the need for power flying controls which in turn reduced the all up weight of the aircraft. The fuselage was an all metal semi-monocoque assembly to which were attached, at mid-point, a pair of all metal cantilever wings built to a modified NACA 2419 aerofoil, the maximum thickness being at 36 per cent chord.

In the event of an emergency ditching the air spaces in the wings were designed to keep the airframe afloat in the hope of a potential rescue. The wing centre section was continuous throughout the fuselage, thus allowing the entire bomb bay load to be carried by the wing which in turn reduced the stresses on the fuselage. The ailerons were of conventional operation although spring tabs were fitted which acted as servo tabs at high speeds. In this mode the range

The most famous Neptune of all time was this P2V-2, 89092, the 'Truculent Turtle' currently on display at the naval museum at Pensacola. (Bill Blunt/BBA)

No unit identity has been applied to 124282 a P2V-3. This view illustrates the location of the dorsal turret , the tail turret and the solid nose complete with armament and ammunition. (BBACollection)

of movement of the ailerons was limited thus reducing the possibility of airframe overstress. Mounted on the wing's upper surfaces just inboard of the ailerons were spoilers that assisted in manouverabilty and braking on landing.

The Neptune's flaps were modified Fowler high lift flaps mounted on arc shaped flap tracks, their maximum extension being 32 degrees. When the flaps were fully deployed the ailerons neutral point dropped by ten degrees which improved handling at low speeds and limited the range of movement which in turn reduced the chances of over control. All control surfaces were fitted with internal balance weights and were dynamically balanced. In the early versions of the Neptune the anti-icing system was alcohol based although in later built aircraft this was replaced by electrical anti-icing.

The tail unit was of all metal construction being cantilever in nature. At the rear of the tailplane were the elevators that were interchangeable, while the tailplane was fitted with the 'varicam' trim system. The rudder was mounted to the rear of the fin and was of full height. All three control surfaces were fitted with balance tabs while the tailplane and fin were fitted with the relevant anti-icing system.

The Neptune was provided with a tricycle undercarriage electrically controlled and hydraulically operated. The single nosewheel was equipped with nosewheel steering while the mainwheel units had hydrauli-

Above: Parked with its bomb doors partly open is P2V-3 122947 which wears the titles of NAS China Lake. A transfer to a station flight would be the fate of many airframes prior to meeting the scrapmans axe. Below: Some Neptunes were utilised for special trials this being the fate of the P2V-4 allocated to a parachute testing facility. Although the armament has been removed the Neptune still retains a full complement of underwing pylons. Of note are the wing tip tanks mounted underneath instead of at the tanks midpoint. (Bill Blunt/BBA)

This portrait of a P2V-5 Neptune reveals quite clearly the location of the nose/tail and dorsal turrets. The tail code HE indicates that this machine was on the strength of VP-7. (US Navy)

cally operated brake units fitted. Powerplants for this first version were a pair of Wright R-3350-8 engines that provided an output of 2,300 hp at 2,800 rpm for take off while in low blower setting the output was 2,100 hp at 2,400 rpm at 2,500 feet. When high blower was selected the output changed to 1,800 hp at 2,500 rpm at 13,600 feet. The prototypes weighed 32,651 lbs while the fully loaded weight was 54,526 lbs gross.

This early breed of Neptune still harked back to the recently ended world war thus a full range of defensive armament was specified. This consisted of six 0.50 in calibre machine guns carried in three turrets located at the nose, tail and dorsal positions, each gun was equipped with 446 rounds per gun.

External weaponry consisted of four 11.75 ins Tiny Tim rockets supplemented by 16 five inch HVAR carried on racks under the wings. The weapons bay under the centre fuselage was capable of carrying an 8,000 lbs load that consisted of four 2,000 lbs bombs, eight 1,000 lbs bombs, 16,500 lbs, 12 325 lbs depth charges or a pair of anti-submarine torpedoes.

The crew needed to operate the new aircraft consisted of a captain, co-pilot, radio operator, bombadier/navigator who could also operate the nose gun turret, the radio counter measures/radar operator, a dorsal turret gunner and a tail gunner.

Before a full sized Navy test crew took charge of the prototype XP2V-1 it was put through an extensive series of flight trials throughout the later part of 1945. Some of these flights were quite violent in nature, during one such sortie which involved a

Above: The tailcode TH signifies that this P2V-5 belongs to VW-4 an airborne early warning unit. It is possible that 124871 is either a conversion trainer or has replaced the squadron's previous dash 3W aircraft. Below: As the P2V-5 version of the Neptune continued in service it underwent a regime of modifications that would result in numerous lumps, bumps and aerials appearing on various parts of the airframe. 128349, LK-4, was on the strength of VP-26 when this picture was taken. (Bill Blunt/BBA)

maximum yawing manoeuvre the entire fin leading edge was torn off plus the bomb bay doors were buckled and some of the fuselage panels were distorted. Such was the inbuilt strength of the Neptune that the aircraft landed safely. The flight trials were successfully completed by the beginning of 1946, the aircraft being passed to the US Navy in July 1946 for them to put the Neptune through its paces.

FIRST PRODUCTION VERSION
The Lockheed P2V-1 Model 126-52-02

The first production version of the Neptune was a slightly refined derivative of the prototypes and numbered 15 in total although this was quickly reduced by one aircraft which was used as the development machine for the P2V-2. The first aircraft was delivered in early 1946 while the final aircraft joined the inventory in May 1947.

Changes were few being limited to an increase in radome size and a few minor aerodynamic improvements. As with the prototypes this variant also handled well especially when operating under single-engined conditions. In contrast to most military aircraft the Neptunes were very comfortable which assisted in reducing crew fatigue during long patrol transits.

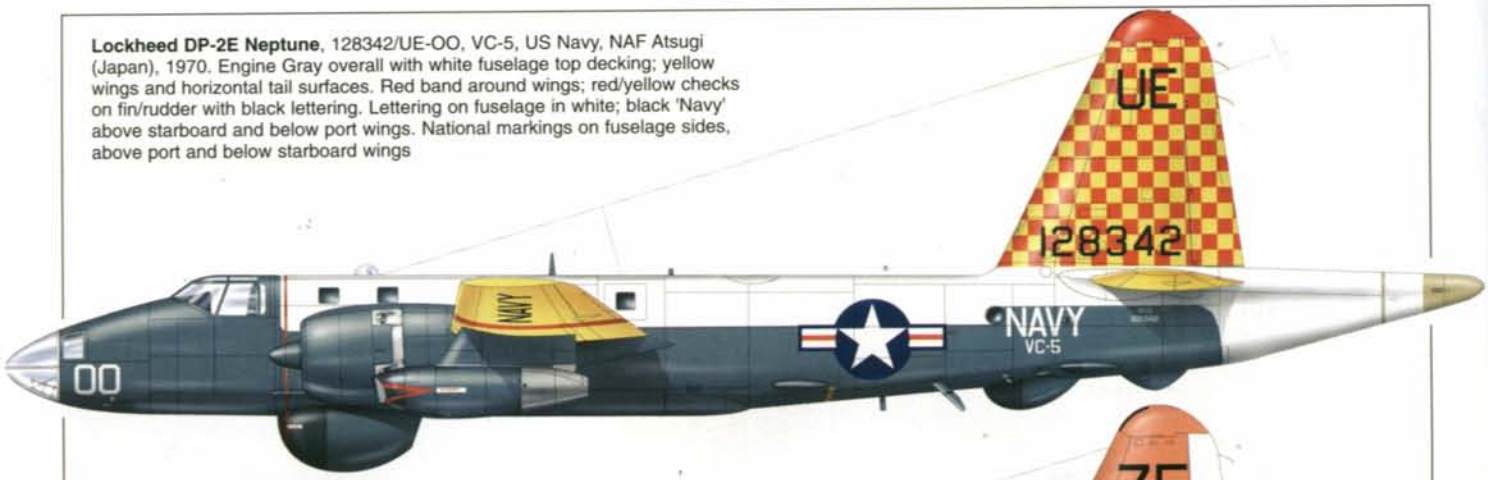
TRUCULENT TURTLE

The most famous aircraft from this batch was the third production machine, Bu.No. 89082, which was returned to Lockheed Burbank for extensive modification. The purpose of this programme was to create an aircraft that the US Navy could use to wrest

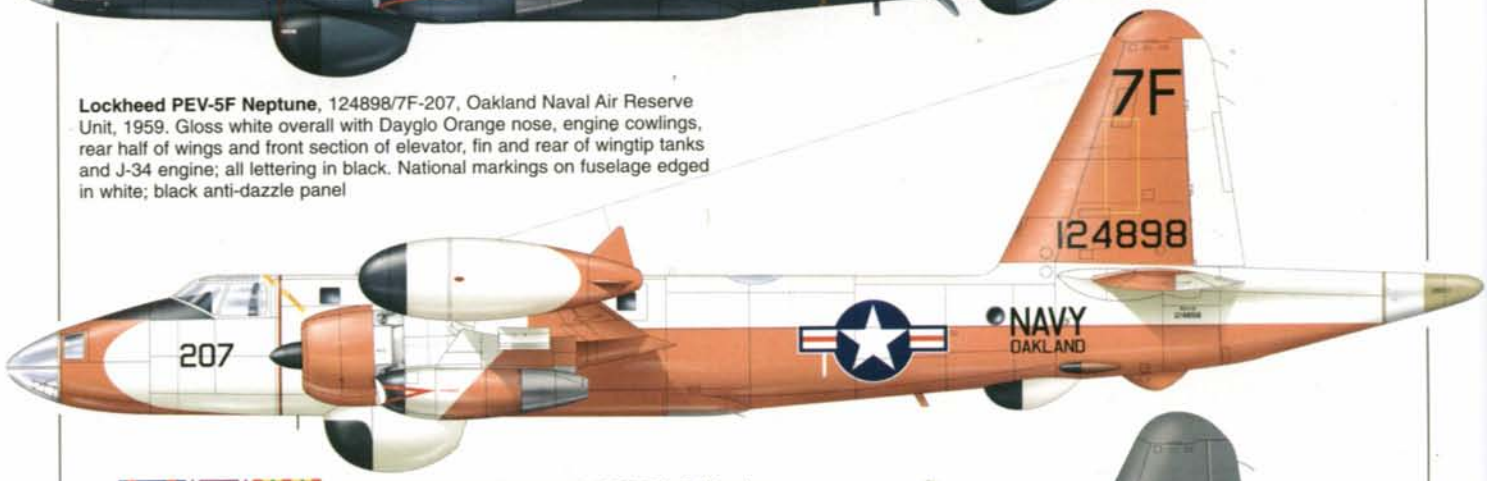
Above: 7V was the tailcode applied to aircraft assigned to NAS Glenview. In this view of P2V-5 126545 the Emerson Aero 9A nose turret is still carried while the radome is on the the port wing tank (BillBlunt/BA) Below: VU-3, later VC-3, was the operator of 128385, UF-22, although this particular aircraft has fitments for the carriage of Firebee drones which makes it a DP-2E. (Bill Blunt/BBA)

With its flaps and slats deployed this P2V-5, minus tiptanks is on approach to land. 128347 is on the strength of VC-1 and is worthy of note due to the small radome mounted in the dorsal turret position. (Bill Blunt/BBA)

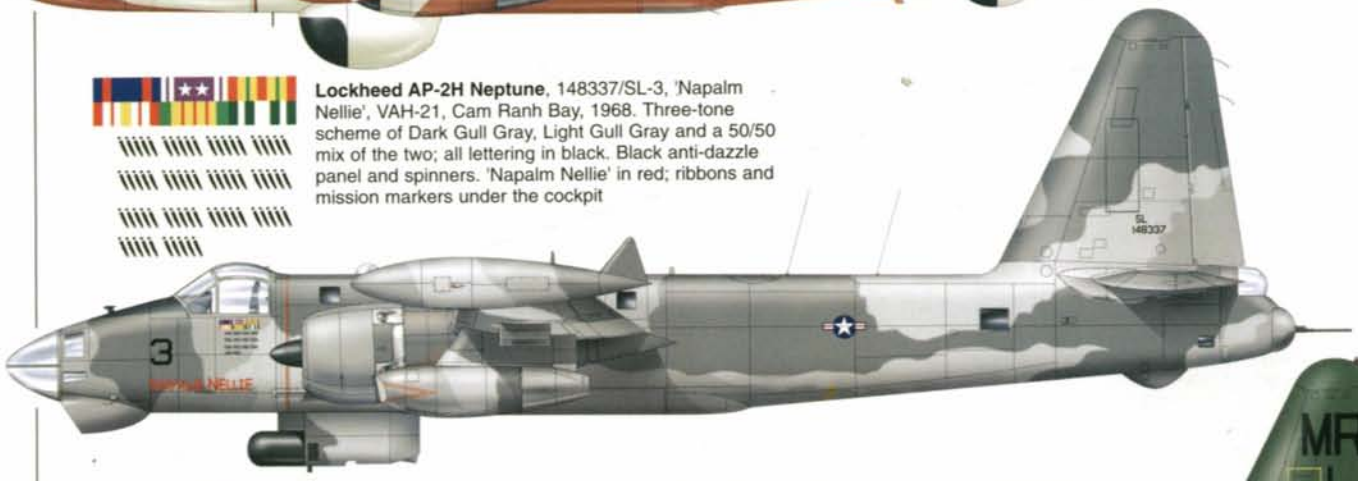
Lockheed DP-2E Neptune, 128342/UE-OO, VC-5, US Navy, NAF Atsugi (Japan), 1970. Engine Gray overall with white fuselage top decking; yellow wings and horizontal tail surfaces. Red band around wings; red/yellow checks on fin/rudder with black lettering. Lettering on fuselage in white; black 'Navy' above starboard and below port wings. National markings on fuselage sides, above port and below starboard wings



Lockheed PEV-5F Neptune, 124898/7F-207, Oakland Naval Air Reserve Unit, 1959. Gloss white overall with Dayglo Orange nose, engine cowlings, rear half of wings and front section of elevator, fin and rear of wingtip tanks and J-34 engine; all lettering in black. National markings on fuselage edged in white; black anti-dazzle panel



Lockheed AP-2H Neptune, 148337/SL-3, 'Napalm Nellie', VAH-21, Cam Ranh Bay, 1968. Three-tone scheme of Dark Gull Gray, Light Gull Gray and a 50/50 mix of the two; all lettering in black. Black anti-dazzle panel and spinners. 'Napalm Nellie' in red; ribbons and mission markers under the cockpit



Lockheed OP-2E Neptune, 131528/MR-1, VO-67 US Navy, Nakhon Phanom, 1967. Field Green upper surfaces with Light Gray undersides; all lettering black. Black anti-dazzle panel and fin top; toned-down national markings on fuselage sides, above port and under starboard wings. 'Navy' in black above starboard and below port wings; badge on front fuselage, both sides

Lockheed OP-2E Neptune, 131531, 1st Radio Research Company, US Army, Cam Ranh Bay, 1969. Light Gull Gray overall with white fuselage top decking; all lettering in black. Black anti-dazzle panel, nose and wingtip tank radomes, spinners; national markings on fuselage sides, above port and below starboard wings. 'Army' in black above starboard and below port wings. Scrap view shows the long tail aerial

back the long distance record title back from the United States Air Force. Modification work included removing all of the armament and associated equipment plus any other military equipment regarded as non-essential. With all excess weight removed the installation of the extra fuel tanks began.

Wing tip tanks that could hold 400 gallons each were fitted as was a tank in the extreme nose containing 848 gallons. Another tank, containing 2,082 gallons, was installed in the aft fuselage while the bomb bay became home for tankage containing 2,132 gallons. A final tank was fitted that contained 128 gallons into the dump chute. This would give the aircraft, by now named the

Above: VP-22 was the proud owner of this P2V-5 photographed on approach to land. In this condition 128405, QA-11, has its ailerons in the slightly drooped position which assisted in controlling the aircraft during this phase. Below: The Naval Air Development Center was the operator of 131403/ 202, a P2V-7 when this picture was taken. (Bill Blunt/BBA)

Formation flying is rare amongst the ASW community, here three P2V-7 Neptunes from VP-4 perform for the camera. (US Navy)

The crew of 131406/ LR-4 sit by the nose of their aircraft prior to their next sortie. This P2V-7 has been fully updated as the absence of gun turrets reveals. (Bill Blunt/BBA)

'Truculent Turtle' a fuel total of 8,732 gallons. A further tank was installed to cater for the lubrication of the engines this containing a maximum of 370 gallons of oil.

Should the unthinkable have happened the 'Turtle' was equipped with an emergency fuel dump system that consisted of a 10 inch aluminium pipe mounted on rollers that could be extended into the airflow. Coupled to this pipe was a three-way control valve that was connected to the nose, bomb bay and aft fuselage tanks. When selected the aircraft could release 800 gallons in 20 seconds, it taking six minutes to vent 5,200 gallons overboard.

Leading the programme was Robert A. Bailey as the Project Engineer ably assisted by Art Veereck of Experimental Engineering and John Marquarth of Flight Testing. Once the modifications had been completed Test Pilot Stanley Beltz undertook much of the test flying thus clearing the 'Turtle' for the record attempt.

The place chosen to launch the attempt was Perth in western Australia the plan being to travel across the Pacific to the United States, hopefully to reach Washington DC. In the early hours of 29 September 1946. 'Truculent Turtle' started its engines after which the starters were removed thus reducing the weight by 120 lbs. Having reduced the weight, the aircraft commander, Commander Thomas D. Davies, put it all back on by adding three naval officers as observers plus a nine month old kangaroo called Joey and his bail of feed.

Take off was made down the 6,000 ft runway at Perth, near the end of which four RATO bottles were fired. This extra 1,000 lbs of thrust over 12 seconds boosted the Neptune up to altitude quickly reducing the fuel consumption. Once the wheels were in their bays the RATO bottles were jettisoned to reduce drag.

To assist the pilots in managing the fuel flow into the engines and overall consumption the aircraft was fitted with torquemeters. Another measure applied during the flight was to use the fuel in the fuselage tanks first this retained the bending moment gained from the fuel still housed in the wing tip tanks. However, once these were empty they would be jettisoned to further reduce aerodynamic drag.

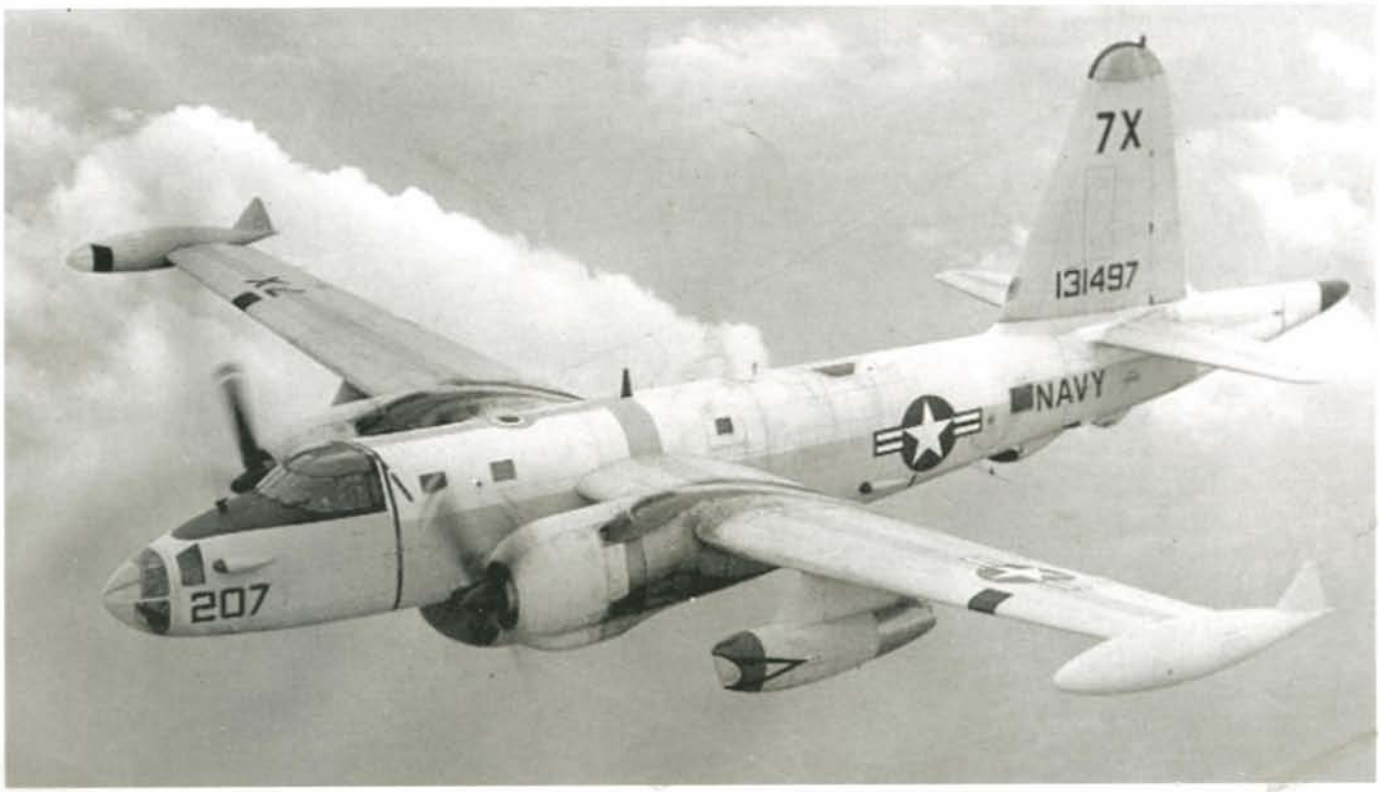
One fuel saving measure that was avoided was that of single-engined operation which would have reduced fuel consumption marginally but would have reduced the safety factor considerably. As the flight was to be a long one improved personnel comfort was provided thus washing, shaving and cooking facilities were included. Although they could have been made available anti-fatigue/sleep drugs were not used even though the last 25 hours were flown at an energy sapping altitude of 17,000 feet. En route the Neptune passed Midway before reaching the coast of California at which point the crew had to convince a sceptical air traffic controller that they had in fact flown across the Pacific.

Up to this point the weather had behaved itself however soon after crossing the coast strong headwinds were encountered which meant a re-calculation of the fuel consumption to mileage figures. The revamped flight plan meant that the Neptune had to land at Columbus, Ohio having flown 11,326 miles at an average speed of 204 mph in a time of 55 hours 17 minutes. The result of this flight and the aircraft's reliability meant that Lockheed received a $16 million order for further aircraft.

SECOND VERSION
Lockheed P2V-2 Model 226-52-02.

The order for the second version of the Neptune was drastically affected by the end of the war in 1945. The initial contract,

7X indicates that P2V-7 131497 belongs to NAS New Orleans, the painted walkways on the upper surface are clearly defined in this view. (US Navy)



placed on 16 December 1944 specified 151 aircraft, although this was cut back to 51, however the US Navy eventually restored 30 bringing the final total up to 81 aircraft.

Powerplants installed in this version were a pair of Wright R-3350-24W engines each rated at 2,500 hp at 2,900 rpm at take off. The output power was absorbed by three bladed Hamilton Standard propellors instead of the earlier four bladed units fitted to the P2V-1.

The anti-icing system also underwent modification being changed to an electrical system instead of alcohol. The airframe and armament also underwent some modifications, one of the major ones being the installation of six AN-M2, Type E, 20 mm cannon mounted in a solid nose section which resulted in the nose length increasing by 2.5 feet.

A search radar was installed in a small radome under the nose while a smaller tracking radar unit was mounted in the port tank nose tip. The first eight aircraft were fitted with a Bell Mk.5 tail turret that contained 0.50 cal machine guns while the remainder had an Emerson tail turret complete with a pair of 20 mm cannon.

The first eight aircraft were eventually flown to the Emerson facility in St. Louis for replacement of the Bell turret. The increase in armament pushed the overall weight of the aircraft up which in turn reduced the rate of climb although the more powerful engines increased the top speed by 15 mph and decreased the take off distance marginally.

First flight of the prototype XP2V-2, once the fifth P2V-1, took place on 7 January 1947 with production deliveries beginning some four months later on 20 May. The prototype was put through an extensive 10 day trials programme by Lockheed pilot Stanley Beltz at Patuxent River. During the handling sequence the XP2V-2 was slow rolled on a single engine after which the Neptune was put into a dive at a speed of 385 mph pulling out with a loading of 2.9 'g' which comfortably exceeded the US Navy requirement of 344 mph and 2.67 'g'.

In the final years of the midnight blue era the upper surfaces of the fuselage were painted white in an effort to reflect the heat and cool the airframe interior. P2V-7 131417/ LM-3 was on the strength of VP-44 when this picture was taken. (Bill Blunt/BBA)

Lockheed Neptune production list

Version	Total	Bureau Numbers
XP2V-1	2	48237/48238
P2V-1	14	89082/89096
XP2V-2	1	89086 from P2V-1
P2V-2	81	39318-39468 122438/122467
P2V-3	83	122923-122951 122964-122987 124268-124291 124354-124361
P2V-4	52	124211-124267
P2V-5	424	124865-124909 127720/127782 128327/128422 131400/131543 133640/133651 134664/134676 134718/134723
P2V-6	83	126514/126573 131544/131566 134638/134663
P2V-7	362	135544/135621 140151/140160 140430/140443 140962/140986 141231/141251 142542/142545 143172/143183 144262/144267 144675/144692 144732/144734 145900/145923 146431/146438 147562/147571 147946/147971 148330/148362 149070/149081 149089/149130 150279/150283 153611/153616
Total of Lockheed built aircraft		1,102
P-2J	82	
Total including Kawasaki built aircraft		**1,184**

Overseas sale and identities

Air Force	Neptune variant	Serial range	Bureau Number
Australia	P2V-5/P-2E	A89-301-312	133640-651
	P2V-7/SP-2H	A89-270-281	149070-081
Argentina	P2V-5	2-P-101 to 108	ex-RAF
	SP-2E	2-P-101 to 105	ex-USN
	P-2H	2-P-110 to 114	ex-USN
Brazil	P2V-5/P-15	7000-7013	Ex-RAF aircraft
Canada	P2V-7	24101 to 24125 17135569/71/73/75/77/79/81/83/85/87/89/91/939 5/07/99/601/03/05/07/09/11/13/15/	
France	P2V-6	6037 to 6054126514/522/537/540 134638-641/643-650, 654-663	
	P2V-7	7136 to 7140 7143/45/52 7154 to 71577174/77 7244/53/62/64/66144685-692,146431-438, 147562- 571,148330-337	
Japan	P2V-7/SP-2H	4601 to 4663	
Lockheed	14 Kawasaki 48		
	P-2J	4701,4702-83	prototype/production
	UP-2J	9161 to 9163	ex-4717, 4719, 4757
Netherlands	P2V-5	19-21 to 19-26	134671 to 134676
	P2V-5	19-27 to 19-32	134718 to 134723
	P2V-7	200-218	
Portugal	P2V-5/P-2E	4701-4712 Ex Kon Marine	
United Kingdom		WX493 - WX529 WX542- WX556	

Armourers loading ammunition into the nose magazines of a P2V-3 Neptune. (US Navy)

Low speed control flying showed that the Neptune handled excellently at slow speed, positive control still being maintained down to 65 mph. Further dive trials at the designed operating weight of 45,000 lbs were designed to test the maximum allowable angle limits for bomb door opening this being reached at 45 degrees.

Having survived these trials the Neptune was loaded to its maximum weight of 58,000 lbs and dived again, the pullout generating a maximum loading of 2.8 'g' well within limits. The final sequence of flight trials involved extreme stall angles at full power, violent yaws and recoveries and maximum all up weight landings were also carried out. The last few flights required that the engines be shut down and that power off landings undertaken.

Soon after entering US Navy service the P2V-2 Neptunes were employed in the aerial mapping of south western Alaska a process that had last been carried out in 1929. These aircraft, three in total, had a clear glass nose that contained the mapping cameras. As the aircraft's role was not offensive only the dorsal turret was retained.

For missions over either the north or south poles two aircraft from this batch were fitted with skis being redesignated P2V-2N in the process. The skis were mounted in such a manner as to allow landings on either snow or a conventional runway. In the retracted position the skis faired neatly under the nose and engine nacelles. These aircraft were intended for long range search and rescue primarily over the Arctic thus all armament was removed as was the, by now redundant, tail skid. The final P2V-2 was delivered in August 1948.

MORE POWER
Lockheed P2V-3 Model 326

The next version of the Neptune was the P2V-3 powered by Wright R-3350-26W engines which developed an output of 3,200 hp at 2,900 rpm using water injection while the dry rating was set at 2,700 hp at 2,900 rpm. Further thrust was available through jet augmentation of the exhausts.

Lockheed received a contract that covered the delivery of 30 P2V-3W, two P2V-3Z special versions, 11 P2V-3C special weapons versions, and 40 standard P2V-3 aircraft which brought the final total up to 83.

The maiden flight of the first dash 3 took place on 12 August 1949. The P2V-3 aircraft was the first version to mount the APS-20 radar in a large radome under the nose, this feature being prominent in the dash 3W which was employed on airborne early warning duties. Two of the machines could be converted to the dash 3Z version this being an armed and armoured transport for use by the Secretary of the Navy, the Chief of Naval Operations and other VIPs requiring transport into dangerous areas. Their operational base was at NAS Anacostia.

Other sub-variants developed from this version were the P2V-3B special armament aircraft of which two were converted. This

Resplendent in the final operational scheme of white and light gull grey is this P2V-7 Neptune, 135588/ LB-3, allocated to VP-7. (US Navy)

version was fitted with the ASB-1 Low Level Radar Bombing System that was also fitted to the Douglas A-3 Skywarrior.

In an unusual move the US Navy required Lockheed to deliver 12 aircraft as dash 3C aircraft these being intended for operations from aircraft carriers. Their primary armament was a nuclear weapon and the operation would be one way as the chances of survival from such a flight were slim while the possibility of landing back on the carrier was imposible.

Changes from the basic aircraft included removal of the defensive armament except for the tail turret, underwing pylons, astrodome and tail skid, and in their place extra fuel tanks were installed to extend the aircraft's range. First trails were held aboard *USS Coral Sea* these beginning on 17 April 1948 with Cdr Tom Davies in command. The take off run meant taking the whole of the flight deck, the pilot firing the aircraft's RATO bottles when the Neptune was abreast the aircraft carrier's island. The extra 8,000 lbs of thrust boosted the aircraft into the sky. Following close behind was Lt. Cdr J.P. Wheatley in a second aircraft. Further trials from the *Coral Sea* were undertaken on 7 March 1949 when the carrier was cruising off the Virginia coast.

After the RATO assisted take off the P2V-3C, at a maximum loading of 74,000 lbs, that included a simulated bomb load, was flown the 2,000 miles to Muroc in California where it released its inert bombs before flying a further 2,000 miles to the Naval Air Test Center at Patuxent River, Maryland. From the *Coral Sea* the trials moved to the *USS Franklin D Roosevelt* which launched a P2V-3C to undertake a similar long distance flight. The route was to encompass a trip across the Gulf of Mexico then onto the Panama Canal after which the Neptune flew north towards Moffett NAS near San Francisco covering a total of 5,156 miles before landing.

ANTI-SUBMARINE VERSION

Lockheed P2V-4 Model 426-42-06

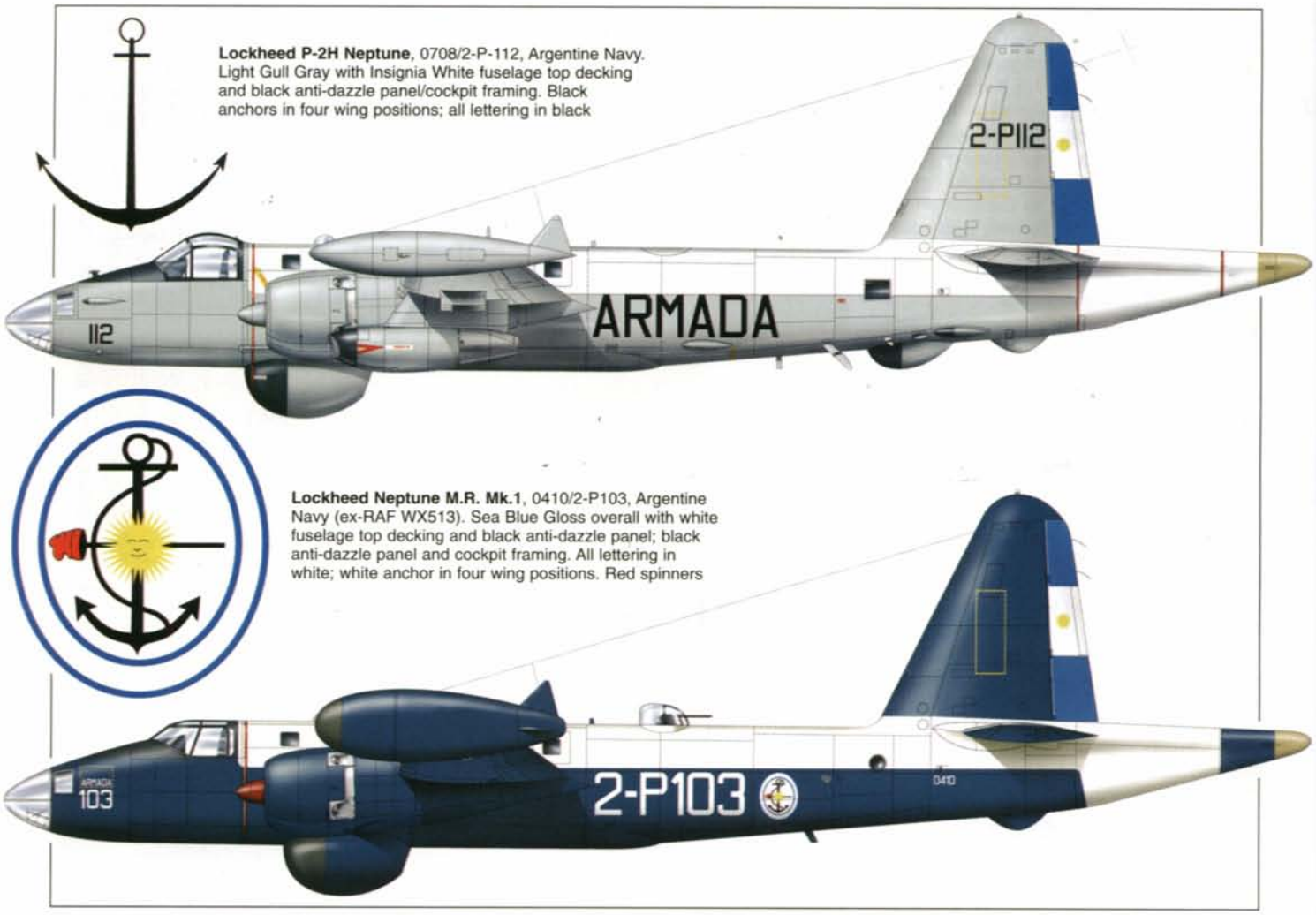
Following on from the dash 3 came the P2V-4 version of the Neptune which made its maiden flight on 14 November 1949. Powerplants for this version were a pair of Wright R-3350-30W turbo compound engines which developed 3,750 hp. The use of these engines had the benefit of improving fuel consumption which dropped to 0.39 lbs/hp/hr while the take off run was reduced and the rate of climb increased.

Early production aircraft were delivered with Wright R-3350-26W engines as the turbo compound units were not available although they were retrofitted by November 1951. Lockheed was awarded a contract that covered the delivery of 57 aircraft these finally being optimised to hunt submarines as a priority.

To this end the 'Snorkel Snipper' was equipped with radio sonobuoys for detection of this threat. To increase the Neptune's range and loiter time Lockheed installed tip tanks, outer wing and fuselage tanks that gave the P2V-4 a range of 5,935 miles. All up weight of this version increased to a

Above:Neptune 140159/ LG-6 was a P2V-7 allocated to VP-18 when this photo was taken. To protect the underwing jet engines the intakes were fitted with covering doors that remained closed except when the J34's were in use. Below: VX-6 would use this P2V-5 to supply the Antarctic base at McMurdo Sound thus 140437/ JD-1 is equipped with skis and liberally bedecked with dayglo for identification purposes. (US Navy)

Above: VX-1 operated the Neptune until the late 70s. 143173/JA-21 wears the the second colour scheme which consists of the basic midnight blue scheme over which gloss white has been applied for heat reflectance purposes. Below: With both engines running this Neptune of VP-21, 145909/LH-5, taxies out in the rain for another sortie. Unlike most units VP-21 has its squadron tag on the wingtip tanks instead on the modex number. (Bill Blunt/BBA)



Lockheed P-2H Neptune, 0708/2-P-112, Argentine Navy. Light Gull Gray with Insignia White fuselage top decking and black anti-dazzle panel/cockpit framing. Black anchors in four wing positions; all lettering in black

Lockheed Neptune M.R. Mk.1, 0410/2-P103, Argentine Navy (ex-RAF WX513). Sea Blue Gloss overall with white fuselage top decking and black anti-dazzle panel; black anti-dazzle panel and cockpit framing. All lettering in white; white anchor in four wing positions. Red spinners

maximum of 67,500 lbs with 10,000 weapons load. This version was also the first to carry the APS-20 radar as standard equipment from the outset.

KOREAN WAR PRODUCTION

Lockheed P2V-5 Model 526-42-06

This version of the Neptune secured the largest production contract for the type as its inception coincided with the Korean War. Changes to this version were centred around improving the armament options as the dash 5 retained the same engines as the dash 4, in fact many of the latter version were converted from P2V-4 airframes already on the production line.

One of the most obvious alterations was the replacement of the fixed armament in the nose by a power operated Emerson Aero 9B gun turret containing a pair of 20 mm cannon. Further changes affected the wing tip tanks which became more oval in cross section and were centre mounted onto the wing. This tank, complete with small fin was jettisonable in an emergency however before such a requirement the crew could utilise the high power searchlight in the front of the starboard tank or the search radar, either the APS-8 or APS-31, at the front of the port wing tip tank. The flight deck canopy panels were also modified being increased in size to improve visibility.

A total of 424 aircraft were built with the first making its maiden flight on 29 December 1950, deliveries being undertaken between 1951 and 1953. This version was also popular with foreign air forces, as related later.

During its service the P2V-5 was extensively modified this including a clear plexiglas nose cone and an ASQ-8 Magnetic Anomaly Detector in an extended tail boom. The increase in the various systems saw crew numbers increase to nine. Later the dorsal turret was removed to be replaced by skylight windows while the final major modification was the installation of a pair of Westinghouse J34-WE-34/36 turbojets with an output of 3,400 lbs each, after which the aircraft was designated as the P2V-5FD. As these were mounted under the outer wing panels the number of weapons pylons was reduced to eight per side. This reduction in pylons was considered a benefit as the turbojets allowed for an improved take off and top speed performance while dash-over-target speed was also increased in contrast to other versions of the Neptune.

Lockheed sub-contracted much of the production to other companies thus Chance Vought was responsible for the empennage while the outer wing panels were constructed by the Temco Aircraft Corp, both being located in Dallas, Texas. Kaiser-Fraser based at Oakland, California, were contract-

VW-3 used another variant of the Neptune known as the P2V-5FJ for weather reconnaissance work between 1953-58. It had the glazed nose, MAD boom and underwing turbojets.

VP-65 was a reserve unit that flew the Neptune from 1970 to 1973. This immaculate machine, 141234/ PG-6, comes complete with blue trim on the fin tip and tip tank fins. (Andre George)

ed to build the centre fuselage sections aft of the wing while the Solar Aircraft Co in San Diego manufactured the entire engine nacelles from stainless steel that was not only stronger but saved 175 lbs in weight.

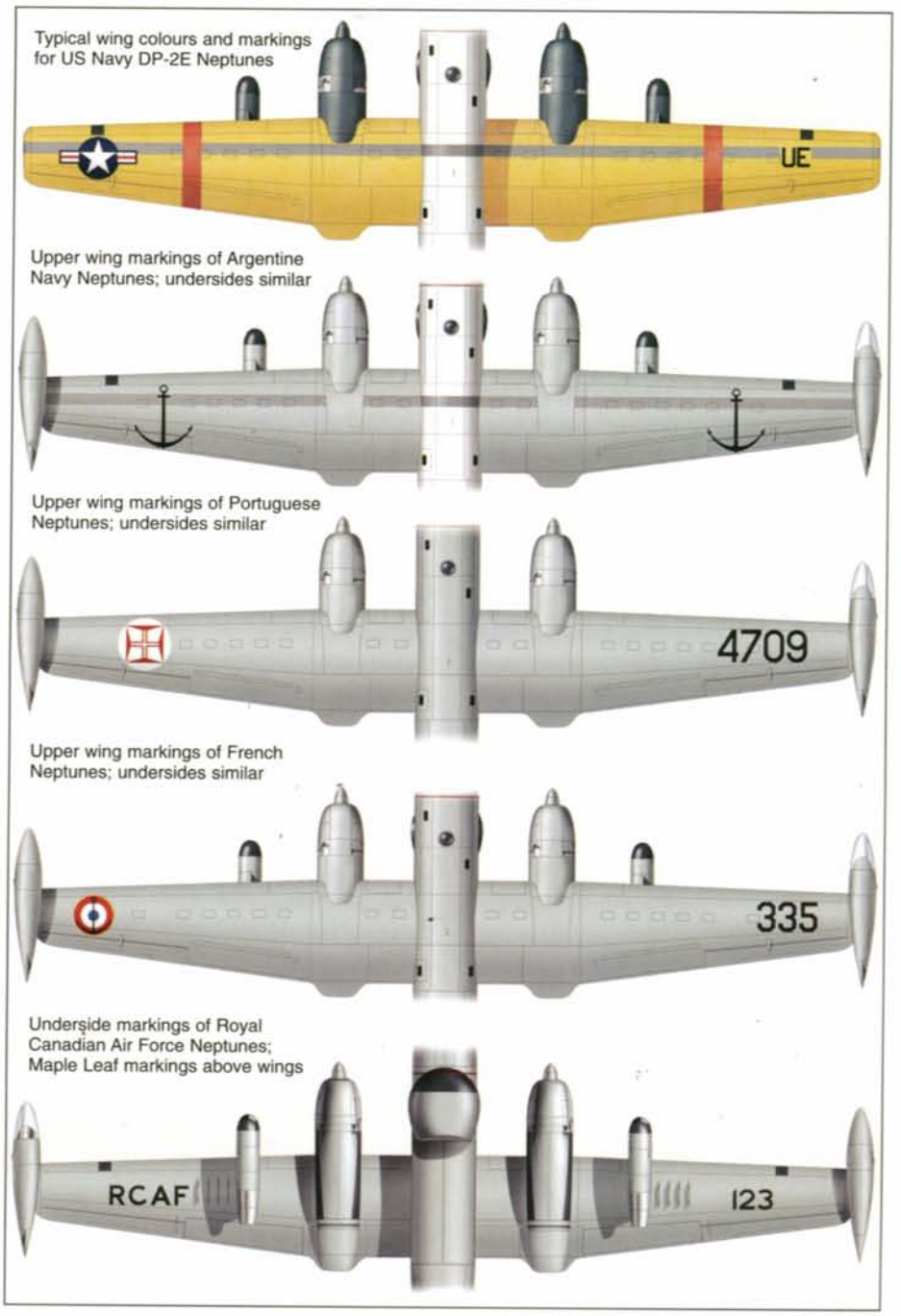
Sub variants of this version included the P2V-5FD that was modified to act as a target drone controller, for this role the armament was removed as well as much of the avionics their replacement being a pair of pylons capable of carrying Firebee drones and the avionics required to manage them.

These aircraft remained in service until the early 1970s. Two other versions were the P2V-5FE that had extra ECM avionics fitted while the P2V-5FS was the version fitted with a Julie/Jezebel sonar system. Near the end of their career some of these aircraft had all of their armament removed for their next role that of training. After the 1962 Unified Designation System was introduced the P2V-5 became the P-2E.

VARIED ROLES
Lockheed P2V-6 Model 626-45-14

Once manufacture of the dash 5 had been completed production switched to the P2V-6 which featured improved avionics capable of coping with mine laying and anti-submarine warfare. Structurally the dash 6 featured a smaller radome compared to the radar scanner, either the APS-33 or APS-70, while the nose was enlarged.

This version was first delivered with the Emerson nose turret although the clear nose was introduced on some aircraft later in their careers. Production began in October 1952 ending in November 1953 after 83 aircraft had been delivered. Although built as anti-submarine aircraft some were converted to carry a pair of Fairchild Petrel AUM-N-2 missiles after which they were re-designated as MP-2Fs having originally been the P2V-6B or M. When the Westinghouse J34 engines were installed the aircraft were re-



142545 PL-12 is an immaculate P2V-7/SP-2H allocated to VP-67 a unit that was part of the US Navy reserve. The use of the Neptune by these squadrons would end in the mid-70s. (Andre George)

designated as P2V-6F. Other aircraft were converted to carry the Teledyne Ryan Firebee drone purchased by the US Navy as the Q-2A, later AGM-34A while others became trainers as the TP-2F.

FINAL US VERSION
Lockheed P2V-7 Model 726-45-14

The final version of the Neptune was the P2V-7, later re-designated as SP-2H, the first making its maiden flight on 26 April 1954. The fuselage underwent even more modifications being lengthened while the cockpit canopy was enlarged again to further improve all round visibility. Other changes included modifications to the wing tip tanks which were reduced in size and more streamlined.

This version of the Neptune was the fastest ever built being able to achieve 364 mph in dash speed mode. The first production versions of the P2V-7 were manufactured with Emerson Aero 9B turrets in both the nose and tail although they were soon replaced by a clear nose and MAD tail boom. As production continued the dorsal gun turret was replaced by a skylight observation window. Sub-versions of this variant included the P2V-7S which featured improved ASW equipment and the dash 7LP which featured aluminium skis, RATO bottles and other equipment optimised for the Arctic rescue role. This version also found use with foreign air forces.

BUILT IN JAPAN
Kawasaki P-2J

The JMSDF were already operating the Lockheed Neptune and some others built under license when the primary contractor, Kawasaki, began to investigate ways of improving on the SP-2Hs already in service. To that end the company's engineers began to design a more advanced version in mid-1963. The intention was to incorporate many of the systems developed for the Lockheed P-3A Orion into a refurbished or new airframe.

The first of these new models was the P2V-7 Kaizo, shortened to Kai, that featured a 54 inch fuselage extension to the forward fuselage while the original APS-20 radar was replaced by the more advanced APS-80 borrowed from the Lockheed Orion. This system used a shorter wavelength which in turn allowed for a smaller scanner. The extended fuselage required the use of an enlarged rudder to restore positive control.

The turbo compound engines were replaced by a pair of GE T64-IHI-10 turboprops that drove Sumitomo Precision 63E60-19 three-bladed variable pitch propellors. The changes required that the main undercarriage was redesigned therefore twin mainwheel units replaced the single wheel units previously used. Boosting take of performance were a pair of Ishikawajima J3-IHI-7C turbojets each rated at 3,085 lbs. The new powerplants boosted the aircraft's top speed to 403 mph while overall fuel consumption was reduced. Also reduced was the airframe's empty weight that had dropped by 10,000 lbs.

This new version of the Neptune was able to carry a 12,000 lbs weapons load, an improvement of 2,000 lbs. The crew was increased to 12 by the addition of a combat co-ordinator. Initially the project was designated the GK-120 although the P-2J designation was introduced at the start of production. The actual programme began in 1965

This Neptune from VC-8 is being prepared for its next mission. Of interest are the extra aerial bulges on the wingtip tank and under the fuselage. (Andre George)

when a P2V-7, S.No 4637, was converted with its flight tests beginning on 21 July 1966 (having been renumbered 4701), delivery for JMSDF testing taking place on 14 November 1966.

A total of 83 aircraft were constructed by Kawasaki with the first beginning on 7 October 1969 and delivered to the 51st FS for flight trials. The first complete operating unit was the 1st FS which completed its transition from the P2V-7 to the P-2J by the end of February 1971. The second unit to receive the P-2J was the 2nd FS that received its first aircraft on 28 April 1971. The final delivery of the P-2J was made to the JMSDF on 14 March 1979.

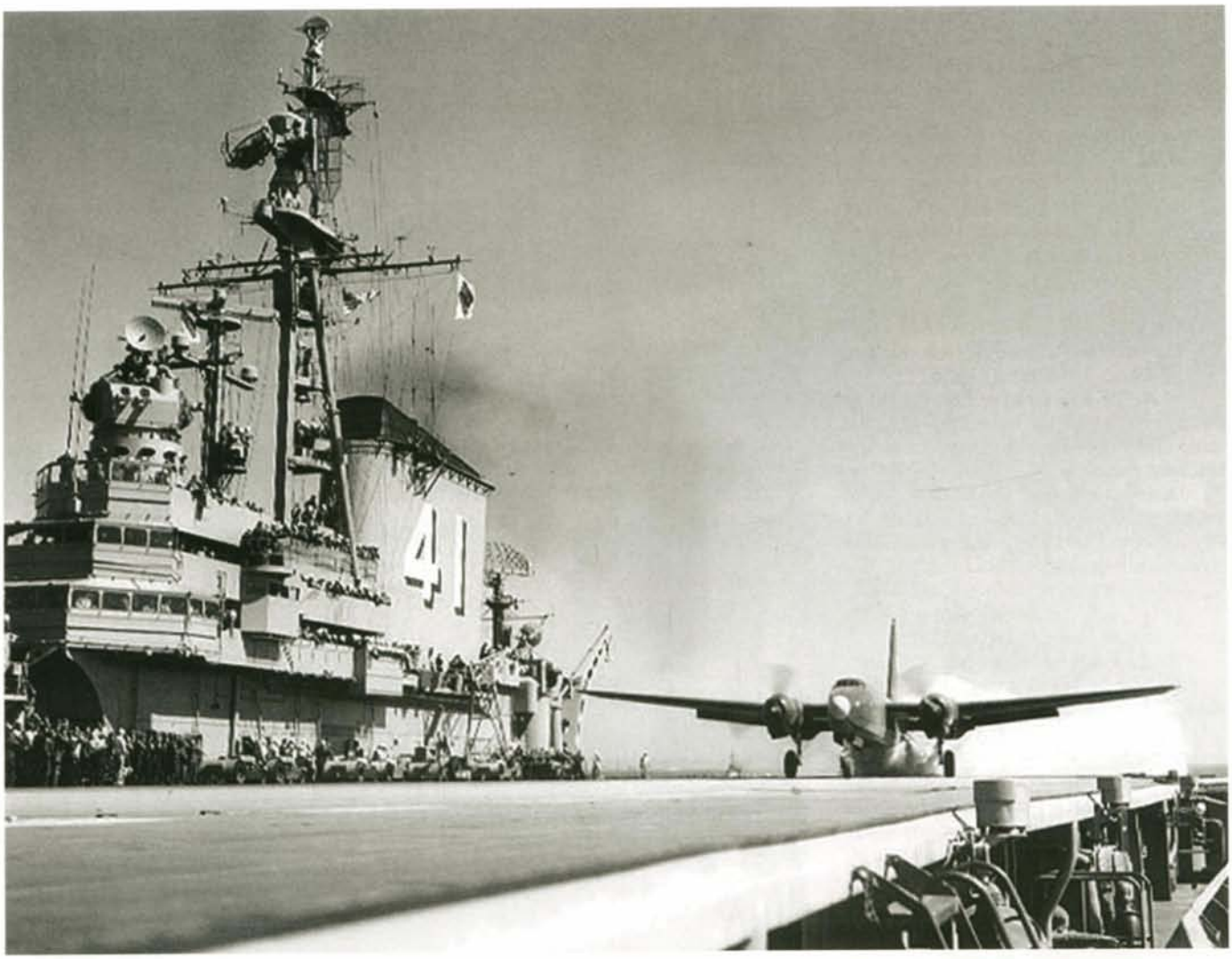
Not all the P2V-7s were fully retired as five were retained for use as photographic chase aircraft although most other machines had been retired by the end of 1981.

During 1985 the P-2J units began to exchange their aircraft for the Lockheed P-3 Orion that was being built under license. In a similar manner to the last of the dash 7s a handful of the P-2Js remained in use. Three, 4717, 4719, 4757, were converted to UP-2Js these being reserialled 9161 to 9163.

These aircraft were operated in various support roles for the fleet such as target towing, drone launching and ECM training. The first UP-2J was delivered in December 1979 being put through its paces by the 51st Kokutai before all were transferred to the 81st Kokutai which came into being on 30 March 1983 at Iwakuni. All versions of the Neptune would be out of JMSDF service by the end of the 1980s.

Above: With its gear and flaps down the P2V-5, A89-304, prepares to touch down at the completion of its mission. (David Molesworth) Below: The Trident of VP-4 is prominent on the fintip on 150279/ YD-2 as it awaits its next crew. (Bill Blunt/BBA)

This immaculate P2V-7, 148352/LQ-5 is one of the few allocated to VP-45 for the UNITAS exercises with Latin American air forces. (US Navy)



Above: Parallel to the carrier Island this P2V-3C uses its JATO bottles to boost itself from the carrier deck. (US Navy) Right: Rocket boosting was the only way that the P2V-3C could leave the deck of a carrier. Due to the size of the Neptune this, in wartime, would be a one way trip. (Lockheed via T. Panopalis)

NEPTUNES WITH THE US ARMY AND USAF

In 1954 the United States Air Force approached US Navy officials for the loan of seven P2V-7 Neptunes. Also at the meeting were officials of the CIA, the outcome was a joint USAF/CIA purchase of these aircraft ostensibly for training missions.

From the outset Project Cherry, later Wild Cherry was banned from operating the Neptunes in US Navy colours thus the USAF took visual control of the aircraft and they were designated RB-69As. Unlike the remaining Neptunes these machines were built in the company's Skunk Works for hand finishing and the installation of ELINT equipment.

Although allocated standard USN serial numbers the Neptunes were delivered with USAF serials in the range 54-4307 to 4043. From the outset of Wild Cherry there were equipment problems these mainly centering around the equipment fit as so many departments within the CIA had contributed to the funding that each claimed priority. Should all the departments have got their way the aircraft would have easily outgrown its design limits. The answer was to create a set up using removable packages thus all seven aircraft, though looking much the same, were completely different inside.

Some of these included a high speed leaflet dispenser that could launch thousands of leaflets per minute, while another less hi-tech system was based around a wooden crate that would house an agent and sustain them during the flight and subsequent parachute drop. Another innovation incorporated into the RB-69A was a 'Skyhook' parachute recovery system that could be used to collect agents from the ground during a high speed fly by.

In addition to these add-ons each RB-69A was fitted with a sophisticated camera reconnaissance system being operated in conjunction with arc lights mounted in the wing tip pods. Some of the RB-69As were fitted with an early version of sideways looking airborne radar while others had a primitive version of a terrain avoidance radar fitted as well as a Decca Doppler navigation system. The other primary role assigned to the RB-69A was that of ELINT and ECM jamming, the equipment being

Lockheed P2V-6 Neptune, 134636, French Aeronavale. Sea Blue Gloss overall with white serial on rear fuselage; roundels in six positions

Lockheed P2V-6 Neptune, 21.F.3 of 21 Flotille, Aeronavale. Sea Blue Gloss overall with white lettering; national markings in six positions

Lockheed SP-2H Neptune, 146431/25.F.1, Flotille 25, Aeronavale. Sea Blue gloss overall with red fin/rudder and wingtip tanks. All lettering in white; black anti-dazzle panel. Roundels above port wing and below starboard wing; '431' in white above starboard wing and below port wing

Lockheed SP-2H Neptune, 148335/335, Flotille 25, Aeronavale, Lann-Bihoué, 1983. Gull Gray upper surfaces and Insignia White undersides; dark grey leading edges of wing, tailplane and rudder. Black anti-dazzle panel; roundels on fuselage sides, above port and below starboard wing. '335' in black above starboard and below port wing; note unit badge on forward fuselage

Lockheed P2V-5 Neptune, 7004/7 (ex RAF WX521), 1º/7º GAv, Brazilian Air Force. Sea Blue Gloss overall with white lettering; red '7' on fin outlined in white

A89-273 was a P2V-7 Neptune of the Royal Australian Air Force and has been modified to the final Mk.4 standard. (RAF Museum)

housed in the MAD boom. During most of these missions the crew would consist of 12, four would be the flight crew while the others were systems operators.

Initially the RB-69As were based at Eglin AFB, Florida although they did take ocassional trips to Edwards AFB, Lockheed Palmdale and Shaw AFB for training flights and modifications. Once rated as combat capable the aircraft were despatched overseas, two went to Wiesbaden in Germany to be employed on intensive leaflet dropping missions along the German border as well as ferret missions into Warsaw Pact territory. The German missions eventually ended when they were compromised by an American Officer. The other five aircraft were sent to Taiwan where they monitored the Chinese mainland and inserted agents into Communist China. They were later joined by the two aircraft from Germany where all seven aircraft were nominally on the charge of the Republic of China's Air Force 34th Sqdn/8th Group. Crews for these missions were increased to 14 as the length of the missions had increased and extra pilots were needed. To improve the self defence capabilities of the RB-69A four aft facing AIM-9 Sidewinders were fitted although there is no record of them having being used.

The first RB-69A loss occurred on 6 November 1961 when it was hit by AA gunfire over Shantung Province. A second disappeared over China on 8 January 1962 while a third was shot down by MiG-17 fighters near Nanching on 14 June 1963. A fourth aircraft was shot down over China on 11 June 1964 while the fifth loss overtook an aircraft en route to South Korea on 25

Above: A89-228 is seen here in the original condition the P2V-5 aircraft were delivered in to the RAAF. Thus gun turrets at nose, tail and dorsal positions are still fitted. Below: This P2V-5, A89-306, has been modified to Mk.2 standard therefore only the dorsal turret remains from the gun armament. A full range of practise rockets is carried on the underwing pylons. (David Molesworth)

With its gear and flaps down P2V-5, A89-304, RAAF. prepares to touch down at the completion of its mission. (David Molesworth)

March 1960. The fate of the final two aircraft is not known although the reported fate of being returned as standard SP-2Hs is unlikely given their unique modification state. Their final fate is more likely to have been to fly to Groom Lake and be dismantled and scrapped there.

The United States Army ended up using the Neptune, not in a combative role, but as an ELINT gathering platform. Six ex-USN P2V-5 airframes underwent conversion to EP-2E standard, the 1st Radio Research Company, also known as the 'Crazy Cats' formed on 2 December 1966 for operations from Cam Rahn Bay AB, Vietnam. This unit remained active until 30 April 1972 when the Neptunes were replaced by Beech RU-21s.

SPECIAL NEPTUNES FOR THE US NAVY

Although the US Navy operated the Neptune in the more conventional anti-submarine and maritime patrol roles the war in Vietnam required that some aircraft were heavily modified for completely different tasks. The first of these was the OP-2E that started operations with VO-67 on 15 February 1967. Based at Nakhon Phanom RTAB, Thailand the squadron was not intended to hunt submarines in the Mekong river, but were used against the multiple paths that made up the Ho Chi Minh trail.

This main supply route was a vital life line for the Vietcong and the NVA and was heavily canopied by trees which made intercepting convoys very difficult. The Secretary of Defence, Robert McNamara, was known to be opposed to direct action against North Vietnam however he recognised the threat that the Ho Chi Minh trail posed, therefore in 1966 he gave an order to the military to develop a system that was capable of detecting movement under the jungle canopy.

The only equipment readily available was

Right: P-2 Neptune of the Royal Australian Air Force which was preserved at the time that other aircraft of the type were disestablished in favour of the P-3 Orion (Gary Madgewick) Below: The RAAF received its Neptunes in the midnight blue and white finish although the former would soon be replaced by light gull grey. (David Molesworth)

Above: Fully modified to Mk.4 standard the P2V-5, A89-275, sits on the ramp prior to leaving on its next mission. (David Molesworth) Below: In Brazilian service the Neptune was a most popular aircraft being designated the P-15 in the local service designation system. (Bill Blunt/BBA)

a modified version of the US Navy's Sonobuoy known as the Acoubuoy which was camouflaged to help hide it in the trees after being dropped by parachute.

Although most of the service's patrol aircraft were capable of deploying either Sonobuoys or Acoubuoys it was the P2V-5F version of the Neptune that was chosen for the task. Although more than capable of deploying the acoustic systems they were seen as vulnerable to the increasing amount of anti-aircraft weaponry that was being deployed along the trail. This risk was seen as acceptable therefore 12 aircraft were converted.

The primary contractor for the overhaul and modification programme was Martin Aircraft at Baltimore. At this facility the original fuel tanks were removed and replaced by self sealing bladder fuel tanks while the electrical system was completely overhauled. The fuel tanks held 2,800 gallons of fuel and were capable of absorbing hits from shrapnel and small arms fire.

As the anti-submarine role equipment was no longer needed the MAD boom was removed as was the APS-20 radar scanner and radome under the forward fuselage. Further modifications included the removal of the wing tip fuel tanks while extensive armour plating was added to the bombadier's position, the flight deck and the aft gunner's position. The original small escape tunnel into the nosewheel bay was also enlarged while the avionics were upgraded and threat detection systems installed.

To allow the Neptunes to carry a large amount of sensors extra racks were installed in the weapons bay while the underwing pylons, reduced in number due to the instal-

In a similar manner to other air forces the Brazilian Neptunes were delivered in the original dark scheme although this would soon be replaced by the lighter colour finish. (Bill Blunt/BBA)

Lockheed SP-2H Neptune, A89-279, No. 10 Squadron, Royal Australian Air Force, Canberra (NSW), 1967. Light grey overall with white fuselage top decking; black anti-dazzle panel and rear of engine nacelle. All lettering in black; spinners are blue. Note unit crest under cockpit and a black/white version carried high on the fin

Lockheed P-2E Neptune, A89-302 (ex-A89-595), No. 11 Squadron, Royal Australian Air Force. Semi-gloss Engine Gray with white fuselage top decking; black fin top. All lettering in white; national markings in six positions

Right: P2V-7 Neptune 24122 of Maritme Air Command, Royal Canadian Air Force, seen at RAF St.Mawgan on exercise in 1965 (APN)

lation of the jet pods, were augmented by the use of multiple ejection racks. Once the rework had been completed the Neptunes had their grey and white upper surfaces replaced with a coat of jungle green.

After initial flight tests had been completed other equipment was added to the OP-2Es which included SUU-11 minigun pods under the wings, chaff dispensers in the position once occupied by the MAD boom while a LORAN C replaced the earlier outmoded LORAN system. Further armament in the form of a pair of M-60 machine guns was mounted in the waist position hatches complete with 550 rounds per gun.

Having fitted out the Neptunes for their new role the question arose concerning how to drop the Acoubuoys and the newly developed Seismic Detection Sensors accurately. This was solved by fitting a Norden bombsight in the clear nose however even this was beset with problems as the sight had long since been out of service.

This required the manufacturer to refurbish enough sights plus spares to equip the aircraft while a retired instructor, Lt. Col Conrad Brown, was tempted out of retirement to train the bombadiers in the art and practise of using the bombsight. The need for the bombsight was required as the sen-

Just in case various members of the RCAF are not very good at aircraft recognition 24123 has the word Neptune painted above the national flag on the fin. (Bill Blunt/BBA)

US Navy Neptune units and examples

Unit	Named	Tailcode 1	From/to	Tailcode 2	From/to	
VP-1	Screaming Eagles	CD	9/48- 6/57	YB	6/57 - 7/69	124886 CD-3
VP-2	Neptunes	SB	9/48 - 6/57	YC	6/57 - 9/69	127765 SB-3
VP-3	Huskies	MB	-/46 -11/55			124900 MB-6
VP-4	Skinny Dragons	DB/SC	-/47 - 6/57	YD	6/57 - 9/62	128352 YD-2
VP-5	Mad Foxes	MC	12/48 - 6/57	LA	6/57 - -/64	127782 LA-11
VP-6	Blue Sharks	BE	9/49 - 6/57	PC	6/57 - -/65	122934 BE-7
VP-7	Black Falcons	EM/HE	9/48 - 6/57	LB	6/57 - 8/69	122447 HE-3
VP-8	Tigers	HD	9/48 - 6/57	LC	6/57 - 8/62	128345 LC-11
VP-9	Golden Eagles	CB	-/51 - 6/57	PD	6/57 - 12/63	140158 PD-3
VP-10	Red Lancers	HK	-/51 - 6/57	LD	6/57 - 7/65	128350 LD-2
VP-11	Pegasus	HB	-/52 - 6/57	LE	6/57 - 1/67	135548 LE-6
VP-16	Eagles	HH	-/53 - 6/57	LF	6/57 - 7/64	39326 HH-8
VP-17	White Lightnings	BH	-/53 - 6/57	ZE	6/57 - 12/68	131492 ZE-12
VP-18	Flying Phantoms	HF	9/48 - 6/57	LG	6/57 - 10/68	135549 LG-19
VP-19	Big Red	CH	-/53 - 6/57	PE	6/57 - 7/63	135584 PE-11
VP-21	Black Jacks	HC	-/53 - 6/57	LH	6/57 - 11/69	135556 LH-6
VP-22	Blue Geese	CE	-/51 - 6/57	QA	6/57 - 11/64	124219 CE-9
VP-23	Sea Hawks	MA	9/48 - 6/57	LJ	6/57 - 11/69	141234 LJ-2
VP-24	Batmen	HA	-/53 - 6/57	LR	6/57 - 4/67	131406 LR-4
VP-26	Tridents	EB	9/48 - 6/57	LK	6/57 - 1/66	131418 LK-1
VP-28	Hawaian Warriors	CF	12-52 - 6/57	QC	6/57 - 12/64	127720 CF-6
VP-29	none	BF	10/50 - 11/55			124892 BF-6
VP-30	Pro's Nest	LL	12/62 - 12/65			131445 LL-15
VP-31	Genies	RP	7/60 - 9/60			131457 RP-12
VP-42	Sea Demons	RB	4/63 -9/69			131519 RB-7
VP-44	Golden Pelicans	LM			12/60 - 8/62	128366 LM-2
VP-45	UNITAS X	LN	6/69 - 1/70			147951 LN-40
VP-46	Grey Knights	RC	1/61 - 1/64			131457 RC-5
VP-56	Dragons	LQ	1/61 - 12/62			141238 LQ-4
VP-57	Flying Eagles	BI	2/53 - 7/56			131482 BI-8
VP-60	Cobras	LS	11/70 - 6/73			140154 LS-1
VP-62	Broad Arrow	LT	11/70- 6/73			140972 LT-4
VP-64	Condors	LU	11/70 - 6/73			145919 LU-14
VP-65	Tridents	PG	11/70 - 6/73			141251 PG-7
VP-66	Liberty Bell	LV	11/70 - 6/73			147968 LV-12
VP-67	Golden Hawks	PL	11/70 - 6/73			142545 PL-12
VP-68	Blackhawks	LW	11/70 - -/71			148357 LW-1
VP-69	Totems	PJ	11/70 - 11/75			135578 PJ-12
VP-90	Lions	LX	11/70 - 4/74			141243 LX-3
VP-92	Minutemen	LY	11/70 - 4/75			140443 LY-10
VP-94	Crawfishers	LZ	11/70 - 4/75			145903 LZ-8
VP-661	none	LV	10/61 - 8/62			128371 LV-2
VP-741	none	LU	10/61 - 8/62			127721 LU-4
VP-832	none	LS	10/61 - 8/62			127732 LS-1
VP-872	none	PS	10/61 - 8/62			128398 PS-7
VP-933	none	LT	10/61 - 8/62			127720 LT-3
VX-1	none	XA/JA	7/51 -			147949 JA-5
VX(E)-6	none	XD/JD	1/55 -			147949 JD-3
VU-1/VC-1	Blue Aliis	UA				128347 UA-47
VU-3/VC-3	Iron Man	UF				128352 UF-21
VC-5	Checkertails	UE				128342 UE-30
VC-8	Redtails	GF				128344 GF-4
VQ-2	none	JQ	7/57 -3/65			122973 JQ-4
VW-3	none	PM	-/53 - -/58			124892 PM-1
VW-4	none	PN/TH/MH	-/53 - -/58			124903 MH-6
VO-67	none	MR	2/67 - 7/68			128417 MR-12
VAH-21	Road Runners	SL	8/68 - 6/69			135620 SL-1
VP(MS)-10		CA				89088 SA-105
VR-23		RK				122968 RK-
NATUPAC		ZG				122936 ZG-13
VAH-3						124289 GJ-221
NADU						124896 NADU-10
NATU		NATU				122780 NATU-2
Aircraft Torpedo Unit						131409 none
Naval Weapons Labs						135564 -13
NAS Brunswick						131526 -526
NARTU Anacostia		6A				127754 GA-203
NARTU/D N.Island		8H/6H	-/70 - 12/72			145910 GH-205
Naval Missile Center		NMC				128347 -35
Naval Air Test Center		NADC/NL				150283 none

Continued on next page

At the close of their career the Canadian Neptunes were painted in a light grey and white scheme with titling on the sides of the nose. (Bill Blunt/BBA)

sors needed to be dropped from 2,500 feet, or higher, unlike anti-submarine weapons which could be dropped by sight or timing.

With all modifications and training completed it was time for the OP-2Es to leave for active service. The first flight of aircraft left Alameda NAS on 6 November 1967 for Thailand while the last group of three aircraft arrived on 15 November. Support equipment and personnel was delivered by 18 C-141 Starlifters, a total of 629,021 lbs of people and freight being flown to South East Asia. Once the crews had undertaken the required shakedown flights they began missions against the trail in conjunction with Cessna O-2A Forward Air Controllers.

Smart in midnight blue is a P2V-7 of the RCAF serialled 24118. Eventually the Canadair Argus replaced the American built machine. (Bill Blunt/BBA)

A P-2H Neptune on approach to land with 32 degrees of flap and the gear down and locked. Note both the tip tanks and the underwing jet engnes which were obviously in use at the time. (G.Mangion)

Continued from previous page

FASRON 102	FJ	-/54 - ?	124879 FJ
FASRON 104	FK		122969 FK
FASRON 107	FAS107	10/54 - 8/55	122461 FAS-107
FASRON 108	FASRON108	-/56 -?	131488 FAS-108
FASRON 110		1/57 - 3/58	141236 none
FASRON 112	FASR-112	3/57 -?	141237 FASR-112
FASRON 116		7/53 -?	127752 none
FASRON 885		9/52 -10/52	127752 none
FASRON Whidbey		4/53	126534 none
Air Training Unit- 501	3C		126517 3C-05
ATU-601	HW		39360 -123
ATU-614	3M		122440 3M-123
VT-31	3C		126534 3A-01
NAS Adak	ADAK		135598 ADAK
			127721 6G-203
NAS Atlanta	7B		124895 7B-203
NAS Dallas	D/7D		131449 7D-216
NAS Denver	P/7P		128377 7P-204
NAS Glenview	7V		126529 7V-213
NAS Grosse Ile	I/7Y		128346 7Y-20
NAS Jackonsville	F/6F		128358 6F-205
NAS Los Alamitos	I/7I		124879 7I-210
NAS Lincoln	B/7N		124219 7N-203
NAS Memphis	6M		131431 6M-207
NAS New Orleans	7X		131497 7X-207
NAS New York	7R		128351 7R-203
NAS Norfolk	-6S		
NAS Oakland	F/7F	6/57 - 6/61	127737 7F-207
NAS Olathe	7K		127758 7K-216
NAS Seattle	7T		131456 7T-208
NAS St. Louis	7U		128387 7U-202
NAS South Weymouth	7Z		128408 7Z-202
NAS Twin Cities	E/7E		124244 7E-205
NAS Willow Grove	7W		131417 7W-203

This relationship ensured that the Neptune crews were fully informed concerning the whereabouts of the NVA anti-aircraft guns which were subject to movement at any time. With this knowledge available each VO-67 crew was able to plan its own missions in the light of the latest intelligence.

Each mission required the plotting of an inbound course and an egress course in the midst of which would be a shallow dive from 12,000 feet down to the release height and a climb to 12,000 feet followed by a return to base. Drop altitude for the Acoubuoys was always set at 500 feet while the ADSIDS were originally released from 2,500 feet although this was later increased to 5,000 feet. All of these missions were part of Project Igloo White.

As the amount and accuracy of NVA anti-aircraft weaponry increased along the trail it is hardly surprising that losses occured. The first happened on 11 January 1968 when Bu.No 131436 was shot down on an Acoubuoy drop mission. A second aircraft was lost on 17 February 1968 when another VO-67 machine was hit by ground fire which set fire to the starboard engine. A third aircraft was lost on 27 February although in this instance most of the crew managed to bail out. Not long after this tragic sequence the final OP-2E arrived in the SEA area of operations thus establishing VO-67 as a nine aircraft unit for the remainder of its existence.

In parallel with their normal sensor dropping role the Neptunes of VO-67 were also involved in combating the Tet Offensive of January 1968 especially in the region of the USMC fire base at Khe Sanh. The role of the Neptunes required that they dropped their sensors around the fire base so that the defenders were aware of the positions of the attacking forces. These sorties required that the Acoubuoys be carried in the bomb bays while the mission profile required that the Neptunes approach the target zone just above tree height before climbing rapidly to 500 feet dropping their sensors and departing as low and as fast as possible.

Although VO-67 was successful in this role the Chief of Naval Operations decided on 25 May 1968 that the squadron would disband on 1 July as their job would be taken over by the Phantoms of the 25th TFS. The last mission flown by the unit was on 25 June after which crews and aircraft returned to America to await disposal.

The United States Navy modified another small batch of Neptunes for specialist work in Vietnam however in this case the aircraft were more experimental than a front line combat aircraft albeit the systems they were carrying found use in other aircraft types. In 1966 the USN began the search for a detection system that was capable of targeting individual vehicles travelling down the Ho Chi Minh trail. To that end four SP-2H aircraft were set aside for conversion as AP-2H aircraft in 1967.

Known as Trails, Roads Interdiction Multisensor (TRIM) the aircraft underwent extensive modification the most obvious changes being the removal of the MAD tail boom and the under-fuselage radome. In their place a pair of 20 mm cannon were

Above: The French Aeronavale operated the P2V-7 Neptune until they were replaced by the locally built Breuget Atlantic. (Bill Blunt/BBA) Left: An Aeronavale Neptune 146433 seen in July 1971 getting airborne from Luqa, Malta. (G.Mangion)

installed in the tail complete with a night observation scope.

Under the fuselage a radome housing an AN/APQ-92 search radar was fitted while forward of the nose wheel bay a large chin fairing was mounted which housed a forward looking infra red sensor and a low light TV system. Sideways looking radar was housed in pods each side of the fuselage just aft of the wing trailing edge.

Other systems added to the AP-2H included a real time infra-red sensor, an airborne moving target indicator, digital integrated attack and navigation equipment and a Black Crow truck ignition sensor. Eventually much of this equipment appeared in the modified Grumman A-6C Attacker TRIM aircraft.

Offensive armament fitted to the AP-2H included two forward firing SUU-11A minigun pods, two Mk.82 500 lbs bombs plus two Mk.77 incendiary bombs all being carried under the wings on the aircraft's pylons. Later in the programme an XM-149 40 mm grenade launcher was installed in the bomb bay. The engines, both piston and jet, had extensive shielding added in an attempt to reduce both their heat and light signatures.

The modification programme was undertaken at Lockheed Burbank where much of the initial trials flying was carried out. The first test flight was carried out on 7 June 1967.

Further modification work included adding terrain avoidance radar borrowed from the LTV A-7 Corsair, this improving the survivability of the Neptune. During training and early mission flying the low light TV system had become the favourite of the aircraft's bombadiers however as the resolution of the infra red system improved so the operators found that this was the better option in most circumstances.

From Burbank the nascent unit moved to Eglin AFB for further training much at low level, much at night. At the completion of this phase the aircraft transfered to Patuxent River NAS to polish up both the crews and aircraft of the detachment before deployment took place.

The unit chosen to operate these four aircraft wasVAH-21 which came into existence at Cam Rahn Bay, South Vietnam. Between 1 September 1968 and 16 June 1969 the unit's aircraft flew more than 200 missions against

147562 was a P2V-7 Neptune allocated to 23F with whom it had the fleet number 4. (Bill Blunt/BBA)

road and river traffic in the 'Parrots Beak' area of the Mekong river delta as well as venturing into Cambodia and Laos in pursuit of the same sort of target.

Not long after arriving the first changes to operating practises were put in place these being the removal of tracer bullets from the tail guns as they acted as an illuminated guide directly to the aircraft for the NVA gunners. The gunners would also alter the way they fired their guns preferring to walk the rounds onto a target rather than try for the direct shot and miss. Deployment of the bombs also changed as it was found that releasing both an explosive weapon together with a napalm bomb created an enormous bang complete with integrated fireball, a very destructive option. The SLAR pods were removed soon after arrival in Vietnam, not only were they not very effective but they created a ground cushion effect that made the aircraft difficult to land.

At the completion of the in-service trials the four aircraft were returned to the United States for eventual disposal at Davis Montham AFB. Three aircraft were scrapped while the fourth found a safe haven in the Pima Air Museum. Whilst in service three of the four machines carried nicknames, No.1 was unnamed, No.2 148353 was named *Deuces Wild*, No.3 148337 was named *Napalm Nellie* while No.4 145902 carried *Iron Butterfly* on its nose.

Overseas Neptune operators and units

Operator	Version	Qty	Source	Remarks
Australia				
RAAF	P2V-5	12	Lockheed	No.11 Sqdn
RAAF	P2V-7	12	Lockheed	No.10 Sqdn
Argentina				
Aviacion Naval Argentina	P2V-5	8	ex-RAF	No.1 Esc de Exploracion
Aviacion Naval Argentina	SP-2E	4	ex-USN	No.1 Esc de Exploracion
Aviacion Naval Argentina	SP-2H	4	ex-USN	No.1 Esc de Exploracion
Brazil				
Forca Aerea Brasiliera	P2V-5	14	ex-RAF	1/7 Gav
Canada				
Royal Canadian Air Force	P2V-7	25	Lockheed	Nos.404, 405, 407 Sqdns
France				
Aeronavale	P2V-6	26	Lockheed	21F, 22F, 23F, 8S
Aeronavale	P2V-7	34	Lockheed	23F, 24F 25F, 9S,12S
Japan				
JMSDF	P2V-7	16	Lockheed	American production
JMSDF	SP-2H	48	Kawasaki	Japanese production
JMSDF	P-2J	82	Kawasaki	Japanese production
JMSDF	UP-2J	4	Kawasaki	By conversion of P-2J
Netherlands				
Kon Marine	P2V-5	12	Lockheed	No.320 Sqdn
Kon Marine	P2V-7	15	Lockheed	Nos 320, 321 Sqdns
Kon Marine	SP-2H	4	ex-Aeronavale	No.320 Sqdn
Portugal				
Forca Aerea Portugese	P2V-5	12	Ex-Kon Marine	Escuadra de Reconhecimento 61
United Kingdom				
Royal Air Force	P2V-5	52	Lockheed	Nos.36, 203, 210, 217 Sqdns 237 OCU, 1453 Flt

OVERSEAS SALES

Australia

The Royal Australian Air Force ordered its first batch of P2V-5 Neptunes in 1950. Consisting of 12 aircraft they were delivered from November 1951 to January 1953, the first two machines being dash 4 aircraft brought up to dash 5 standard on the Lockheed production line. As with most Neptunes these first aircraft were fitted with a full range of gun turrets and were regarded as the Mk.1 version. When the nose and tail gun turrets were replaced by a clear nose cone and MAD tail boom they were re-designated as Mk.2s.

The removal of the dorsal turret saw the Neptunes regarded as Mk.3 standard aircraft while the addition of the Westinghouse jet pods saw the aircraft again re-designated as P2V-5F Mk.4s this

Some of the Aeronavale Neptunes were modified to provide training for warship defence operatives as evidenced by the modified nose. (Bill Blunt/BBA)

With Mt. Fuji in the background this Kawasaki built P-2J of the Japanese Maritime Defence Force poses for the camera. (Bill Blunt/BBA)

finally changing to P-2E in 1962 in line with the US Navy. This modification was only applied to 11 aircraft as A89-308 had crashed on 4 February 1959 before the programme started in June 1959.

Other modifications applied to this version included an improved fire suppression system that had been identified as a priority in the light of the crash of A89-308. All of the P2V-5 Neptunes served with No.11 Squadron initially at Pearce AB although the location changed to Richmond in May 1954. Although the dash 5 Neptunes had proven the capability of the Neptune the RAAF purchased the P2V-7 version to equip another unit to patrol the extensive Australian coastline.

As before 12 aircraft were bought, all being built to Mk.4 standard before delivery. These aircraft were delivered from March 1962 to equip No.10 Squadron at Amberley where they replaced the earlier much modified Lincolns. Soon after delivery No.10 Squadron provided a standing detachment based at RAAF Butterworth, Malaysia, their purpose being anti-smuggling patrols. The P2V-7 Neptune remained in use with No.10 Squadron until replaced by the Lockheed P-3 Orion in 1977. A similar situation overtook No.11 Squadron who exchanged their Neptunes for the Lockheed P-3 Orion, in 1978.

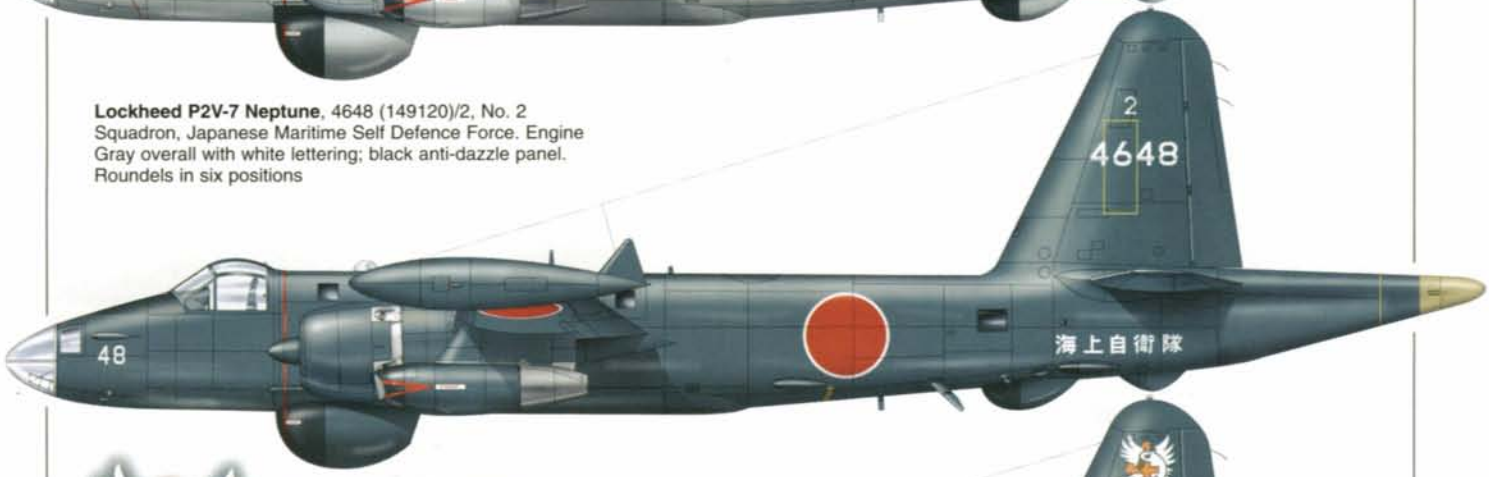
Above: P-2J 9162 has been reconfigured as an ECM training aircraft as evidenced by the modified nose and bulges under the fuselage. (Bill Blunt/BBA) Below: Compare the above [picture with this one showing a P-2 Neptune either Japanese built or imported from the US. The main external difference is in the piston against turbo-prop engines plus a modified undercarriage. (A.W.Hall collection)

Argentina

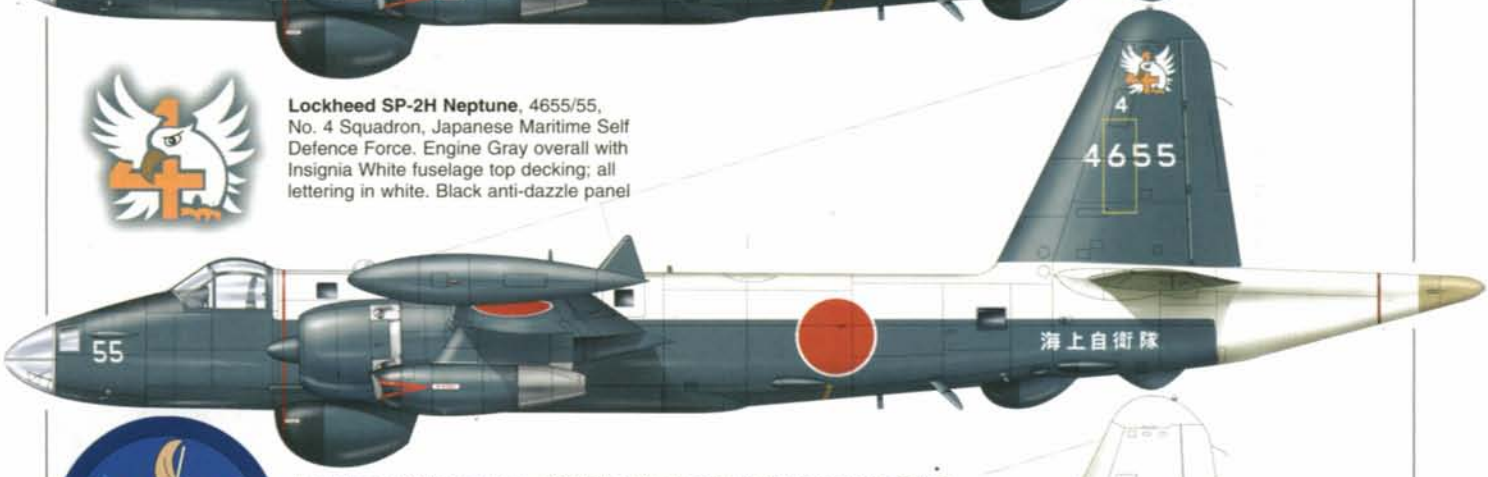
Argentina acquired eight ex-RAF, Dutch overhauled, P2V-5 Neptunes in 1958 for use by No.I Escuadron de Exploracion part of the II Escuadra Aeronaval based at Puerto Belgrano where they replaced the original Martin PBM-5A Mariners.

Lockheed P2V-7 Neptune, 24111, No. 405 Squadron, Royal Canadian Air Force, 1956. Sea Blue Gloss overall with white serial and code; red outer wing panels, tailplane. Black anti-dazzle panel. Roundels above both wings, VN and 111 in white under starboard and port wings respectively; spinners white and black

Lockheed SP-2H Neptune, 24123/123, No. 407 Squadron, Royal Canadian Air Force, 1960. Light Grey overall with white fuselage top decking and vertical tail surfaces; black serial, anti-dazzle panel and engine cowling (except for flap fairing and undercarriage doors. Roundels in six positions; red/white cheatline thinly outlined in black. RCAF script is in red, outlined black



Lockheed P2V-7 Neptune, 4648 (149120)/2, No. 2 Squadron, Japanese Maritime Self Defence Force. Engine Gray overall with white lettering; black anti-dazzle panel. Roundels in six positions



Lockheed SP-2H Neptune, 4655/55, No. 4 Squadron, Japanese Maritime Self Defence Force. Engine Gray overall with Insignia White fuselage top decking; all lettering in white. Black anti-dazzle panel

Lockheed P2V-5 Neptune, 4709 (134720, ex-19-29 R Netherlands Air Force), Escuadra 61, Portuguese Air Force, 1975. Dark Gull Gray upper surfaces (including sides of engine nacelles) and Insignia White undersides; serial 4709 in black on fin, above starboard and below port wing. National markings on fuselage sides and below starboard wing (outlined in Dark Gull Gray) and above port wing. Black anti-dazzle panel; unit marking on port side only

Before the Netherlands Neptunes were fully modified to Mk.4 standard they were repainted in light grey and white as shown by P2V-5 19-32. (Bill Blunt/BBA)

These early aircraft were later supplemented by four SP-2E aircraft purchased directly from the United States in 1966. During 1977 and 1978 Argentina received four SP-2H aircraft and these were the only machines left in service when the Argentine forces invaded the Falklands in 1982. Although all four aircraft were nominally on strength with No.I EdE in reality only two were in a good enough condition to be made serviceable for operations over the South Atlantic.

Based at Bahia Blanca/Comandante Espora AB both aircraft underwent extensive engineering work before leaving for Rio Grande in April 1982 under the command of Capitan de Corbeta J.P.Roca.

While awaiting the arrival of the British Task Force the Neptunes undertook reconnaissance, fleet support and special missions, the latter in support of fleet detection and Exocet missile guidance. This latter requirement saw the aircraft being fitted with VLF Omega systems to improve their navigation capabilities, even so the age of the type's radar allied to its poor performance meant that they needed to fly to within 100 miles of the British fleet for the Exocet equipped Etendards to be successful.

This need to close the fleet meant that the Neptunes were vulnerable to interception even when supersonic Dagger fighters were available. The first combat mission was undertaken on 2 May, this involved an abortive Etendard missile attack, while the following day saw the Neptunes attempting to use their outmoded systems in the ASW role.

On 4 May the unit was tasked with providing an aircraft to act as an early warning platform while the air force attempted to establish a safe route for C-130s flying into

Above: Complete with solid gun nose is this Valkenburg based Neptune V-201 of No.320 Squadron (Bill Blunt/BBA) Below: Wearing the 'V' for Valkenburg on its fin, this SP-2H Neptune, 203, of the Kon Marine, is seen at its base. Eventually these faithful machines were replaced by another Lockheed product, the Orion. (Bill Blunt/BBA)

P2V-5 19-25 has been upgraded to Mk.2 standard thus it still retains the nose and dorsal turrets although the MAD boom has been fitted. (Bill Blunt/BBA)

Stanley Airport. A mixed group of aircraft departed towards the Falklands consisting of three C-130s, a brace of Dagger fighters and the Neptune. The C-130s would eventually abort their mission as this was the first day of Harrier attacks against the islands however the Neptune was ordered to remain on station to await further orders. During this hazardous period the aircraft was being painted by radar by the British warships in the area. Assaulted by a full spread of British ECM the Neptune crew worked hard to keep their aged radar system working.

This was required as four Etendards complete with their deadly Exocet missiles were en route to attack the British warships. The Neptune passed on its target data to the fighters who continued their attack run while the Neptune turned away and headed for home. After a mission that exceeded eight hours the Neptune and its exhausted 12 man crew landed at Rio Grande where they later heard that the Etendards had been successful in sinking *HMS Sheffield*.

This was the Neptune's final sortie as in reality the airframe and engines were completely worn out while the electrics and avionics were very unreliable. This plus the new type of warfare facing the Neptunes meant that they were in reality vulnerable to any attack.

In the event both machines were flown to Espora on 15 May 1982 for storage their mission requirements being divided between the C-130s and the service's Grumman Trackers. Eventually Argentina purchased Lockheed Electras that were extensively modified for the AEW, ELINT and maritime reconnaissance roles.

Brazil

Brazil was also the recipient of a batch of ex-RAF Coastal Command Neptunes this batch of 14 aircraft being delivered via the United States where they had been returned for refurbishment.

Deliveries began in 1958 the aircraft being designated as P-15 Netuno by the Forca Aerea Brasileira, the designation P-2E being used only briefly during the period 1971 to 1972. Crew training for the Neptune saw both air and ground crews being sent to Jacksonville NAS during July 1958 for a four month training period.

The first five aircraft left the USA on 15 December 1958 their intended destination being Base Aerea de Salvador where it was intended they should arrive on 30 December. This transit was not incident free however as one aircraft, FAB 7009, with Capt Av Santiago as pilot in command, was intercepted close to the Dominican Republic by a pair of F-51D Mustangs and a De Havilland Vampire of the FAD.

Although the Neptune crew managed to establish contact with the fighters and

Right: The Portuguese Air Force kept the markings on their P-2H Neptunes to simple grey and white colours with the aircraft's serial 4704, shown above the fin flash. (R.L.Ward) Below: The Portuguese Neptunes had originally been used by Kon Marine before refurbishment and delivery to this NATO partner. (Bill Blunt/BBA)

The RAF Neptunes as originally delivered with 20mm gun turrets at nose and tail as well as rocket rails under each wing. WX505:J-A belonged to No.236 Operational Conversion Unit at Kinloss. (MoD Air)

explained they were on a delivery flight the FAD fighters fired warning shots across the nose to force the aircraft to land at the Santo Isidoro AB. Once on the ground the crew further explained their purpose which was enough for the Dominicans to release them and their aircraft although the whole incident had diplomatic repercussions that took some smoothing over.

Once safely ensconced in Brazil the P-15s were operated by 1/7 Grupo de Aviacao 'Orungan', 1/7 GAV who had been responsible for the collection of each machine. Soon after entering service with 1/7 GAV the crews used their aircraft to establish a series of world records. The first of these took place on 8-9 December 1961 when FAB 7013 under the command of Maj Av Val and Capt Av Mello left Porto Alegre AB in the south of Brazil en route to Belem AB in the north. This flight lasted for 24 hrs 35 minutes.

The next endurance flight was undertaken on 22-23 July 1967 and required the use of FAB 7011 under the command of Maj Av Siudomar and Capt Av Ivan. The departure point was Porto Alegre AB as before, while the destination was Santa Cruz AB, the whole journey taking 25 hrs 15 minutes to complete.

Besides setting records the Neptunes main task was that of maritime patrol along the lengthy Brazilian coast. During one such sortie the Russian espionage ship the 'Yuri Gagarin' was intercepted near the Atol das Rocas, a group of reefs in the middle of the Atlantic that is recognised as Brazilian territory. The purpose of the spy ships presence was to monitor the series of rocket launches being undertaken from the Centro de Lancamento da Barreira do Inferno. As the Brazilians took offence to its presence the Neptune forced the ship to leave the area.

In a manner similar to the maritime squadrons of other nations those of Brazil were no strangers to joint exercises the main one being UNITAS. Designed to help the nations of Latin America co-operate, the main instigator was the United States Navy all nations in this area being invited to join in, those of Argentina and Uruguay having been enthusiastic participants in the past.

Like all things the time of the P-15 in FAB service would come to an end this taking place on 3 September 1976. The honour fell to FAB 7009 piloted by Ten Cel Av Lott, Maj Av Beuthner and Capt Av Nilson. The fates of the FAB Neptunes saw three aircraft lost in accidents, FAB 7001, 7007, 7008, eight were sold for scrap, FAB 7000/2-5/11/12/13, while FAB 7009 was preserved at BA Salvador after the final flight and FAB 7010 resides in the Brazilian Aerospace Museum.

Canada

The Royal Canadian Air Force purchased the P2V-7 Neptune to replace their Avro Lancaster Mk.Xs. Deliveries of 25 aircraft began in the mid-1950s and three units were equipped these being Nos. 404, 405 and 407 Squadrons. No. 404 Squadron received its allocation at Greenwood in March 1955, the final aircraft arriving in September. The Neptunes time with No.404 Squadron would be short-lived as the Canadair Argus, a derivative of the Bristol Britannia, was ready to enter service, thus in April 1959 the Neptunes were retired.

No.405 Squadron would follow a similar equipment path to No.404 Squadron in that it would exchange its Lancasters at Greenwood for Neptunes which it retained until 1958 when the Argus became the unit's mainstay.

A similar set of circumstances would

This Neptune MR.1, WX500/3 was one of the handful of machines dedicated to the airborne early warning role with 1453 Flt.

affect the final unit thus No.407 Squadron exchanged their Lancasters for Neptunes during May 1959. Long range maritime patrols around the Canadian coast were interrupted by engineering work to install the Westinghouse J34 engine pods. During the early years of the unit's existence it remained as part of the Royal Canadian Air Force however in February 1968 the RCAF ceased to exist becoming part of the Canadian Armed Forces. Soon after this the Neptunes were replaced by the Canadair Argus, the Lockheed product finally bowing out of CAF service in August 1969.

France

The Aeronautique Navale Francaise received 31 P2V-6 versions of the Neptune under the auspices of the Mutual Defence Aid Programme, MDAP. Deliveries began in 1953 when 21F, 22F, 23F and 8S were equipped, the aircraft would remain is service until 1969 with 21F while the other three units would lose their aircraft in 1966.

The first machine, Bu.No. 134638, arrived at Orly on 19 January 1953, being delivered to the short lived 11F, quickly renumbered as 21F. A further 25 aircraft were delivered in 1953 while a further six Neptunes were delivered in early 1955. Initially the Neptunes were used in the mine laying, reconnaissance and ASW roles these being interspersed with combat missions in support of troops deployed in Algeria.

In 1957 the nose and tail turrets were removed and replaced by a clear glazed nose and a MAD tail boom. The dorsal turret was retained until removal in 1962.

Replacing the earlier P2V-5 was the more advanced P2V-7 version of the Neptune. A total of 34 aircraft were supplied the first examples arriving in June 1958 remaining in service until August 1984. The operating units were 23F, 24F 25F, 9S and 12S. Early retirees were 25F who would dispense with their aircraft in 1983 while 12S allocated to the Pacific forces did not lose their machines until 1984.

The aircraft operated by 25F were modified by the addition of extra ECM equipment and an Exocet radar system in order to train French Navy warships in avoiding missile attacks amongst other threats.

Japan

The Japanese Defence Ministry purchased the Lockheed P2V-7 Neptune to equip the Maritime Defence Force. Sixteen aircraft came from Lockheed while a further 48, designated as SP-2H, were built under license. First deliveries were undertaken in January 1956, the type remaining in service until fully replaced by the locally built P-2J in 1981.

Netherlands

The Netherlands Navy, Kon Marine, was the recipient of three distinct batches of Neptunes. The first order totalling 12 P2V-5s were delivered from October 1953 all joining No.320 Squadron at Valkenburg AB. The second batch consisted of 15 P2V-7Bs were delivered to No.320 Squadron at Valkenburg and No.321 Squadron based at Hato.

Soon after their arrival the original P2V-

Above: No.236 OCU was the operator of this Neptune WX496 J-C. The Coastal Command machines were initially delivered to Mk.1 standard. Below: Pictured soon after delivery to the UK is WX515 which still carries its Bu.No 15935 high on the fin. (Bill Blunt/BBA)

Above: Prominent on the side of the fuselage is the No.217 Squadron number applied to WX505 'T'. Most of the RAF machines would only be upgraded to Mk.3 standard. Below: In the standard overall dark blue this Neptune WX551:O-C was flown by 236 OCU (MAP)

Neptune variants and designations

Version	Designation	Quantity	Post 1962 designation	Identifying features
XP2V-1	026-49-01	2	none	Nose/dorsal/tail turrets- dorsal fin
P2V-1	026-49-01	14	none	As XP2V-1 dorsal fin deleted
XP2V-2	026-52-01	1	none	5th P2V-1 converted to prototype
P2V-2	126-52-01	8	none	Solid nose plus dorsal/ Bell tail turret
P2V-2	126-52-02	72	none	Solid nose plus dorsal/ Emerson tail turret
P2V-2S	126-52-08	1	none	Bomber version
P2V-2N	126-52-07	2	none	Polar rescue version- ski equipped
P2V-2S	226-52-03	1	none	APS radar fitted in ventral radome
P2V-3	326-59-02	53	none	Solid nose/ dorsal and Emerson tail turret
P2V-3B		5	none	Converted from -3(1) -3C (3) _3W (1) close support duties
P2V-3C	326-59-05	12	none	Carrier borne nuclear bombers - nose/dorsal weapons deleted
P2V-3W	326-59-04	30	none	AEW aircraft -retained defensive weapons
P2V-3Z	326-59-09	2	none	Combat transport aircraft
P2V-4	426-59-03	25	P-2D	Solid nose, APS-20 radar- under slung tiptanks
P2V-4	426-59-03	27	P-2D	Solid nose, APS-20 radar- under slung tiptanks
P2V-5	526-42-06	23	See below	Nose/dorsal /tail turrets
P2V-5	526-42-11	147	See below	Nose/dorsal /tail turrets
P2V-5	526-42-13	98	See below	Nose/dorsal /MAD tail boom
P2V-5	526-42-15	80	See below	Glazed nose/dorsal turret/ MAD tail boom
P2V-5	526-42-16	12	See below	Nose/dorsal turrets /MAD tail boom
P2V-5	526-45-15	64	See below	Glazed nose/MAD tail boom/smaller tiptanks/waist windows
P2V-5F		360	P-2E	J34 turbojets added
P2V-5FD		9	DP-2E	Drone control aircraft
P2V-5FE		11	EP-2E	Added avionics including ECM/ESM
P2V-5FJ		4	WP-2E	Weather reconnaisance with J34 turbojets
P2V-5FS			SP-2E	Aircraft with Julie/Jezebel added
P2V-5FS		6	EP-2E	US Army aircraft
P2V-5FS		2	NP-2E	Trails aircraft
P2V-5FS		12	OP-2E	USN gunship version
P2V-6	626-42-12	83	P-2F	Aero 9C nose/dorsal/tail turrets- smaller ventral radome
P2V-6B/6M		16	MP-2F	Conversions to carry Fairchild AUM-N-2 Petrel missiles
P2V-6T				Various aircraft converted from ASW machines for training
P2V-7	726-45-14	157	See below	Glazed nose, dorsal turret, MAD tail boom
P2V-7	726-45-17	114	See below	Glazed nose, dorsal turret, MAD tail boom
P2V-7	726-45-18	15	See below	Solid nose, MAD tail boom
P2V-7	726-45-14	25	See below	Glazed nose, MAD tail boom
P2V-7		271	SP-2H	Includes 48 built by Kawasaki
P2V-7B		15	P-2H	Solid nose with cannon for Netherlands
P2V-7LP		4	LP-2J	Polar expedition - ski equipped
P2V-7S			SP-2H	Aircraft fitted with Julie/ Jezebal equipment
P2V-7U		7	RB-69A	USAF/CIA ELINT aircraft
P2V-7U		4	AP-2H	Attack version for US Navy

5 aircraft, by now designated as P-2Es, were refurbished and passed onto the Portuguese Air Force. A final batch of Neptunes, the SP-2H version, were four ex-Aeronavale machines that were delivered in 1965 to No.320 Squadron. The Neptunes were finally replaced by the Lockheed P-3 Orion from that date.

Portugal

Portugal acquired its Neptune fleet after negotiations between the governments of the Netherlands and Portugal which resulted in the former's P2V-5 fleet of 12 aircraft being transferred to the armed forces of the latter. The designated operator was the Escuadra de Reconhecimento 61 located at Base Aerea, BA, No.6 at Montijo near Lisbon on the Portuguese west coast where they replaced an earlier Lockheed product the PV-2 Ventura.

The first aircraft were delivered in June 1961 while the last landed in Portugal during March 1962. After arrival the Neptunes were re-serialled in the range 4701 to 4712. Soon after arrival all 12 aircraft were brought up to the same standard thus the remaining dorsal turrets were removed and a fully glazed nose replaced the partial modification already carried out in the Netherlands. In this modified condition the Neptunes were re-designated as P-2Es in line with American post-1962 practise.

Contrary to NATO standing orders concerning the use of NATO approved aircraft the FAP used their Neptunes for combat operations in support in the Portuguese colonial wars in Africa. The first deployments in concert with the recently deposed Harpoons was undertaken in the early 1960s while at the end of the decade, during 1968-69, two aircraft were deployed to BA.9 at Luanda in Angola on the west coast of Africa. Both aircraft were employed on routine sea patrols interspersed with bombing missions operating in support of Portuguese ground forces.

Other Neptunes were deployed to the

One of those conundrums that beset the aircraft community now and again appears in this photo. Purporting to be a US Navy aircraft 115956 is actually an RB-69A complete with badly disguised USAF titles on the nose.

Above: Operated by VO-67 this OP-2H, 131423 MR-10, passes the camera and reveals many of the modifications made to this version. (US Navy) Right: VP-18 operated the P2V-2/3 version of the Neptune from September 1950 until 1954. (US Navy)

island of Sao Tome some 200 miles from the coast of Gabon during the period of the Biafran war to watch for ships smuggling in arms. Further combat operations saw the Neptunes deployed to Bissau in Portuguese Guinea, North Africa. The operator was BA.12 who used P-2Es and a modified Douglas C-47 for bombing operations.

In 1977 only four Neptunes remained operational with BA.6 the rest having been scrapped or reduced for spares. This resulted in 4707 and 4711 being the final two machines in service before they too were withdrawn from service in 1978. The latter machine is now in storage for the Museo do Ar at Sintra, Portugal.

United Kingdom

The Royal Air Force ordered 52 Lockheed P2V-5 Neptunes as an interim measure between the retirement of the Lancaster and the arrival of the Shackleton in the ranks of Coastal Command. The first of these aircraft, WX493 and 494, landed at St Eval, Cornwall on 27 January 1952.

After acceptance checks they were delivered to No.217 Squadron who eventually moved to Kinloss some three months later. In March 1957 No.217 Squadron disbanded as a maritime patrol unit. Other squadrons that flew the Neptune included No.36 Squadron at Topcliffe that equipped with the Neptune in July 1953 retaining this role until disbandment occurred in February 1957. Another user of the Neptune, albeit for a short period, was No.203 Squadron that operated the type from Topcliffe for nine months only before replacing the Lockheed machines with the Shackleton in September 1956.

Also equipping with the Neptune was No.210 Squadron based at St Eval. By the time disbandment in January 1957 took place the squadron had moved to Topcliffe. Only one other front-line unit flew the Neptune this being Vanguard Flight which was formed at Kinloss as part of Fighter Command on 1 November 1952. Its role was to supply airborne early warning facilities for the Royal Air Force's fighters especially in the area of the Faroes Gap. Vanguard Flight ceased to exist on 5 June 1953 to become No.1453 Flight. This change, coupled with a move to Topcliffe, continued to provide AEW cover until final disbandment on 30 June 1956. Conversion training was provided

VP-17 was the proud owner of this early P2V-5 Neptune BH-4 a codex that remained in use until 1957. (Bill Blunt/BBA)

CE-3 was on the strength of VP-22 when this photo was taken. In common with many Neptunes at this time the serial is not carried externally. (BBA)

by No.236 Operational Conversion Unit based at Kinloss. When the RAF Neptunes were replaced they were passed onto Argentina, who had eight, and Brazil, 14.

NEPTUNE AT WAR KOREA AND VIETNAM

Although not featuring extensively in the Korean War Lockheed P2V units did play their part in this conflict. During 1950 Patrol unit VP-1 deployed its P2V-3/3W aircraft to Naha AFB in August and patrolled the Formosa Straits until November. Their replacement was VP-22 who remained in theatre until May 1951 although their area of patrol had increased to include the area off the Chinese mainland.

Operating in close to the Korean coastline was the task assigned to VP-6 who arrived at Johnson AFB in July 1950, remaining on station until August. During that month a move to Tachikawa AB was undertaken, the move meaning that the patrol area moved into the Sea of Japan. VP-22 remained in theatre until returning home in February of the following year.

In 1951 a further set of rotations began thus VP-1 would return to Naha AB in April remaining there until August. VP-6 was a new unit involved in patrols arriving at NAS Atsugi in August their charge being

This view of the first production P2V-5 reveals the full range of external armament that could be carried by this version. (US Navy)

HE indicates that this P2V-5 is allocated to VP-7. Later in its career the aircraft would lose its gun turrets these being replaced by a clear nose cone and a MAD tail boom. (Bill Blunt/BBA)

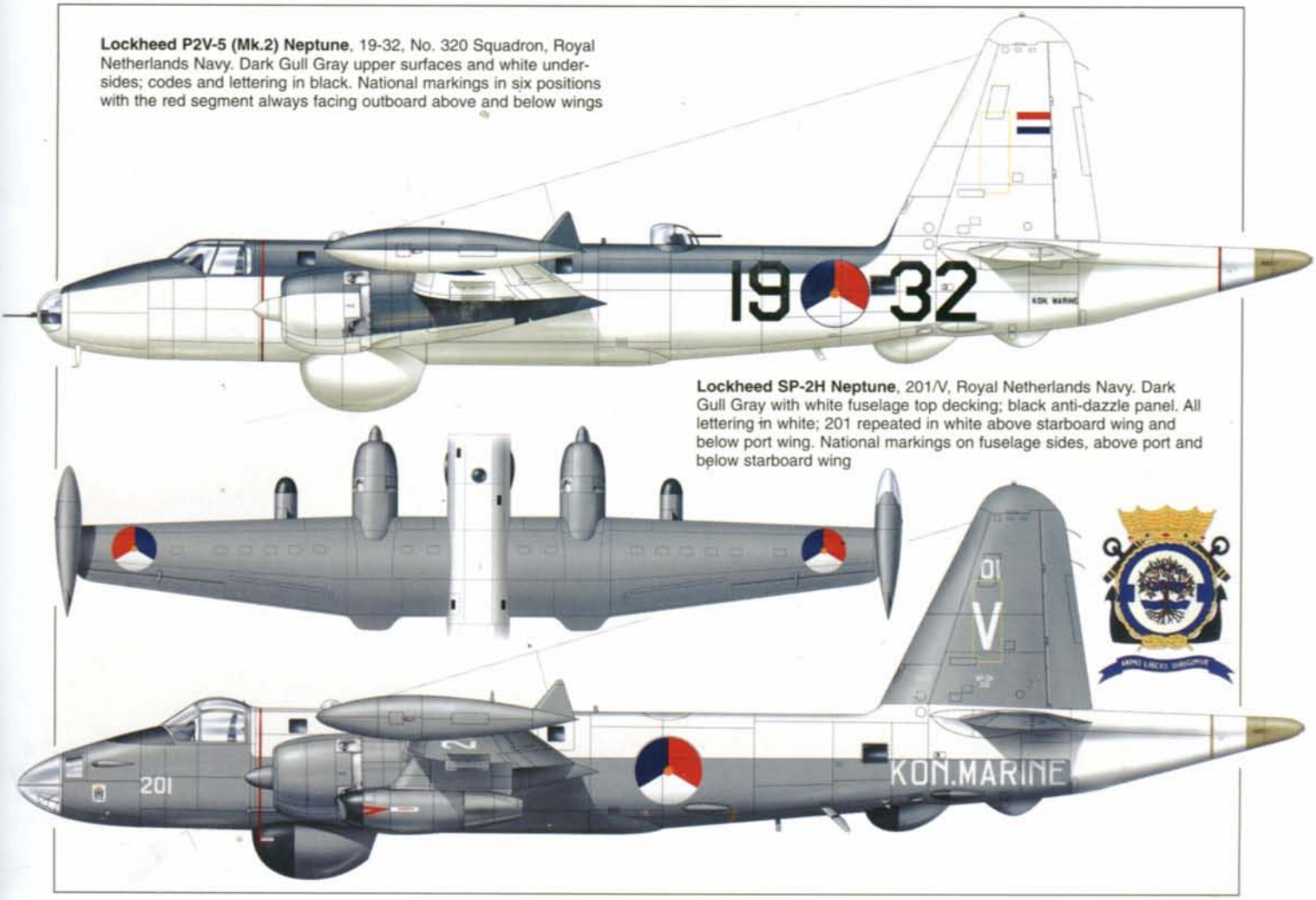
to patrol the Yellow Sea, Sea of Japan and Tsushima Straits. This was the first unit to lose a crew and aircraft on active service when one of the P2V-3s was shot down on 6 November 1951. Rotation out of theatre occurred in November. VP-2 moved into Naha AB in August to replace VP-1 taking up the same patrol areas remaining on station until departing in December. During the early months of 1952 VP-1 returned to Naha AB in March remaining there until October. VP-22 would also return to take up a Korean detachment at NAS Atsugi in November 1952 however their tour was marked by tragedy when one of their Neptunes was lost in action on 18 January 1953 while another crashed 13 days later fortunately with no loss of life. This bad period in the unit's history ended in May 1953 when VP-22 was transferred out of the area.

A new unit was thrown into the fray in June when VP-28 arrived at Itami AB with its mix of Neptunes and Privateers for patrol work off both the Chinese and Korean coasts. Their tour in the area ended in December. This was in contrast to VP-29 who remained on station for the period September 1952 until April 1953 whilst

VP-8 only marked its P2V-1 Neptunes with the 'EP' tailcode for a very short period before changing it to HD. (Bill Blunt/BBA)

Lockheed P2V-5 (Mk.2) Neptune, 19-32, No. 320 Squadron, Royal Netherlands Navy. Dark Gull Gray upper surfaces and white undersides; codes and lettering in black. National markings in six positions with the red segment always facing outboard above and below wings

Lockheed SP-2H Neptune, 201/V, Royal Netherlands Navy. Dark Gull Gray with white fuselage top decking; black anti-dazzle panel. All lettering in white; 201 repeated in white above starboard wing and below port wing. National markings on fuselage sides, above port and below starboard wing



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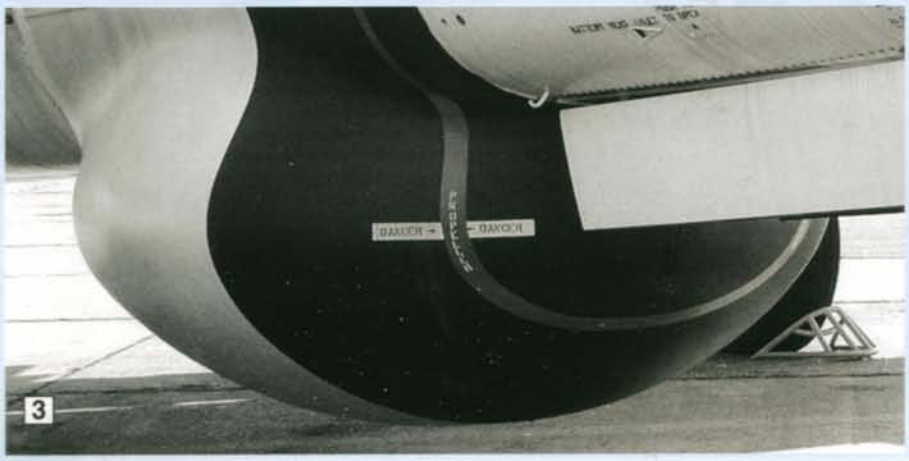
P-2 NEPTUNE

IN DETAIL PICTURES FROM THE AUTHOR'S COLLECTION



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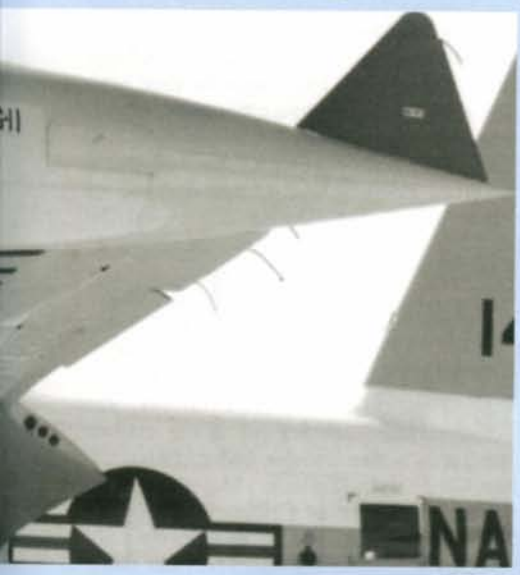
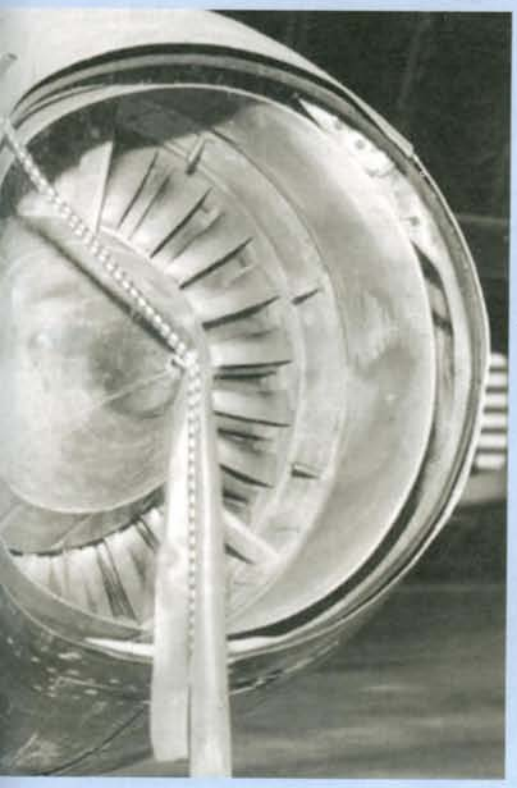
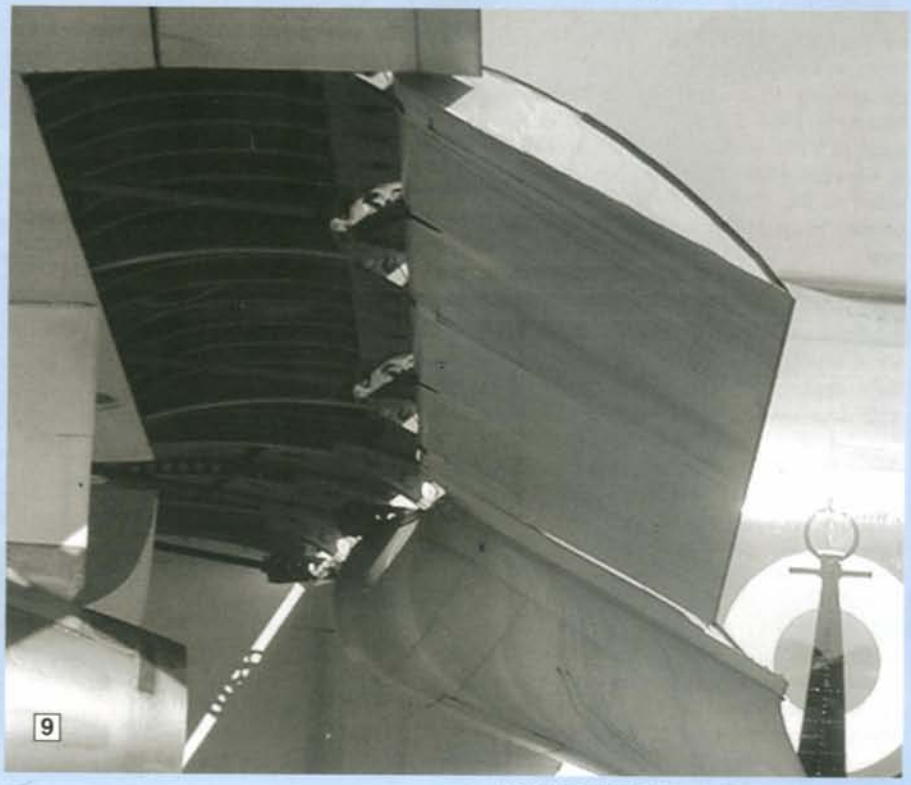


1 Cockpit interior left hand side. 2. Cockpit interior right hand side. 3. The underfuselage radome as fitted to the P2V-7/ SP-2H. 4. Starboard engine and auxiliary jet engne 5. Port wing tip tank. The starboard has an aerial searchlight. 6. The turbine end of the Westinghouse J34 engine. 7. An SP-2 of VP-69 showing the unit nose marking and the nose undercarriage 8. P-2 Neptune from the front showing the profile of the main engines and the starboard undercarriage leg. 9. The flaps in the take off position, note the rear part of the nacelle moves in concert with the flaps.





This AP-2H in Vietnam colours has a conventional nose, an under fuselage radar pod and chin-mounted sensors. (Lockheed via T. Panopalis)

operating out of NAS Atsugi. The 1953 Neptune deployments saw a reduction in assigned units thus VP-1 returned to Naha in May 1953 remaining until December while VP-7 deployed to Iwakuni AB in June although it left again the following month. The final unit to deploy in support of Korean operations was VP-57 whose base from March was NAS Atsugi although they had left by October.

By the time Neptune deployment in support of operations began in Vietnam the aircraft was seen by the USN as slightly on the elderly side. However this fact did not stop many of the units taking their aircraft into this theatre. VP-17 was one of the first arriving at Naha AB with its SP-2Hs in April 1964 eventually leaving in September. VP-28 took its Neptunes to MCAS Iwakuni in May 1964 using this base to send detachments to NAS Sangley Point. VP-28 returned home in October.

Also using Iwakuni as a home base was VP-42 who arrived in Japan in June sending detachments to Sangley Point, Tan Son Nhut and Cubi Point not long afterwards. This widespread dispersal came to an end in November 1964. VP-6 also operated in support of Vietnam operations although they were divided between Naha and Iwakuni arriving at both in August. Only one detachment was operated this being to Cubi Point all coming to an end in January 1965. Spanning 1964 and 1965 was the deployment of VP-1 who arrived for patrol duties in October 1964 . Detachments were provided to Da Nang and Tan Son Nhut all coming to an end in April of the following year.

VP-1 returned to MCAS Iwakuni in January 1965 providing patrol detachments to all the usual places until leaving in July. VP-4 was the overlapping unit to VP-2 as their deployment started in March 1965 with detachments deploying to Cubi Point, Sangley Point and Tan Son Nhut. The deployment ended in September 1965 by which time VP-17 was already settled in having arrived at Iwakuni in July. Operational patrols continued until February 1966 when the unit was returned to the US.

The final SP-2H deployment to MCAS Iwakuni involved VP-42 who took up residence in September supplying a detachment to Tan Son Nhut in the process. Their Vietnam tenure ended in April 1966. The rotation of Neptune units throughout 1967 saw VP-1 return to Iwakuni in February with a detachment to Tan Son Nhut . It was during this detachment that five SP-2Hs were damaged during an attack on 13 April 1966. This notwithstanding VP-1 continued on station until leaving in August. The overlap unit was VP-2 who arrived in Japan in April remaining until October with a running detachment being carried out to Tan Son Nhut. VP-17 was the next unit to deploy to Iwakuni arriving in October and remaining in theatre until December.

By this time the Neptune was not featuring quite as strongly in Vietnam patrols even so VP-42 deployed its SP-2Hs to Sangley Point in April 1967 sending deployments to Cam Ranh Bay and Tan Son Nhut before leaving in May.

The replacement unit was VP-1 who provided similar service until leaving in November. VP-2 began to replace VP-42 in October remaining on station until relieved in April 1968. Overlapping VP-2 was VP-17 who arrived at Sangley Point in November remaining on station until April 1968. The detachment for 1968 saw the Neptune's presence severely curtailed only VP-42 and VP-1 deploying with the type to Sangley Point. The former was on station from March until September while the latter covered the period from August to February 1969. Only one Neptune unit deployed to Sangley Point thereafter this being VP-2 which covered the period from February to August, and became the last Vietnam war Neptune deployment.

Although many of the patrol functions fell upon the shoulders of the front-line naval flying units at times of crisis the reserve units were also activated. For the Neptune squadrons the first such occasion was the Korean War when VP-812 and VP-931, both based at Whidbey Island, were placed on active service becoming VP-29, in August 1952, and VP-57, in February 1953, respectively.

From the Atlantic reserve units VP-741 and VP-861, both based at Jacksonville NAS, were activated becoming VP-16 and VP-18 in February 1953.

When the Berlin Wall crisis began in October 1961 further reservist units were activated these being VP-872 from the Pacific Fleet units while VP-661, VP-741 VP-832 and VP-933 from the Atlantic Fleet units came into full time service, in this case the squadrons retained their identities.

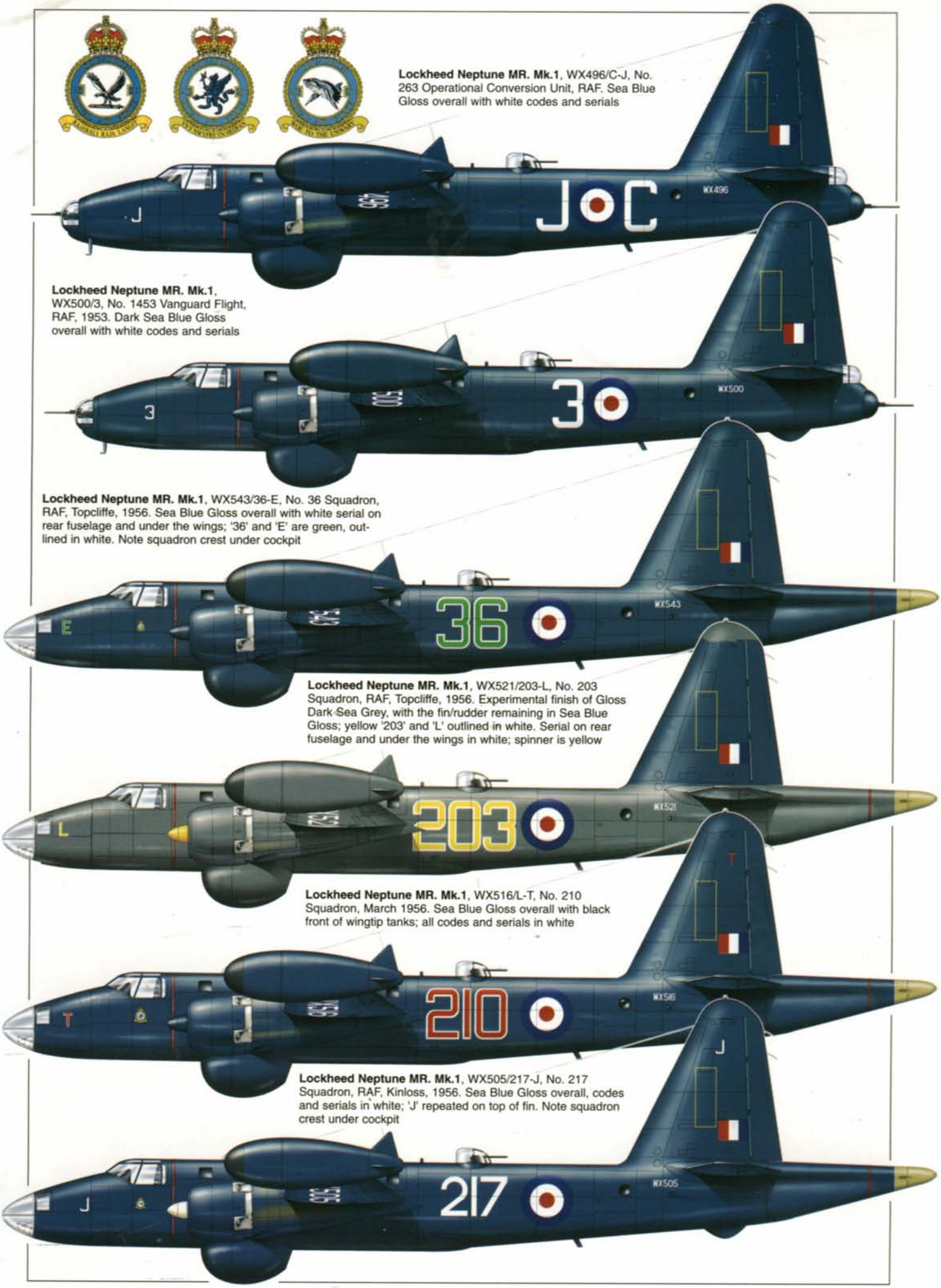
The Cuban Blockade between 27 October and 18 December 1962 was the final time that the Neptune reserve units were activated en masse. In this case VP-721, 791, 811, 831, 883 and 911 were the squadrons involved being placed at the disposal of fleet commanders. During this period the reserve units flew 82 sorties that embraced 591 accident free flying hours.

NEPTUNE IN RETIREMENT AND CIVIL OPERATIONS

At the end of their service careers the Neptune found another job in the civilian market as a fire bomber under contract to the US Forestry Service. Major operators were Aero Union of California, Evergreen of Arizona Hawkins and Powers of Wyoming and Minden Air of Nevada. Other airframes have been preserved in Museums and aircraft collections, Countries known to have examples include Argentina, Australia, Brazil, Canada, Chile, France, Germany, Japan, Netherlands, Portugal, United Kingdom and the United States.

Neptune kits, decals and accessories

Scale	Variant	Manufacturer	Reference	Remarks
Kits				
1:144	P2V-5 Neptune	Aeroclub	ABK606	USN + RAF markings
1:144	P2V-7Neptune	Aeroclub	ABK607	USN + French markings
1:72	SP-2H Neptune	Frog	FROGF284	Complete kit
1:72	P2V-7 Neptune	Hasegawa	HA00070	French navy markings
1:72	PV-7 Neptune	Hasegawa	HA00154	JMSDF
1:72	SP-2H Neptune	Hasegawa	HA00251	RCAF markings
1:72	P2V-7 Neptune	Hasegawa	HAK006	Complete kit
1:72	P2V Neptune	ID Models	ID4801	Vacuform kit
1:72	P2V-7 Neptune	Revell	RV4628	Ex-Hasegawa kit
Decals				
1:72	P2V-5 Neptune	Dutch Decal	DD72009	Dutch Air Force
1:72	P2V-7B Neptune	Dutch Decal	DD72021	Dutch Air Force
1:72	Neptune	FCM	FCM72009	Brazilian markings
1:72	Neptune	PD Decals	PD72013	RAAF markings
Accessories				
1:72	P-2 Neptune	Aeroclub	APB109	2 x propellers
1:72	P-2 Neptune	Aeroclub	ABV205	Undercarriage set
1:72	P2V-7 Neptune	Eduard	ED72365	Etched metal bomb bay
1:72	P2V-7 Neptune	Eduard	EDXS107	Canopy mask
1:72	P2V-7B Neptune	Czechmaster	CMR1069	Dutch Neptune nose



Lockheed Neptune MR. Mk.1, WX496/C-J, No. 263 Operational Conversion Unit, RAF. Sea Blue Gloss overall with white codes and serials

Lockheed Neptune MR. Mk.1, WX500/3, No. 1453 Vanguard Flight, RAF, 1953. Dark Sea Blue Gloss overall with white codes and serials

Lockheed Neptune MR. Mk.1, WX543/36-E, No. 36 Squadron, RAF, Topcliffe, 1956. Sea Blue Gloss overall with white serial on rear fuselage and under the wings; '36' and 'E' are green, outlined in white. Note squadron crest under cockpit

Lockheed Neptune MR. Mk.1, WX521/203-L, No. 203 Squadron, RAF, Topcliffe, 1956. Experimental finish of Gloss Dark Sea Grey, with the fin/rudder remaining in Sea Blue Gloss; yellow '203' and 'L' outlined in white. Serial on rear fuselage and under the wings in white; spinner is yellow

Lockheed Neptune MR. Mk.1, WX516/L-T, No. 210 Squadron, March 1956. Sea Blue Gloss overall with black front of wingtip tanks; all codes and serials in white

Lockheed Neptune MR. Mk.1, WX505/217-J, No. 217 Squadron, RAF, Kinloss, 1956. Sea Blue Gloss overall, codes and serials in white; 'J' repeated on top of fin. Note squadron crest under cockpit

This aircraft appears
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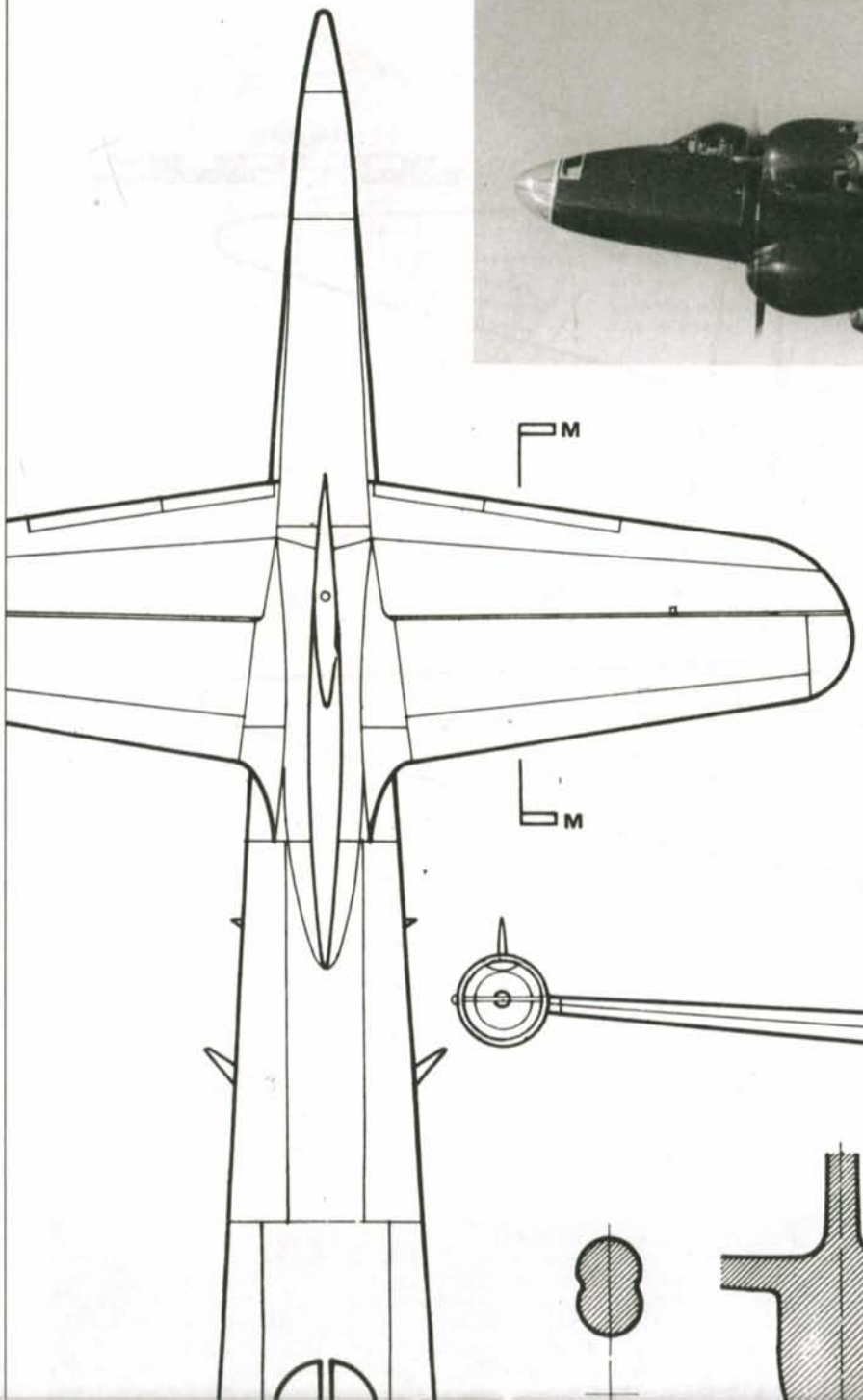

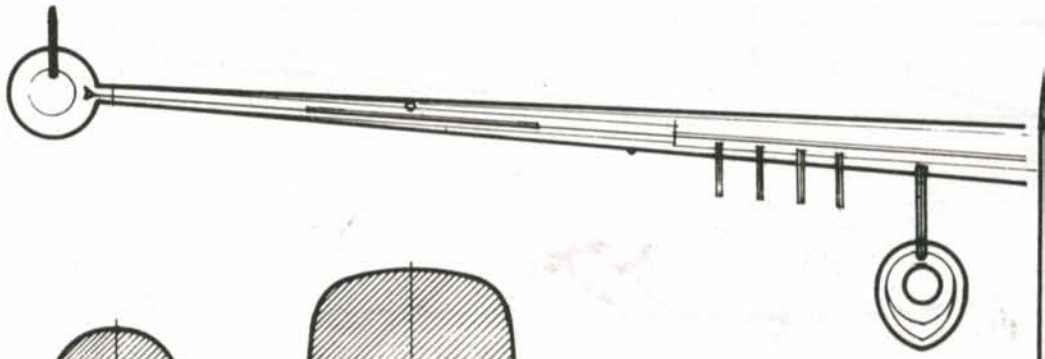

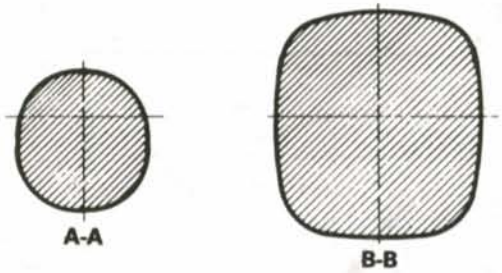

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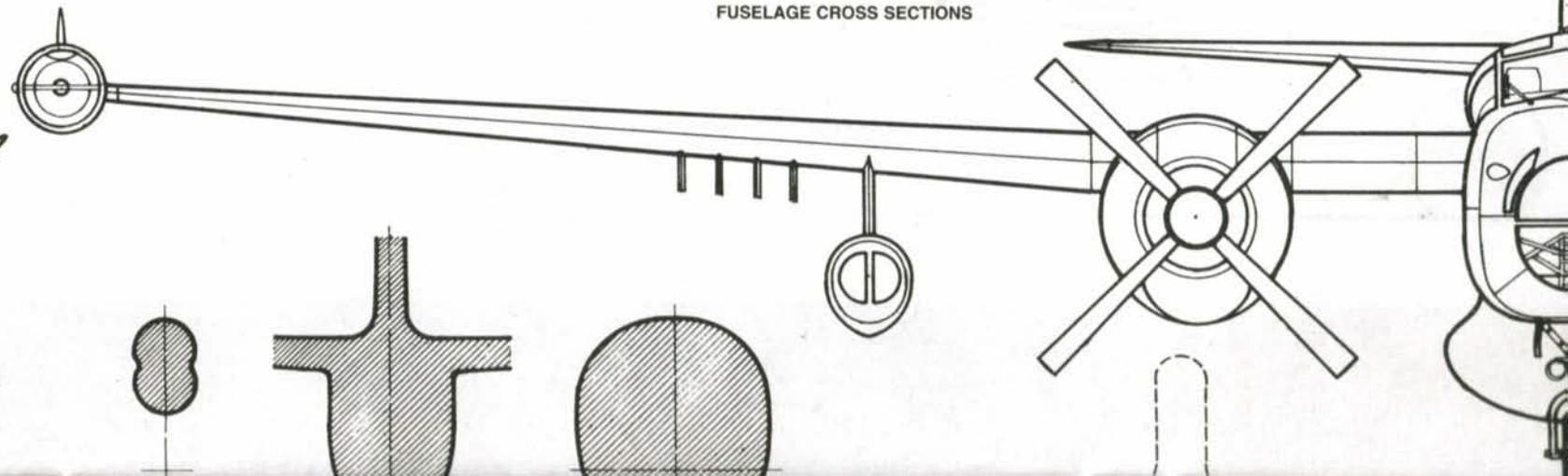
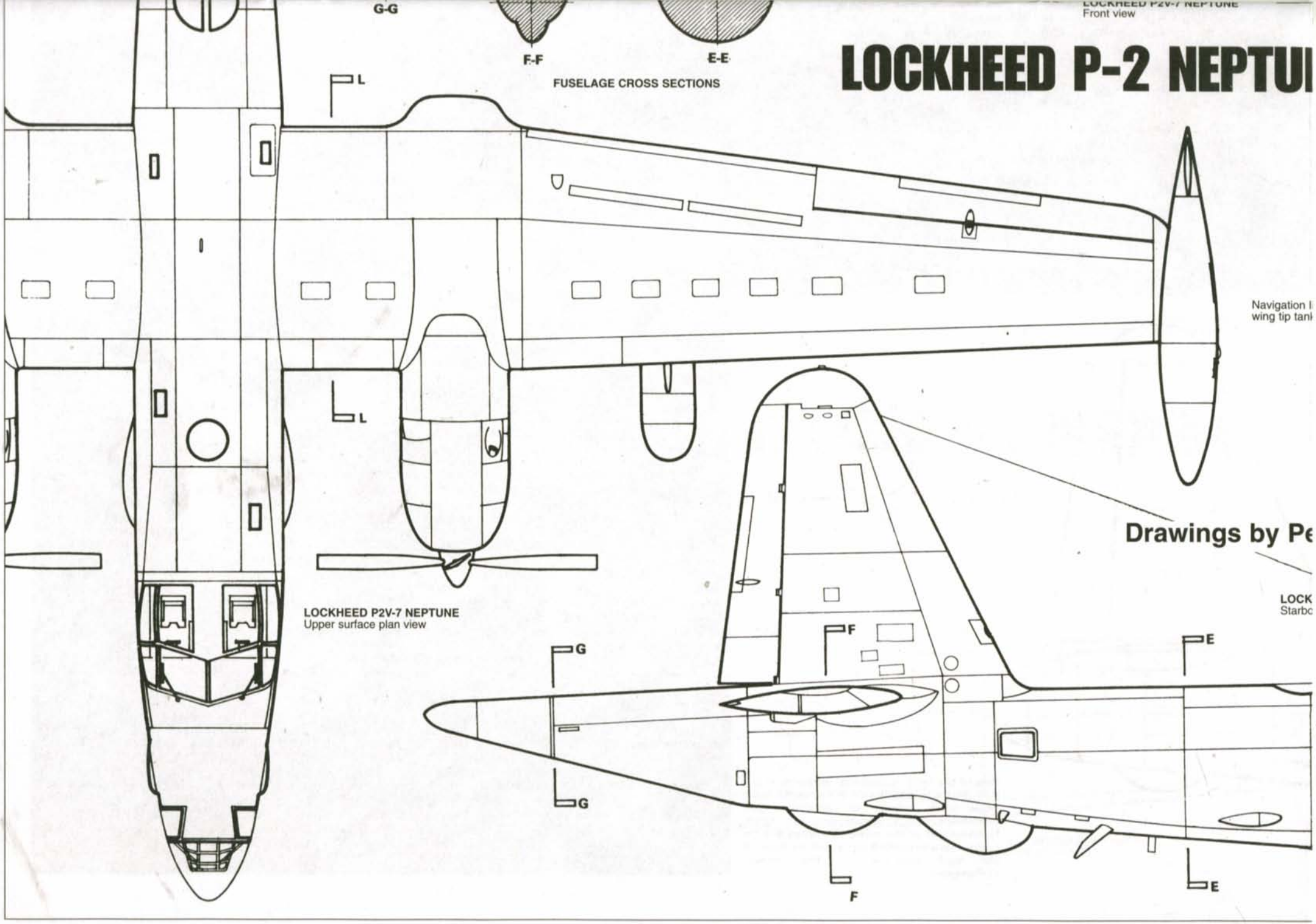


LOCKHEED P-2 NEPTU



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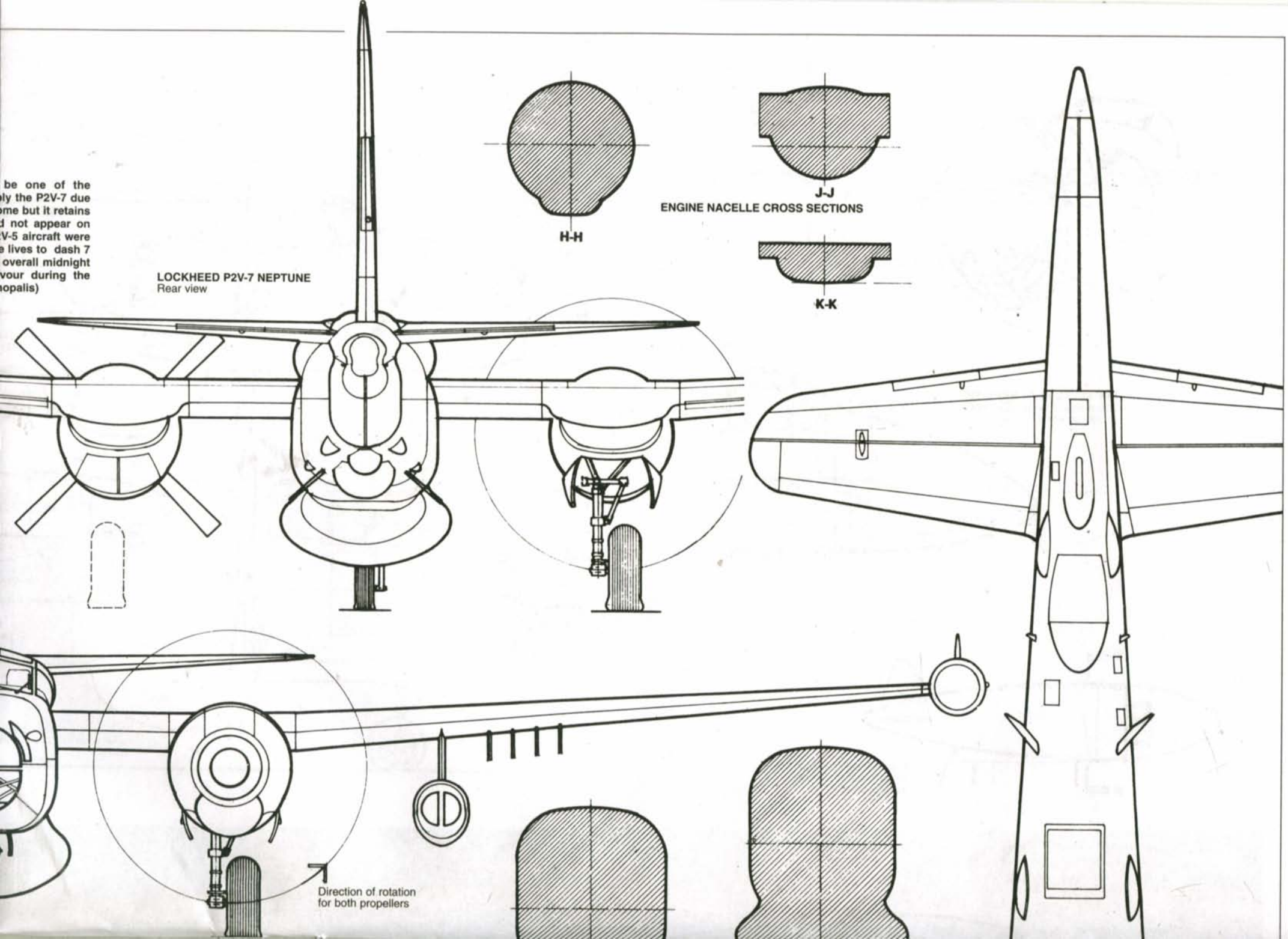

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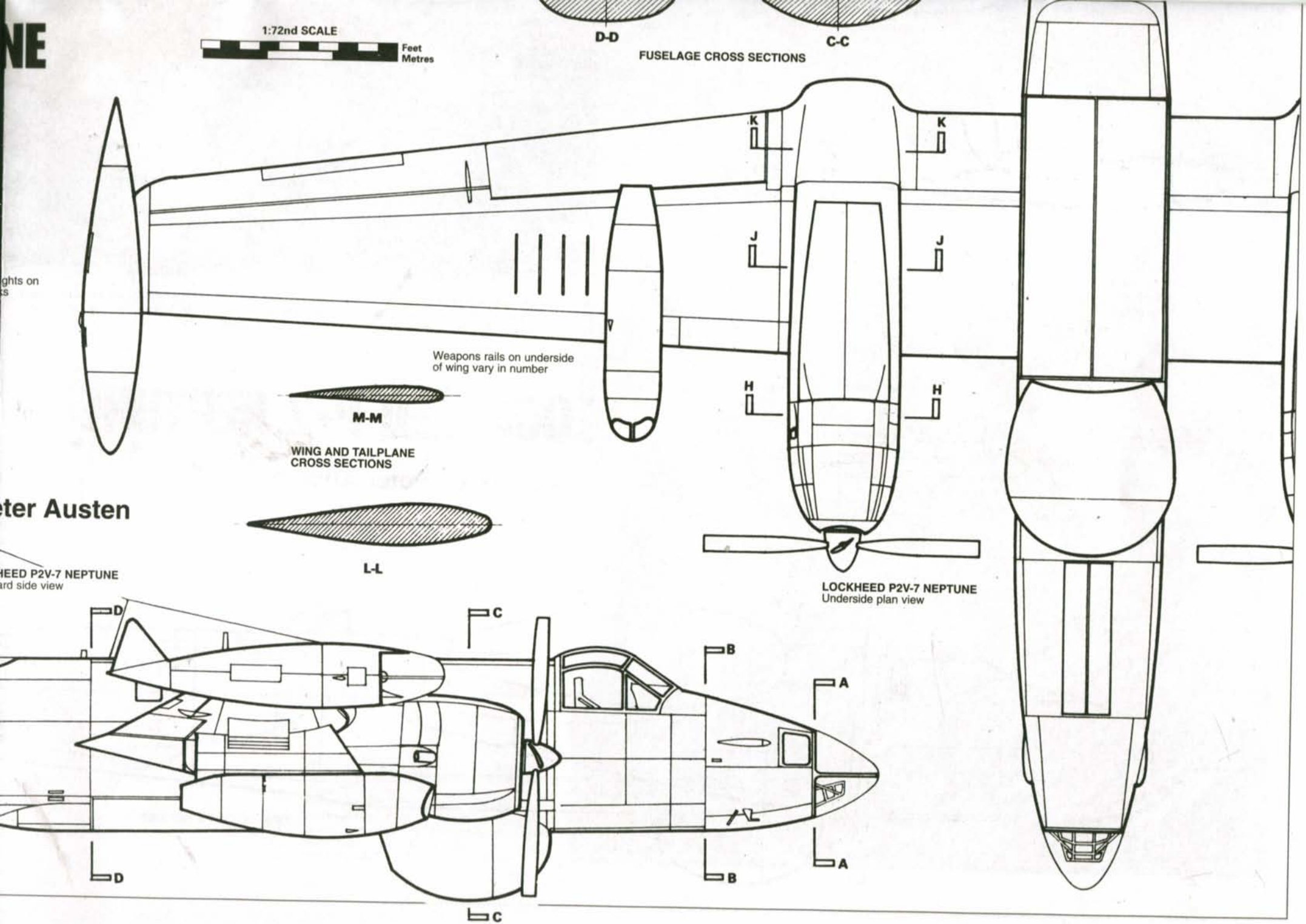

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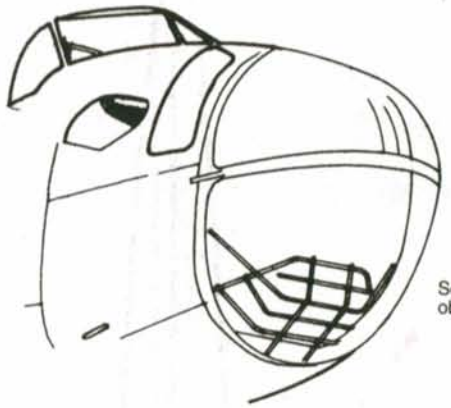
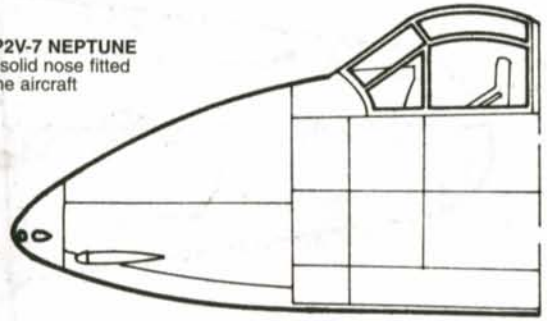
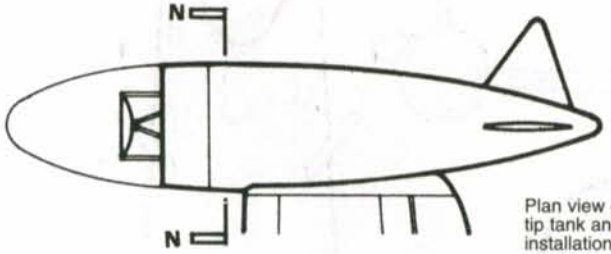
HEED P2V-7 NEPTUNE
ard side view



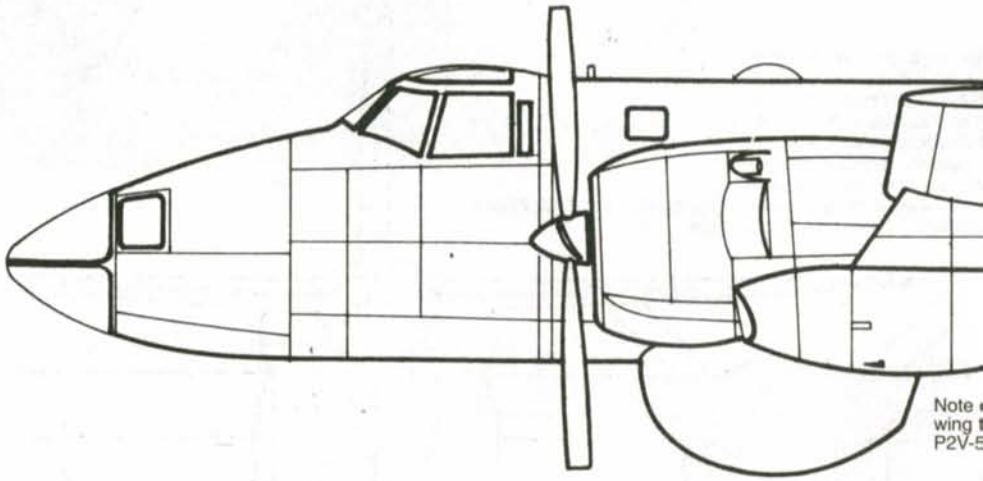
Scrap view of nose observer's cage

LOCKHEED P2V-7 NEPTUNE
Scrap view of solid nose fitted initially on some aircraft





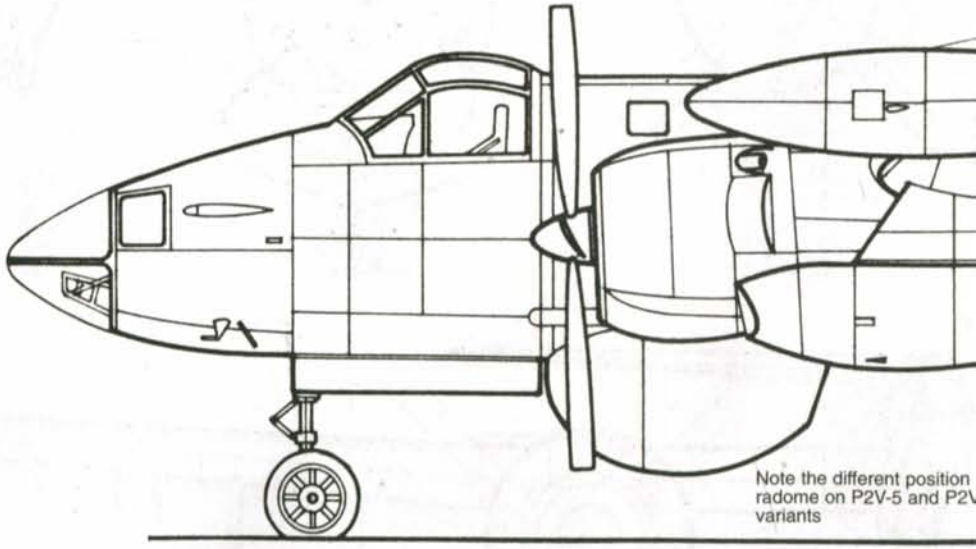
Plan view of starboard tip tank and searchlight installation of P2V-5



Note

wing

P2V-5

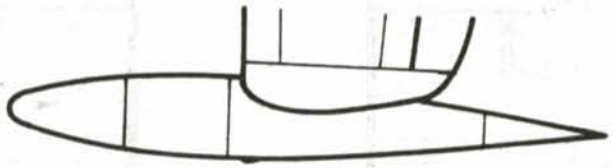


Note the different position

radome on P2V-5 and P2V

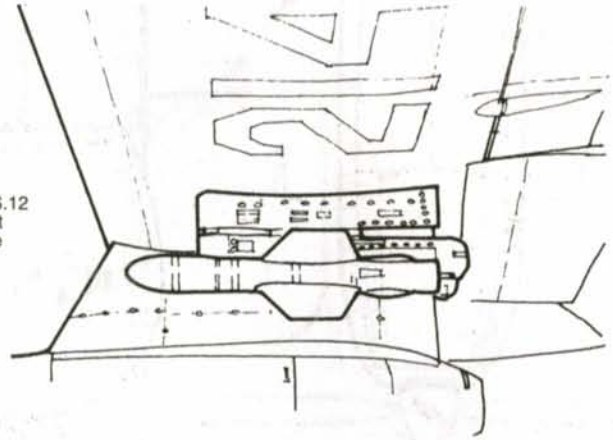
variants

Side view of underslung tip tanks as fitted to P2V-4



Plan view of underslung tip tanks as fitted to P2V-4 variant (port side)

Apart from the record breaking 'Truculent Turtle', Jet Assisted Take Off (JATO) rockets were used for rocket boosted experiments from aircraft carriers on one way nuclear missions. The aircraft used was a P2V-3C which is seen here during its early land based trials. (T.Panopalis)

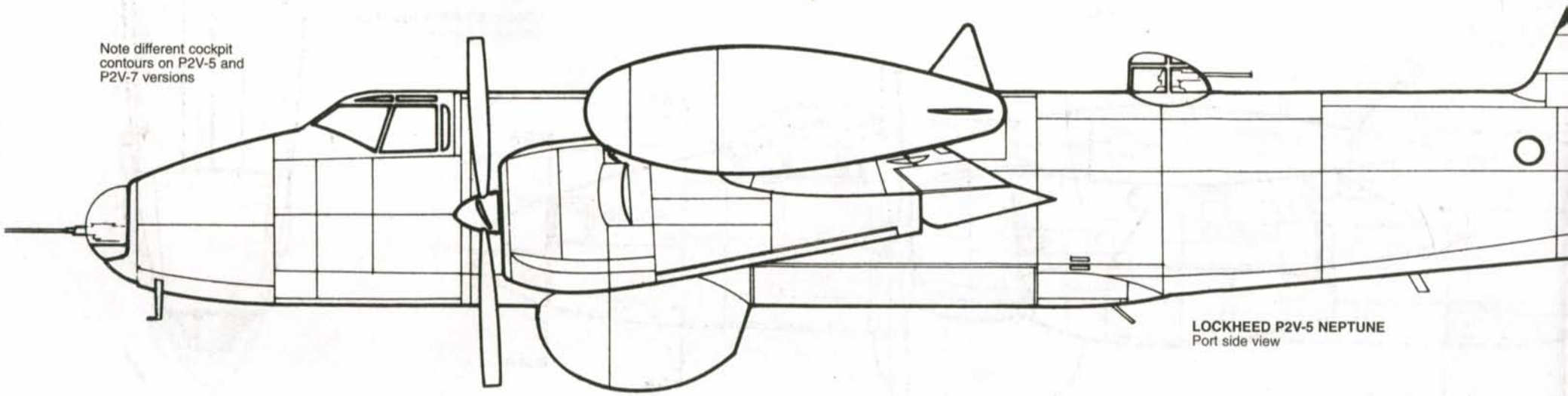


Scrap view showing Nord AS.12 missile installation under port wing of MLD SP-2H Neptune

LOCKHEED P-2 NEPTUNE

Drawings by Peter Austen

Note different cockpit contours on P2V-5 and P2V-7 versions



LOCKHEED P2V-5 NEPTUNE
Port side view

LOCKHEED DP-2E NEPTUNE
Port side view

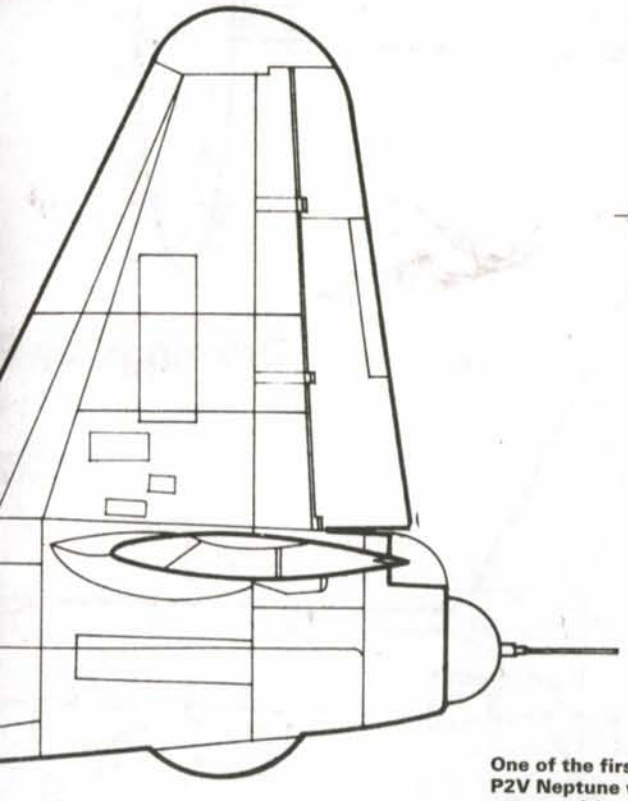
Blister window on
rear fuselage

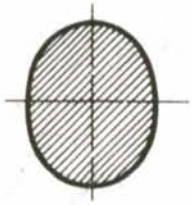
1:72nd SCALE

Feet
Metres

fferent shape of
tanks between
and P2V-7 models

LOCKHEED P2V-7 NEPTUNE
Port side view





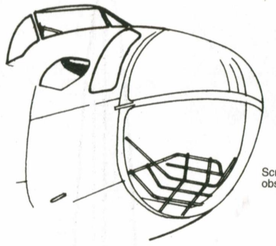
N-N

Cross section of P2V-5 tip tank

One of the first operational versions of the P2V Neptune was the dash 4. It had a solid nose with canon or machine gun armament and a dorsal and tail turet. Unlike most of the other Neptunes the tip tanks were mounted under rather than in the mid position on the wings. (T.Panopalis)

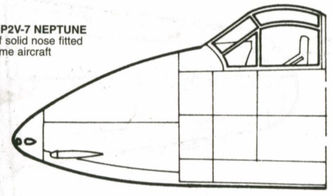
LOCKHEED P-2 NEPTUNE

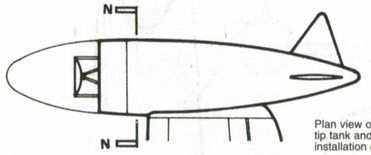
Drawings by Peter Austen



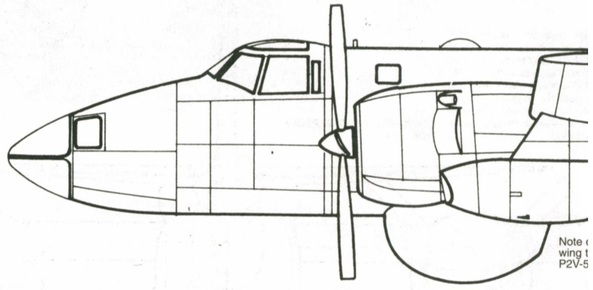
Scrap view of nose observer's cage

LOCKHEED P2V-7 NEPTUNE
Scrap view of solid nose fitted initially on some aircraft

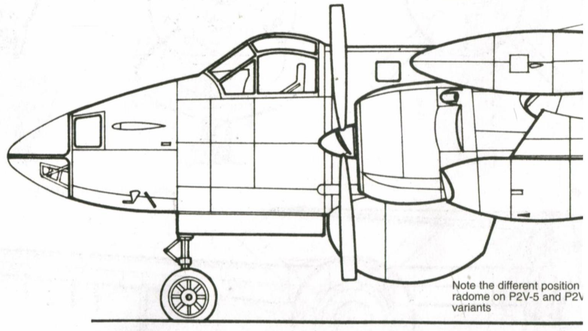




Plan view of starboard tip tank and searchlight installation of P2V-5



Note different shape of wing tanks between P2V-5 and P2V-7 models

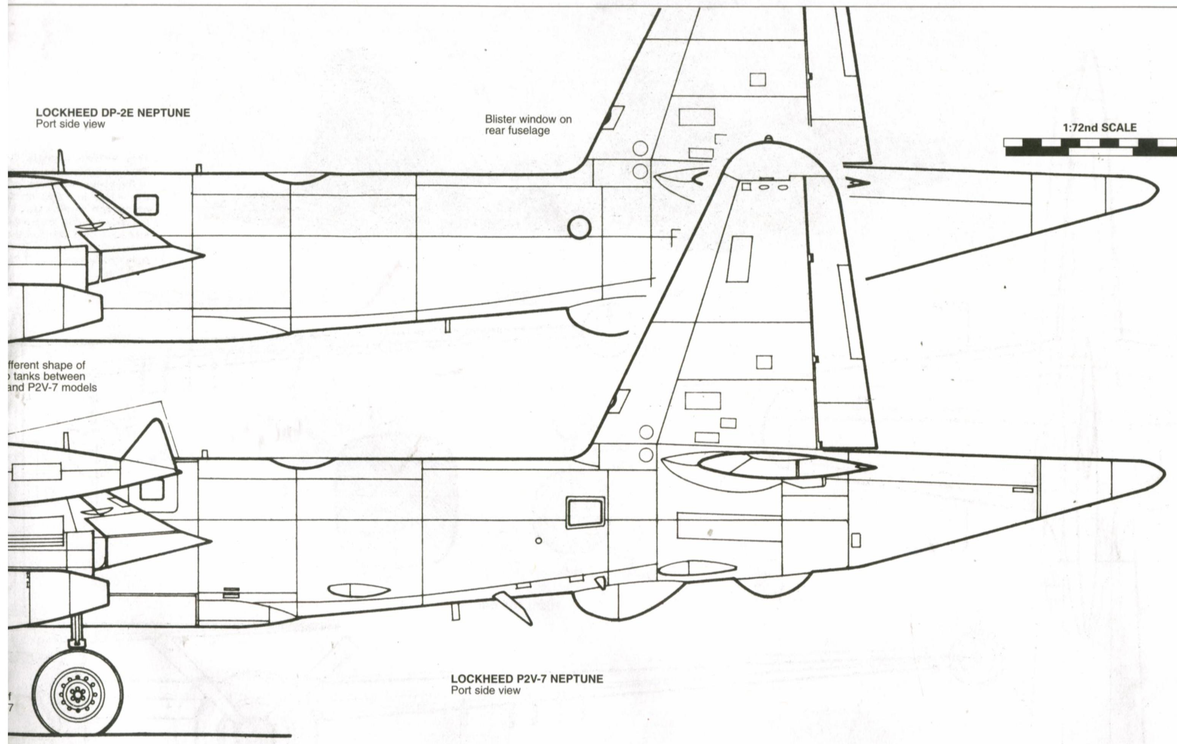


Note the different position of radome on P2V-5 and P2V-7 variants

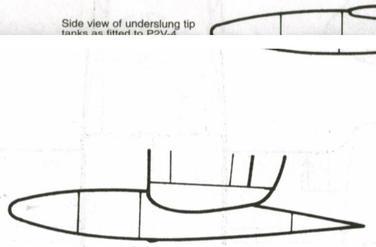
LOCKHEED DP-2E NEPTUNE
Port side view

Blister window on rear fuselage

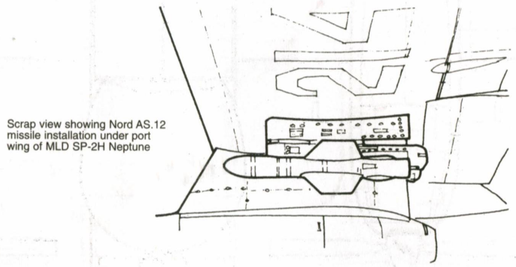
1:72nd SCALE
Feet
Metres



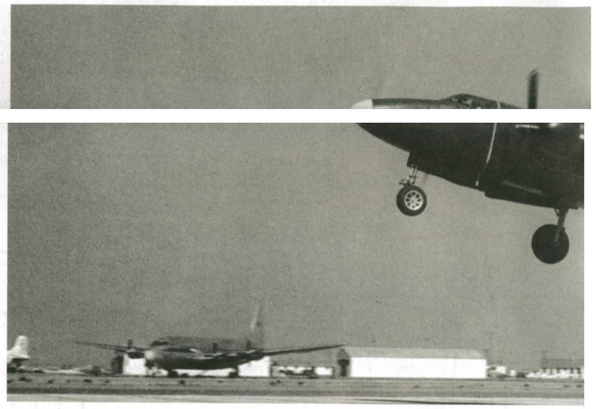
LOCKHEED P2V-7 NEPTUNE
Port side view



Plan view of underslung tip tanks as fitted to P2V-4 variant (port side)



Scrap view showing Nord AS.12 missile installation under port wing of MLD SP-2H Neptune



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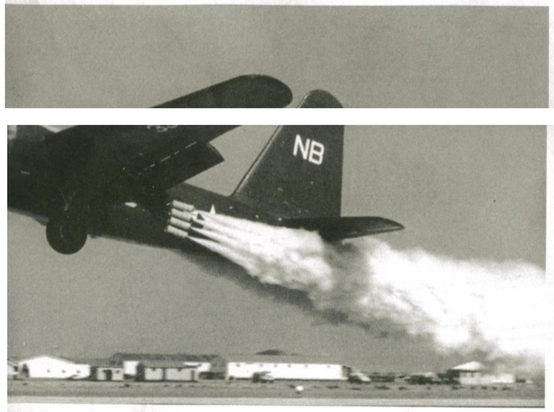
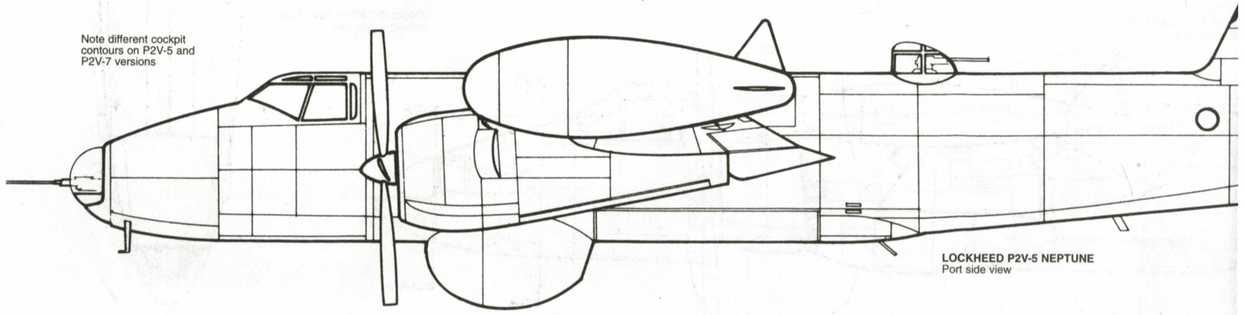
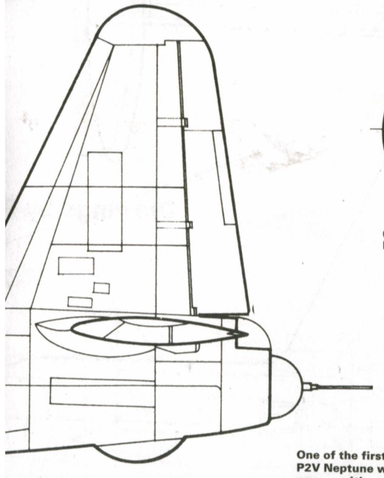
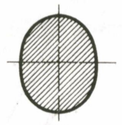




Note different cockpit contours on P2V-5 and P2V-7 versions

LOCKHEED P2V-5 NEPTUNE
Port side view





N-N

Cross section of P2V-5 tip tank

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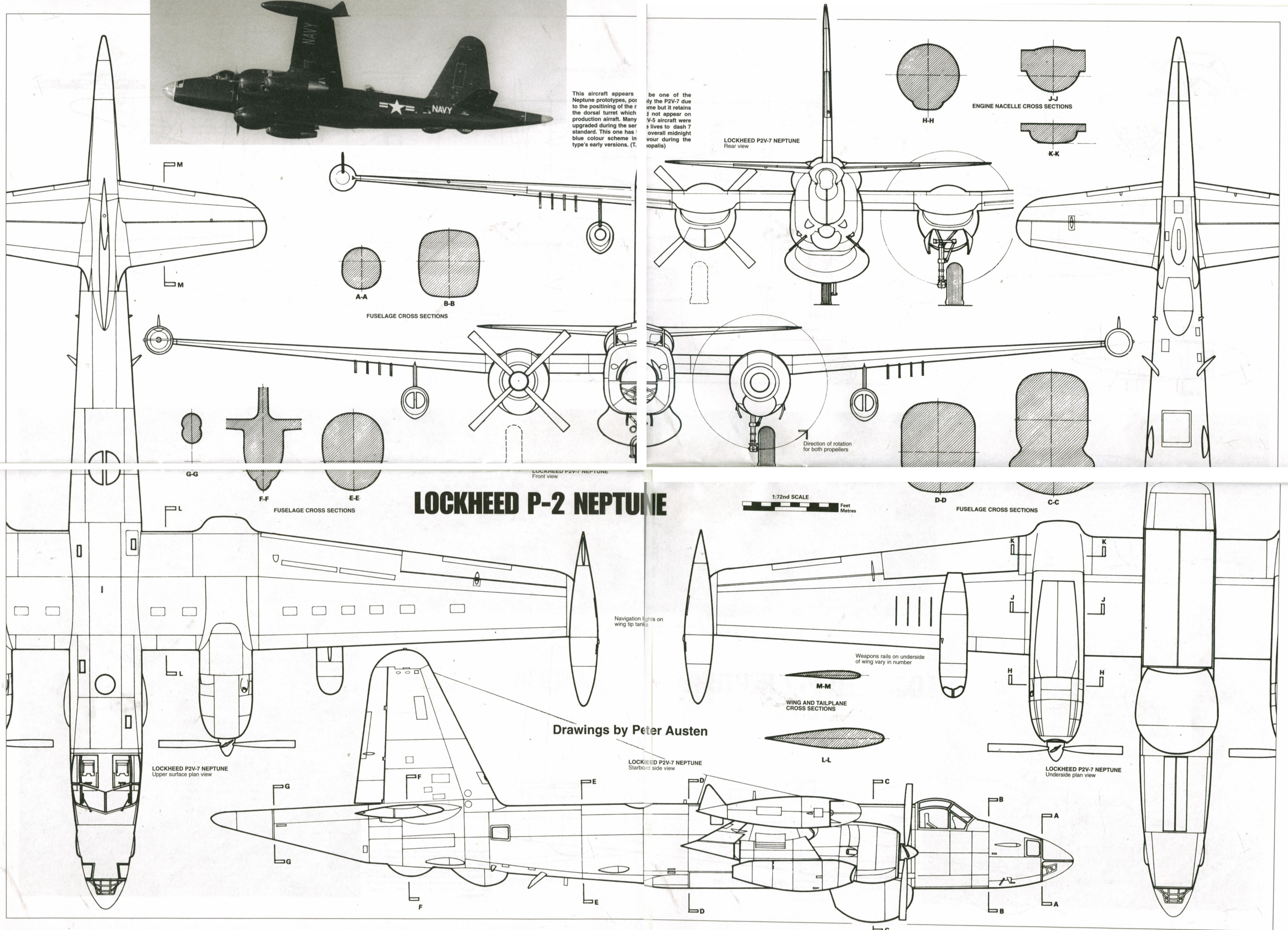
LOCKHEED P-2 NEPTUNE

This aircraft appears be one of the Neptune prototypes, pos ly the P2V-7 due to the positining of the r me but it retains the dorsal turret which d not appear on production airraft. Many V-5 aircraft were upgraded during the ser s lives to dash 7 standard. This one has overall midnight blue colour scheme in vour during the type's early versions. (T. opalis)



Drawings by Peter Austen

Neptune 131526 was an EP-2E of No.1 Radio Research Company, US Army. In this view all the various modifications are clearly shown. (US Army)

Above: A Canadian Neptune boldly marked with dayglo wing tips and tailplane. Below: One of the brightly coloured civil Neptunes that were converted for forest fire duties. Although all other military equipment seems to have been removed it has retained its MAD tail boom. (Both via T. Panopalis)

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