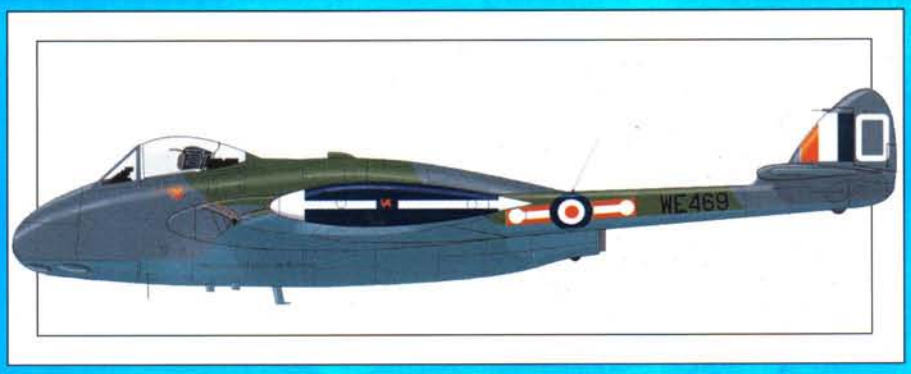


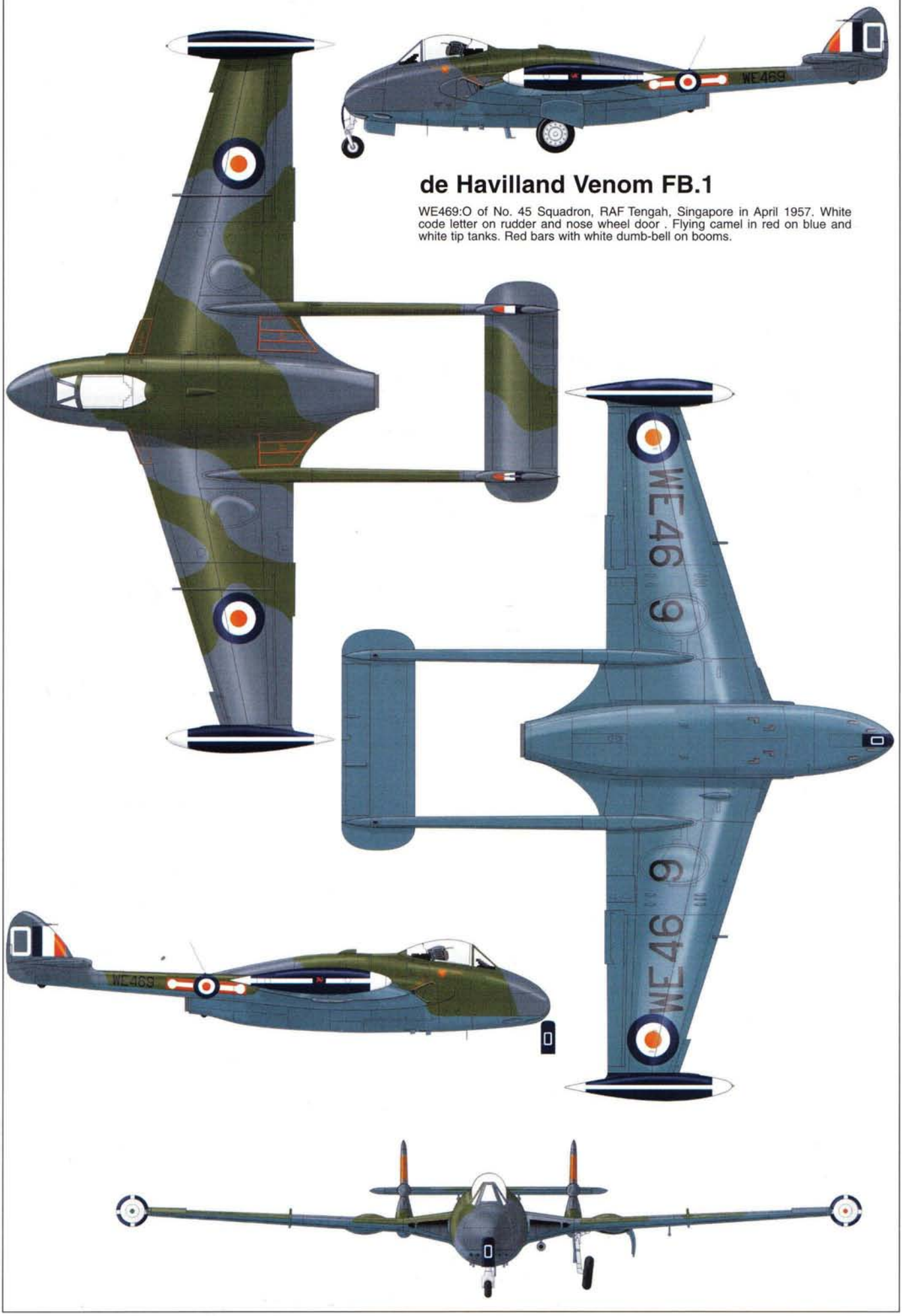
WARPAINT SERIES No. 44

de Havilland Venom

and Sea Venom

BY W. A. HARRISON

Venom FB.1 WE255, the first production aircraft flew for the first time on 29 July 1950. Later it joined WE612 at A&AEE Boscombe Down for extensive pre-service trials. The aircraft did not see squadron service and after a period as 7187M for trade training at St.Athan it was broken up in May 1956.



de Havilland Venom FB.1

WE469:O of No. 45 Squadron, RAF Tengah, Singapore in April 1957. White code letter on rudder and nose wheel door . Flying camel in red on blue and white tip tanks. Red bars with white dumb-bell on booms.

BY W.A.HARRISON

de Havilland DH.112 VENOM and SEA VENOM

The Venom FB.4 is probably the best fighter-bomber in its class in the world. This was from a statement given out by NATO HQ in 1958, and so it was to prove, for the Venom flew more operational missions than any other post-war type. The FB.4 was an excellent gun platform and experienced pilots found accurate shooting straightforward. This was proved when the likes of No.8 Squadron in the Aden Protectorate had to attack one enemy-held building among others. Apart from helping to keep the peace in during the so-called 'Cold War' in Europe, Venoms flew strikes against terrorists in the Arabian Peninsular and Malaya.

In 1947 Vampire F.1 TG278 was fitted experimentally with a Ghost engine and with slightly extended wing tips reached an altitude of 59,446ft, at that time an official altitude record. Further experimental flying was carried out and it became apparent that the Vampire, fitted with the more powerful, 4,850Ib thrust Ghost 103 engine and other refinements, such as a new wing design to raise the permissible Mach number, would represent another and important stage in the development of this versatile fighter.

Above:The second prototype Venom VV613 first flew on 29 July 1950 and later joined VV612 at Boscombe Down for extensive trials. The Venom layout is shown to good effect in this factory shot including the half chord wing fences.

Early test flights with the first prototype Venom VV612 showed it to have exceptional high altitude manoeuvrability, so the Air Ministry delegated it to the ground attack role! The thin wing without accessories is very apparent in this picture. (Real Photographs via author)

Another view of FB.1 WE258 while conducting rocket projectile firing from Boscombe Down in 1952. The two-tier R/Ps have concrete heads, used for training purposes.

Operational Requirement OR.277 for a thin wing version of the Vampire powered by the Ghost engine was called for in Specification F.15/49, issued to de Havilland on 14 September 1949. Structural changes required were few – the slightly larger diameter of the Ghost was configured comfortably within the laminated plywood Vampire body nacelle and incorporated experience of seven years development (and four years operational service) of the Goblin engine. Start-up was via a Rotax cartridge starter. The most noticeable changes were the swept back leading edge of the wing, 17 degrees six minutes, a reduced thickness/chord ratio from 14 per cent to 10 per cent, and the use of 75 gallon wing tip fuel tanks, although it could carry underwing long-range tanks as well. The tailplane was to be strengthened to allow speeds up to 650mph. Two prototypes were ordered, VV612 and VV613, and although they were known initially as Vampire FB.8s, the changes were considered enough to warrant a new type number DH 112 and they became Venom FB.1s – fighter-bomber being seen as its principle role. It was mentioned in the House of Commons when selected for service with the RAF, that this advanced military aircraft had still not been announced seven months previous.

John Derry took the first FB.1 VV612 on its initial flight from Hatfield on 2 September 1949. Flight trials displayed a number of shortcomings but these were seen to be curable by trial and modification rather than by radical redesign. It was sent to the

Between March and August 1952 Venom FB.1 WE258 was used at Boscombe Down for gunnery trials. Firing the four 20mm cannon produced no adverse effects or retardation.

Aeroplane & Armament Experimental Establishment (A&AEE) at Boscombe Down in May 1950 for a pre-view handling assessment and brief performance checks. High Mach number trials showed that (a) at 40,000ft/0.85 IMN, any further increase in Mach number resulted in a nose down change of trim with pronounced wing dropping; (b) at 20,000ft flight characteristics were unsatisfactory with only a slight warning of violent nose-up trim changes after 0.845 IMN. It was pointed out that under combat conditions this Mach number could be easily exceeded with unpleasant results; (c) at 10,000ft rudder vibration started at 0.81 IMN and increased in severity with increasing Mach number. It was recommended that further development was done to cure these problems.

VV612 returned to Boscombe and after further flight trials in September 1950 it was suggested that to fulfil its designed role de Havilland should lighten the ailerons to improve rate of roll at high speeds, lighten the elevator, improve longitudinal stability,

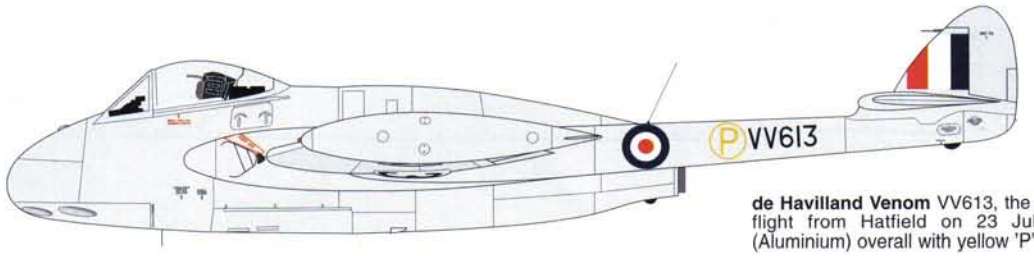
Venom FB.1WE255, the first production aircraft when at Boscombe Down carrying out trials with underwing stores such as standard iron bombs. (MoD Air photo library via A.W.Hall)

DH Venom and Sea Venom camouflage and markings

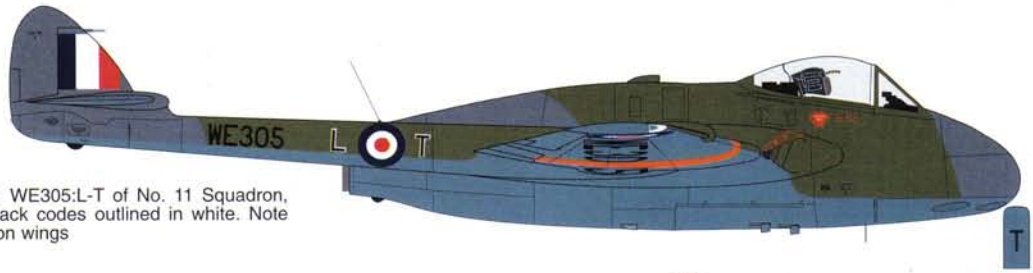
Drawings by David Howley

DH VENOM AND SEA VENOM COLOUR KEY

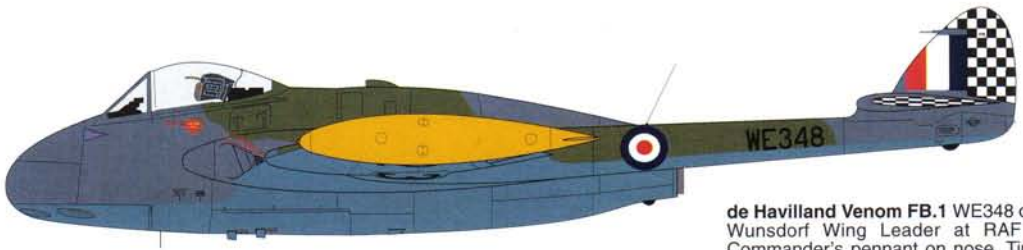
Black	White	Yellow BS.356	P. O. Red BS.538	R. Blue BS.110	Aluminium	Dk. Green BS.641	Dk. Sea Grey BS.638	Extra Dark Sea Grey BS.640	Sky BS.210	Sea Blue FS 15402	Medium Sea Grey BS.637



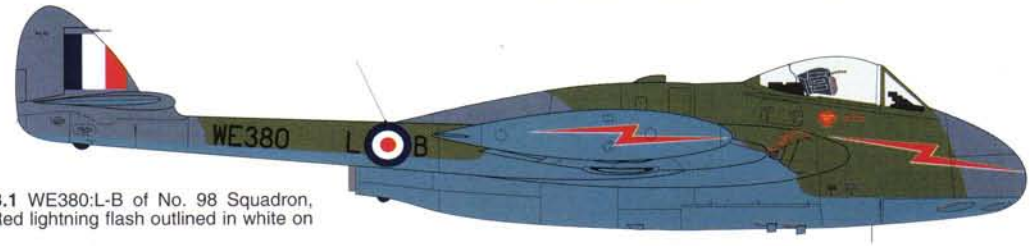
de Havilland Venom VV613, the second prototype made its first flight from Hatfield on 23 July 1950. High Speed Silver (Aluminium) overall with yellow 'P' markings.



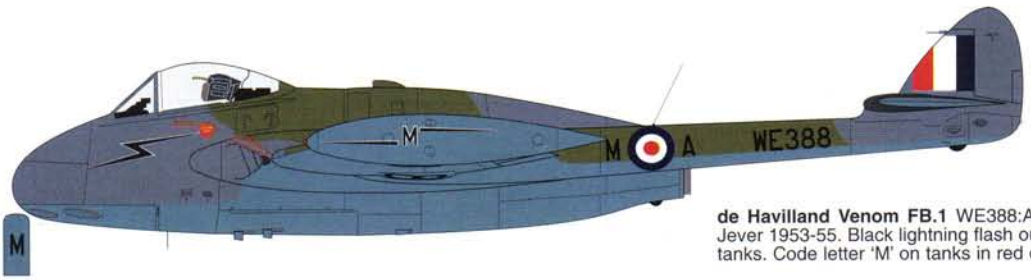
de Havilland Venom FB.1 WE305:L-T of No. 11 Squadron, RAF Wunsdorf 1953-55. Black codes outlined in white. Note 'restricted flight' red bands on wings



de Havilland Venom FB.1 WE348 of Wing Commander J.T.Shaw, RAF Wunsdorf Wing Leader at RAF Tangmere in June 1953. Wing Commander's pennant on nose. Tip tanks appear to be yellow. Small black and white checks on rudder and top and bottom of tailplane

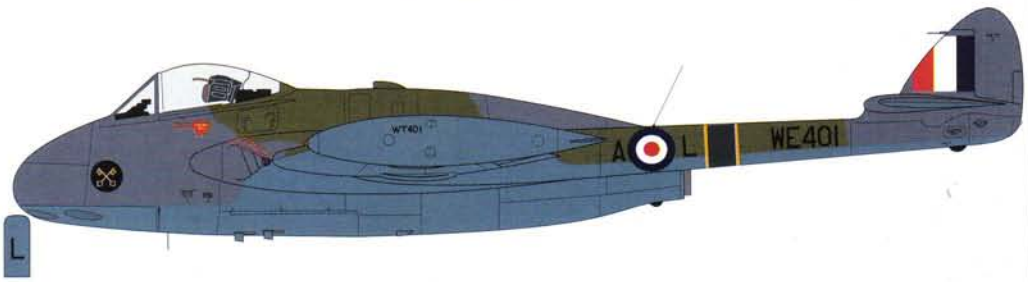


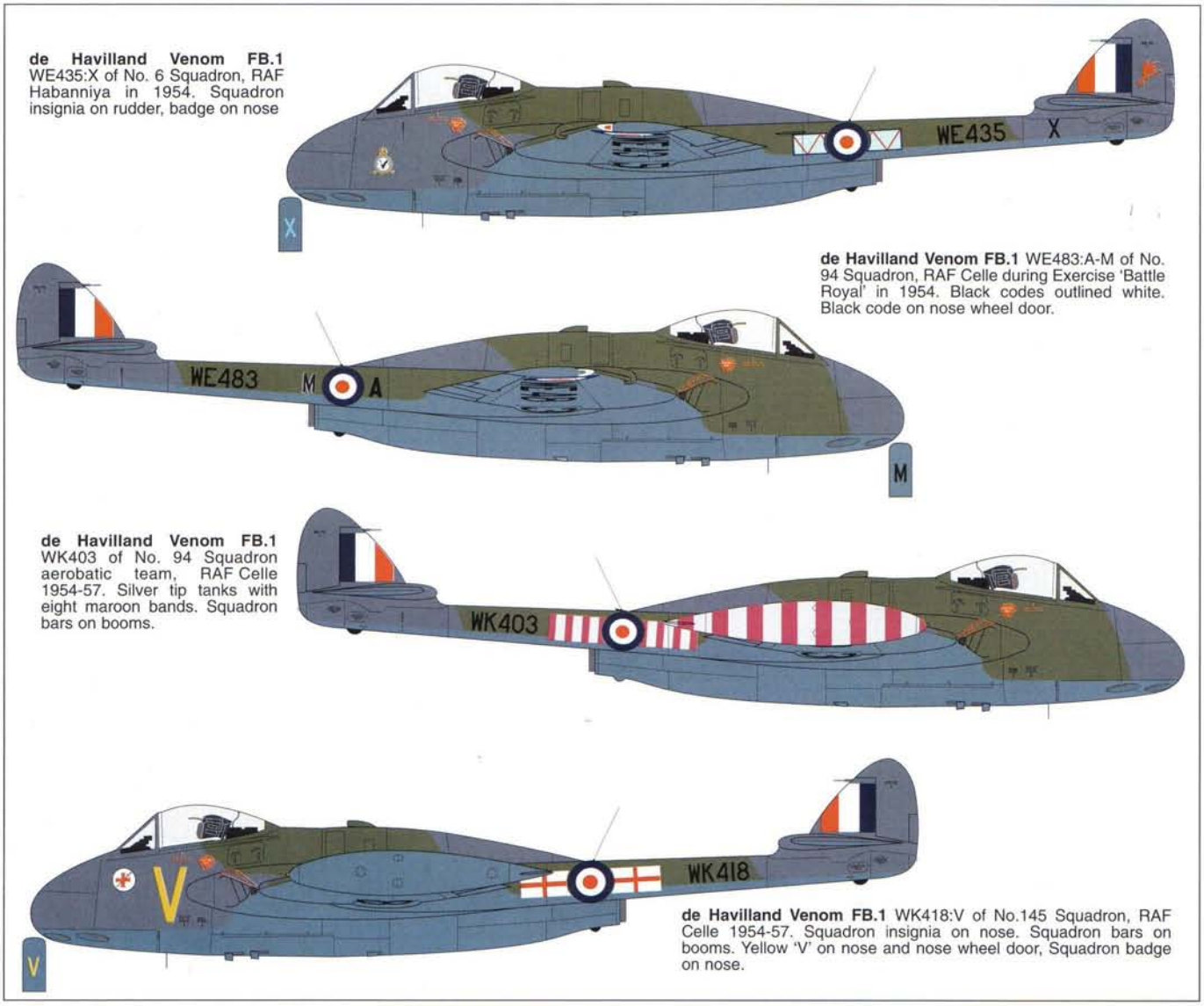
de Havilland Venom FB.1 WE380:L-B of No. 98 Squadron, RAF Fassberg 1953-55. Red lightning flash outlined in white on nose and tip tanks



de Havilland Venom FB.1 WE388:A-M of No.118 Squadron, RAF Jever 1953-55. Black lightning flash outlined in white on nose and tip tanks. Code letter 'M' on tanks in red outlined white

de Havilland Venom FB.1 WE401:L-A of No. 16 Squadron, RAF Celle in September 1954. Black band outlined in yellow on booms.





de Havilland Venom FB.1 WE435:X of No. 6 Squadron, RAF Habanniya in 1954. Squadron insignia on rudder, badge on nose

de Havilland Venom FB.1 WE483:A-M of No. 94 Squadron, RAF Celle during Exercise 'Battle Royal' in 1954. Black codes outlined white. Black code on nose wheel door.

de Havilland Venom FB.1 WK403 of No. 94 Squadron aerobatic team, RAF Celle 1954-57. Silver tip tanks with eight maroon bands. Squadron bars on booms.

de Havilland Venom FB.1 WK418:V of No.145 Squadron, RAF Celle 1954-57. Squadron insignia on nose. Squadron bars on booms. Yellow 'V' on nose and nose wheel door, Squadron badge on nose.

increase the effectiveness of the airbrake and eliminate aileron buffeting brought about by extending the airbrake, better stall warning device and limit flap movement from 80 to 60 degrees. It was pointed out that, despite the criticism mentioned above, VV612 had taken part in mock combat with two current fighters and came out with a noticeable advantage.

The second machine, VV613 joined the programme on 23 July 1950 and followed VV612 to Boscombe in April 1951. Three pilots carried out eight sorties investigating response to high Mach number dives from 47,000ft, 32,000ft and 17,000ft. Results at low and medium altitudes were acceptable but at high altitude were still unsatisfactory. However, the cockpit layout on VV613 was considered generally good, the only criticism being the lack of an ejection seat. The first six production FB.1s were used for trials, WE255 was initially evaluated at Boscombe using underwing stores and later to test development of controllability including stick forces. Boscombe also carried out preliminary investigation of stalling and high Mach number characteristics to determine whether the problems encountered with aileron 'buzz' and tip tank vibration on VV613 had been eliminated. WE256 was used for fuel and trial installations; WE257 looked into problems at high speed and then joined the Handling Squadron at RAF Manby; gunnery trials were conducted with WE258 during March to August 1952 when 117 sorties were flown, expending nearly 56,000 rounds of 20mm ammunition with very few problems. WE259 went to Boscombe, as did WE260 in April 1951 for powered controls development.

Other early FB.1s also found use as trials aircraft, WE266 was retained by de Havilland for general development flying and then in 1952 went to Canada for cold weather trials; WE267 and WE268 went to the RAE at Farnborough; WE272 carried out flutter checks at Boscombe; WE275 was used for high altitude trials; WE279 was delivered to Folland in September 1952 for various trials; WE280 went to Boscombe in January 1953 and WE281 carried out flutter investigation flights at high Mach numbers.

Undergoing an engine change Venom FB.1 WE372 of No. 98 Squadron, based at Fassberg, made a belly landing on 31 May 1953 at Velzen, West Germany after the engine failed.

The reason a number of FB.1s (WE257, 258, 259, 260) went to Boscombe during January to July 1952 was that they were concerned that test flying had shown that stalling and high Mach number characteristics varied from aircraft to aircraft. De Havilland were developing wing tip slats, which it was hoped would improve the stalling characteristics. While there WE258 and WE259 carried out service clearance trials with three inch Rocket Projectiles (R/P) and their associated mountings. Some 54 sorties were flown expending 367 R/Ps at speeds up to 500 knots in 40 degree dives with satisfactory results.

In the meantime production of the Venom FB.1 was changed to the larger factory at Chester after the first 15 had been built at Hatfield. The first Chester aircraft, WE270 was delivered to No.22 MU on 26 July 1952. A total of 375 Venom FB.1s were built, mainly at the Chester factory with small numbers being sub-contracted to Fairey Aviation at Ringway and Marshalls of Cambridge. Plans to build another 132 FB.1s by the Bristol Aeroplane Co at Filton, beginning with WL892, were cancelled before any had been built.

The Central Fighter Establishment (CFE) at West Raynham became the first RAF unit to receive the FB.1 on 21 April 1952 when WE263 flew in, followed by WE265 on 25 April and WE261 on 8 May. These were for a full service evaluation prior to aircraft joining squadrons. For some reason these early Venoms at West Raynham had an unusual colour scheme of a blue fuselage and silver-grey wings. Added to this was a red band chordwise around each wing due to a structural weakness found in the wings. Flying was restricted and changes to its operational role, such as removal of the wing-tip tanks, until a cure could be found. As the Gloster Meteor had been chosen to equip the home-based Fighter Command squadrons, single-seat Venoms were widely used by the 2nd Tactical Air Force (2nd TAF), later 2nd Allied Tactical Air Force (2nd ATAF) in Germany and in the hotter climates of the Middle East, Cyprus, Africa and the Far East.

Above: Venom FB.1WR335:W of No. 32 Squadron is unusual in that the tip tanks are camouflaged. Fuselage markings were blue with white stripes. Below: Venom WE384:B-A was part of No.118 Squadron, Fassberg Wing in 1958. The cannons have been removed in this picture. Nose lightning stripe is black and white and it had black acorns on the tail.

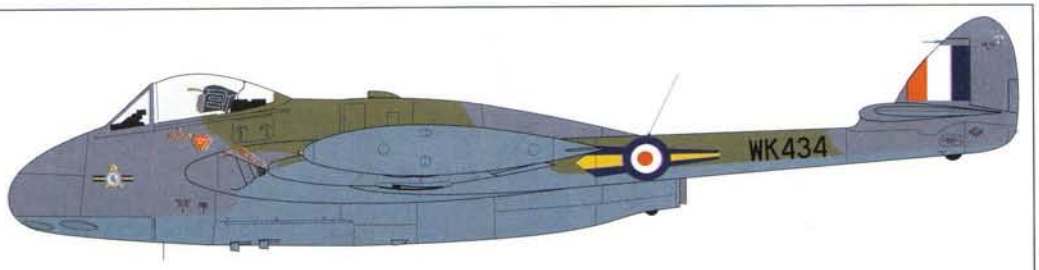
Above: Venom FB.1 WK417 taxying at RAF Benson on 14 September 1957, It served with No. 145 Squadron before joining No. 28 in Hong Kong and was badly damaged in a belly landing at Kai Tak on 27 August 1958. Below: A line up of No. 145 Squadron Venom FB.1s at Celle, West Germany. Nearest is WK418 which displays a large yellow 'V' on the nose. The squadron badge appears just forward of the 'V' and the tip tank has the aircraft's serial on the upper section.

RAF SQUADRONS RECEIVE VENOMS

No.11 Squadron became the first unit to receive the Venom FB.1 in August 1952. Based at Wunstorf in Germany as part of the aforementioned 2nd TAF, these early production machines were of some concern to No. 11 Squadron and observing NATO allies. Unfamiliar with cartridge starting methods, the sight of a line of Venoms emitting black smoke out of the top of the engine bay had observers panicking and setting off alarms, but by the time the emergency services arrived the squadron was taxying out quite unaware of the alarm they had caused. Also, the Ghost was prone to 'wet 'starts where a large flame shot out the exhaust – NATO forces must have thought the British odd ordering aircraft that were like a firework display!

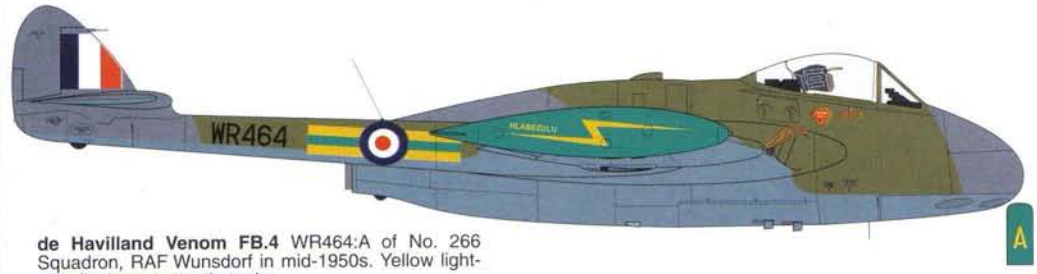
Between 15-23 September 1952 a small

de Havilland Venom FB.1 WK434 of No.73 Squadron, RAF Habanniya, Iraq, 1955-56. Squadron badge and bars on nose. Squadron bars on booms

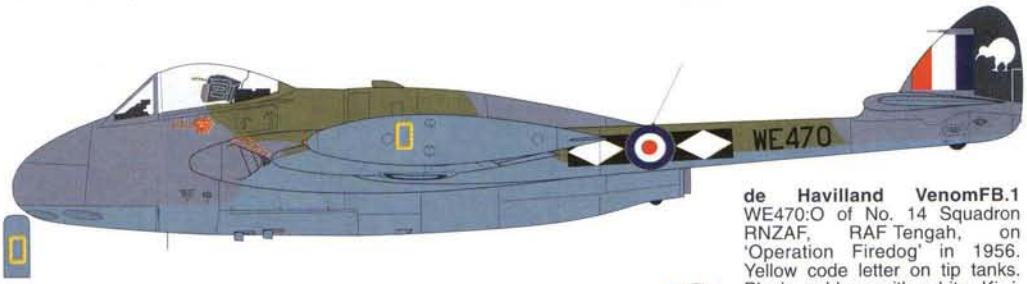


de Havilland Venom FB.1 WR356:U of No. 32 Squadron, RAF Amman, Jordan in May 1955. Squadron badge on nose. Blue flash on tip tank for 'B' Flight. 'U' on nose wheel door and rear boom in white outlined blue

de Havilland Venom FB.1 WR360:K of No.60 Squadron, RAF Tengah mid-1950s. Black tanks with nose in blue. 'B'Flight colour, no white lightning flash, code letter in white. Black rudders. Code letter on nose in black. Black and green squadron bars on booms.



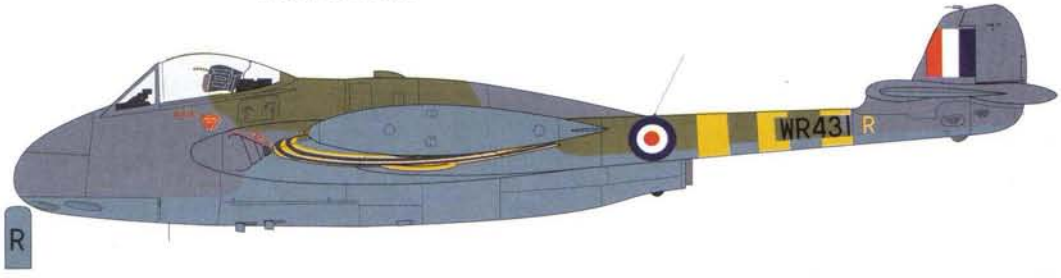
de Havilland Venom FB.4 WR464:A of No. 266 Squadron, RAF Wunsdorf in mid-1950s. Yellow lightning flash on green tip tanks



de Havilland VenomFB.1 WE470:O of No. 14 Squadron RNZAF, RAF Tengah, on 'Operation Firedog' in 1956. Yellow code letter on tip tanks. Black rudders with white Kiwi. Black bars with white diamonds on booms. Yellow code letter on nose wheel door. Pilot Flt.Lt.Stuart McIntyre.

de Havilland Venom FB.1 WR341:G of No.14 Squadron RNZAF, RAF Tengah in September 1956. Yellow code letter on tip tanks and nose wheel door. Red and white checks on rudders. Black bars with white diamonds on booms.

de Havilland Venom FB.4 WR431:R of No. 249 Squadron, RAF Akrotiri in November 1956 for Operation 'Musketeer' against Suez. Squadron bars on booms overpainted leaving only the yellow bands on the booms.



Ground crew of No. 8 Squadron contemplate problems with WR561:R at Sharjah in early 1958. The gun bay doors are off so that was probably the root of the problem. Note the main runway in the background made from compressed sand and responsible for the sand-blasted appearance of the squadron's aircraft.

number of Venoms, four from No.11 Squadron and two loaned from the CFE, took part in the NATO exercise 'Hold Fast', although a few had taken part in the exercise 'Mainbrace' a short time earlier. As the first operator, No.11 Squadron were watched with some interest as they carried out what were operational service trials. Sometimes this meant operating from NATO airfields, many of which still bore the ravages of World War 2, and it was not unknown for Venoms to operate from stretches of the German autobahn.

In squadron service the wing structure weaknesses arose and as it affected the wing tip tanks aircraft were again flight limited. Modifications designed to strengthen the wing structure could be carried out by squadron engineers with sets of modified parts provided by the manufacturer – but these were slow in arriving. These squadron aircraft also had broad orange bands painted across the wings as a warning. By early 1954 the RAF were receiving a much-modified version of the Venom FB.1, which, the pilot's noted thankfully, were fitted with ejection seats. Taking part in exercises over the UK the Venom operated as a high altitude interceptor and had great success against the Canberra. In Europe they were more than a match for the F-86 Sabre at high altitude.

Three RAF Venom Wings were set up in NATO, No.121 at Fassberg in mid-1953 made up of Nos. 14, 98 and 118 Squadrons, No 139 Wing at Celle early in 1954 with

Above: No. 94 Squadron had an aerobatic team in 1955 and this Venom FB.1 WR284 was part of it. Based at Celle, Germany the team disbanded after a year. Colours were a dark red and silver on the booms and tiptanks. Below:A colourful No. 28 Squadron Venom FB.1 WR299:A showing the squadron colours to advantage. Colours were either blue or yellow on the nose, tip tanks, booms and tail unit

Venom FB.4 WR410:N of No. 6 Squadron seen at Bensen in 1957. The squadron marking, a blue box with a deeper blue frame has a red zig-zag inside. Known as the 'Flying Can-openers' from World War 2 days the symbolic tin opener on the tip tanks allies the aircraft with it past history

Nos. 16, 94 and 145 Squadrons and in February 1954 No.123 Wing was formed at Wunstorf consisting of Nos. 5, 11 and 266 Squadrons. Despite the introduction of later model FB.1s the wing problem arose again when subjected to high stresses. As an example, on 23 March WE368 of No.14 Squadron flown by Flg Offr D'Arcy lost its starboard wing during a high-speed pullout when carrying out a dive-bombing sortie. The aircraft began to break up and the pilot ejected, the first RAF one through a canopy. The crash investigation revealed a weakness in the wing rear spar and checks on other Venoms showed that some 75 per cent, a very high figure, had the same defect. There were a number of crashes where any evidence was destroyed by the ensuring fire.

It fell to Flt Lt Severne of No. 98 Squadron to find the answer, and receive an Air Force Cross (AFC) for his efforts. On getting a fire warning in the cockpit he carried out a successful force landing on the Fassberg crash strip. Leaping out of the cockpit he used an axe to cut open the engine cowling and put out the fire with an extinguisher. It was found from the investigation of surviving evidence that when the aircraft was subjected to certain zero 'g' conditions fuel vented from the fuselage into the engine cooling air scoops creating flash fires. These and other minor problems were gradually overcome and the Venom vindicated. It never achieved the high speed required for an interceptor but had great manoeuvrability lower down and could outfly many other NATO fighters. Its strength lay in being a stable ground attack aircraft and in this role it excelled – especially when the improved FB.4 arrived.

To prove a point No.266 Squadron equipped with Venom FB.1s won the Duncan Trophy in 1954 in the face of keen competition from such types as the Meteor, Sabre and other Venom squadrons. The Duncan Trophy, instigated by General Gervasio Duncan who was Chief-of-Staff of the Brazilian Air Force when he visited RAF units, was awarded annually to the best day fighter squadron of the 2nd ATAF which achieved the best results in live air-to-air firing. The year previous this squadron had flown 12 FB.1s from Germany to Southern Rhodesia and back to commemorate the Rhodes Centenary Air Rally of 1953.

Outside of West Germany, No.6 Squadron became the first unit to receive the FB.1 at Amman in Jordan during February 1954. They moved to Habbaniya in Iraq during June where they joined the Vampire FB.9s of No. 73 Squadron, replaced in December that year by Venom FB1s. No.6 Squadron moved to Akrotiri, Cyprus during April 1956. No.73 Squadron lost four FB.1s on 23 December 1954 when a sandstorm hit Habbaniya and the pilots had to abandon their aircraft.

When the FB.4s started to arrive Habbaniya modified some of the old FB.1s and transferred them to the Far East. The RAF handed over Habbaniya to the Royal Iraqi Air Force on 2 May 1955 although AHQ Iraq disappeared, AHQ Levant took over to run down the British presence and No.73 Squadron moved to Nicosia on Cyprus. Also at Amman was No.249 Squadron who had received their FB.1s in October 1954. They operated from Amman until 1956 when they too moved to Akrotiri in Cyprus. In Kabrit, Egypt, No.32 Squadron had been re-equipped with the FB.1 by January 1955 but moved to Ta Khali on Malta by October that year.

No.8 Squadron, based at Khormaksar, Aden replaced its Vampire FB.9s with Venom FB.1s in June 1955. No.8 Squadron had been in Aden for 27 years and was unique in that its aircraft were used to protect British and local oil interests in the area. As such its aircraft were quite often operational against rebel tribesmen and other dissidents who wished to overthrow the system. In the Far East No.60 Squadron, based at Tengah, Singapore, became the first to receive the Venom FB.1 during April 1955. Joining them from Cyprus were No.14 (NZ) Squadron who were unusual in that their Venoms were leased from the British Government. These two squadrons, in support of commonwealth troops, carried out supportive ground attack strikes on terrorist positions.

In October 1955 No.45 Squadron, based at Butterworth in Malaya, began to receive

A Venom FB.4 of No 8 Squadron at Sharjah during operations against Omani rebels in the mountains. The aircraft is armed with the normal four 20-mm cannon and has a single tier of R/Ps under the wings. Note the cordite marks on the cannon ports. New tip tanks have been fitted.

Above: Venom FB.4 WR413 seen above the clouds with no squadron markings being shown and presumably awaiting allocation to a front line unit. Right: Arriving at Benson in 1955 Venom FB.4 WR436:B-Q shows that at that time the squadron badge on the forward fuselage was set back near the cockpit. This aircraft also flew as 'X' with No.6 Squadron, 'G' with 249 and ended its days with No. 8 Squadron, being broken up in early 1959 (MAP)

its Venom FB.1s, which it too used for 300 strikes against terrorists. The final Far East unit to receive the Venom FB.1 was No.28 Squadron based at Sek Kong, Hong Kong, which was only six miles from the communist border. They began to get Venom FB.1s in February 1956. This airfield was surrounded by mountains on three sides and only sported one runway. In June 1957 the squadron moved to Hong Kong's Kai Tak airport.

THE FB.4 ARRIVES

In March 1953 Boscombe Down, at the request of de Havillands, carried out a brief preliminary assessment of power operated ailerons on Venom FB.1 WE260. They found that the power-operated ailerons gave an increase in rate of roll, improved the wing drop at stall problem and gave better high altitude high Mach number characteristics. With these and other changes incorporated it was felt a change in type was called for and in April 1954 the first details of the Venom FB.4 were released.

Design of the new type was transferred to the Christchurch factory with FB.1 WE381 being pulled off the Chester production line to become the prototype Venom FB.4. Apart from the changes mentioned it could additionally carry underwing fuel tanks as well as the wing tip tanks and R/Ps. The shape of the rudder was changed to prevent excessive yaw, which could be induced by large aileron angles. The new FB.4 WE381 was delivered to Boscombe on 18 May 1954 for trials, which proved highly successful. With the development via the FB.1s, no trials aircraft were required and the FB.4 entered production, which was split as 52 from Chester, 51 from Hatfield, 33 from Marshalls and 15 from Fairey. Venom FB.4 WR374 was the first production machine, delivered to 29 Maintenance Unit (MU) at High Ercall on 28 March 1955 and the last, WR564 to 22 MU on 28 March 1956.

The Venom FB.4 started to replace the FB.1 in squadrons in mid-1955. In West Germany No.123 Wing changed to the FB.4 starting with No. 5 Squadron in July 1955, No.11 Squadron in August and No.266 (Rhodesia) Squadron in May 1956. However, the Hunter was coming along and these three squadrons had all been disbanded by November 1957. No.121 Wing's squadrons, Nos 16, 94 and 145 did not get the FB.4, re-equipping with the Hunter at Jever. No.213 Squadron, due to receive Canberra B(I)6 aircraft, worked up with a few Venom FB.4s between September 1955 and March 1956. In the Middle East No.6 Squadron became the first to receive the FB.4 in July 1955. During August 1955 four of the new FB.4s belonging to No.6 Squadron took part in Operation 'Quick Return' in what was a very successful 10,000 mile round trip from Habbaniya to Cape Town and return. Led by Flt Lt Michael Hobson the four aircraft took only 1 hour 23 minutes to cover the first 807 miles, thereby breaking the record previously set by the South African Air Force (SAAF). Over the next 14 days the aircraft visited 13 airfields where they gave formation aerobatic displays before returning to Habbaniya.

Operating from Akrotiri, No.6 Squadron was part of the British/French combined force that attacked Egypt in November 1956 as part of the Suez crisis, the squadron losing one Venom in action. The other Middle East squadrons, Nos 8, 73 and 249 all

Four Venom FB.4s of No. 8 Squadron on the apron at Khormaksar. The flags behind the nosewheel door indicate that the aircraft are armed.

received FB.4s in 1956. All three squadrons were in action against terrorists again along the Yemen border and from 1957 against rebel tribesmen in the Trucial Oman. By August 1957 Nos. 6, 73 and 249 had all converted to Canberras, leaving No.8 Squadron as the sole FB.4 equipped squadron in the Middle East. This squadron continued on operations with FB.4s until replaced by Hunter FGA.9s in March 1960. Also giving up their FB.4s at the same time were No.208 Squadron. On 1 February 1959 No. 142 Squadron had been reformed as a ferry unit to deliver FB.4s to Eastleigh/Nairobi, Kenya, where on 30 March it was renumbered No.208 Squadron.

They flew to Thornhill as guests of the Royal Rhodesian Air Force and made a tour of the country. Later they moved to Aden and for a time supported No.8 Squadron in operations along the Arabian Peninsular. Six aircraft flew to Bahrain early in 1960 but the squadron returned to the UK in March 1960 to receive Hunter FGA.9s.

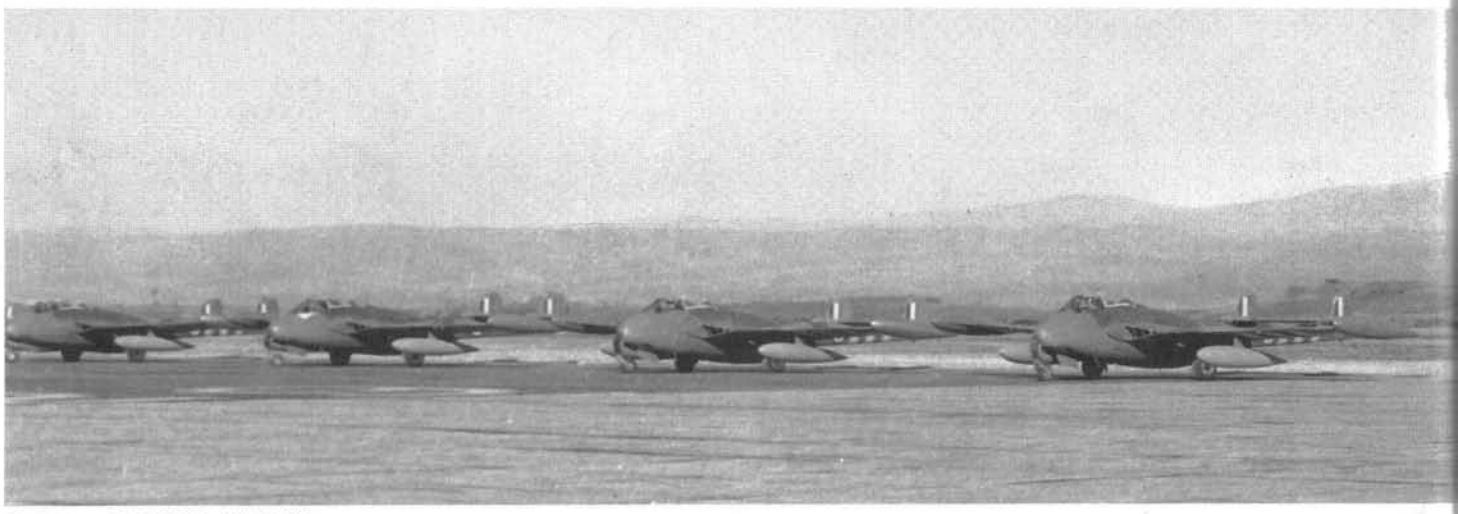
In the Far East, No.14 (NZ) Squadron left its Venoms at Tengah and returned to New Zealand to re-equip with Canberras. No.45 had disbanded in November 1957 to return to the UK and re-equip with Canberras. Venom FB.4s began to replace FB.1s with No.60 Squadron in April 1957 and stayed in use until replaced by Meteor NF.14s in October 1959. The last unit to operate the Venom FB.4 was No.28 Squadron with WR539:F flying the last FB.4 sortie on 27 June 1962 and ending an era, before re-equipping with the Hunter FGA.9.

NIGHT FIGHTING VENOMS

The Venom night fighters were not built to an Air Ministry specification, but as a venture by de Havilland's to meet the potential threat of enemy high-performance night bombers. In the post-World War 2 era it was felt that the RAF would find itself desperately short of a high-altitude radar-equipped all-weather night fighter, which had to have a performance comparable to the latest single-seat fighters. However, in the latter stages of World War 2 and the immediate post-war period, trials had shown that it was impracticable for such operations to be carried out by a single pilot. A second crew member was required to operate the radar equipment – an update if you like of the Beaufighter and Mosquito night fighters.

Using the single-seat Venom as a starting point de Havillands retained the wings, tail and engine installation but designed the fuselage pod to accommodate a crew of two side-by-side with the radar equipment in a slightly bulbous and lengthened nose. In this they used the cockpit section of the Mosquito as a guide. With this kind of start progress was rapid and it was 22 August 1950 when John Derry took the prototype, G-5-3, on its first flight. Upper surfaces were sprayed with a high gloss pale grey with black undersides. It was powered by a Ghost 103 engine rated at 4,850Ib.

The Air Ministry quickly latched on to this new high-performance night fighter and adopted it for RAF use. The prototype, now



known as the Venom NF.Mk.2 was given serial WP227 and delivered to Boscombe Down on 3 April 1951 for handling trials. Concern was expressed about no ejection seats being fitted, otherwise the aircraft was pleasant enough to fly but lacked certain performance criteria that made it marginal for the role intended. Boscombe pilot's suggested it needed a better rate of roll, improve elevator forces, reduce the tendency (found on all the Venoms) to drop a wing at the stall and add a rudder trimmer to give stability as a gun platform. The aircraft returned to Boscombe in August 1951 where, after de Havilland modifications, such as the removal of the acorn fairing at the base of each fin, it received a more favourable report.

One of the problems found by Boscombe was an unacceptable change of trim as speed increased on WP227. De Havilland decided it was caused by asymmetry of the airflow around the windscreen/cockpit canopy. A frontal view of the NF.2 windscreen shows that it was of an unusual configuration. On the pilot's side the side panel was flat, but on the other side a larger curved area was provided for the radar observer. Changing this curved area would give a more symmetrical contour and better airflow. A temporary metal fairing was fitted over the starboard front quarter of the windscreen and the aircraft went back to Boscombe. They found that the fairing improved the directional trim problem and recommended that a symmetrical canopy be introduced on the production line as quickly as possible.

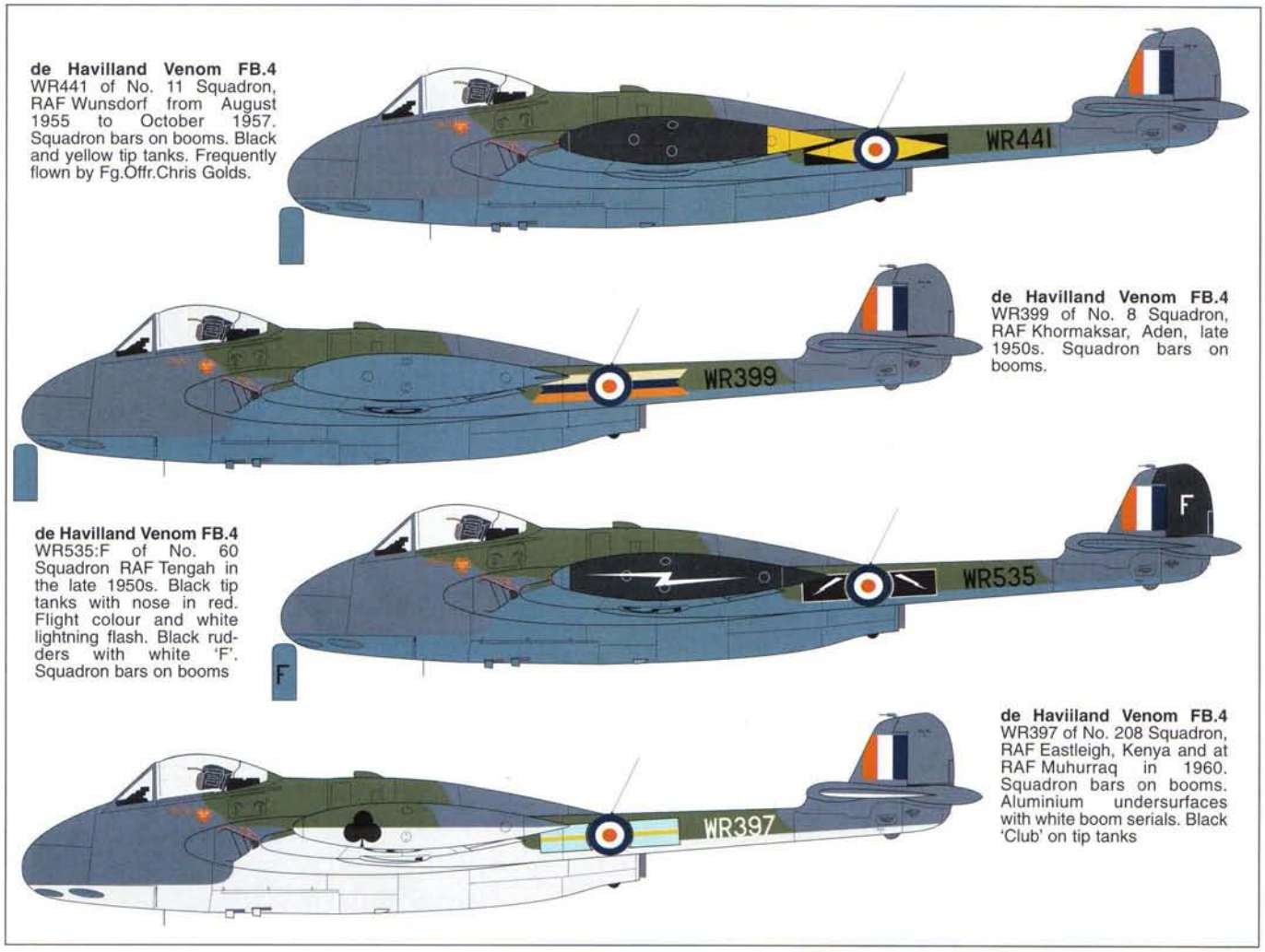
The first production Venom NF.2 WL804 flew on 4 March 1952 but was lost in a crash not long afterwards. Although production was centred at the Hawarden factory the first seven NF.2s were built at Hatfield, the first Hawarden NF.2 being WL811. Some of the early machines were used for various trials, WL805 and WL807 were retained by de Havilland for control development at Christchurch; WL806 went to Boscombe on 11 September 1952; WL808 was also used for control problems before going to Boscombe and then the CFE at West Raynham. Two Venom NF.2s, WL809 and WL812 were evaluated by NATO to assess whether they should be the recommended night fighter for other NATO forces. New dorsal fins were tried on WL810 and WL811 was fitted with the new clear view canopy. WL813 was used by de Havilland propellers and WL814 tried out new large chord elevators and dorsal fins. WL813 and WL820 joined the 'Blue Jay', later called the Firestreak, air-to-air missile programme.

Venom NF.2 WL817 became the first to join the RAF on 6 May 1953 when it went to the Handling Squadron at Manby for pilot's notes compilation. On 22 May WL816 and WL818 were delivered to the CFE at West Raynham. At Hawarden, production Venom NF.2s left the production line on one side of the airfield and delivered to No 48 MU on the other side. Some 90 NF.2/2as were delivered, previous orders being cancelled in favour of the Venom NF.3. It fell to No.23 Squadron at Coltishall to be the first, and only unit, to introduce the NF.2 night fighter into RAF squadron service.

During the Suez campaign in November 1956 Nos. 6 and 249 Squdrons operated their Venom FB.4s from Cyprus. They had all squadron markings removed and the yellow and black Suez stripes applied to the wings and booms aft of the roundel.

DH Venom/Sea Venom Production

Contractor Variant	Serial range	Numbers	Contract No
FB.1 Prototypes	VV612–VV613	2	6/Acft/1387/CB.7(a)
FB.1	WE255–WE294	200	6/Acft/3627/CB.7(a)
FB.1	WE303–WE332		
FB.1	WE340–WE389		
FB.1	WE399–WE438		
FB.1	WE444–WE483		
FB.1	WK389–WK426	85	6/Acft/6062/CB.7(a)
FB.1	WK428- WK437		
FB.1	WK468–WK503		
FB.1	WL892- WL935	120	6/Acft/6139/CB.7(a)
FB.1	WL954- WL999		Bristol Aircraft – cancelled
FB.1	WM109-WM138	28	Bristol Aircraft – cancelled
FB.1	WR272- WR321		
FB.1	WR334- WR373		
FB.1	WW669-WW710	42	6/Acft/7142/CB.7(a)
			Bristol Aircraft – cancelled
FB.1	WW715-WW751	299	6/Acft/7143/CB.7(a)
			All cancelled
FB.1	WW766-WW815		
FB.1	WW833-WW877		
FB.1	WW895-WW944		
FB.1	WW956-WW990		
FB.1	WX103-WX145		
FB.1	WX161-WX199		
NF.2	WL804-WL833	60	6/Acft/6137/CB.7(a)
NF.2	WL845-WL874		
NF.2Prototype	WP227 (G-5-3)	1	6/Acft/6323/CB.7(a)
NF.2	WR779-WR820	100	6/Acft/6401/CB.7(a)
NF.2	WR835-WR880		
NF.2	WR897-WR908		WR809-WR908 cancelled
NF.2	WX695-WX740	193	6/Acft/7162/CB.7(a)
NF.2	WX761-WX784		WX695-WX784 cancelled
NF.3 Prototype	WV928	1	6/Acft/7006/CB.7(a)
NF.3	WX785-WX810	123	NF.2s built as NF.3s
NF.3	WX837-WX886		to same contract 7162
NF.3	WX903-WX949		
NF.3	WZ315-WZ348	34	6/Acft/7339/CB.7(a)
			WZ320-WZ340 cancelled
FB.4	WR374-WR383	400	6/Acft/6400/CB.7(a)
FB.4	WR397-WR446		
FB.4	WR460-WR509		
FB.4	WR525-WR574		WR565-WR764 cancelled
FB.4	WR586-WR635		
FB.4	WR650-WR699		
FB.4	WR715-WR764		
Sea Venom			
NF.20 Prototypes	WK376, WK379, WK385	3	
FAW.20	WM500-WM523	60	6/Acft/5972/CB.7(a)
FAW.20	WM542-WM567		Later designated FAW.20
FAW.20	WM568-WM577		
FAW.21	WW137-WW154	96	6/Acft/6165/CB.7(a)
FAW.21	WW186-WW225		Later designated FAW.21
FAW.21	WW261-WW298		
FAW.21	WZ893-WZ911	49	6/Acft/7622/CB.7(a)
FAW.21	WZ927-WZ956		Later designated FAW.53
for			
RAN			WZ947-WZ956 cancelled
FAW.22	XG606-XG638		
FAW.22	XG653-XG680		
FAW.22	XG681-XG702		
FAW.22	XG721-XG737		
Exports			
Australia	Sea Venom FAW.53	39	
France	Aquilon 20	4	
	Aquilon 201	25	
	Aquilon 202	25	
	Aquilon 203	40	All 94 subs conv to Aquilon 204s
Iraq	FB.50	15	352-366
Italy	FB.50	2	MM6153, MM6154
Sweden	NF.51	62	33001-33062
Switzerland	FB.1	126	J-1501-J1625, J-1650
	FB.1R	24	J-1626-J1649
	FB.4	100	J-1701-J-1800
Venezeula	FB.54	22	1A-34 – 7A-34



de Havilland Venom FB.4 WR441 of No. 11 Squadron, RAF Wunsdorf from August 1955 to October 1957. Squadron bars on booms. Black and yellow tip tanks. Frequently flown by Fg.Offr.Chris Golds.

de Havilland Venom FB.4 WR399 of No. 8 Squadron, RAF Khormaksar, Aden, late 1950s. Squadron bars on booms.

de Havilland Venom FB.4 WR535:F of No. 60 Squadron RAF Tengah in the late 1950s. Black tip tanks with nose in red. Flight colour and white lightning flash. Black rudders with white 'F'. Squadron bars on booms

de Haviiland Venom FB.4 WR397 of No. 208 Squadron, RAF Eastleigh, Kenya and at RAF Muhurraq in 1960. Squadron bars on booms. Aluminium undersurfaces with white boom serials. Black 'Club' on tip tanks

A number of unexplained crashes in 1954 resulted in the squadron being grounded for a time. Then they were restricted to not operating above 10,000ft, hopeless for a night fighter. Investigations discovered structural weaknesses in the wing adjacent to the wheel wells. It was late summer of 1954 before the wing strengthening modifications were incorporated and the restriction lifted. They immediately showed their mettle by out-flying Fighter Command's Meteor NF.11s both in rate-of-climb and at high altitude.

No.5 Squadron's twelve Venoms on parade at their home base, Fassberg, Germany in 1956. Squadron insignia at this time was limited to the drop tanks and bands round the rear of the booms. All aircraft have a red nose section.(MAP)

Despite the success of the NF.2 crews still expressed concern about having no ejection seats and the canopy did not lend itself to successful evacuation in times of emergency. De Havilland came up with an approved modification programme and surviving aircraft returned to the factory where they were fitted with a clear view canopy, dorsal fins as on the Vampire T.11 and the kidney-shaped fins and rudder of the Venom FB.4. The aircraft were re-designated Venom NF.2a and issued to No.253 Squadron at Waterbeach in April 1955, followed by No.219 in September and No.33 in October, the latter two units being based at

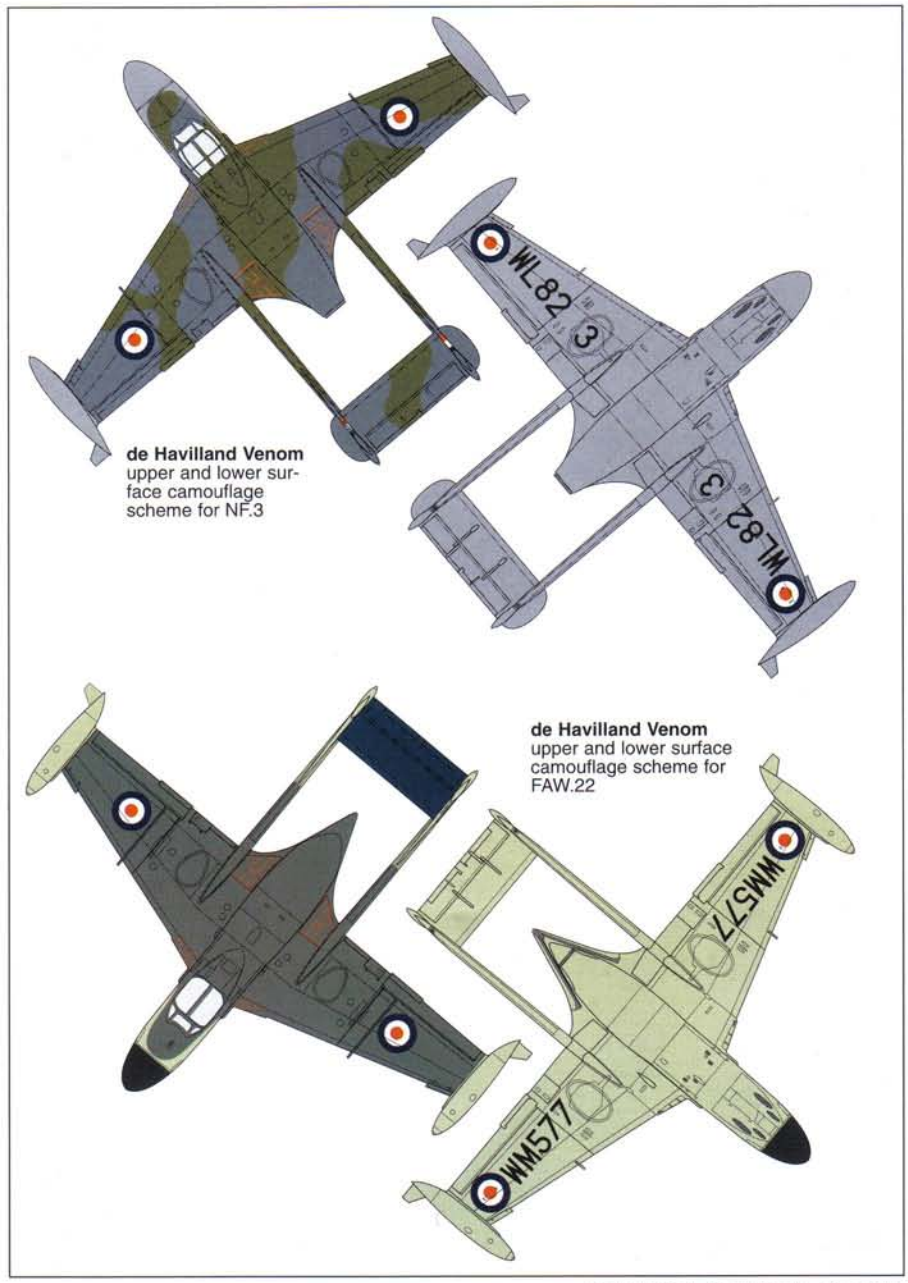
It looks as if all of these Venom FB.4s of No. 5 Squadron are on fire. The cloud of black smoke caused by the starter cartridges did tend to frighten the uninitiated. The picture was taken in 1956 and all aircraft displayed the squadron badgeon the nose. The aircraft in the foreground is WR485. (MAP)

Driffield. These were the only squadrons to operate the NF.2a and by the end of August 1957 all three had been disbanded.

Realising the limitations of the Venom NF.2 de Havillands were already working on a new version even as they applied the modifications to the NF.2. What was to become the Venom NF.3 used all the experience gained with the NF.2/2a enigma plus a more powerful Ghost engine, the model 104 with 4,950lb thrust. Improved AI Mk 21 radar (APS-57) was used with a scanner in a more symmetrical shaped radome and a clear view cockpit canopy that hinged backwards with power jettison. Power operated ailerons and deletion of the outer tailplane sections completed the layout, although once again no ejection seats had been fitted.

The first Venom NF.3 was WV928 which flew on 22 February 1953, thereafter 128 production machines were built, 86 from Chester, 23 from Hatfield and 19 from Christchurch. A number of machines were used for development purposes – WX786 and WX788 at Christchurch, although WX786 went to Boscombe Down in 1954, WX788 carried out spinning trials with an anti-spin parachute fitted. WX789 was used by the de Havilland Engine Company. where it carried out level and slam accelerations, endurance tests and combat climbs to 45,000ft, and was still in use in early 1958. In the autumn of 1954 WX785 went to the CFE for compilation of the Pilot's Notes. The first delivery of a production machine was WX791 when it was delivered from Christchurch to No 48 MU on 29 March 1955.

In June 1955 No.141 Squadron began replacing its Meteor NF.11s at Coltishall with the Venom NF.3. Three months later



de Havilland Venom upper and lower surface camouflage scheme for NF.3

de Havilland Venom upper and lower surface camouflage scheme for FAW.22

Four Venom FB.1s of No. 28 Squadron break for a landing at Kai Tak, Hong Kong. The boom markings and lightning flash on the tip tank were a rich blue outlined in yellow. Serials were black , codes in yellow.

Above: Venom FB.4 WR548:F of No. 8 Squadron is seen formating with a Shackleton and having to put down both flaps and undercarriage to maintain station. Below: Venom FB.4 WR419 of No.208 Squadron seen at Bahrain. Each aircraft in addition to squadron markings on the booms had a playing card symbol painted on the tip tank. WR419 remained with No. 8 Squadron at Khormaksar until March 1960 when it was struck offcharge.

No. 23 Squadron, also at Coltishall, replaced its Venom NF.2as for the NF.3. At Stradishall No.89 formed up in December 1955 and No.125 the following year. Just when most NF.3 squadrons were changing to Gloster Javelins, No. 151 at Leuchars were receiving their NF.3s in June 1957 and continued to operate them until September 1961. By early 1958 all the other NF.3 squadrons had disposed of their Venoms.

The Venom NF.2 and NF.3 never fired their guns in anger but were an integral part of Fighter Command during the time they were in service. At a time of political unrest with the Iron Curtain and Warsaw Pact countries the Venom night fighters provided a deterent with their good performance. The majority of the Venoms ended their days at No 27 MU at Shawbury where they were sold for scrap. A few slipped through the net finding use as ground instructional airframes at RAF trade training establishments such as No. 2 Radio School at Yatesbury. Some were even luckier and ended up in museums.

FOREIGN OPERATORS

It seemed logical that foreign air forces that

Based at Wunsdorf, Germany this No.266 (Rhodesia) Squadron Venom FB.4 WR464:A shows some interesting markings. The boom markings are yellow-green-yellow with an individual letter on the nose and the squadron badge. The black tip tank has the word HLABEZULU the squadron's Rhodesian motto painted on.

had bought and operated the Vampire would turn to the more powerful Venom when available. Sadly this was not the case although it was sold and/or built in some numbers as the FB.50 (FB.1) and FB.54 (FB.4) it never achieved the popularity of the Vampire.

Italy

The Italian Air Force ordered two Venom FB.50s, MM6153 and MM6154, to be followed by licence production at the Fiat factory and to be known as Fiat G.81s. Both were delivered on 21 February 1953 but orders did not materialise and none were built in Italy.

The prototype Venom NF.2 WP227 showing grey upper surfaces and gloss black underneath. Initial flights were made as G-5-3 until the aircraft went to A&AEE where it had its type name on the nose

Iraq

In company with other Middle East countries seeking partition from British control, Iraq also joined the queue during 1953. The Royal Iraqi Air Force (RIAF) had operated alongside its British counterparts at RAF stations such as Habbaniya. Upon assuming some responsibility for the defence of their country the RIAF received a supply of Venom FB.1s from the British Government. In May 1954, George Thornton, one of the de Havilland test pilots, ferried the first aircraft to Habbaniya to equip No.5 Squadron RIAF. All had been delivered by early 1955 and an order placed for 15 FB.50s to equip 6 Squadron RIAF. Numbered 352 to 366 they were delivered between 8 April 1955 and 3 February 1956.

Switzerland

Following the happy relationship operating Vampires, the Swiss Air Force, after a fairly extensive evaluation period, undertook to re-equip with the Venom. In 1953 licenced production began using a consortium of the Federal Aircraft factory at Emmen, Flug and Fahrzengwerke at Altenrhein and Pilatus AG

VENOM AIDE MEMOIRE

Venom FB.Mk1
RAF production
Venom FB.Mk1R
Recce version for Swiss Air Force
Venom NF.Mk2
Night fighter version with new fuselage to accommodate pilot and radar/navigator. AI radar in bulbous nose.
Venom NF.Mk2A
Change of designation following fitment of clear-view canopy and modifications to tail unit.
Venom NF.Mk3
Updated version of NF.2/2A. Incorporation of power-operated ailerons, more powerful canopy jettison system, tail mods and more powerful Ghost engine.
Venom FB.Mk.4
Improved version of FB.1 with ejection seat, power-operated ailerons and redesigned tail unit.
Venom FB.Mk.50
Export version of FB.1 built in Switzerland with sales to Iraq and Italy.
Venom NF.Mk.51
Export version of NF.2 for Royal Swedish Air Force designated J-33. Ghost engines built under licence by Svenska Flygmotor.
Sea Venom FAW.Mk.20
Initially known as NF.Mk.20
Sea Venom FAW.Mk.21
Incorporation of power-operated ailerons. Jettisonable clear-view canopy, ejection seats, uprated Ghost engine and long-stroke undercarriage legs.
Sea Venom FAW.Mk.22
Uprated Ghost engine. Ejection seats and air-air missile capability.
Sea Venom FAW.Mk.53
Similar to Mk21. Different radar/equipment for use by Royal Australian Navy.
Aquilon 20
Designation for FAW20s assembled in France and powered by Fiat-built Ghost engines.
Aquilon 201
Licence-built prototype with short-stroke undercarriage and ejection seat.
Aquilon 202
Licence-built 201 but with long-stroke undercarriage
Aquilon 203
Licence-built 201 but with short-stroke undercarriage. Had fire-control radar and single-seat accommodation.
Aquilon 204
Licence-built two-seat trainer version.

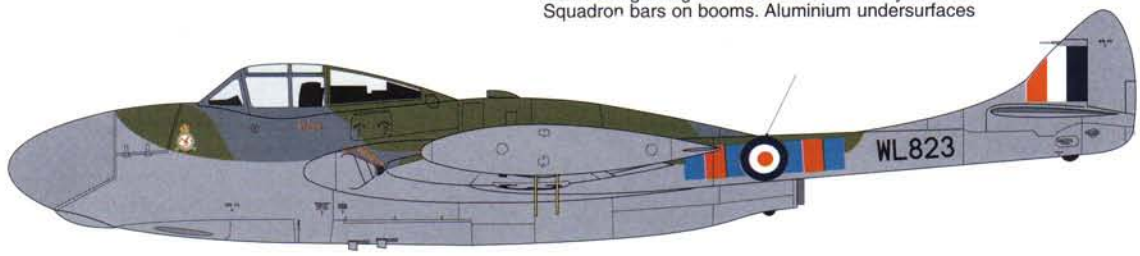
A high speed low-level run by Venom NF.2 WL853 of No. 219 Squadron showing the profile which includes the shape of the earlier canopy

at Stans, to produce 126 Venom FB.1s (J-1501 to J-1625) Licence production of the Ghost 48 engine had also been agreed and were built by Sulzer Brothers at Winterthur. In view of their lack of experience in building such engines the first 35 were supplied by de Havilland with Swiss-built engines being installed in the 30th aircraft onwards. Production settled at six aircraft per month. A photographic reconnaissance version of the FB.1 appeared during 1956 when 24 were built by the same group of factories. These differed only slightly from the standard aircraft but had fixed underwing fuel tanks with a number of automatic cameras located in the front section. Designated Venom FB.1R their serials started at J-1626 and were used by Fliegerstaffel 10 until replaced by Mirage IIIR aircraft in 1969. An order for 100 licence-built Venom FB.4s was placed in 1956 commencing with J-1701. These had an improved bomb sight and UHF radio.

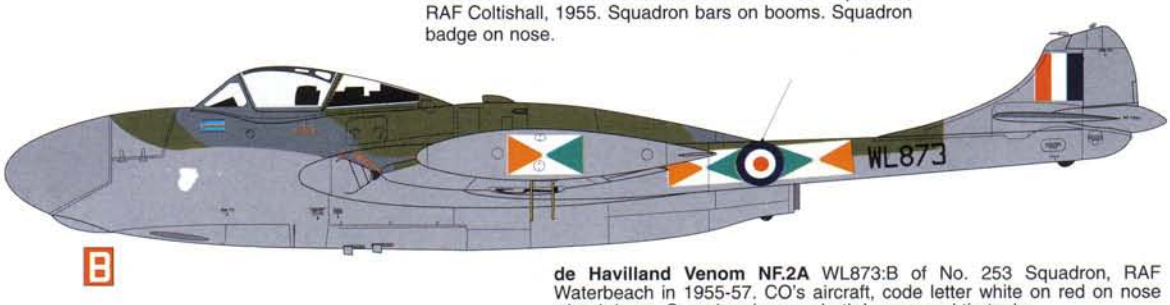
By 1965 some 11 first-line Staffeln were equipped with Venoms, although some were

Most Venom night fighters were broken up for scrap at RAF Shawbury from 1959 onwards. In this instance the armamanent and the radar have already been removed. The aircraft is probably WL860:P which was in use with No.253 Squadron.

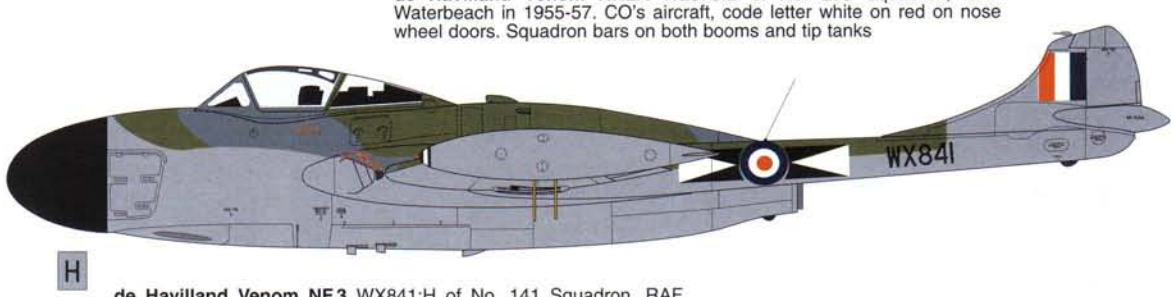
de Havilland Venom FB.4 WR537:A of No. 28 Squadron, RAF Kai Tak, June 1962. Yellow tip tanks with blue lightning flash. Blue rudders with yellow 'A'. Squadron bars on booms. Aluminium undersurfaces



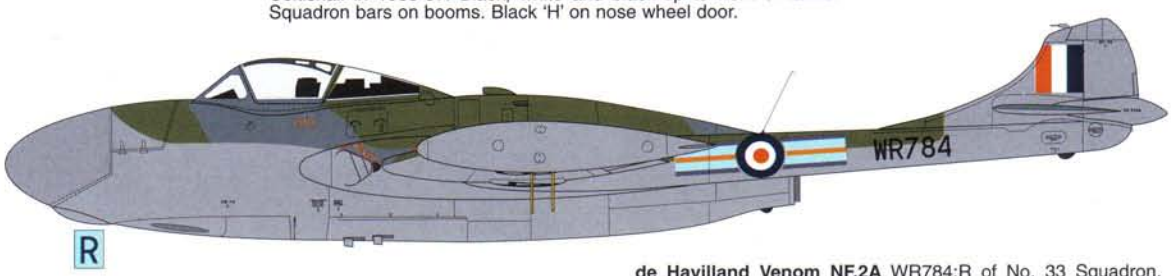
de Havilland Venom NF.2 WL823 of No. 23 Squadron, RAF Coltishall, 1955. Squadron bars on booms. Squadron badge on nose.



de Havilland Venom NF.2A WL873:B of No. 253 Squadron, RAF Waterbeach in 1955-57. CO's aircraft, code letter white on red on nose wheel doors. Squadron bars on both booms and tip tanks

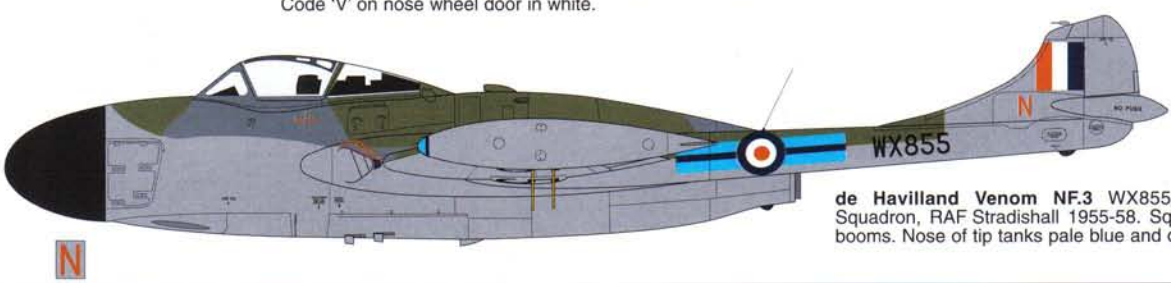


de Havilland Venom NF.3 WX841:H of No. 141 Squadron, RAF Coltishall in 1955-57. Black, white and black tip to front of tanks. Squadron bars on booms. Black 'H' on nose wheel door.



de Havilland Venom NF.2A WR784:R of No. 33 Squadron, RAF Driffield in November 1956 . Dark blue, light blue and red squadron bars on booms

de Havilland Venom NF.3 WX849:V of No. 151 Squadron, RAF Leuchars in June 1957. Squadron bars on booms. Code 'V' on nose wheel door in white.



de Havilland Venom NF.3 WX855:N of No. 89 Squadron, RAF Stradishall 1955-58. Squadron bars on booms. Nose of tip tanks pale blue and dark blue.

Showing the camouflage scheme for the upper surfaces of Venom NF.2 night fighter is this example WL808 which went to Boscombe Down for trials and then to the Central Fighter Establishment, West Raynham, before being allocated to No. 253 Squadron as 'H' when the unit was based at Waterbeach (Flight)

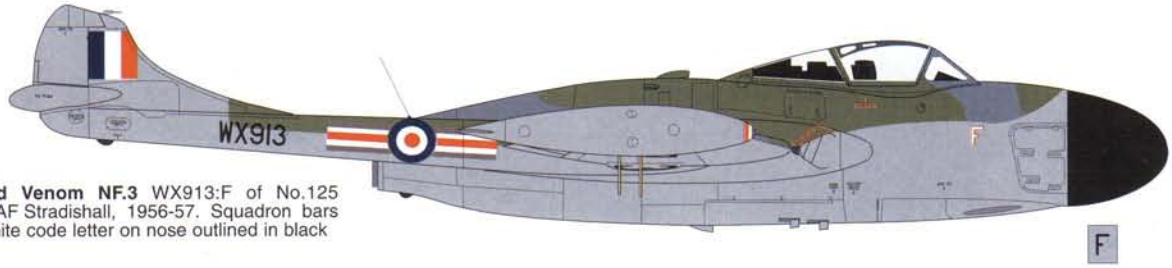
flown by the part-time militia pilots. The extended operational life of Venoms operating around the mountainous terrain was improved by putting in strengthening modifications, thereby doubling its service life. In the early 1970s there were still 14 squadrons operating 200-odd Venoms, including Fliegerschule 2 which provided training - a superb reflection on the design and operating procedures by the Swiss Air Force.

Although normally operated from airfields such as Dubendorf, Emmen or Payerne, the Venoms, in time of emergency, could operate from extensive underground cave structures that allowed 18 aircraft of two staffeln to be accommodated with a total support commitment for up to two years. When required the Venoms taxied out of the caves and took off along the autobahns. Replaced by the Hawker Hunter a few Venoms soldiered on until late 1983 when the last were withdrawn. Some went to Swiss museums but quite a number were sold to overseas customers and still grace the skies at air displays.

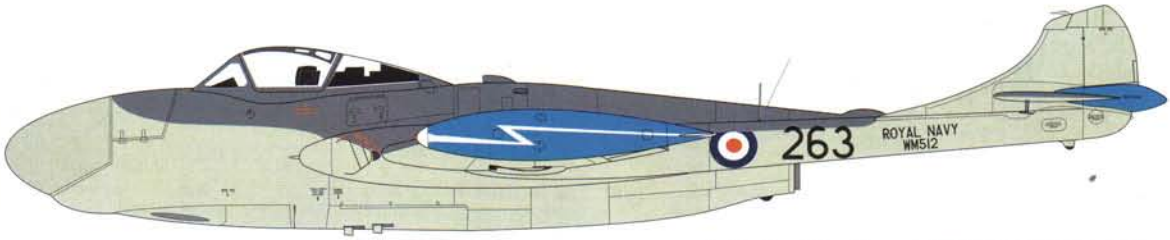
Venezuela

Venezuela ordered 22 Venom FB.54s, the export version of the FB.4, in July 1955. All were built at the de Havilland factory in Chester with the first, 1A-34, being deliv-

Left: Displaying the markings of black and white horizontal triangles this Venom NF.3 WX840:L, was in use with No. 141 Squadron in 1956. (MAP) Below: Venom NF.3 WX787 was used for manufactuers trials at A&AEE. The deletion of the outer sections of the tailplane can be seen along with the much improved clear view cockpit canopy.

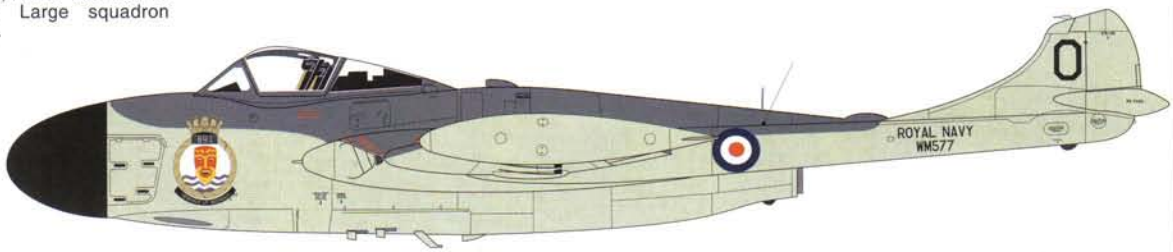


de Havilland Venom NF.3 WX913:F of No.125 Squadron, RAF Stradishall, 1956-57. Squadron bars on booms White code letter on nose outlined in black



de Havilland Sea Venom FAW.21 WM512:263 of 891 Squadron FAA, *HMS Ark Royal* July 1955. Tip tanks Oxford blue with white lightning flash

de Havilland Sea Venom FAW.20 WM577:O of 808 Squadron Royal Australian Navy, RNAS Yeovilton 18 August 1955. Large squadron badge on nose.

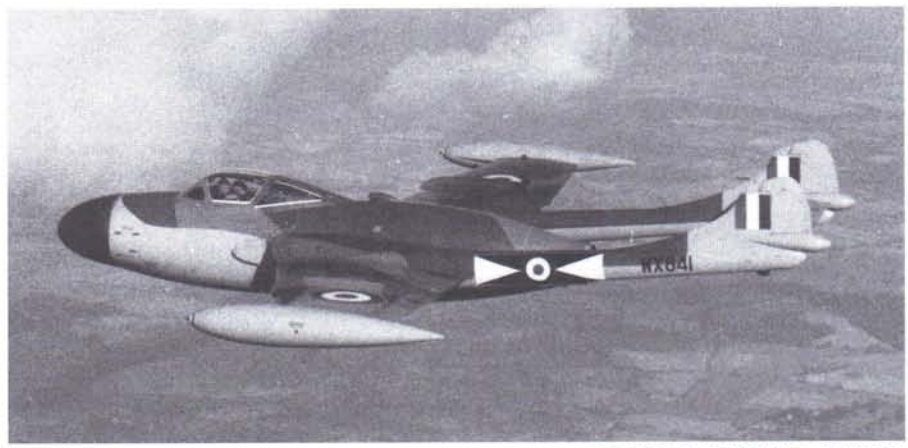


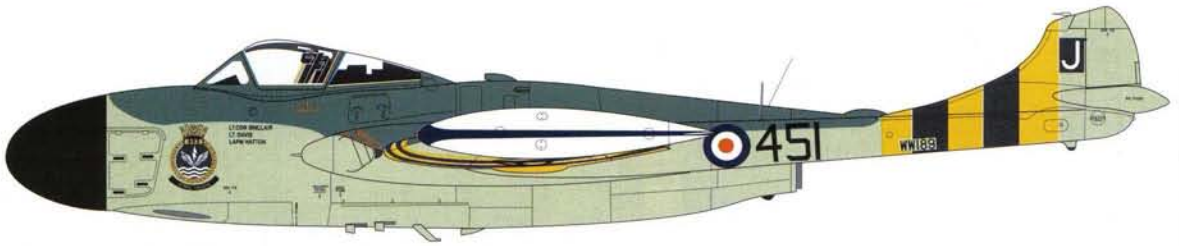
ered on 1 December 1955. They equipped Escuadron de Caza 34 at Maiquietia with the last one being received on 17 August 1956. Although Hawker Hunters were bought to replaced them in 1965 the Venoms were still being operated at El Liberador on second line duties as late as 1973.

Sweden

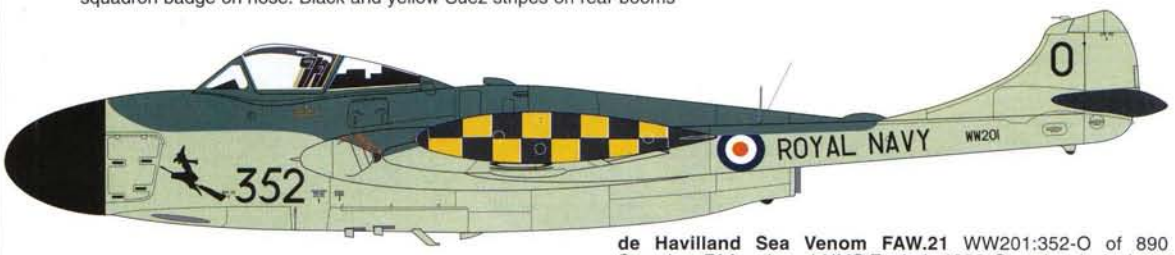
Although the Vampire had enjoyed considerable success in the export market the Venom night fighter only found favour with the Royal Swedish Air Force. The Swedish Government announced an order for 62 Venom NF.51 aircraft, similar to the NF.2 but with a more powerful 5,000lb thrust Ghost engine. In Swedish service the NF.51s were known as the J-33 and serial numbers 33001 to 33062 allocated. The Ghost engine was licence-built in Sweden by Svenska Flygmotor and then shipped to the UK where production lines had been established at Chester and with Fairey at Ringway. The first 28 machines had the heavily framed canopy and pointed fins of the NF.2 but these were gradually brought up to NF.3 standard, the first 28 being modified retrospectively by the Flygvapnet's workshops at Vasteras. This also happened to be the base of the F.1 Wing which operated three squadrons of Venom NF.51s. Deliveries started on 11 December 1952 and continued until the last on 15 July 1957. The Venoms replaced Swedish night fighter Mosquitoes, ironically, some 11 months ahead of the RAF!

Above: Seen at Boscombe Down in January 1955 Venom NF.3 WX792 joined the RAF Handling Squadron after which it was in use with the Station Flight at Coltishall. Delegated to ground duties as 7452M in Augst 1957. Below: Venom NF.3 WX841 in the markings of No.141 Squadron when based at Coltishall in 1956.



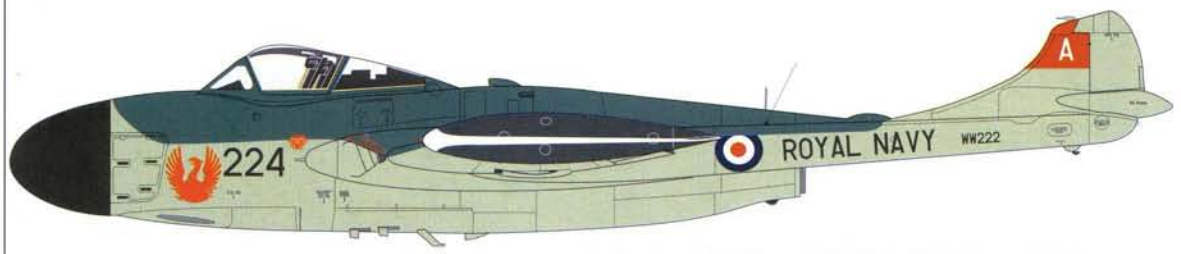


de Havilland Sea Venom FAW.21WW189:451-J of 892 Squadron FAA on *HMS Ark Royal,* Suez, November 1956. Black and white tip tanks. Large squadron badge on nose. Black and yellow Suez stripes on rear booms

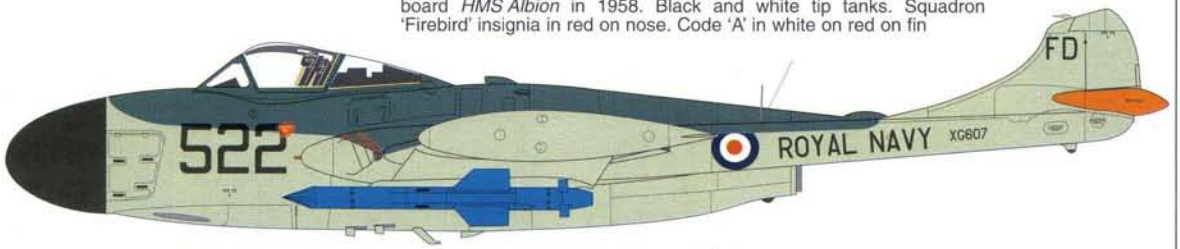


de Havilland Sea Venom FAW.21 WW201:352-O of 890 Squadron FAA on board *HMS Eagle* in 1956. Squadron insignia on nose, black and yellow tip tanks

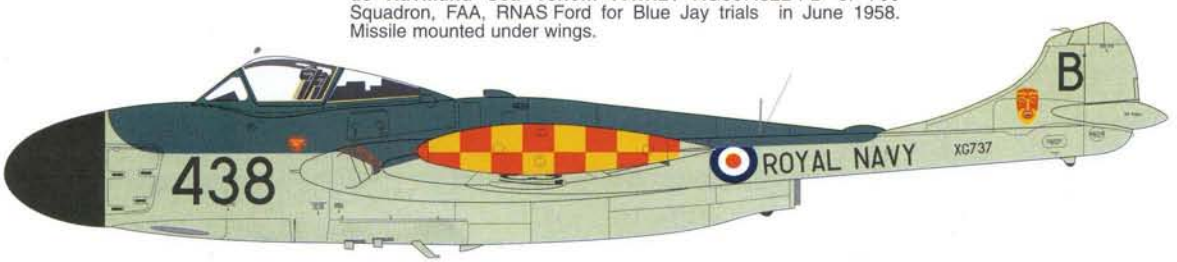
de Havilland Sea Venom FAW.21 XG724:485-E of 894 Squadron FAA,*HMS Eagle* 1957-58. Black and yellow tip tanks. Squadron insignia in black on nose.



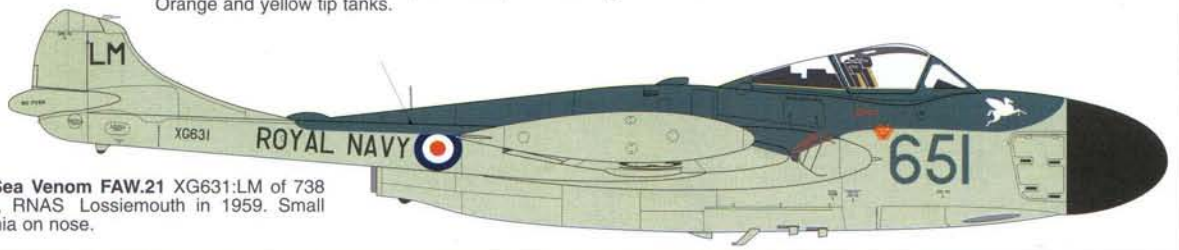
de Havilland Sea Venom FAW.21 WW222:224-A of 809 Squadron on board *HMS Albion* in 1958. Black and white tip tanks. Squadron 'Firebird' insignia in red on nose. Code 'A' in white on red on fin



de Havilland Sea Venom FAW.21 XG607:522-FD of 700 Squadron, FAA, RNAS Ford for Blue Jay trials in June 1958. Missile mounted under wings.



de Havilland Sea Venom FAW.21 XG737:438-B of 891 Squadron FAA on board *HMS Bulwark*, 1958. Squadron badge on fin. Orange and yellow tip tanks.

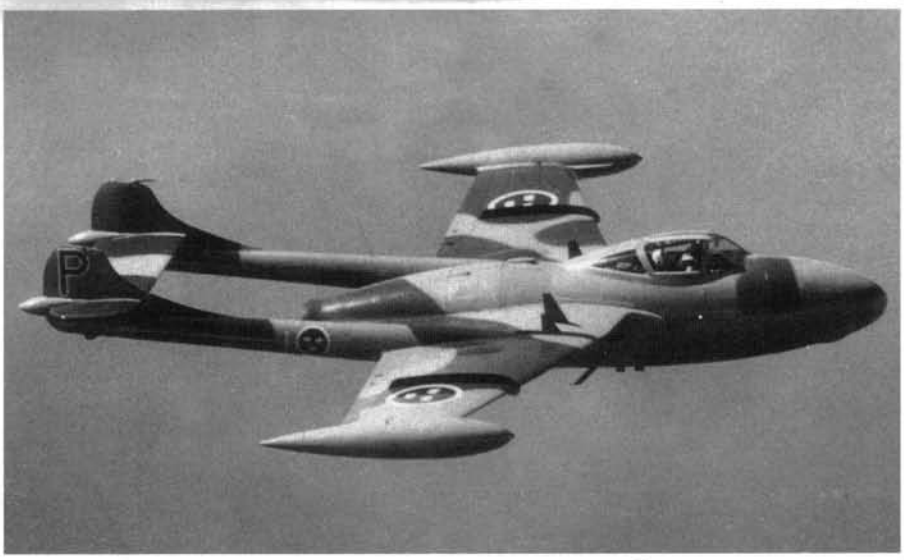


de Havilland Sea Venom FAW.21 XG631:LM of 738 Squadron FAA, RNAS Lossiemouth in 1959. Small squadron insignia on nose.

In a continual update programme the Venoms received up-dated radar, PN-50/A navigation equipment, radio altimeter, leading edge slats, ministop brake regulators, wing fences to improve stall warning and repositioning of cooling air intakes. The Venoms operated successfully in temperatures down to minus 25 degrees, taking part in numerous air exercises and vindicated the decision to operate them. By 1960 they were being phased out of service but four found further use as high speed target tugs by Swedish civilian operator Swedair from Visdel. Painted bright yellow overall they received the civil registrations SE-DCA to SE-DCE. On retirement one was presented to the Flygvapnet Museum at Malmslatt.

DH SEA VENOM

The Fleet Air Arm (FAA) were looking for a suitable interim aircraft to fill the role of a naval all-weather fighter between the Sea Hornet and the new, and more sophisticated Sea Vixen. They had already evaluated the Venom NF.2 G-5-3, later WP227, during February 1951 and decided it would fill the gap. Specification N.107 was raised and issued to de Havilland for a ship-based two-seat all-weather jet fighter, the first of its kind in the FAA. Necessary design changes included upward-folding wings at about half chord to give better stowage aboard carriers, a v-frame arrester hook that retracted into a fairing above the jet pipe, catapult pick-up points, a strengthened, longer-stroke undercarriage and slightly enlarged tail bumpers. Sea Venom wing tip fuel tanks differed slightly to their RAF counterparts in that they were fixed permanently and had a flattened rear end and curved in shape. Like the single-seat Venoms the NF.20 (as the first mark was known) had wing fences but the tail configuration had the NF.2 fin bullet fairings at the rear instead of the front and



Above: Swedish Air Force Venom NF.51, 33044, from F.1 Wing based at Västeras. The three extra aerials above the wing are for additional navigation equipment. Below: The crest on the nose of this Swiss Air Force FB.54 J-1634 identifies it as belonging to 2 Escadrille when seen at Dubendorf on 25 August 1979 (Simon Thompson)

Venom FB.54 J-1724 displays the drab colour scheme used by the Swiss Air Force. The pilot is looking across the runway threshold where there are two semi-underground hangars. (APN)

An Iraqi Venom FB.50 before delivery showing the same camouflage pattern as that used by the RAF but in sand, green and blue undersides.

kidney-shaped fins with leading edge fillets. Power was provided by a 4,850 thrust Ghost 103 engine. Side-by-side seating was provided for the pilot and observer, the latter sitting slightly offset to the right and behind the pilot.

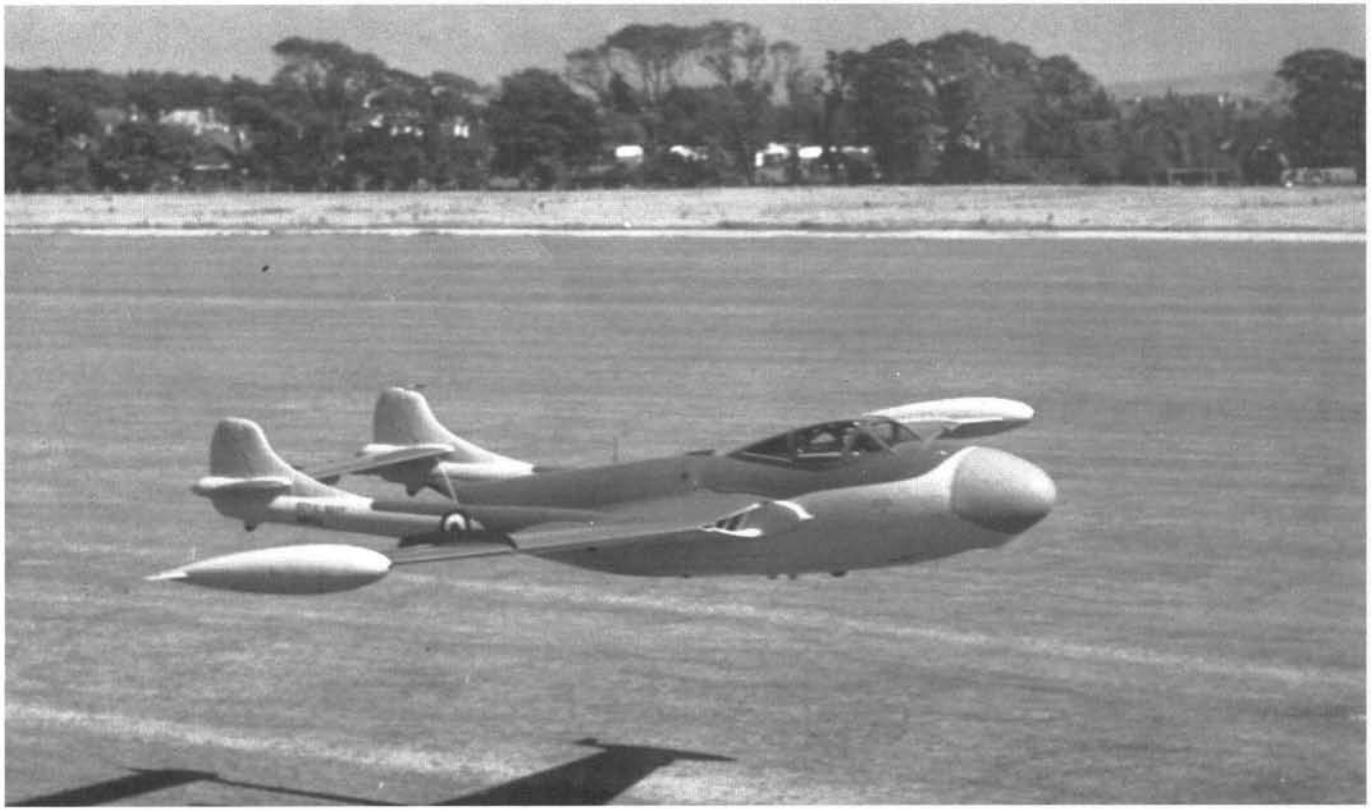
Three prototypes had been ordered, WK376, WK379 and WK385 with the first two being built in the experimental department at Hatfield and the third at Christchurch. The first, WK376, flew from Hatfield on 19 April 1951 and, designated Sea Venom NF.Mk.20, (later FAW.20) went to Boscombe Down for initial day deck landing trials during May 1951. The initial trials during July 1951 were aboard *HMS Illustrious* and had shown that the elevator power was inadequate for carrier work, control column movement was too restricted, emergency escape facilities poor, hook damping needed improvement and it was thought an aileron trimmer would be necessary.

Naval test pilots still lamented the fact that there were no ejection seats fitted. Further trials were carried out in February 1952 with recommended improvements. These were made and WK376 was again assessed, carrying out Airfield Dummy Deck Landings (ADDLs) before flying trials aboard *HMS Eagle* during May/June 1952. Some 49 free take-offs and landings were made with no problems. Final approach speed settled out at 105 knots.

Employing standard approach and landing techniques WK376 exhibited excellent deck take-off and landing characteristics although the hook damping was still poor. The maximum recommended permissible weight for deck landing was set at 11,000Ib. The second machine WK379 went to Boscombe Down on 19 September 1952 for additional tests, while the third, WK385 made its first flight from Christchurch on 26 July 1952, the first to be fitted with power operated folding wings.

The first order for Sea Venom NF.20s (later FAW.20) was for 50 aircraft, starting with WM500 flying from Christchurch on

Right: The unpainted second prototype Sea Venom NF.20 WK379 seen at Hatfield in July 1952 before going to Boscombe Down. Below: An early production Sea Venom FAW.20 gets airborne from the de Havilland airfield at Christchurch. Notable is the revised cockpit canopy and reprofiled fin and rudder.



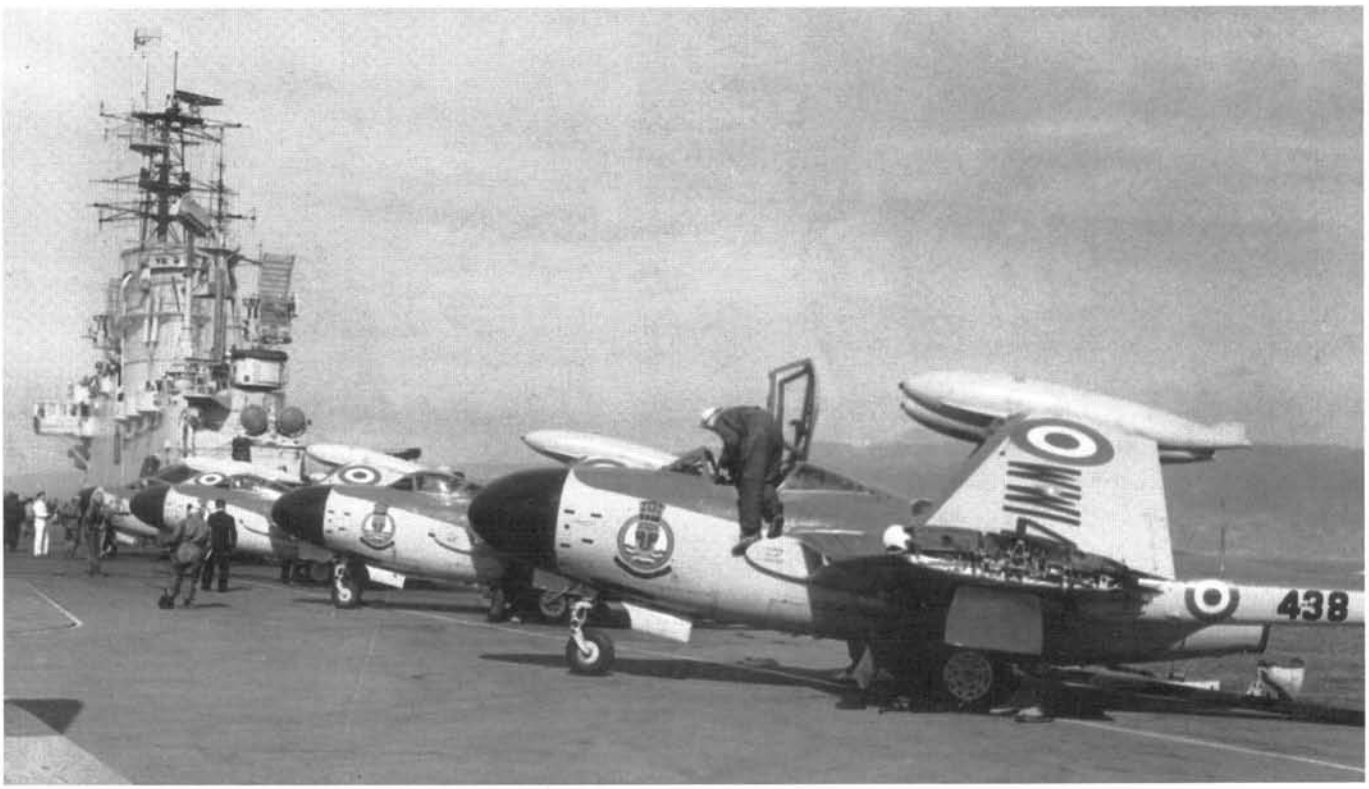
Above: Approaching to land on *Ark Royal* , Sea Venom FAW.21 WM574 was engaged in experimental blown flap trials in April 1956. It later served at RAE Farnborough and the Empire Test Pilots School coded 18. Below: No. 891 Squadron on board *Bulwark* in July 1955. FAW.21 WW146:438-O is in the foreground showing the squadron's 'Kon Tiki' crest.

27 March 1953, and the last WM567 being completed on 6 June 1954. These FAW.20s were the same as the RAF's NF.2a with the clam-shell canopy. Without ejection seats there was concern about the crew getting out of the aircraft during a ditching, especially if it started sinking straight away. ML Aviation Co Ltd of White Waltham designed an underwater canopy jettison system, whereby a mechanism fitted to the clam-shell canopy could throw off the canopy in flight or force it off when underwater and was incorporated on all Sea Venoms.

Some of the early Sea Venoms FAW.20s were used for development flying, WM501 and WM502 went to Boscombe Down for control assessments; WM503 stayed at Christchurch on development work, joined later by WM507 to WM510 inclusive; WM504 carried out more day and night deck landing trials during October and November 1953 and in March 1954 carried out trials with rocket-assisted take-off (RATO) gear.

DECK LANDING PROBLEMS

The first nine Sea Venom FAW.20s released for service use went to 890 Squadron, which had reformed at Yeovilton on 20 March 1954. A work up period was followed by a spell aboard *HMS Albion* during July 1955. Carrier operations proved to be disappointing, revealing an undercarriage weakness and a more profound problem with the arrestor hook – which would detach under load and sometimes deposit the aircraft, and crew, into the sea. With aircraft now being supplied to 808 and 809 Squadrons this was disconcerting to say the least. Some 18 of the Sea Venom FAW.20s were modified and 890 carried out further deck landings aboard *HMS Bulwark* in May 1955. All seemed well and on 19 July 890 joined *Albion* for a Mediterranean cruise. Alas, trouble was experienced again with failure of the arrestor hooks and two aircraft went over the side,



Venom and Sea Venom squadrons and units

ROYAL AIR FORCE

Squadron	Base	Dates
5	Wunstorf	12.52-7.55
		7.55-10.57
6	Habbanyia	2.54-8.55
	Akrotiri	6.55-6.57
8	Khormaksar	6.55-1956
		1956-2.60
11	Wunstorf	8.52-8.55
		8.55-11.57
14	Fassberg	5.53-6.55
16	Celle	2.54-6.57
23	Coltishall	6.54-8.55
		9.55-3.57
28	Kai Tak	2.56-11.59
		11.59-7.62
32	Deversoir	9.54-1.57
33	Driffield	10.55-1.57
45	Sek Kong	10.55-11.57
60	Tengah	4.55-10.59
73	Habbanyia	12.54-3.57
89	Stradishall	12.55-11.57
94	Celle	1.54-9.57
98	Fassberg	8.53-4.55
118	Fassberg	10.53-6.55
125	Stradishall	12.55-5.57
141	Coltishall	6.55-2.57
142	Eastleigh	2.59-4.59
145	Celle	5.54-10.57
151	Leuchars	9.55-6.57
208	Eastleigh	4.59-0.61
219	Driffield	9.55-7.57
249	Amman	
	Akrotiri	10.54-10.57
253	Waterbeach	4.55-8.57
266	Wunstorf	4.53-8.55
		7.55-11.57
Air Fighting Dev. Sqd		0.48-2.56
CFS		
ETPS		
Fighter Weapons School		0.55-0.58
Handling Sqd		
Radar Interception Development Sqd		
A&AEE	Boscombe Down	
RAE	Farnborough	

FLEET AIR ARM SQUADRONS AND UNITS

805	Mar 58-Jun 63
808	Aug 55-Feb 56
	Feb 56-Dec 58
809	May 54-Aug 55
	May 55-Mar 56
816	Jul 64 -Aug 67
831	May 58-Oct 64
	Apr 60-May 66
890	Feb 56 -Jun 56
891	Nov 54 -Jun 55
	Jun 55-Apr 56
	Dec 57 -Jul 61
892	Jul 55 -Dec56
893	Feb 56-Jan 59
	Jan 59- Feb 60
894	Jan 57- Mar 57
	Jan 57- Dec 60
700	Sep 56- 59
	Jan 56- Mar 61
724	Jun 55- 0.73
736	Oct 57- Dec 57
738	Oct 57- Sep 60
750	Jul 60- Oct 61
	Aug 61- Oct 61
	Jun 57- Apr 58
766	Oct 55- Aug 56
	Aug 56- Oct 60
787	Jun 55- Jan 56

Station Flights

Airwork	Oct 55- Jun 59
	Feb 57- Apr 61
	Jan 61- Oct 70
Anthorn	Feb 57- Sep 57
Merryfield	Dec 56- Dec 57
	May 57- Aug 57
Yeovilton	Jul 56- Feb 58

Other units

A&AEE	Boscombe Down
Handling Sqd	Boscombe Down
RAE	Farnborough
Tropical Exp Unit 1955 – 1960	

Mark	Example
FB.1	WE329 B-X
FB.4	WR470
FB.1	WK477 Z
FB.4	WR382
FB.1	WR377 C
FB.4	WR548 F
FB.1	WE283 L-H
FB.4	WR500
FB.1	WK413 B-Z
FB.1	WE431 L-P
NF.2	WR779 G
NF.3	WX843 P
FB.1	WR299 A
FB.4	WR540 E
FB.1	WR276 G
NF.2	WR785 D
FB.1	WR312 D
FB.1	WR372 F
FB.4	WR533 D
FB1	WR314 W
FB.4	WR541
NF.3	WX930 Q
FB.1	WK432
FB.4	WR425
FB.1	WK412 L-Z
FB.1	WE388 A-M
NF.3	WX913 F
NF.2	WL827
NF.3	WX928 K
FB.4	WR400
FB.1	WK408
NF.3	WX805 S
FB.4	WR433 F
NF.2	WL867 E
FB.1	WR319 Y
FB.4	WR438 W
NF.2	WR808 H
FB.1	WE330 A-S
FB.4	WR464 A
FB.1	WE382
FB.1	WE264
FB.1	WE282
FB.1	WE289
FB.1	WE257
NF.2	WL846
NF.3	WX792
FB.1	WE264
NF.2	WL818
NF.3	WX807
FB.1	WE260
NF.2	WL811
NF.3	WX786
FB.4	WR417
FB.1	WE308
NF.3	WX865

FAW53	WZ943 805/M
FAW20	WM512 263
FAW53	WZ935 210/Y
FAW20	WM545 228
FAW21	WW199 235/0
FAW53	WZ946 817/M
FAW21 ECM	XG608 272
FAW22 ECM	WW292 381
FAW21	WW224 355/0
FAW20	WM552
FAW21	WW137 437/0
FAW22	XG691 436/C
FAW21	WW212 445/J
FAW21	WW287 467/0
FAW22	XG685 259/V
FAW21	WW298
FAW22	XG700 493/A
	FAW20 WM523 521/FD
FAW21	XG607 522/FD
	FAW53 WZ905 863/NW
FAW21	WW274 653/LM
FAW21	WW203 650/LM
	FAW21 XG618 678/HF
FAW22	XG692 668/LM
FAW21 ECM	XG608 813
FAW20	WM563 733/VL
FAW21	XG610 730/VL
	FAW21 WW148
FAW20	WM557 017/BY
FAW21	XG666 019/BY
FAW22	XG733 013/VL
FAW20	WM562
FAW20	WM555
FAW21	WW273
FAW21	XG630
FAW20	WK376
	FAW21 WM574 18
FAW20	WM523
	FAW20 WM504
FAW21	WM575
	FAW53 WZ894

although the crews escaped with a ducking! All Sea Venom FAW.20s were withdrawn from carrier-based operations and relegated to second-line units. No 890 became 766 Squadron, still at Yeovilton, and responsible for providing an all-weather aircrew pool. This provided current jet flying practice to pilots and observers who were about to undertake the all-weather course run by the RAF at No 238 OCU at North Luffenham.

The FAW.20s became test vehicles at a number of research establishments and used in the development of new equipment. Others went to the Fleet Requirements Unit (FRU) at Brawdy to undertake a number of tasks, such as gunnery targets and interception training being operated by the civilian company Airwork Ltd. Some of the FAW.20s ended their days as ground instructional machines at such locations as the Naval Engineering College at Manadon, most however were scrapped between 1959-61 at the Aircraft Holding Unit (AHU) at Abbotsinch.

SEA VENOM FAW 21 AND FAW22

The experience with the FAW.20 led to a number of improvements which resulted in a change of designation. The result, a FAA equivalent of the Venom NF.3, had an uprated 4,950lb thrust Ghost 104, power-operated ailerons, long-stroke undercarriage to absorb the higher landing loads, strengthened arrester hook, maxaret non-skid brakes, provision for raising the pilot's seat to give better take-off and landing views, which resulted in a bulged canopy top to make way for the pilot's helmet, and, wonder-of-wonders, provision of the Martin-Baker Mk.4 ejection seats for both crew members.

However, the introduction of the ejection seats led to a relocation of some of the cockpit equipment and the observers seat had to be moved forward five inches so that he was

Above: Flight deck crew prepare Sea Venom FAW.21 WW144:232-O of 809 Squadron for a catapult launch in 1956. The tip tanks are black with a white stripe. Left: Sea Venom FAW.21 XG689:490-E of 894 Squadron about to catch one of the wires on *HMS Eagle* . The tip taks are black and red squares with black codes and hypogriff on the nose.

clear of the canopy when ejection took place. It was also fitted with the APS-57 (AI Mk21 radar). Some 99 FAW.21s were built at Chester and 68 at Christchurch, the first production machine, WM568 actually flying on 22 April 1954, a month before the prototype FAW.21 XA539, which flew on 21 May 1954.

Three Sea Venom FAW21s, XG607, XG612 and XG662 were allocated to missile development trials of 'Blue Jay', later known as the Firestreak. Although the Sea Venom proved a good platform for the trials, carriage of such weapons had not been one of its design features. To carry out service trials 700 Squadron formed at Ford in 1957 and late the following year all three joined 893 Squadron for live firing evaluation. They embarked in *HMS Victorious* that December and worked up in the Mediterranean, after which they used the Fireflies of 728 Squadron on Malta as targets, achieving 80 per cent success rates. This live firing not only proved the missile, but showed that a carrier was capable of handling, supplying and fitting of Firestreaks, in time for their introduction with the first Sea Vixen squadrons.

The last production FAW.21, XG680, was later converted to FAW.22 standard and delivered on 4 October 1956. Some of the early production machines were used, as was usual, for development flying with WM569, and WM571 to WM575. WM569 and WM570 going to Boscombe Down and WM574 used to test flap blowing in an attempt to reduce approach speeds. WM568

Sea Venom FAW.21 XG612 over the Needles lighthouse, Isle of Wight. The bulged canopy for the pilot is quite noticeable.

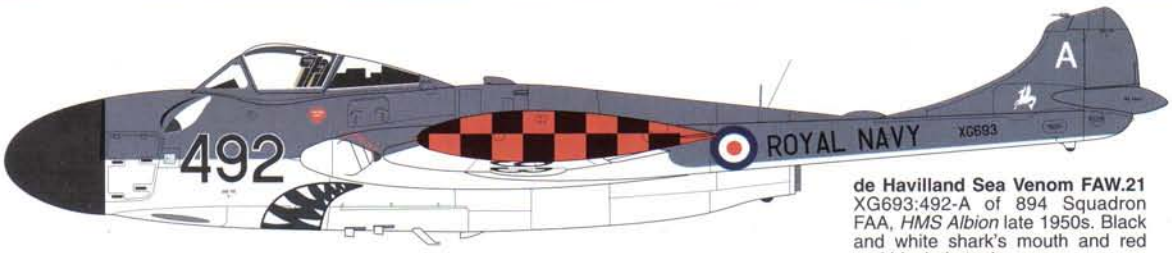
was allocated to RAE Bedford late in 1956 but had moved to 738 Squadron when it crashed near Yeovilton on 3 February 1960. Commencing with XG681 only 39 Sea Venom FAW.22s were built, ending with XG737, which was delivered to Stretton on 7 January 1958.

SEA TIME VENOMS

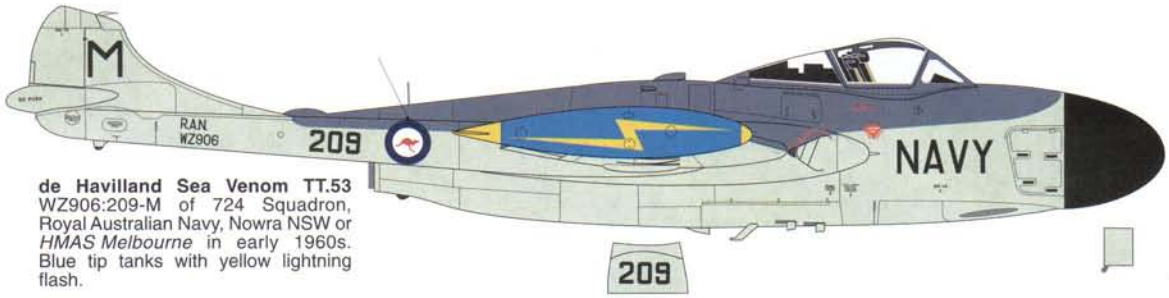
The first front line squadron to receive the FAW.21 was 809 which formed at Yeovilton in May 1955. On 1 June 891 Squadron became the second to receive Sea Venoms, with 892 forming on 4 July, also at Yeovilton. Faults were still found with the arrestor hooks on 809s aircraft, which meant that they missed joining *HMS Ark Royal* on 26 September when they should have embarked with 891.

It was while the squadron was operating from *Ark Royal* that the CO of 891 wrote to Thor Heyerdahl for permission to use the head of the sun god 'Kon Tiki' and these were included on the squadron crest seen on the nose of the aircraft. It was November by the time the faults had been rectified and 809 flew out to Malta with eight FAW.21s to join the *Ark*. In February 1956 809 flew ashore to Hal Far, Malta to allow 891 to get sea time aboard *Ark Royal*. In the meantime 892 Squadron had embarked in *Albion* on 10 January 1956 for a four-month cruise to the Far East. Here they exercised with the Venom FB.4s of the RAF and RNZAF

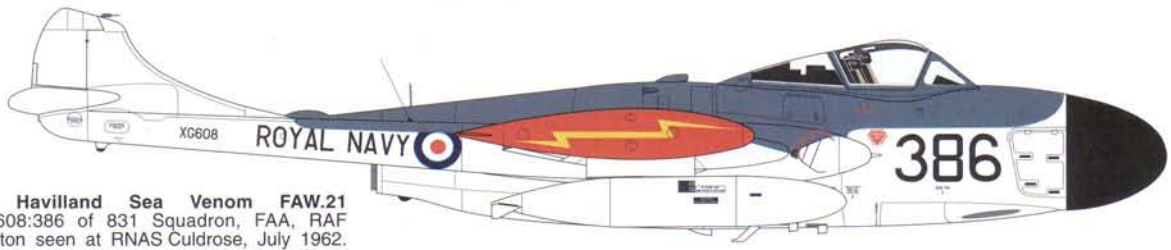
Left: Only one Sea Venom squadron, 890, formed an aerobatic team under Lt Cdr P.G.Young and although short-lived, was appreciated by those that saw their performance. The aircraft all FAW.21s, are WW150:353-O, WW201:352-O, and WW217:351-O. Below: *HMS Albion's* flight deck during the mid-fifties. The Sea Venom FAW.21 being towed by the David Brown tractor is WW198:220-A of 809 Squdron.



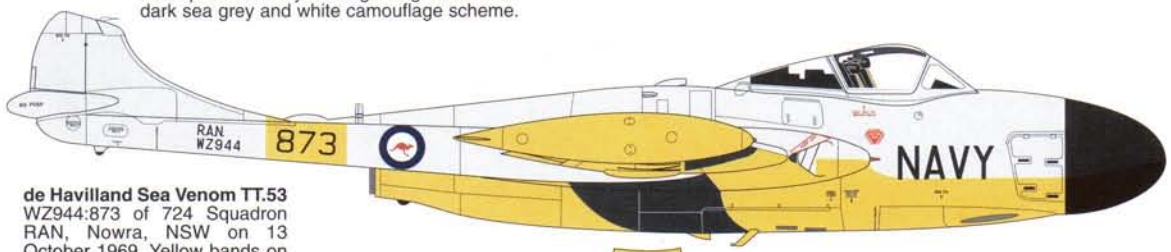
de Havilland Sea Venom FAW.21 XG693:492-A of 894 Squadron FAA, *HMS Albion* late 1950s. Black and white shark's mouth and red and black tip tanks.



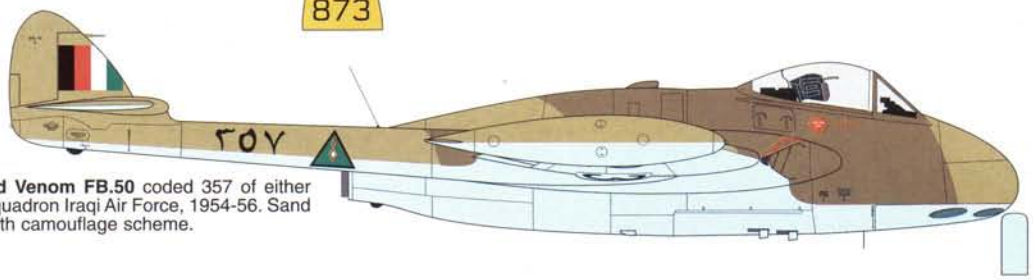
de Havilland Sea Venom TT.53 WZ906:209-M of 724 Squadron, Royal Australian Navy, Nowra NSW or *HMAS Melbourne* in early 1960s. Blue tip tanks with yellow lightning flash.



de Havilland Sea Venom FAW.21 XG608:386 of 831 Squadron, FAA, RAF Watton seen at RNAS Culdrose, July 1962. Red tip tanks with yellow lightning flash. Extra dark sea grey and white camouflage scheme.

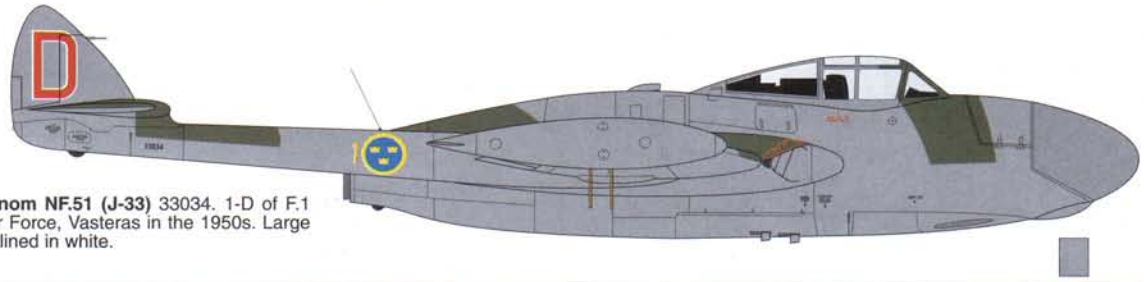


de Havilland Sea Venom TT.53 WZ944:873 of 724 Squadron RAN, Nowra, NSW on 13 October 1969. Yellow bands on booms. Black and yellow target towing stripes on lower fuselage and under wings, upper surfaces Aluminium.



de Havilland Venom FB.50 coded 357 of either No. 5 or 6 Squadron Iraqi Air Force, 1954-56. Sand and dark earth camouflage scheme.

de Havilland Venom FB.4 3B34 of Escuadron de Casa 34, Venezuelan Air Force, Maiquietta, Venezuela, mid-1950s. Red tips to wing tanks, remainder of aircraft silver



de Havilland Venom NF.51 (J-33) 33034. 1-D of F.1 Wing Swedish Air Force, Vasteras in the 1950s. Large 'D' on tail unit outlined in white.

This immaculate Sea Vixen FAW.21 WW188 in the last colour scheme used by Sea Venoms was previously on the strength of 893 Squadron as 466-O and later as 019-VL with the Fleet Requirements Unit, Yeovilton (MAP)

ashore in Malaya and Singapore. Returning to the UK in May, 892 were based at Yeovilton until 9 July when the squadron flew out to Malta and on 14 August flew out to join *Eagle*.

OPERATION MUSKETEER

In 1956 the eight-year old state of Israel suddenly found itself under threat from the stronger Arab nations, particularly Egypt, who was receiving military aid from Russia and Czechoslovakia. In an attempt to forestall the inevitable, Israeli forces moved into the Sinai Peninsular on 29 October 1956.

Before this Britain and France had been forced into a difficult position with the rising tension in the area, including unprovoked isolated attacks on British military and civilian targets. The Arabs wanted the British-controlled airfields in the Canal Zone of Egypt and started to make it difficult for them to operate. In retaliation the British (and USA) withdrew financial support for the Aswan High Dam project, so vital to the improvement of living standards in Egypt.

President Nasser responded by announcing on 26 July 1956 his intention to nationalise the Suez Canal. The Canal provided vital access for the British and French to the Indian Ocean and their interests in East Africa and routes to the Far East. Allied to this was the fact that Britain and France were major shareholders in the Canal. Consequently, the two countries quickly started to concentrate powerful naval and air forces in the eastern Mediterranean as a deterrent.

The Royal Navy sent carriers, *Albion, Bulwark, Eagle, Ocean* and *Theseus* into the area, the French contributing with *Arromanches* and *Lafayette*. By now Israeli forces had been in action against Egyptian positions, so on 30 October Britain and France called on both sides to stop the fighting and set up a 10-mile de-militarised zone. If they failed to co-operate 'Operation Musketeer' would be launched whereby troops from both nations would land and occupy key positions in the Canal Zone.

Israel accepted the terms but Egypt refused to co-operate; the fighting continued and, against world opinion, the two fleets set sail for Egypt. Sea Venom participation in the six-day war involved 809 embarked in *Albion* and 892 and 893 in *Eagle*. Operations started on the night of 30 October with Sea Venoms providing strikes against selected military targets, working in with other strikes by the RAF and French Air Force.

During the landings at Port Said Sea Venoms were active against airfields and other targets using rockets and 20mm cannon. 809 carried out 138 operational sorties against airfields, tanks and military vehicles, the CO also attacked an Egyptian fast patrol boat and scored many direct hits. It appears only one Sea Venom was hit effectively by Egyptian flak, FAW.21 WW281 '095' of 893 Squadron resulting in a successful wheels-up landing back on *Eagle*.

During the course of the conflict all Allied aircraft carried yellow and black stripes on the wings and rear fuselage for identification purposes. Around 260 Egyptian aircraft had been destroyed on the ground and eight in air-to-air combat. In the early hours on 5 November 1956 750 British and French paratroops were dropped on Gamil airfield and south of Port Said and by the following morning all objectives had been achieved. Close-support throughout was provided by carrier-based aircraft.

Britain and France, under extreme pressure from the United Nations, agreed to a ceasefire that came into effect at midnight on the 6th November. In the agreement, control of the Suez Canal was lost forever, as was stability in the area provided for many years by the nations involved.

With the crisis over, 809 returned to the UK and disembarked to Merryfield in March 1957, as did some of the other squadrons whilst Yeovilton's runways were receiving repairs. No.809 continued to fly the FAW.21

Sea Venom FAW.21 WW194:652-LM seen at the RAF Acklington open day on 20 Septemnber 1958. At the time it was serving with 738 Squadron based at Lossiemouth . (Air Britain)

and had a number of sea time cruises including, during July to October 1958 in the Mediterranean and then to the Far East. Early in 1959 an extension of this cruise took them to Australia and New Zealand. In April of the following year cross-operations were undertaken with the American carrier *USS Yorktown*. The *Albion* then left for the UK where 809 disbanded on 17 August 1959.

No. 892 had been absorbed into 893 Squadron aboard *Eagle* on 26 December 1956 and then transferred to *Ark Royal* in February 1957 for a series of cruises in the Atlantic and Home Waters. By then the squadron had received updated FAW.21s containing, at last, ejection seats.

The squadron transferred to *Victorious* in the Mediterranean in September 1958 and became the first Sea Venom FAW.21 squadron to be equipped with Firestreak missile. In January 1959 the squadron re-equipped with the FAW.22 and operated them for about a year before disbanding at Yeovilton on 29 February 1960.

A new squadron, No.894 formed at Merryfield on 1 January 1957 with 12 FAW.22s, the first to receive the new mark. With only 39 FAW.22s ordered there was hardly enough to go round so a number of FAW.21s were updated and fitted with the more powerful Ghost 105. Sea Venoms continued to be the Royal Navy's front-line all-weather fighter and took part in various cruises and exercises. *Victorious* made a visit to the USA in February 1959 and *Albion* spent 13 months going to the Far East and back.

Sea Venoms were used operationally again – in Cyprus on anti-EOKA sorties – and in Aden operating alongside RAF Venoms of No.8 Squadron against Yemen terrorists. It was during 1959 that 891 Squadron briefly formed an aerobatic team using their FAW.22s and gave a number of displays that year before sailing for the Far East in June aboard *Centaur*. Coming home via Aden 891 Squadron were in action in early 1960 during 'Operation Damen' when they carried out rocket attacks against Yemen rebels, often flying in dangerous terrain. Returning home in April 1960 the squadron continued to fly from Yeovilton until 27 July 1961 when they gave up their Sea Venoms.

SECRET SEA VENOMS

The only other front line unit to operate the Sea Venom was 831 Squadron which had started life as A and B Flights of 751 Squadron operating a number of Avenger AEW.6s and Sea Venom FAW.21s (or ECM.21s and ECM.22s as they became known) on electronic counter measures (ECM) duties. It was renumbered on 20 May 1958. The ECM equipment was installed in the nose bay that had previously held the four 20mm cannon. Their aircraft ranged far and wide testing the ECM against 'hostile' aircraft and ships jamming their radar and radio equipment.

The squadron moved to RAF Watton on 15 October 1958 to initially operate alongside the equivalent RAF unit, the full squadron moving in July 1963. On 16 May 1966 the squadron was run down and its personnel and aircraft became part of No.360 Squadron RAF for combined training and trials but using Canberras. No.831 squadron ceased to exist on 26 August 1966. The squadron had operated both the 21ECM and 22ECM versions with overlaps in that the 21s were given up in October 1964 and the 22ECMs in May 1966, the work being taken over by Gannet ECM.6s.

SECOND LINE SEA VENOMS

A number of second line squadrons operated Sea Venoms in support of front line units –

Preserved Venoms and Sea venoms

United Kingdom		
FB.1	Pod only	South Yorkshire Aviation Museum, Aeroventure, Doncaster
NF.3	WX788	Night Fighter Preservation Team, Aeroventure, Doncaster
NF.3	WX853	de Havilland Heritage Museum, London Colney
NF.3	WX905	Newark Air Museum
FB.4	J-1704	RAF Museum, Cosford
FB.4	WR539	Jet Age Museum/GAC (Nose only)
FB.50	VV612	SCJF/LWP G-VENI/J-1523
FB.50	WR360	SCJF/LWP G-DHSS/J-1790
FB.50	WR410	SCJF/LWP G-DHUU/J-1539
FB.50	WR421	SCJF/LWP G-DHTT/J-1611
FB.50	J-1573	SCJF/LWP G-VICI
FB.50	J-1605	Gatwick Aviation Museum G-BLID
FB.50	J-1629	SCJF/LWP Stored
FB.50	J-1649	SCJF/LWP Stored
FB.50	J-1614	Kennet Aviation, North Weald G-VENM
FB.50	J-1632	Kennet Aviation, North Weald G-VNOM
FB.50	WE275	BAE Systems, Hawarden G-VIDI
FB.54	WR410	SCJF/LWP G-BLKA/G-VENM
FB.54	J-1758	Robs Lamplough/FWDT G-BLSD/N203DM
FB.54	J-1712	Botany Bay Village,Chorley
FB.54	G-GONE	Bournemouth Aviation Museum J-1542
FAW.22	WW138	Fleet Air Arm Museum, Yeovilton
FAW.22	WW145	Museum of Flight, East Fortune
FAW.21	XG613	IWM/DAS Duxford
FAW.22	WM571	Southampton Hall of Aviation
FAW.22	WW217	Newark Air Museum
FAW.22	XG629	Alan Simpson, Stone
FAW.22	XG680	North East Aircraft Museum, Sunderland
FAW.22	XG691	Jet Age Museum/GAC
FAW.22	XG692	Private owner, Stockport
FAW.22	XG730	de Havilland Aircraft Heritage Centre, St Albans
FAW.22	XG737	Jet Aviation Preservation Group, Long Marston
Austria		
FB.54	J-1733	
Australia		
FAW.53	WZ895	Australian Naval Aviation Museum, Nowra, NSW
FAW.53	WZ897	Camden Museum of Aviation, Narellan, NSW
FAW.53	WZ898	Queensland Air museum, Brisbane
FAW.53	N4-901	Moorabbin Air Museum, Melbourne
FAW.53	N4-904	Sid Beck nr Mareeba
FAW.53	WZ907	Camden Museum of Aviation, Narellan, NSW
FAW.53	WZ910	Quensland Air Museum
FAW.53	WZ931	South Australia Historical Aviation Museum, Port Adelaide
FAW.53	WZ935	Australia's Museum of Flight
FAW.53	N4-935	Royal Newcastle Aero Club Mairland/Russell Field
FAW.53	WZ937	Australian Naval Aviation Museum, Nowra, NSW
FAW.53	WZ939	Classic jets Fighter Museum, Parafield Airport
FAW.53	WZ943	Australia's Museum of Flight, Nowra, NSW
FAW./53	?	Rod Keyes, Meandarra
France		
Aquilon		Musee de l' Air, Le Bourget
Aquilon 203	53	Musee de Tradition de l'Aeronautique Navale
FB.54	J-1733	Dugny storeof Musee de l'Air et de l'Espace
FB.54	J-1545	Association des Amis du Musee du Chateau
Germany		
FB.50	J-1603	Speyer Museum, Sinsheim with J-1628 and J-1798
FB.50	J-1635	Museumfurluftahrt und Tecknik, Wernigorde
FB.54	J-1797	Junior family museum, Flugaustellung, Hereskeil
Israel		
FB.50	353	Israel AF Museum
Italy		
FB.54	J-1742	L'Aeoplano Museum,Comignago
New Zealand		
FB.50	WE434	J-1634/ZK-VNM Ardmore Airport, North Island
FB.54	J-1799	Ardmore Airport also as ZK-VNM
USA		
FAW.53	WZ944	Wally Fisk/Amjet, Minneapolis. N7022H + nose of another.
Unknown mark		Warbirds Recovery Inc, Broomfield County Airport, Colorado
Sweden		
J-33	33015	Flyvapenmuseum, Malmen SE-DCD
J-33	33025	Flyvapenmuseum Malmen SE-DCA
Switzerland		
FB.50	J-1049	Dubendorf
FB.50	J-1503	Niederbipp with J-1535, J-1579, J-1640, J-1643
FB.50	J-1526	Neuchatel-Colombier
FB.50	J-1544	Place de Tur, Grandvillard
FB.50	J-1559	Herisaw
FB.50	J-1578	Rickenbach
FB.50	J-1580	Fliegermusem, Dubendorf with J-1642
FB.50	J-1584	Musee de l'Aviation Militaire de Paverne
FB.50	J-1624	Autowad garage, Dulhken
FB.50	J-1627	Bex
FB.50	J-1639	Langenthal
FB.50	J-1641	Hobbyrama, Dubendorf
FB.50	J-1646	Rohrer, Munsingen
FB.50	J-1648	Schupfart
FB.50	J-1654	Bern area
FB.54	J-1709	FFW gate Emmen
FB.54	J-1717	Fliegermuseum, Dubendorf with J-1751, J1753
FB.54	J-1719	Zitilschutzcentrum,Scholz
FB.54	J-1729	Vorkehrshaus der Schwiez. Luzern
FB.54	J-1756	Hochstetten
FB.54	J-1766	W.Gasser Autoabbruch und Handel, Diepoldsau
FB.54	J-1776	Ulrichen
FB.54	J-1778	Herison
Venezuela		
FB.54	3B34	Museo de la FAV, Maracay
FB.54	8176	Palo Negro/El Libertador Air Base

Sea Venom FAW.21 WW146:099-O served with 893 Squadron on board *Ark Royal* in 1956. It is seen here as ground instructional airframe A2461 at Arbroath on 13 June 1959

No 700 was a Trials and Requirements unit that evaluated the FAW.20 and FAW.21; 736 as an Advanced Jet Flying School, which in its self constituted Part II of the Operational Flying School (OFS) syllabus and operated the FAW.21; 738 was the Naval Air Fighter and Strike School based at Lossiemouth, it also provided refresher flying and instrument checks using the FAW.21; 750 was an Observer School based at Hal Far, Malta and the Sea Venom FAW.21 and 22 provided high and low level radar and navigation training; 751 was the Radio Warfare Unit flying Sea Venom ECM.21s and 787 used FAW.21s for radar trials. By far the most prolific user of the Sea Venom was 766 which had reformed on 18 October 1955 as an All-Weather Fighter Pool equipped with eight Sea Venom FAW.20s. A move to Merryfield was made in November 1956 while work was being done on Yeovilton's runways.

With the closure of No 238 OCU at North Luffenham in June 1958 766 also took over the training of pilots and observers and had become the Naval All Weather Fighter School, having moved back to Yeovilton in January 1958. The crews were required to fly 70 hours flying, of which one third was at night. Part of the course included weapons training, target illumination interceptions and low, medium and high navigation exercises. Strength was later increased to 10 FAW.21s with aircraft averaging 45 hours

Sea Vemon FAW.22 XG612 with the light just catching the ammunition link ejection chutes behind the gun bay, the camera gun below the port intake, the leading edge mini-slat near the wing tip and the tail buffers.

Sea Venom FAW.22 WG677:221-Z of 809 Squadron caught at the moment of launch from *HMS Albion*. It still carries the Suez Campaign yellow and black bands round the rear fuselage. Upper fin is red with a white letter and the tip tanks are black with a white stripe.

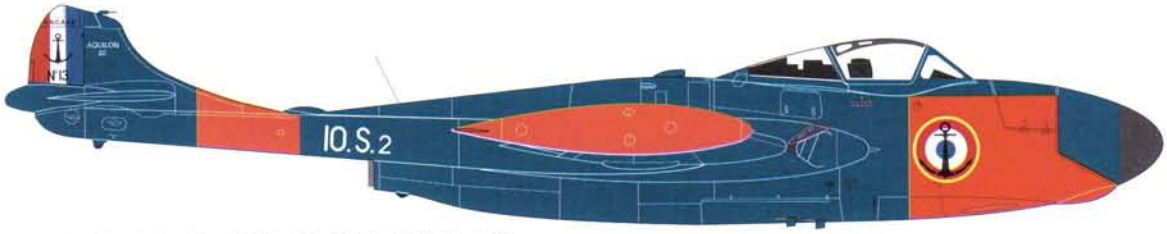
per month.

The Sea Venoms were retired in October 1960 by which time Sea Vixen FAW.1s had taken over the task.

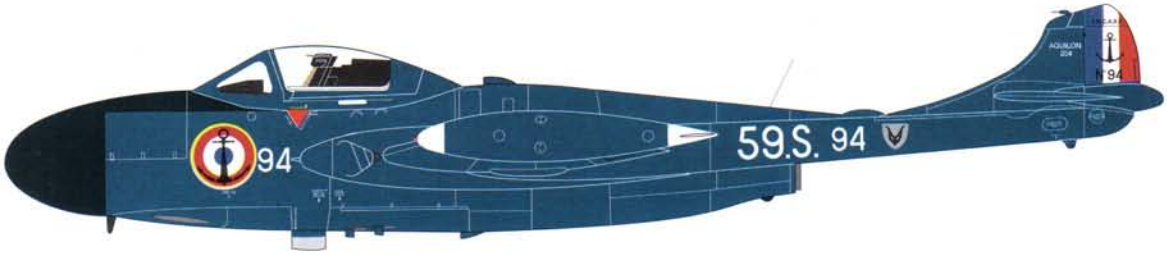
Airwork Ltd, a civilian contractor who provided realistic targets for students attending the Air Directors School at St Davids, a satellite of Brawdy, initially used Sea Venom FAW.20s. The primary role of the students was to learn how to control aircraft operating from carriers using radar. Sea Venom FAW.21s replaced the FAW.20s in February 1957 and a move was made to Brawdy in October 1958. These in turn were replaced by the FAW.22 when the unit moved to Yeovilton in January 1961. They continued in use until 1970 when the last official Sea Venom flight was made by XG683 when it was ferried to Culdrose on 6 October 1970 to be used for fire practice.

SEA VENOMS IN AUSTRALIA

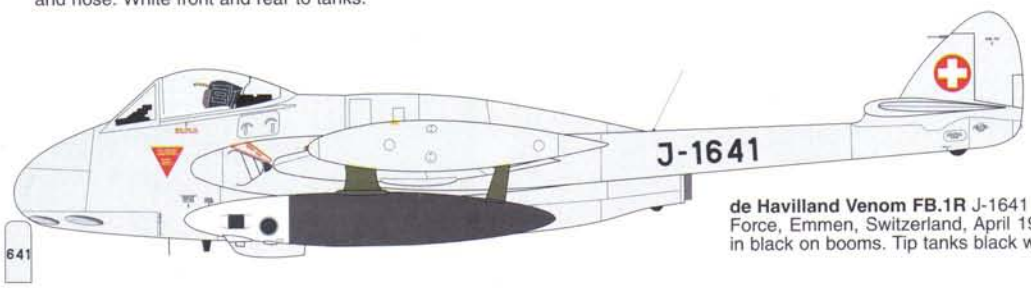
In 1949 the Australian Government purchased the incompleted UK carrier *HMS Majestic* and ordered suitable aircraft to operate from her. In August 1955 the aircraft



de Havilland Aquilon 20 No.13, 10S.2 of Flotille 10S, Escadrille de Servitude, Aeronavale, Hyeres, August 1961. Codes in white on boom. Dayglo red on nose, tip tanks leading edges and under wings.



de Havilland Aquilon 204 No.94, 59.S.94 of Flotille 59S, Aeronavale, Hyeres, January 1962 Codes in white on booms and nose. White front and rear to tanks.



de Havilland Venom FB.1R J-1641 of Flieger Staffel 10, Swiss Air Force, Emmen, Switzerland, April 1966. Aluminium overall. Codes in black on booms. Tip tanks black with white front

After serving with 891Squadron as 442-C on board *Centaur* in 1959-60, FAW.22 WG699 joined No.750 Squadron coded 679-LM, although the fin code is missing in this picture. It crashed at Lossiemouth on 2 November 1967.

for *HMAS Melbourne,* as the ship had been renamed, formed at Culdrose and consisted of 808 with Sea Venom FAW.53, 816 and 817 with Fairey Gannets and two Sycamore helicopters for the Ship's Flight.

The Sea Venom FAW.53 had been developed from the FAW.21 by de Havillands at Christchurch. Basically the aircraft were the same but the radar used was British made AI.17. To train the crews, in what was the first all weather jet fighter used by a Commonwealth navy, 891X Flight was set up at Yeovilton using FAW.20s loaned by the Royal Navy until the FAW.53s arrived. WZ894, WZ896 and WZ944 were used at Christchurch for a time on development flying and on 1 March 1955 WZ893 went to Boscombe Down, being joined there in November by WZ941. Eight FAW.53s had arrived by November 1955 and the squadron flew aboard *Melbourne* in the English Channel in March 1956. The other 31 FAW.53s (from WZ893 to WZ911, WZ927 to WZ946) were shipped to Australia via the Royal Naval Air Yard (RNAY) at Abbotsinch.

Arriving in Australia 808 Squadron was the principle operator of the Sea Venoms until 18 August 1958 when the newly formed 805 Squadron took over the all weather fighter role. However, both squadrons spent time ashore and on *Melbourne* with 805 relinquishing the role

Unusual markings applied briefly to Sea Venom FAW.22s of 894 Squadron during a Mediterranean cruise on board *Albion* in 1960, included a shark's mouth on the nose.

on 30 June 1963. No 816 took on Sea Venoms in July 1964 and operated them until they were retired on 25 August 1967.

When not at sea the squadrons were based at Nowra, New South Wales (NSW) which provided maintenance, and was also the home of 724 Squadron which used a few Sea Venoms for general duties and training with six still in use on 25 July 1966 when most of the Sea Venoms were disposed of by the Australian Department of Supply. When the Sea Venoms arrived in Australia they had British allocated serial numbers, eg WZ893 but the WZ was later changed for a RAN prefix, such as N4-893.

SEA VENOMS FOR FRANCE

The French were quick off the mark when it came to the Sea Venom. The French Navy (Aeronavale) could see the usefulness of operating an all weather fighter from carriers. Like the UK, they had numerous overseas commitments and a carrier force could be off shore in a relatively short time.

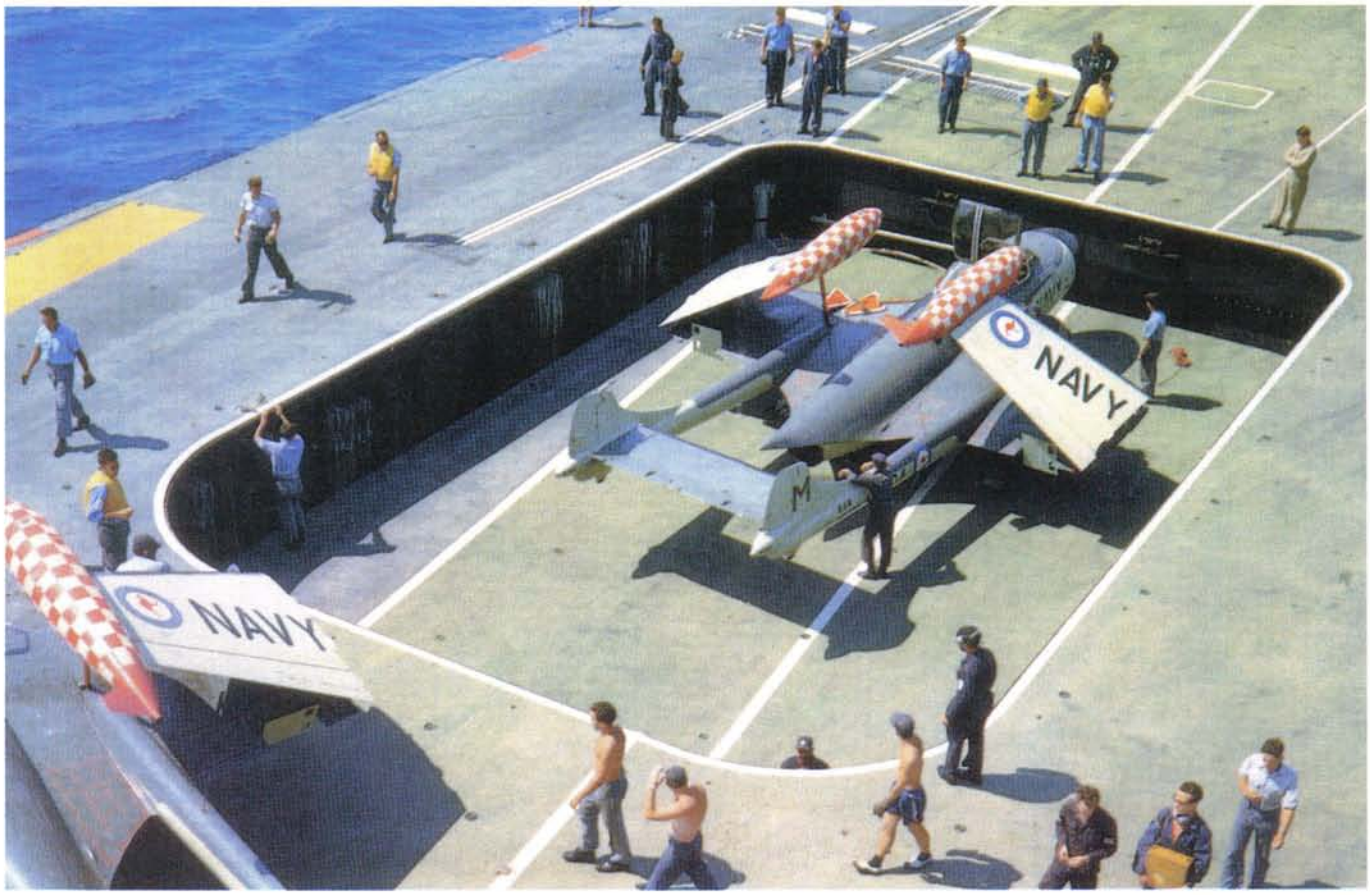
Licence manufacture was agreed with aircraft being made by SNCASE (Societe Nationale de Constructions Aeronautiques de Sud-Est) at Marignane, Marseille. The initial French Sea Venoms differed considerably from their British counterparts. They were powered by an Italian-built Ghost 48/1 engine, French ejection seats in the later marks, the undercarriage was not stressed for carrier work and the majority of the radar and electronics were of French manufacture.

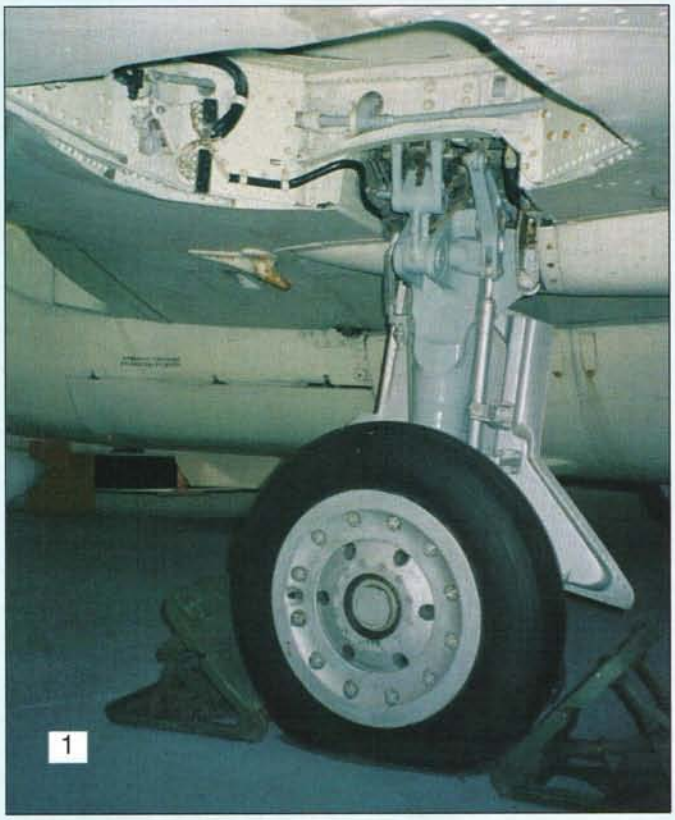
de Havillands designated the new type Sea

Continued on page 37

Above: Four Sea Venom FAW.22s of 891 Squadron getting airborne from Lossiemouth. Below: Sea Venom FAW.22 XG729:733-VL operated by the ADS unit. (MAP)

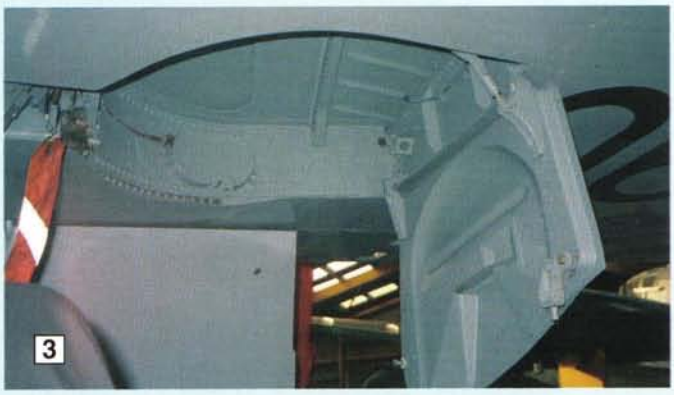
Flight deck picture of *HMAS Melbourne* of the Australian Navy. Sea Venom FAW.53 WZ935:804-M of 805 Squadron is on the lift



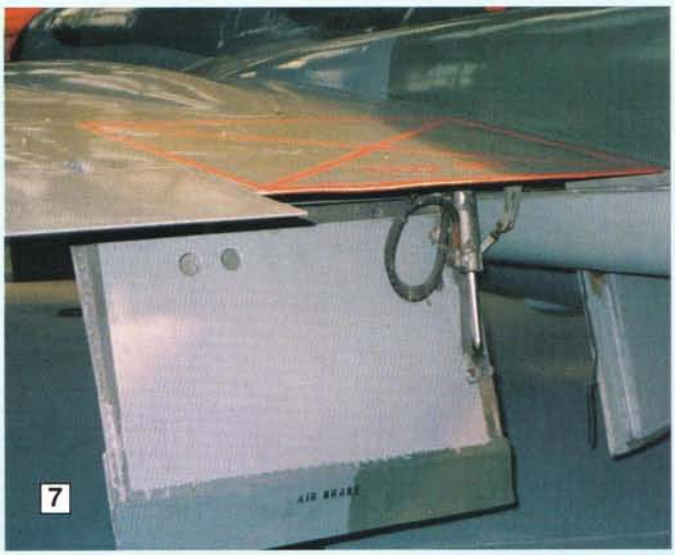


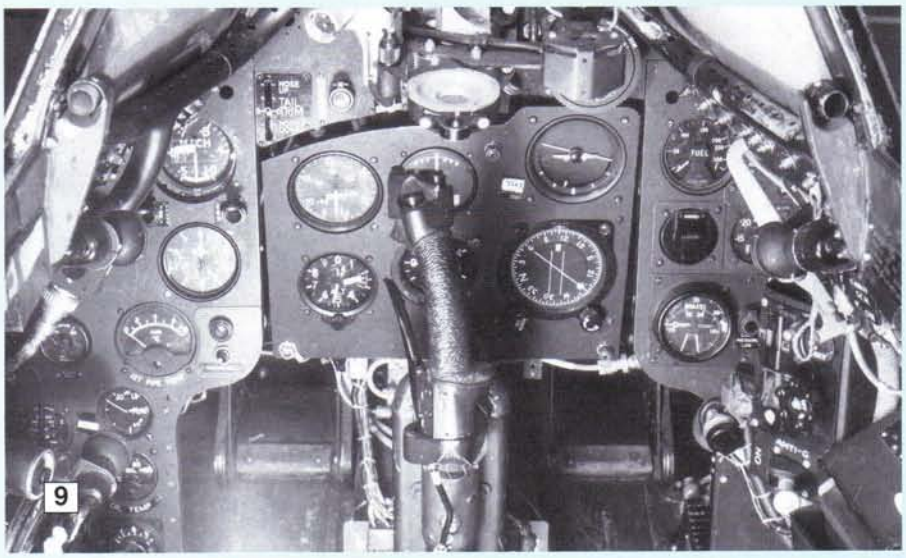
de Havilland Venom and Sea Venom IN DETAIL

PICTURES BY THE AUTHOR

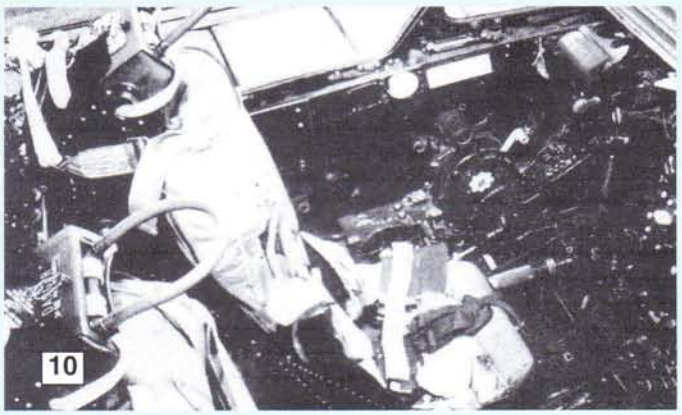


1. Starboard main undercarriage leg on Venom FAW.22 WW217 2. Venom NF.3 WX905 canopy and stencil detail. 3. Undercarriage wheel well of the same NF.3 including the undercarriage door. 4. The rear of the left hand boom acorn shape on the NF.3 which contained the navigation light. 5.The fins and rudders of the Venom NF.3 WX905 preserved at Newark.

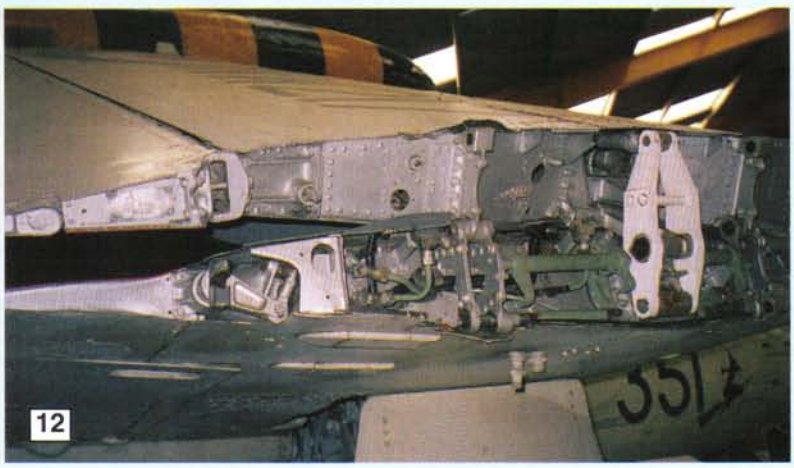


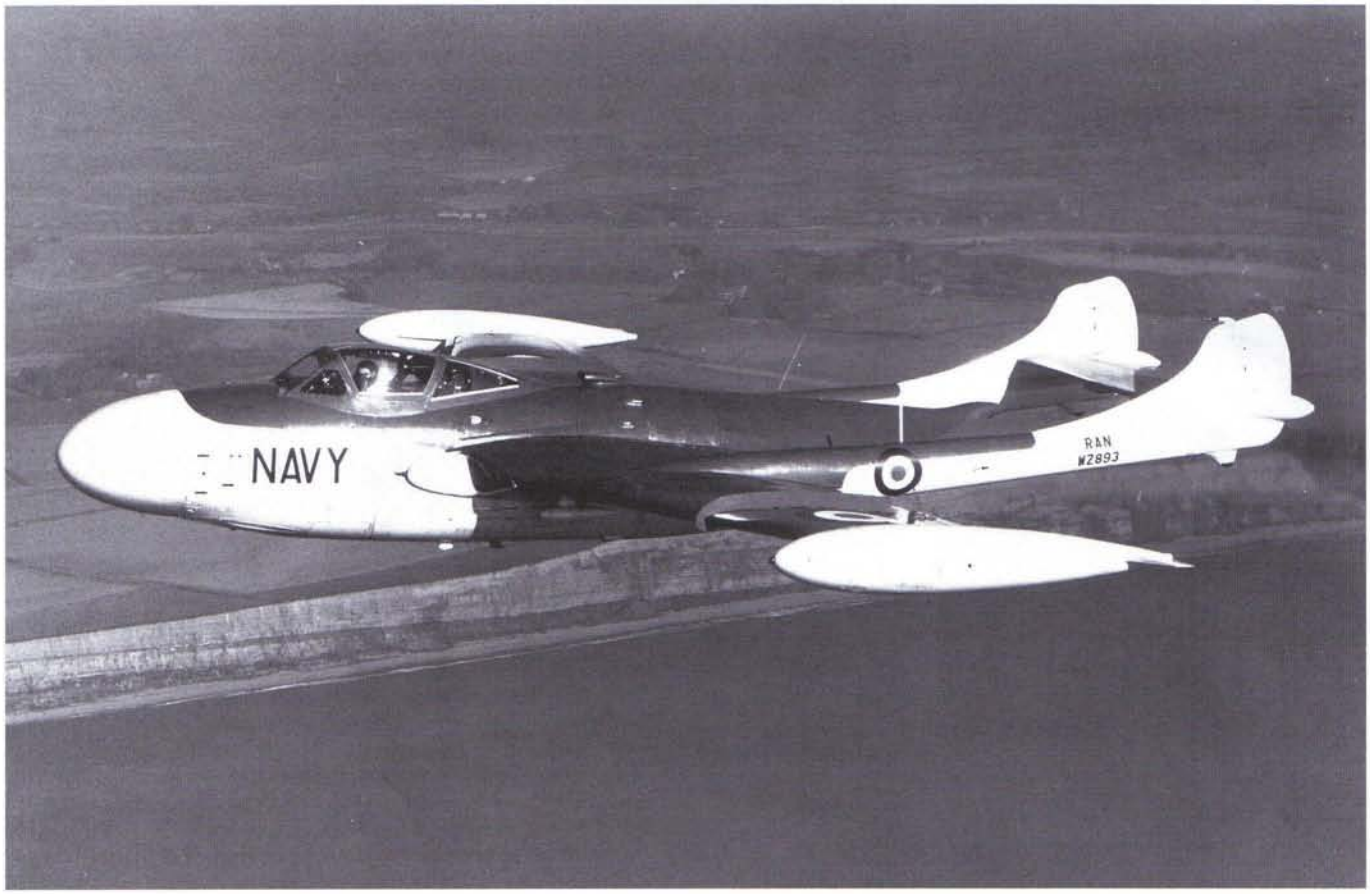


6. Often missed by modllers are the elevator actuator fairings on the underside of the tail unit. 7. The air brakes on the Venom NF.3 were substantial and retracted into the trailing edge of the wing. 8. The large air intake on the top of the fuselage of both the NF.3 and the FAW.22 situated behind the rear of the canopy. 9. The blind flying panel on the single seat Venom FB.5 with the instruments in the centre and the engine instruments and fuel state on each side. The control column has R/T and gun firing buttons as well as the brake lever. 10. The cockpit interior of the NF.3 and the FAW.22 were almost similar. Note that the Observer's seat was placed aft of that of the pilot. 11. NF.3 WX905 was coded 'H' on the nose wheel door.



12. The compilcated interior of the wing folding mechanism on th Venom FAW.22 can be see in this picture. 13. The nose wheel of the FAW.22 which is worth comparing with the NF.3 above. (Allcolour pictures taken at the Newark Air Museum)





Above: The first Sea Venom FAW.53 WZ893 for the Royal Australian Navy flying along the British south coast. RAN aircrew were trained at Yeovilton by the FAA 891X Flight from March to August 1955.

Right: Believed to be operated by 724 Squadron, Royal Australian Navy, this Sea Venom FAW.53 WZ895:870-NW was based with the conversion unit at Nowra NSW.The code is repeated on the undercarriage door, the tip tanks being blue with a Sky-coloured strip

Below: This Royal Navy Sea Venom FAW.22 was used by the Air Direction School and flown by civilian pilots from Airwork.

Continued from page 33

Venom FAW.52 but the French quickly changed this to Aquilon. The prototype first flew on 31 October 1952 and was followed by four pre-production machines, and from flight testing experience, made another much improved fifth prototype designated Aquilon 201. In fact, this was used as the prototype Aquilon 202 which included ejection seats, a sliding hood and a strengthened undercarriage.

The first machine flew on 24 March 1954 and 25 were built. For some reason the French Navy specified a requirement for a single-seat all-weather Aquilon and, designated 203, they had an elongated nose to allow the fitting of American APQ 94 radar. They also carried system equipment for the Nord 5103 air-to-air missile with 40 being produced. Fifteen of the Aquilon 201s were later converted into dual all-weather operational trainers and, designated Aquilon 204, retaining the four 20mm cannon in the nose.

Three units were equipped with the Aquilon, Flotille 16F formed up at Hyeres in January 1955, Flotille 11F formed at Hyeres in mid-1955 and Escadrille 59S was formed in 1958 with Aquilon 203 and 204s, to provide all-weather fighter training.

Detachments from 16F were moved to Maison Blanche in Algeria where they were used with great success against Algerian terrorists. When 16F embarked in the new French carrier, *Clemenceau*, from 1960 until 1962, its role in Algeria was taken over by 11F operating from Karouba in Tunisia. Flotille 11F was disbanded on 4 April 1962, which left 16F to spread its aircraft from shore base to *Clemenceau* and the latest French carrier the *Foch*, with no less than 18 being embarked at one time. When F-8 Crusaders arrived from the USA in 1964 the Aquilons were gradually withdrawn and by 1965 had all been grounded.

Above: Aquilon 201 of Flotille 11F which formed at Hyeres in mid-1955. Below: A SNCASE-built Sea Venom built under licence and known as the Aquilon (North Wind) for the French Aeronavale. They were mostly finished in a midnight semi-gloss blue.

Below: Very few Aquilons survived after the type went out of service with the Aeronavale in 1965. This is one of the few, but its location and any distinguishing marks are not evident apart from the fin showing that it was an Aquilon 203.

TheVenom preserved

This all-black Venom NF.3 7443M was originally with the Debden ATC in the markings of No. 23 Squadron. It was previously WX853 and moved to the de Havilland Heritage Centre, London Colney

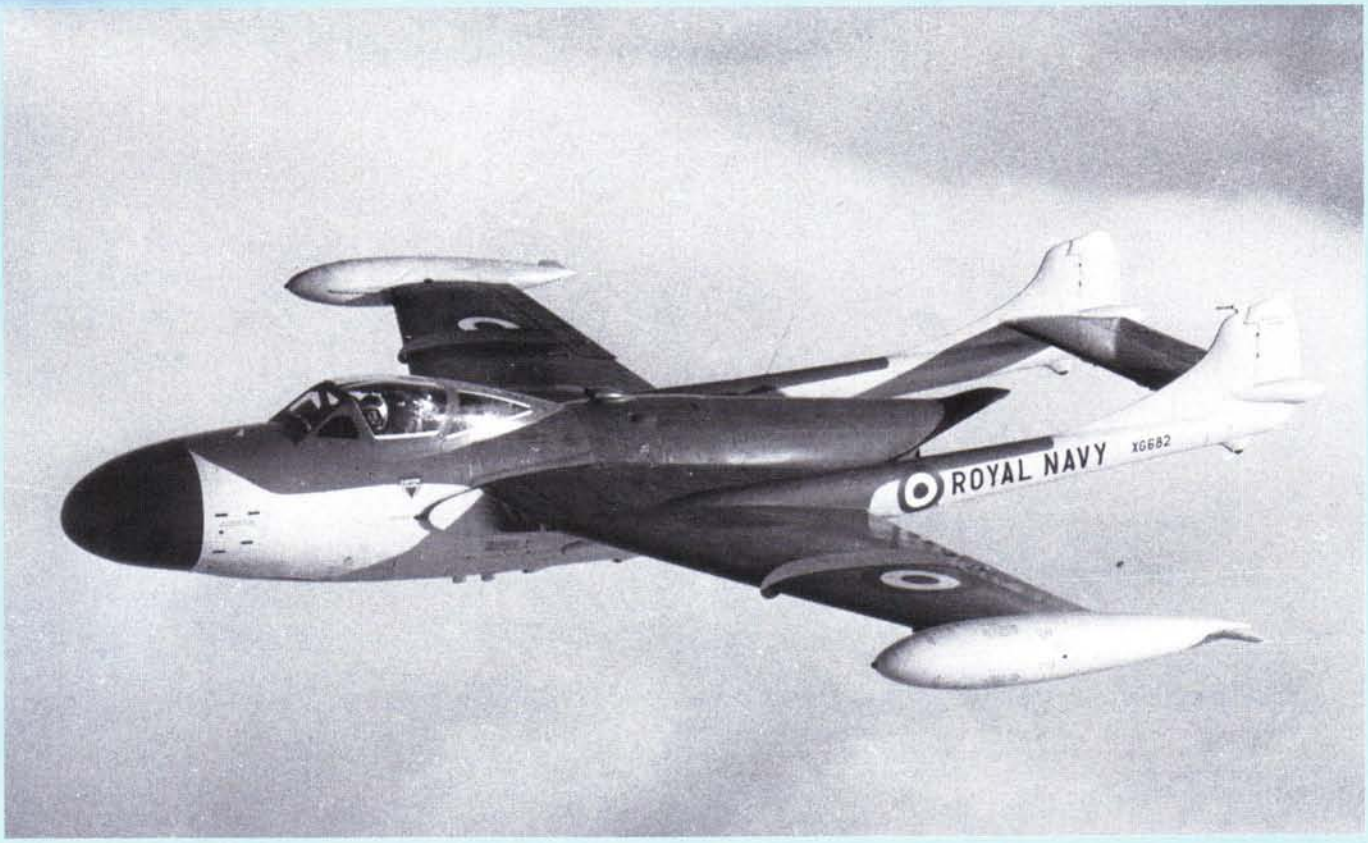
1. A well-known sight outside the Drill Hall of Matlock ATC was Venom 7547M. After gradual vandalisation it was removed and according to local legend dumped in a nearby quarry.

2. Many Venoms found their last resting place outside Air Training Corps Headquarters. This FB.4 belonged at one time to the Hertford unit.

3. Venom NF.3 WX788 was used by Flint Technical College as seen in 1964. It then joined the Night Fighter Preservation team at Elvington where it had a more permanent home.

4. This Sea Venom originally with the Royal Australian Navy was formerly WZ946. Painted a vivid red and black it was used in a childrens playground.

5. Venom FB.4 WR539:F spent 12 years on the scrap heap in Hong Kong before being saved and restored into excellent condition. After restoration it was placed at Kai Tek, home of No. 28 Squadron.



Sea Venom picture miscellany

Above: FAW.22 XG682.The 'nib' over the arrester hook shows up plainly. Below: FAW.21 XG616: 736-VL of 766 Squadron. (APN)

Above: The three highly colourful Sea Venom FAW.21 of 890 Squadron. Right: Sea Venom FAW.22 XG737 straight off the production line at Chester. It joined 891 Squadron on *HMS Bulwark* as 438-B. Below: Sea Venom FAW.21 XG666, the first to be fitted with an ejection seat.

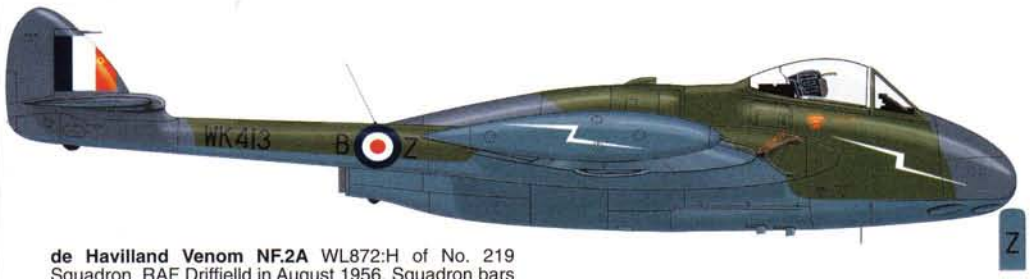
The Venom in Swiss Air Force service

Top: An interesting study of one of the Swiss Air Force's Venom FB.1R J-1641 in its original natural metal finish. It has extra large underwing tanks, the forward section of each holding cameras for photo-reconnaissance duties. It is now preserved at Hobbyrama, Dubendorf after having been converted to FB.54 standard.

Above: Two Swiss Air Force Venom FB.54s over the forested countryside typical of Switzerland. Both aircraft have similar camouflage patterns with the exception that the reamost aircraft has a large dayglow patch on the nose.

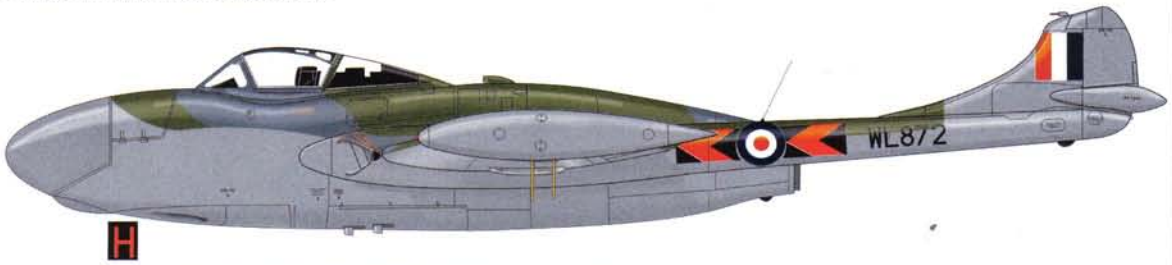
DH Venom kits and accessories

Scale	Variant	Manufacturer	Reference	Remarks
1:72	Venom FB.1	Aeroclub	ABAE05	Complete kit
1:72	Venom FB.4	Aeroclub	ABAE06	Complete kit
1:48	Venom FB.1	Aeroclub	ABAK48432	Complete kit
1:48	Venom FB.4	Aeroclub	ABAK48433	Complete kit
1:48	Venom NF.3	Aeroclub	ABAK48434	Complete kit
1:48	Sea Venom F(AW)22	Aeroclub	ABAK48435	Complete kit
1:72	DH Sea Venom	Eastern Express	EA72225	Complete kit
1:72	Sea Venom F(AW)22	Frog	FROGF295	Complete kit
1:48	Venom FB.4	Glencoe	GL5107	Complete kit
1:48	Venom FB.1	Glencoe	GL5108	Complete kit
1:32	Venom NF.3	ID Models	ID3276	Conversion to FB.4
1:72	Sea Venom	Intech (Frog)	INT295	Complete kit
1:72	Sea Venom	Novo	NOV295	with frog decals
1:72	Sea Venom	Premiere	PIP3001	Complete kit
1:32	Sea Venom	Matchbox	PK506	Complete kit
1:72	Venom FB.4	Rareplanes	RP04004	Vacuform kit
1:72	Sea Venom/Aquilon	Tasman	TNUG1001	Frog upgrade
1:72	Sea Venom	Toko	TOK10072	From Frog moulds
Decals				
1:72	Sea Venom/Alize	Modelart	MA7227	-
1:72	Sea Venom/Spifire/Gazelle	Modelart	MA7237	-
Etched parts				
1:72	Sea Venom	Airwaves	AEC72162	Interior details
1:72	Sea Venom	Airwaves	AEC72163	Exterior details
Ejector seats				
1:72	Venom	Aeroclub	ABEJ001	Martin Baker Mk.2
1:48	Venom	Aeroclub	ABEJ401	Martin Baker Mk.2



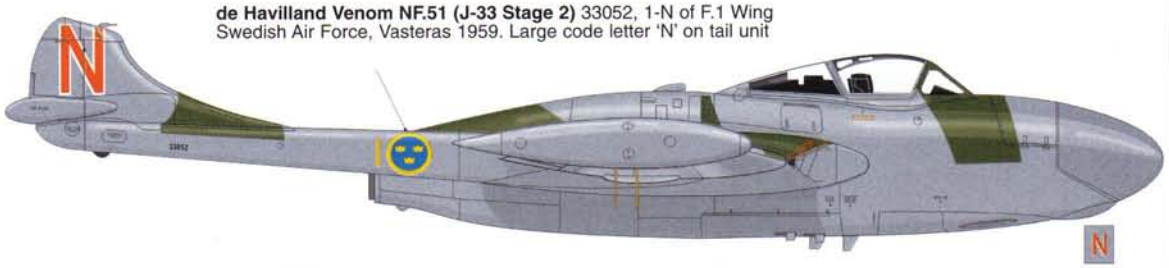
de Havilland Venom FB.1 WK413:B-Z of No.14 Squadron, RAF Fassberg 1953-55. White lightning flash on nose and tip tanks.

de Havilland Venom NF.2A WL872:H of No. 219 Squadron, RAF Driffielld in August 1956. Squadron bars on booms.



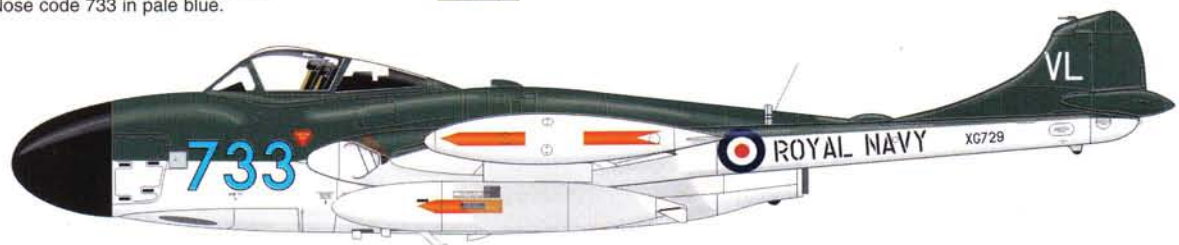
de Havilland Sea Venom FAW.21 WW146:099-O of 833 Squadron FAA,*HMS Eagle* in November 1956, Blue lightning flash under code on nose

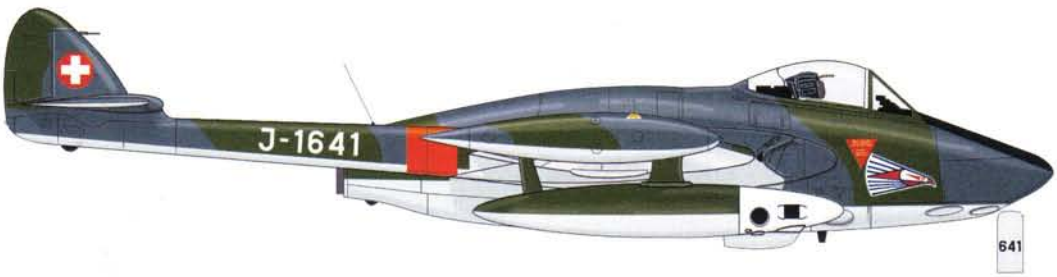
de Havilland Venom NF.51 (J-33 Stage 2) 33052, 1-N of F.1 Wing Swedish Air Force, Vasteras 1959. Large code letter 'N' on tail unit



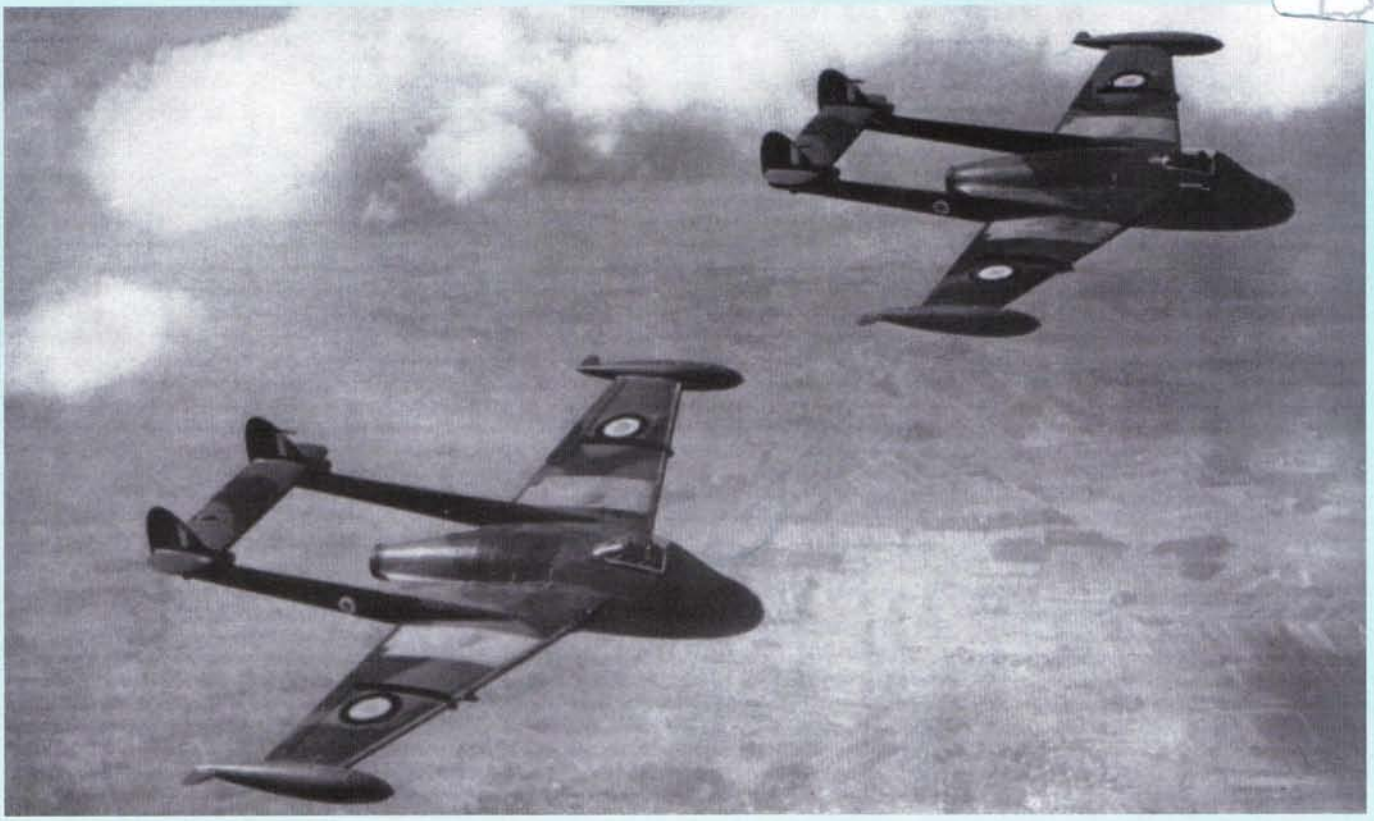
de Havilland Sea Venom FAW.53WZ897:801-M of 805 Squadron RAN, *HMAS Melbourne* in 1962. Red and white serated edged pattern on tip tanks.

de Havilland Sea Venom FAW.22, XG729:733-VL of Airwork FRU, Air Direction School, FAA, RNAS Yeovilton 1966-67. Non-standard under-wing serial. Nose code 733 in pale blue.





de Havilland Venom FB.50 J-1641 of Flieger Staffel 10, Swiss Air Force, Dubendorf, Switzerland 1979.Dayglo on nose and bands on booms, Staffel badge on nose



Above: When structural problems arose with the Venom FB.1 wing, restrictions on operating parameters were indicated by applying a red band to the wing of the affected aircraft.
Below: One of the former Swiss Air Force Venom FB.54s was bought by the Bournemouth Aviation Museum and civil registered as G-GONE having formerly been J-1542. (A.W.Hall)

De Havilland Venom and Sea Venom specification

Details	FB Mk1 FB.Mk4	NF Mk2 FAW.Mk.20	NF Mk.3 FAW Mk21 FAW Mk53	FAW Mk22	Aquilon
Engine	Ghost 103	Ghost 103	Ghost 104	Ghost 105	Ghost 48
Rating	4,850lbst	4,850lbst	4,950lbst	5,300lbst	4,840lbst
Dimensions					
Wing span	41ft 8in	42ft 11in	42ft 11in	42ft 11in	42ft 11in
Wing area	279.75sq ft	279.75sq ft	279.75sq ft	279.75sq ft	279.75sq ft
Length	31ft 10in	33ft 1in	36ft 7in	36ft 7in	36ft 7in
Height	6ft 2in	7ft 7in	6ft 6in	8ft 6.25in	6ft.00ins
Weight loaded	15,400lb	14,620lb	14,270lb	15,800lb	14,969lb
Performance					
Max speed	600 mph	595 mph	575 mph	610 mph	575 mph
Climb	9,000ft/min		8,762ft/min	5,900ft/min	
Ceiling	48,000ft	45,000ft	49,200ft	40,000ft	49,215ft
Range miles	1,075	1000	1000	705	950

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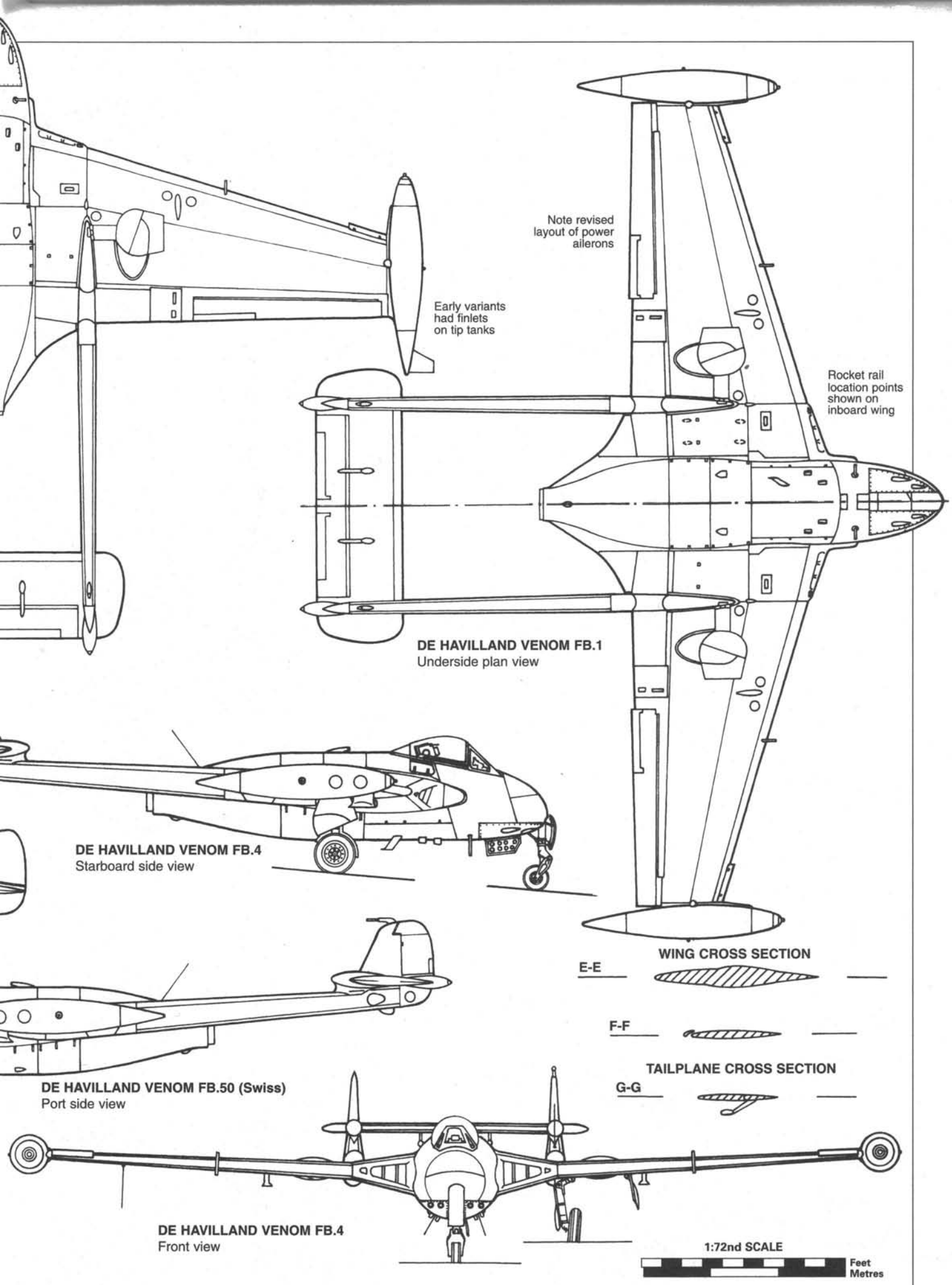
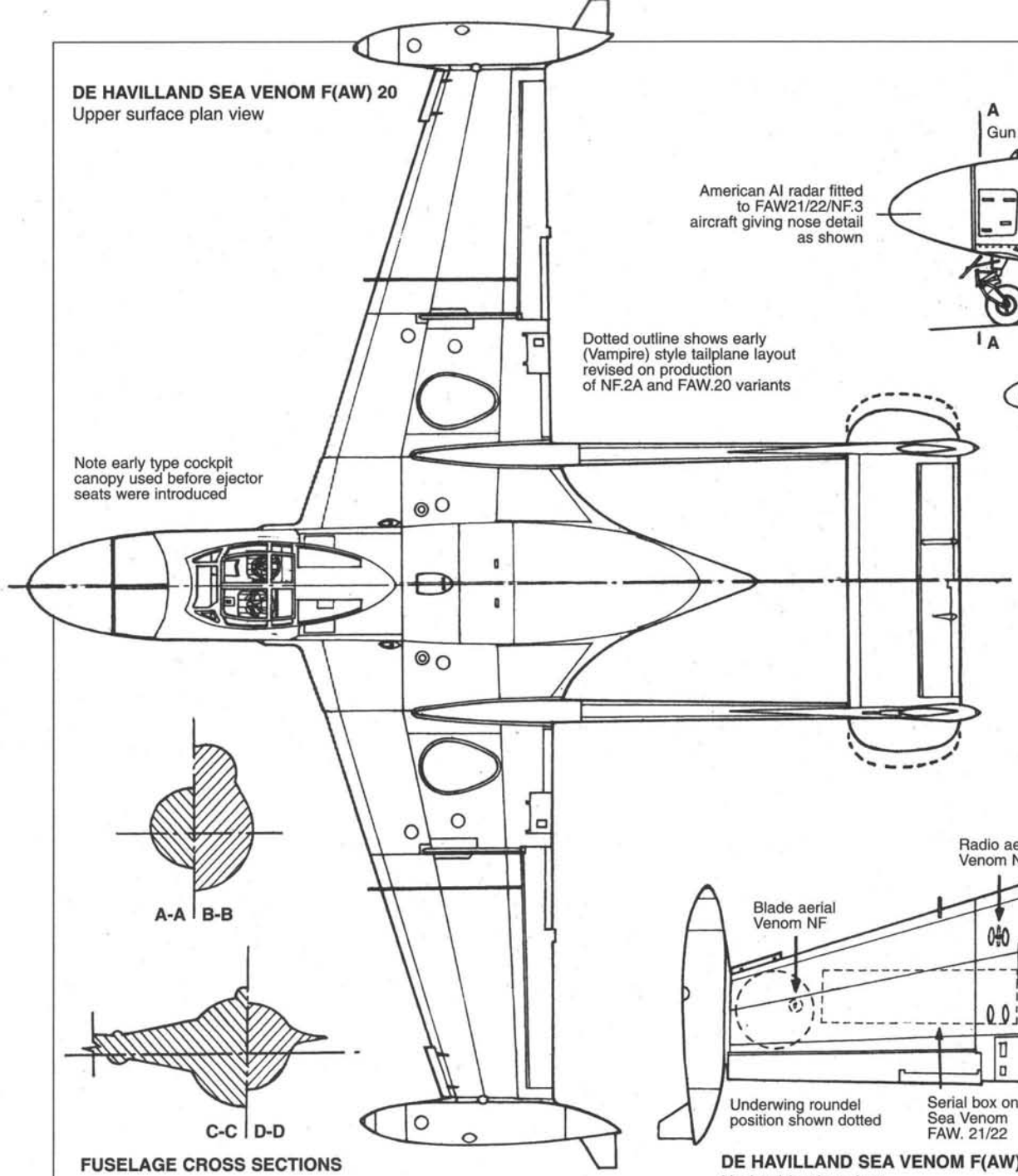
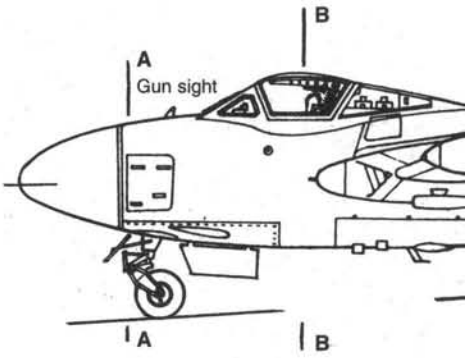

Note revised layout of power ailerons
Early variants had finlets on tip tanks
Rocket rail location points shown on inboard wing
DE HAVILLAND VENOM FB.1
Underside plan view
DE HAVILLAND VENOM FB.4
Starboard side view
WING CROSS SECTION
E-E
F-F
TAILPLANE CROSS SECTION
G-G
DE HAVILLAND VENOM FB.50 (Swiss)
Port side view
DE HAVILLAND VENOM FB.4
Front view
1:72nd SCALE
Feet
Metres

DE HAVILLAND SEA VENOM F(AW) 20
Upper surface plan view

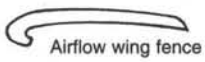
Note early type cockpit canopy used before ejector seats were introduced

Dotted outline shows early (Vampire) style tailplane layout revised on production of NF.2A and FAW.20 variants





American AI radar fitted to FAW21/22/NF.3 aircraft giving nose detail as shown



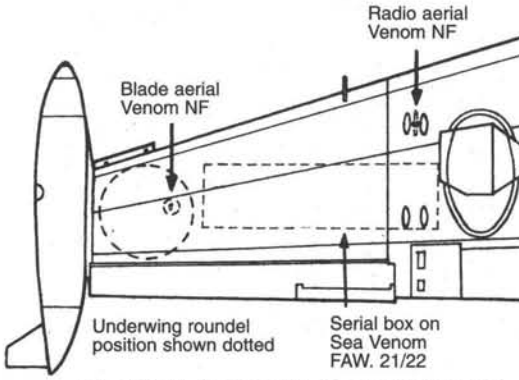
Airflow wing fence detail

WING and TAILPLA

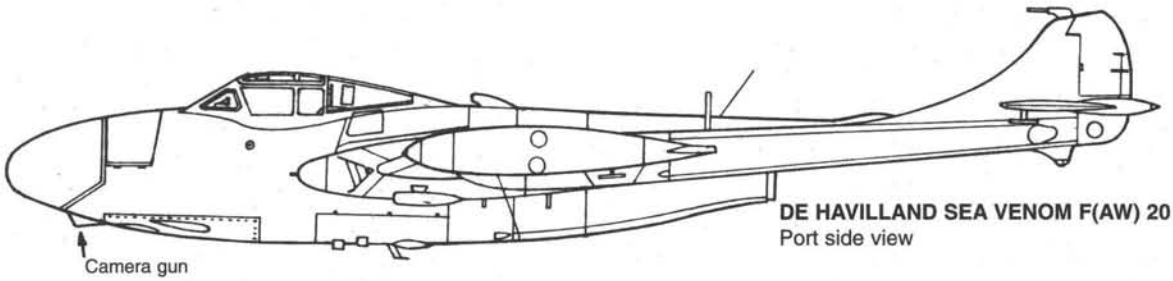
FAW 21/22/NF.3

Elevator

FUSELAGE CROSS SECTIONS

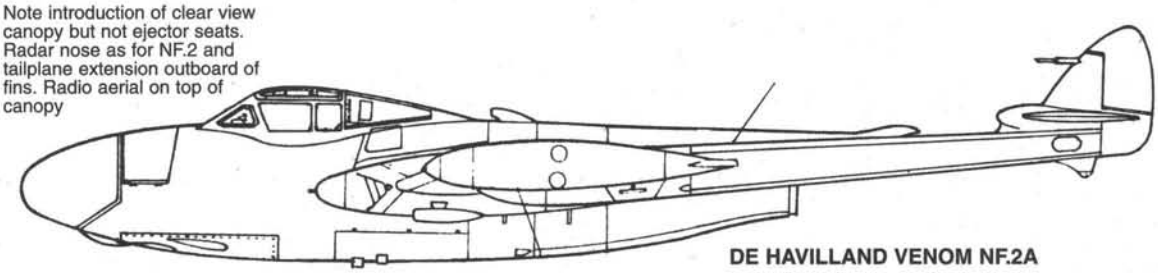


DE HAVILLAND SEA VENOM F(AW) 21/22
Underside plan view



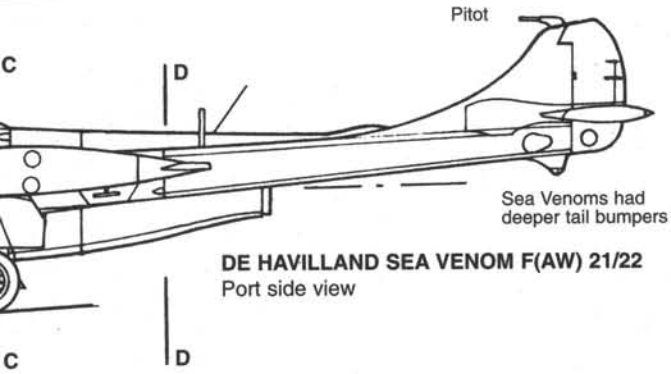
DE HAVILLAND SEA VENOM F(AW) 20
Port side view

Note introduction of clear view canopy but not ejector seats. Radar nose as for NF.2 and tailplane extension outboard of fins. Radio aerial on top of canopy

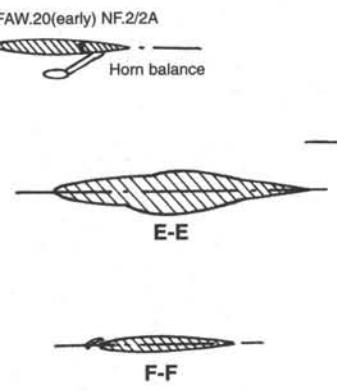


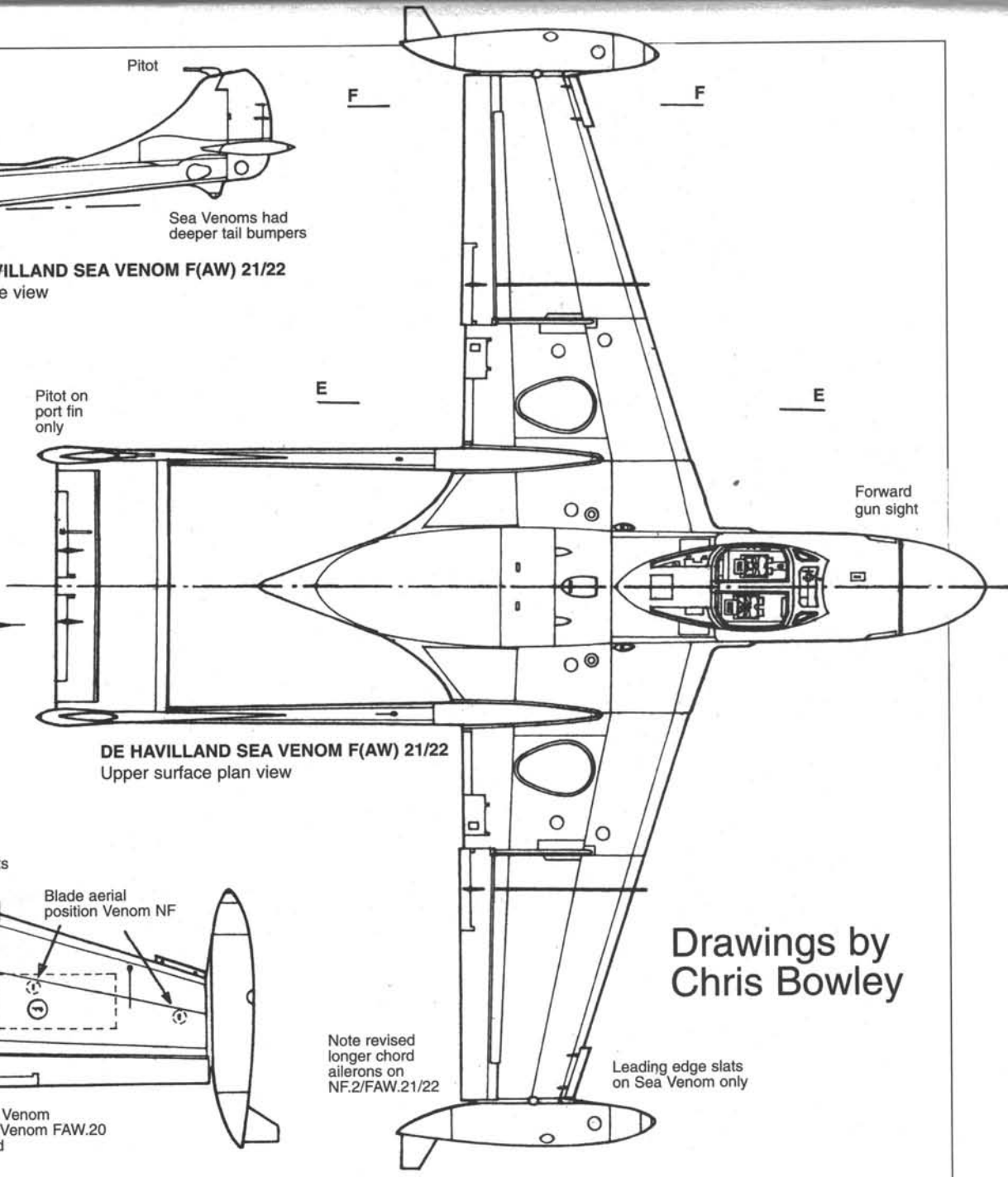
DE HAVILLAND VENOM NF.2A
Port side view

DE HA
Front

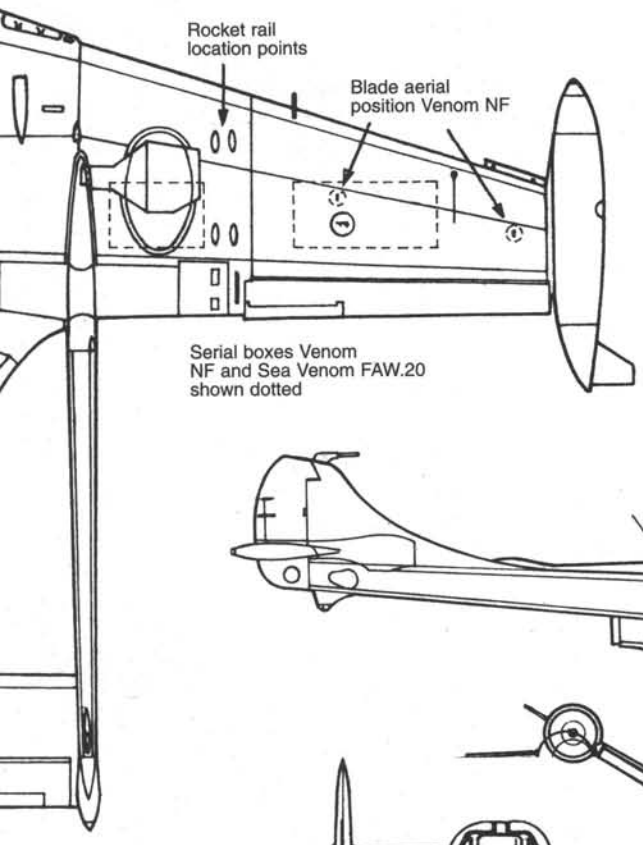


DE HAVILLAND SEA VENOM F(AW) 21/22
Port side view

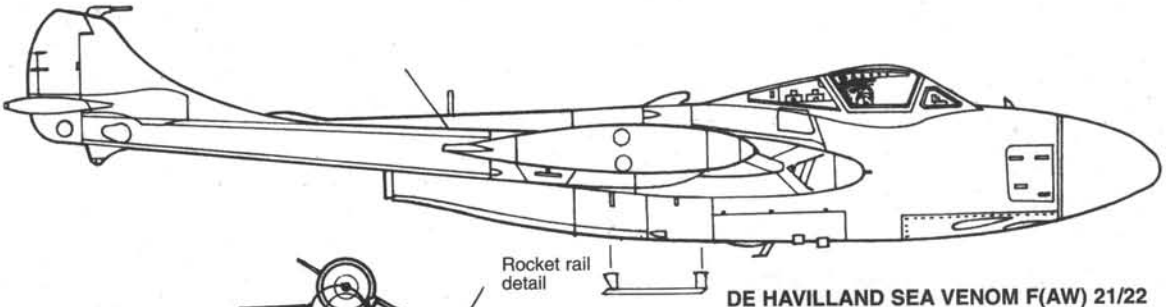




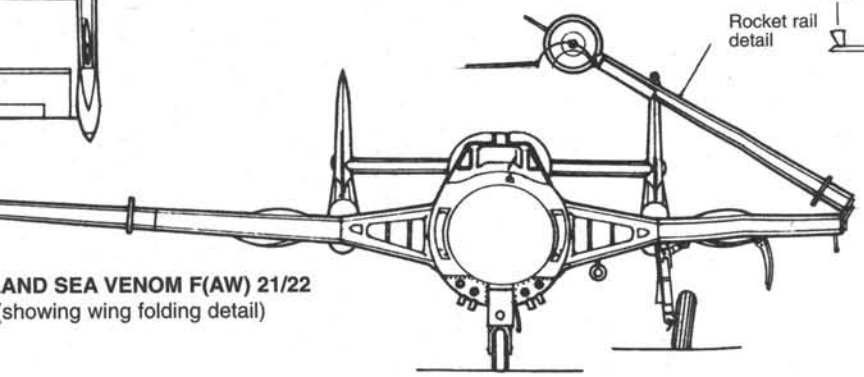
DE HAVILLAND SEA VENOM F(AW) 21/22
Upper surface plan view



Drawings by Chris Bowley

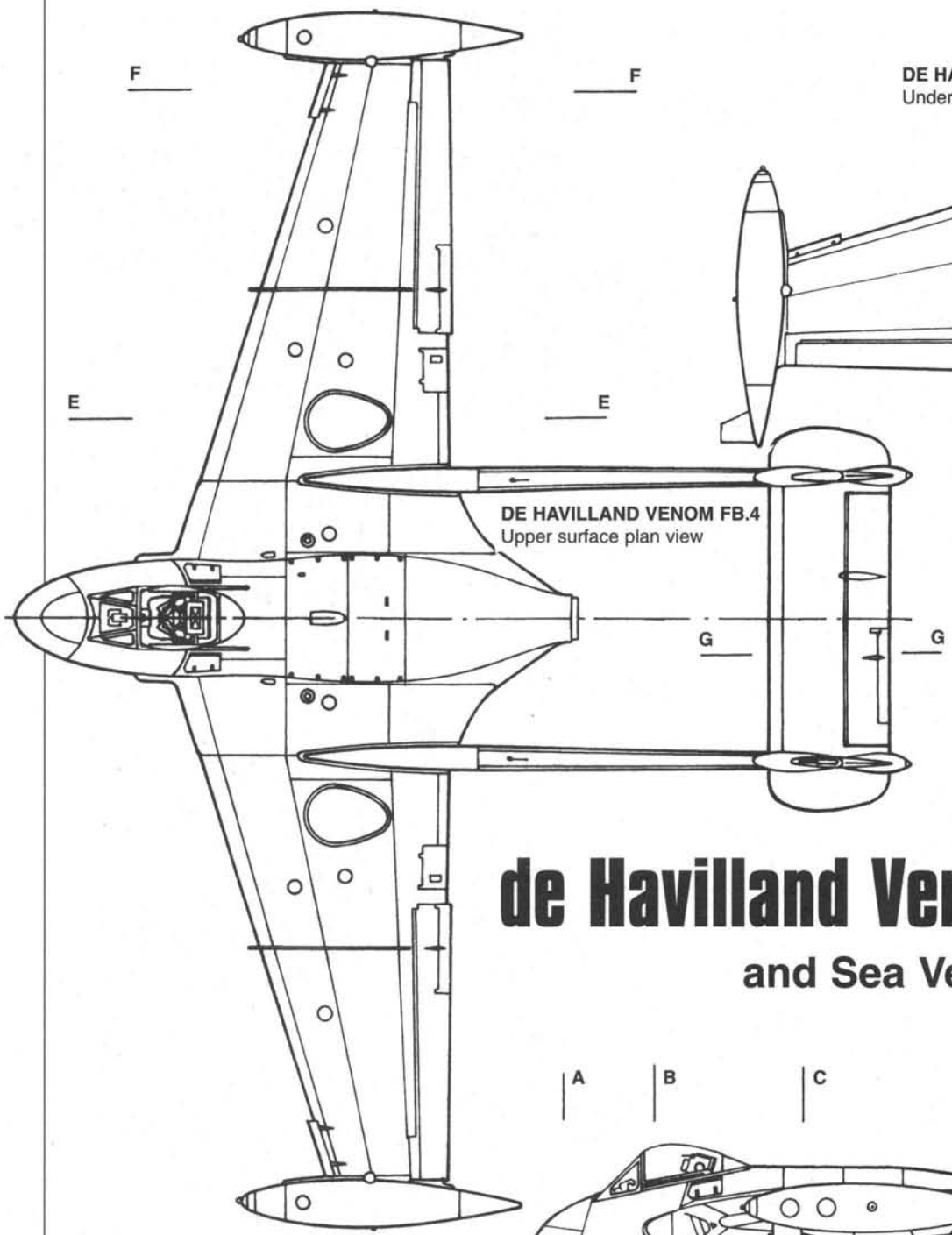


DE HAVILLAND SEA VENOM F(AW) 21/22
Starboard side view

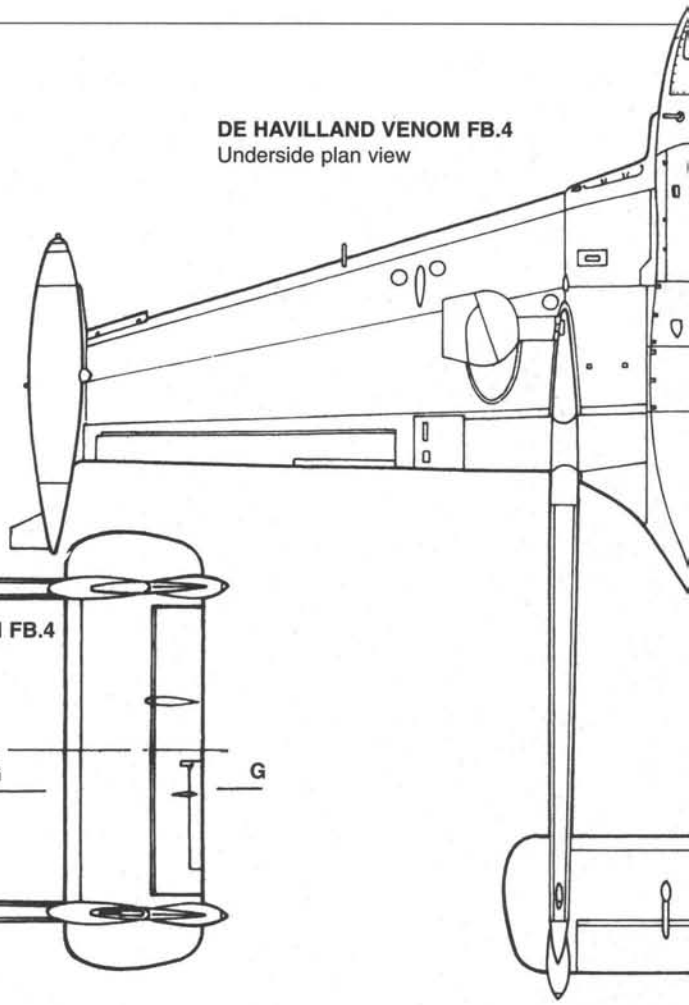


LAND SEA VENOM F(AW) 21/22
(showing wing folding detail)

1:72nd SCALE
Feet
Metres



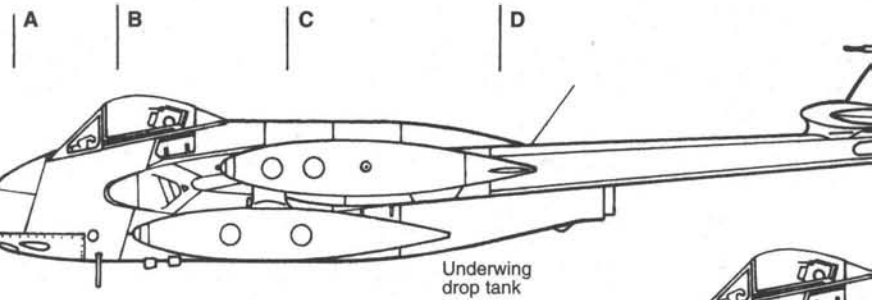
DE HAVILLAND VENOM FB.4
Underside plan view



DE HAVILLAND VENOM FB.4
Upper surface plan view

de Havilland Venom

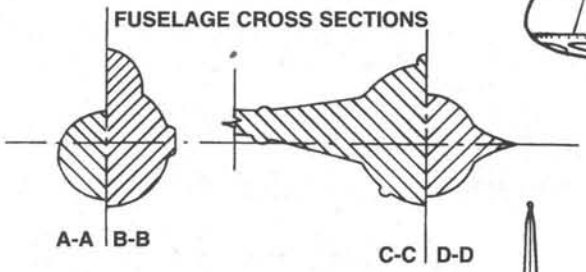
and Sea Venom

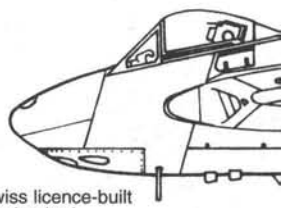


Underwing drop tank

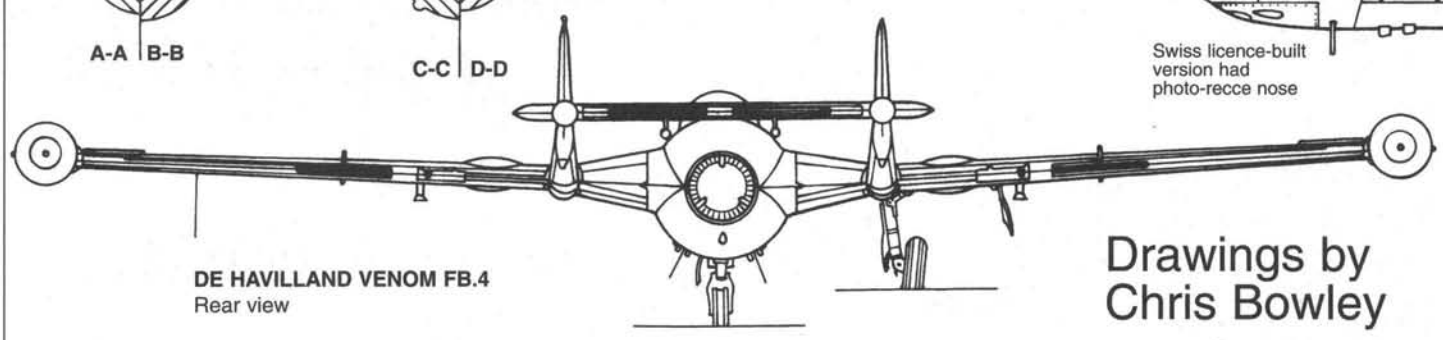
DE HAVILLAND VENOM FB.1 and FB.50
Port side view

FUSELAGE CROSS SECTIONS





Swiss licence-built version had photo-recce nose



DE HAVILLAND VENOM FB.4
Rear view

Drawings by
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