

Spotlight

Handley Page Halifax

Heavyweight competition

The Halifax was among the RAF's most important World War Two bombers, but how did it compare to rival designs?

It is probably fair to say that the Handley Page Halifax has been overshadowed by the fame of another of the RAF's four-engined bombers, the Avro Lancaster. Two of the latter are still flying today, perpetuating its legacy and possibly leading the casual observer to believe that this was the *only* large British bomber of note in World War Two. In fact, the Halifax was produced in only slightly smaller numbers (6,176 compared to 7,377) and fulfilled much the same role, for the most part every bit as effectively.

Both Lancaster and Halifax are generally acknowledged as superior to the RAF's biggest 'heavy', the less versatile Short Stirling, of which 'only' 2,371 were built. While the Luftwaffe rarely saw the need for

heavy machines, its trio of medium bombers – Heinkel He 111, Dornier Do 17 and Junkers Ju 88 – were available in great numbers and were clearly effective in their roles. Its larger Focke Wulf Fw 200 Condor was a development of a peacetime civilian design, as was Italy's Piaggio P.108B.

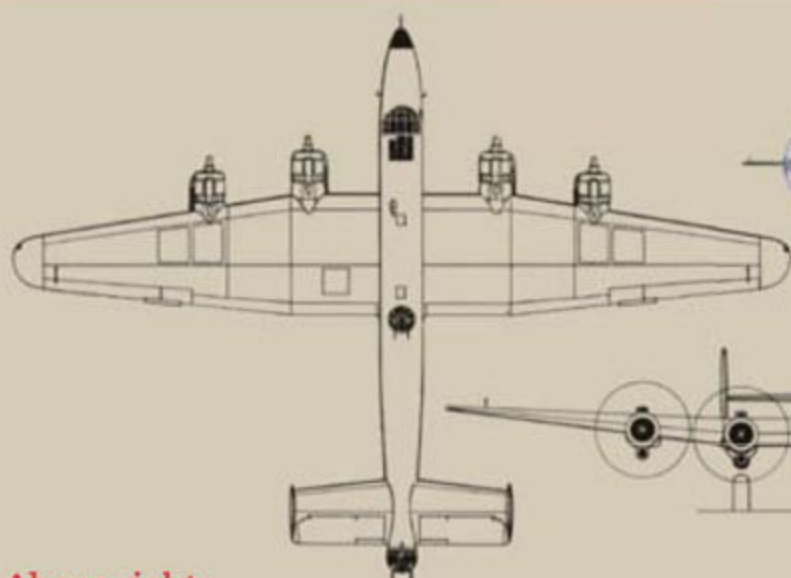
The latter was an ambitious creation, and flew night attack missions over Gibraltar in 1942 before being used in the Mediterranean, North African, Balkan and Soviet theatres. Losses, however, were heavy and Italian morale was not helped by the fact that Benito Mussolini's son Bruno was killed piloting one during a raid on Gibraltar.

When the USAAF began to strike hard against European targets, it could call upon two excellent machines, the

Boeing B-17 Flying Fortress and the Consolidated B-24 Liberator, both of which were built in vast numbers, could deliver bombs over great distances and were renowned for their durability. Flying mostly in daylight, losses were substantial, but there can be no doubt that their huge raids against Germany accelerated the war's outcome.

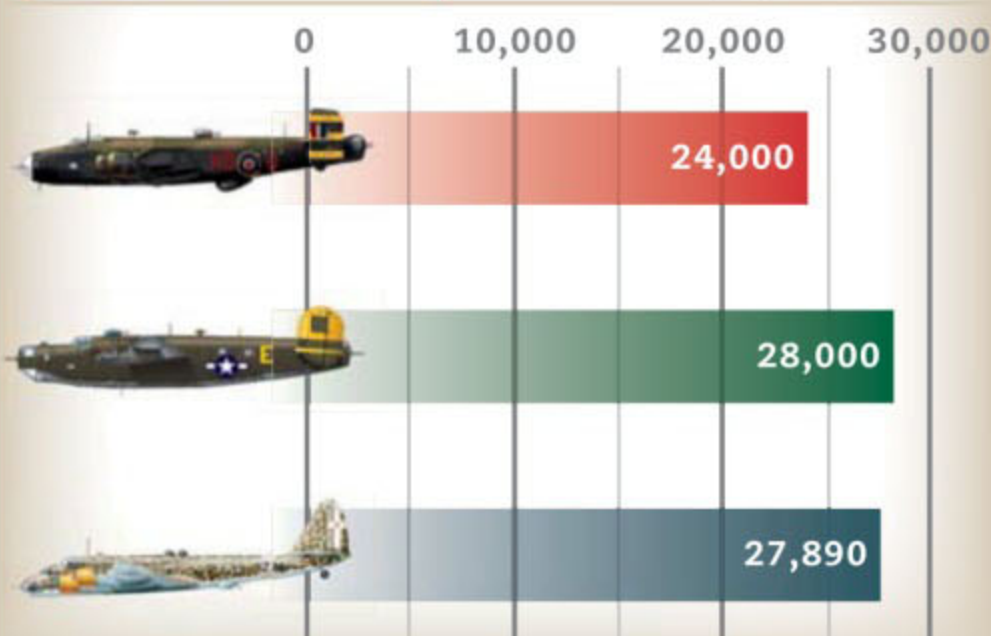
The Petlyakov Pe-8 was the sole Soviet representative in the heavy bomber category, although pre-war aircraft such as the Tupolev TB-3 also saw action. The Pe-8 was less than successful – although it could carry up to 11,000lb (5,000kg) of ordnance and was used to attack Berlin as early as August 1941, it was never available in sufficient numbers to make a true impact.

Handley Page Halifax III



Above right
Handley Page Halifax III MZ287 of 466 Squadron in 1944. PETE WEST 2012

AT A GLANCE: CEILING (ft)



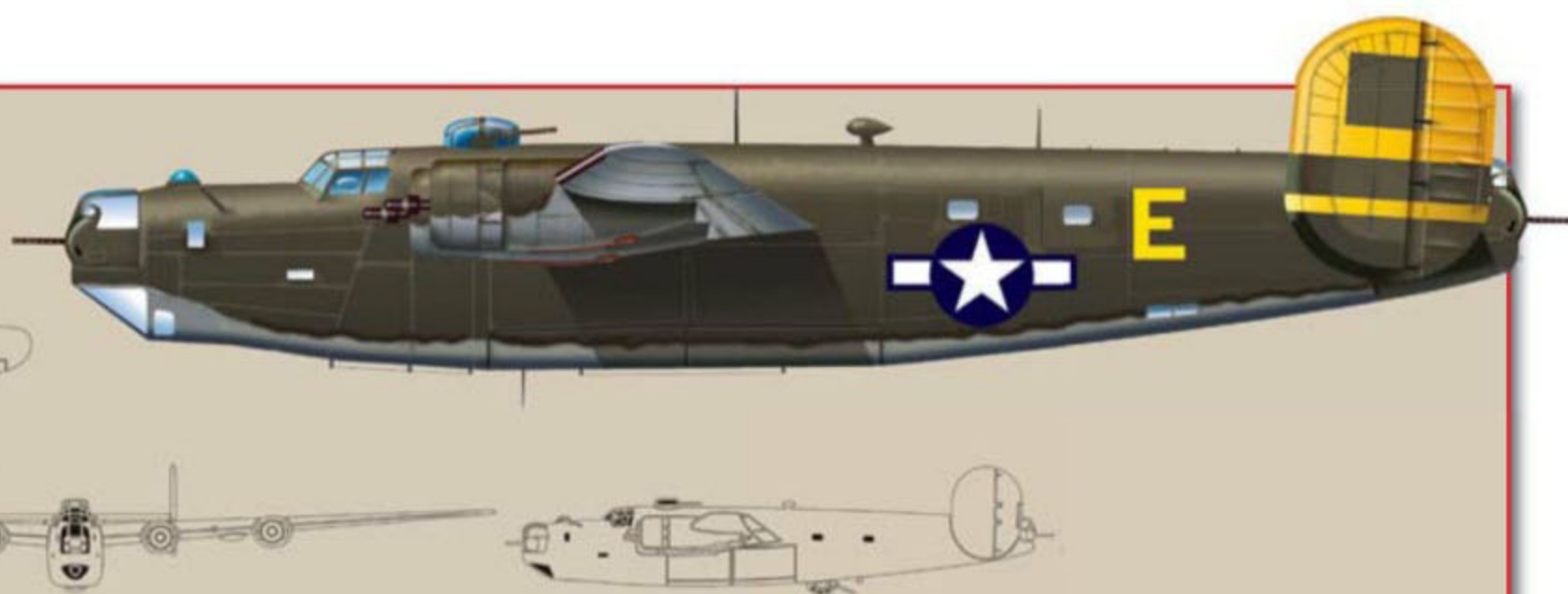
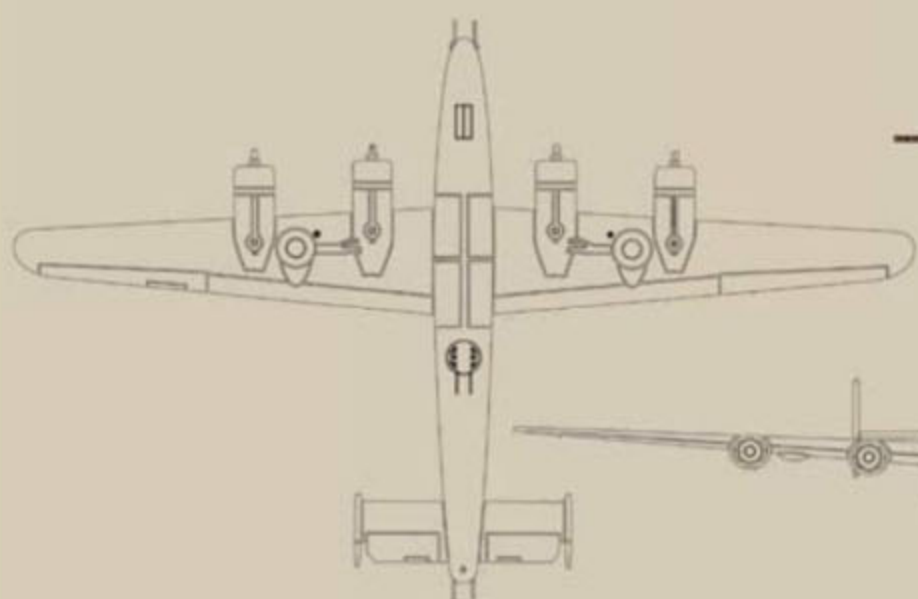
- Construction:** Began at Handley Page's site at Salmesbury, Lancashire, with further production by Fairey at Stockport, Rootes Securities at Speke and the London Aircraft Production Group.
- First Flight:** The first of two prototypes flew on October 25, 1939 at Benson, Oxfordshire.
- Powerplants:** Four 1,615hp (1,204kW) Bristol Hercules XVI radials.
- Dimension:** Span 104ft 2in (31.8m). Length 71ft 7in. Height 20ft 9in. Wing area 1,275ft² (118.5m²).
- Weight:** Empty 38,240lb (17,345kg). Maximum take-off weight 65,000lb.
- Performance:** Max speed 282mph (454km/h) at 13,500ft (4,115m). Cruising speed 215mph. Service ceiling 24,000ft. Range 1,860 miles (3,000km) with typical bomb load.
- Armament:** Nine 0.303in machine guns - one on pivoted mount in nose, plus four in both dorsal and tail turrets. Maximum bomb load 13,000lb (5,897kg).
- Crew:** Seven - pilot, flight engineer, nose gunner, dorsal turret gunner, rear gunner, navigator/bomb aimer, radio operator.

Note: performance and weights varied according to role and configuration

SPOT FACT A transport/cargo version of the Halifax was known as the Halton

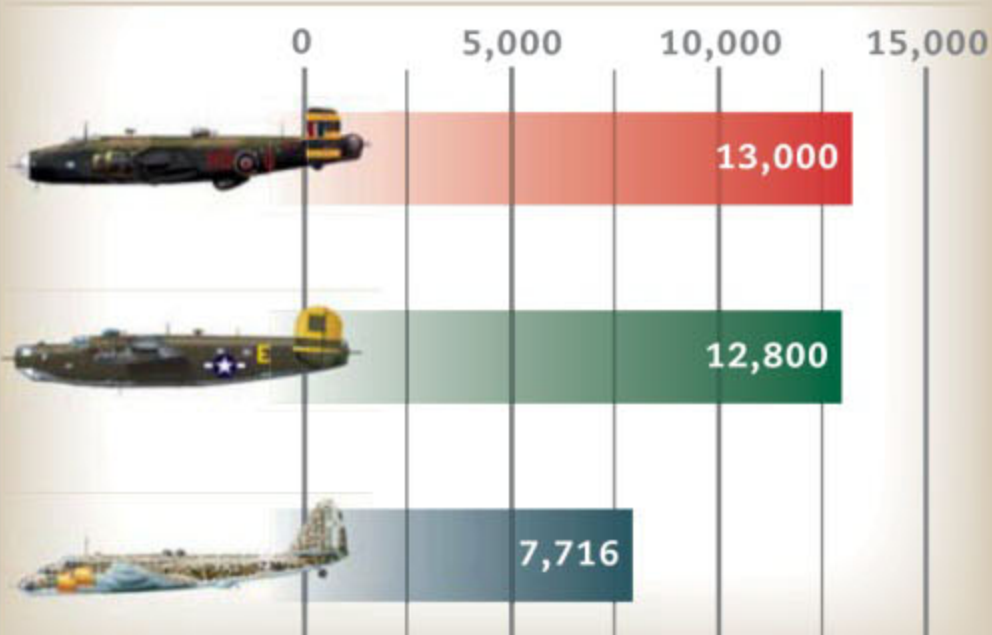
Contemporaries compared

Consolidated B-24J Liberator



Above right
Consolidated B-24J Liberator of the USAAF's 465th BG during the Mediterranean campaign. PETE WEST 2012

AT A GLANCE: BOMB LOAD (lbs)



- Construction:** From a total of 18,482 built, 6,678 were B-24Js. The latter was the most widely produced variant followed by the 'H' with 3,100 made.
- First Flight:** The XB-24 prototype first flew on December 29, 1939 followed by seven test aircraft in 1940.
- Powerplant:** Four 1,200hp (895kW) Pratt & Whitney R-1830-65 Twin Wasp 14-cylinder radials.
- Dimension:** Span 110ft 0in (33.5m). Length 67ft 2in. Height 18ft 0in. Wing area 1,048ft² (97.4m²).
- Weight:** Empty 38,000lb (17,237kg). Loaded 65,000lb.
- Performance:** Max speed 278mph (447km/h) at 25,000ft (7,620m). Cruising speed 237mph. Service ceiling 28,000ft. Range 1,540 miles (2,478km) with 8,000lb bomb load.
- Armament:** Ten 0.50in machine guns in nose, dorsal, tail, ventral and waist positions. Maximum bomb load 12,800lb (5,806kg).
- Crew:** Between eight and ten, depending on use.

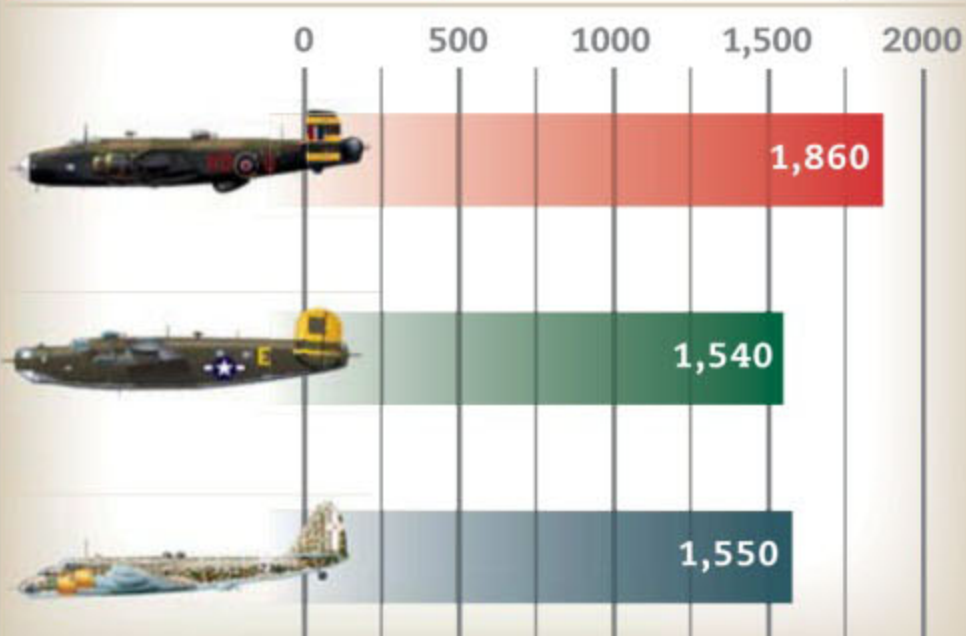
Note: performance and weights varied according to role and configuration

Piaggio P.108B



Above right
Piaggio P.108B 274
PETE WEST 2012

AT A GLANCE: RANGE (miles)



- Construction:** Designed by Giovanni Casiraghi, 182 P.108s were made; 163 of these were the B (bomber) version and a further 16 were used as P.108C transporters.
- First Flight:** The first prototype P.108B flew on November 24, 1939. The type entered military service in 1941.
- Powerplants:** Four 1,500hp (1,118kW) Piaggio P.XII RC35 18-cylinder radials.
- Dimension:** Span 104ft 11in (32m). Length 73ft 2in. Height 19ft 8in. Wing area 1,453ft² (135m²).
- Weight:** Empty 38,195lb (17,325kg). Loaded 65,885lb.
- Performance:** Max speed 267mph (430km/h) at 13,780ft (4,200m). Cruising speed 199mph. Service ceiling 27,890ft. Range 1,550 miles (2,495km) with typical bomb load.
- Armament:** Eight 12.7mm machine guns in nose, ventral turrets, waist and outer nacelle positions. Maximum 7,716lb (3,500kg) bomb load or three torpedoes.
- Crew:** Six or seven.

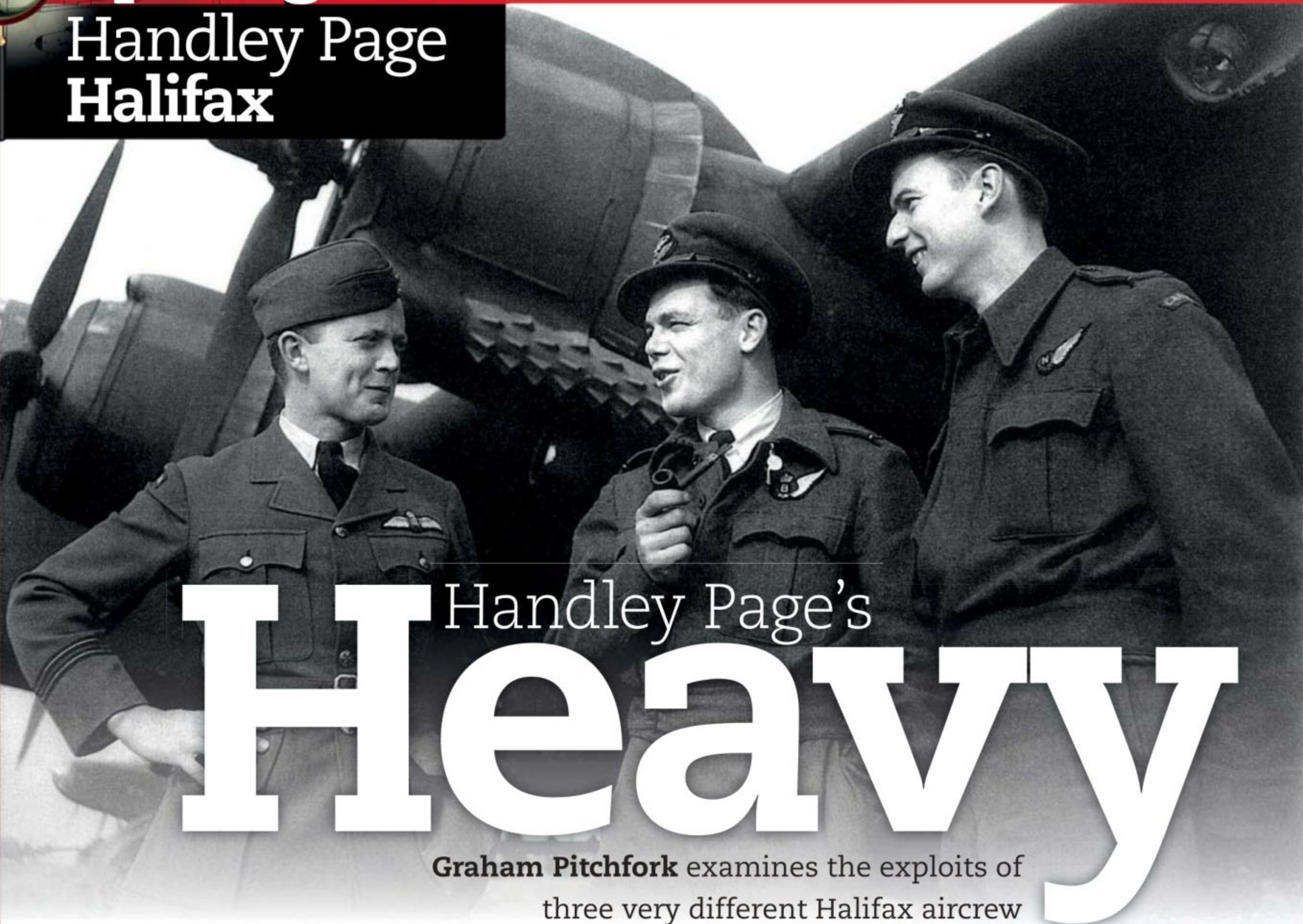
Note: performance and weights varied according to role and configuration

6,176 Halifaxes were built



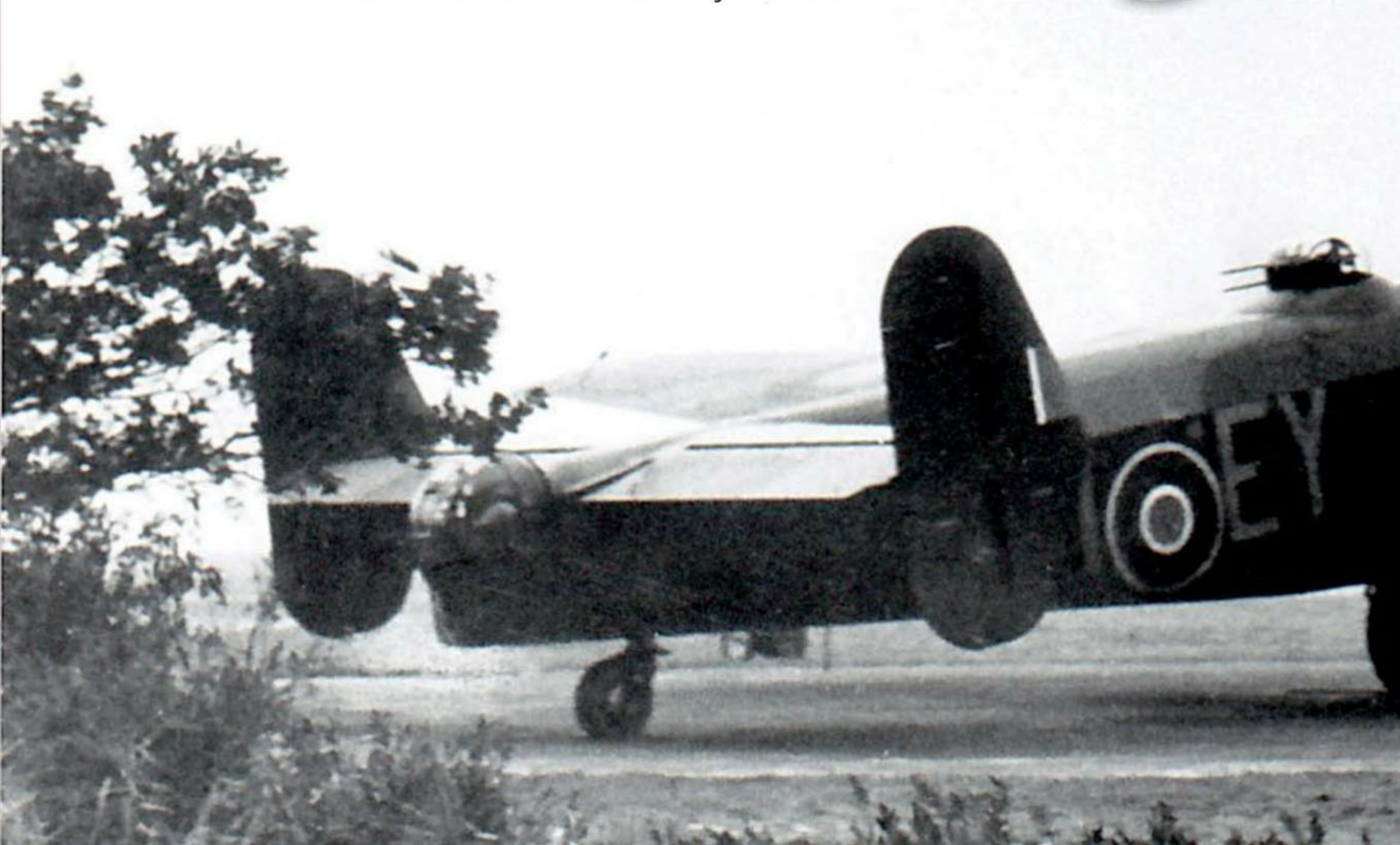
Spotlight

**Handley Page
Halifax**



Handley Page's
Heavy

Graham Pitchfork examines the exploits of three very different Halifax aircrew



SPOT FACT It was originally intended to be powered by just two engines

Men behind the Halifax

Guy Lawrence had already completed a tour on AW Whitleys, and been awarded the DFC, when he took command of the Halifax II-equipped 78 Squadron in early August 1943. His arrival coincided with Bomber Command reaching peak efficiency and a 'maximum effort' was routine.

On August 10 he took off for Nuremberg, Germany, as part of a force of 653 bombers. It was only his second flight in a Halifax - a perfect example of a commanding officer 'leading from the front'. Returning over France after a successful attack, he had to feather both port engines due to overheating. To counter the swing, he had to hold full starboard rudder, a tremendous strain on the slightly-built Lawrence.

He coaxed the aircraft towards England and elected to land immediately, heading for Ford in Sussex. On the final approach, he re-started the two Merlins for landing, which he successfully completed after eight hours airborne. With so few hours of experience on the type, this was a remarkable achievement, instantly endearing him to his air and ground crews.

V-weapons

Two nights later he attacked Milan, a round trip of almost ten hours. Within a few days he flew on one of the most famous of all Bomber Command operations - the raid

on the experimental and research centre at Peenemünde on the Baltic coast. Intelligence indicated the site was testing a new 'terror weapon', the Vergeltungswaffe 2, or V-2. Mosquitos had flown photographic reconnaissance sorties throughout the summer when a second weapon was identified - the V-1 'doodlebug'. Churchill ordered the C-in-C Bomber Command, AM Arthur Harris, to act as soon as possible and August 17 was chosen for the raid.

Three waves of 'heavies' were tasked to hit the pinpoint target under the direction of a 'master of ceremonies', Gp Capt John Searby of 83 Squadron. Three aiming points were selected, including the housing estate where the scientists lived, the rocket production plant, and the main experimental works - the heart of the complex. To keep the German night-fighters occupied, Mosquitos mounted diversionary raids

The Halifax units of 4 Group formed part of the first wave of 244 aircraft, with 21 provided by 78 Squadron. Lawrence took off from Brighton, Yorkshire, at 21:08 hours and headed for the Danish coast. After crossing Denmark, the bombers headed over the Baltic to Peenemünde from the north. The Halifax force dropped from 8,000ft (2,438m) on the Pathfinder's markers before turning for home. The second and

third waves followed, and although some vital targets were missed, the raid was a success, setting back the rocket programme by at least two months, and causing the Germans to re-locate some crucial work to safer places.

The 'Big City'

Six days later, the 'Battle of Berlin' commenced. It was at the maximum range of the RAF's bombers and, to increase their chances of survival, the city could only be attacked during the longer nights. It also involved a long transit period over enemy territory giving the increasingly sophisticated German night-fighter organisation more opportunities. The 'Big City' was a formidable target.

Once again, Lawrence was at the head of his unit for this major effort involving 719 aircraft. With high explosive (HE) bombs on board and maximum fuel, he headed for the Zuider Zee before turning on an almost direct route to Berlin, with the first wave arriving just before midnight. On this long route, the German night fighters started continuous attacks, and losses mounted.

South of Berlin, the stream turned north to drop their loads on the Pathfinder's green target indicators before continuing north to the Baltic, turning for home over Denmark. Lawrence recorded: "fighter flares seen over target".

Left
Flt Lt Vic Motherwell and some of his 420 Squadron crew.

Below
A Halifax II of 78 Squadron, 1943.



2,091 B.III's were made

SPOT FACT *Halifaxes were also used for glider towing and maritime reconnaissance*



Above
Guy Lawrence and
his crew.

“After dressing in his heavy clothing and flying boots, he collected his parachute and jumped on the bus to drive out to the dispersal...”

It was part of a new German tactic to drop high intensity flares falling very slowly from high level. Flak batteries were restricted to firing up to 15,000ft, allowing single-engined fighters to attack bombers silhouetted against the flares.

Sixty-two aircraft were lost, representing almost 8% of the force – the heaviest losses in one night so far. Together with 158 Squadron, Lawrence’s 78 suffered the worst with five Halifaxes failing to return. Eight nights later, Lawrence once again led his unit on the second Berlin raid when two more of his crews were lost.

The role of a bomber CO was a very onerous one. In recognition of the arduous nature of the appointment, he was not expected to fly regularly on ‘ops’, perhaps just two or three each month. This was not Guy Lawrence’s style and he insisted on taking part with his crews on the most demanding operations.

Maximum effort

On the night of September 5/6, a maximum effort was required for a raid on Mannheim and Lawrence decided he must fly. Details of the

bomb and fuel loads, route, weather, enemy defences and aiming points came through from Group HQ. He tasked the three flight commanders to select the crews as he left to speak to the technicians working non-stop to get the 15 aircraft serviceable. He went on to see the armourers preparing the bomb loads, before driving back to the airmen’s mess to speak with the catering staff preparing meals. All the station personnel were involved to ensure that the maximum effort called for would be met.

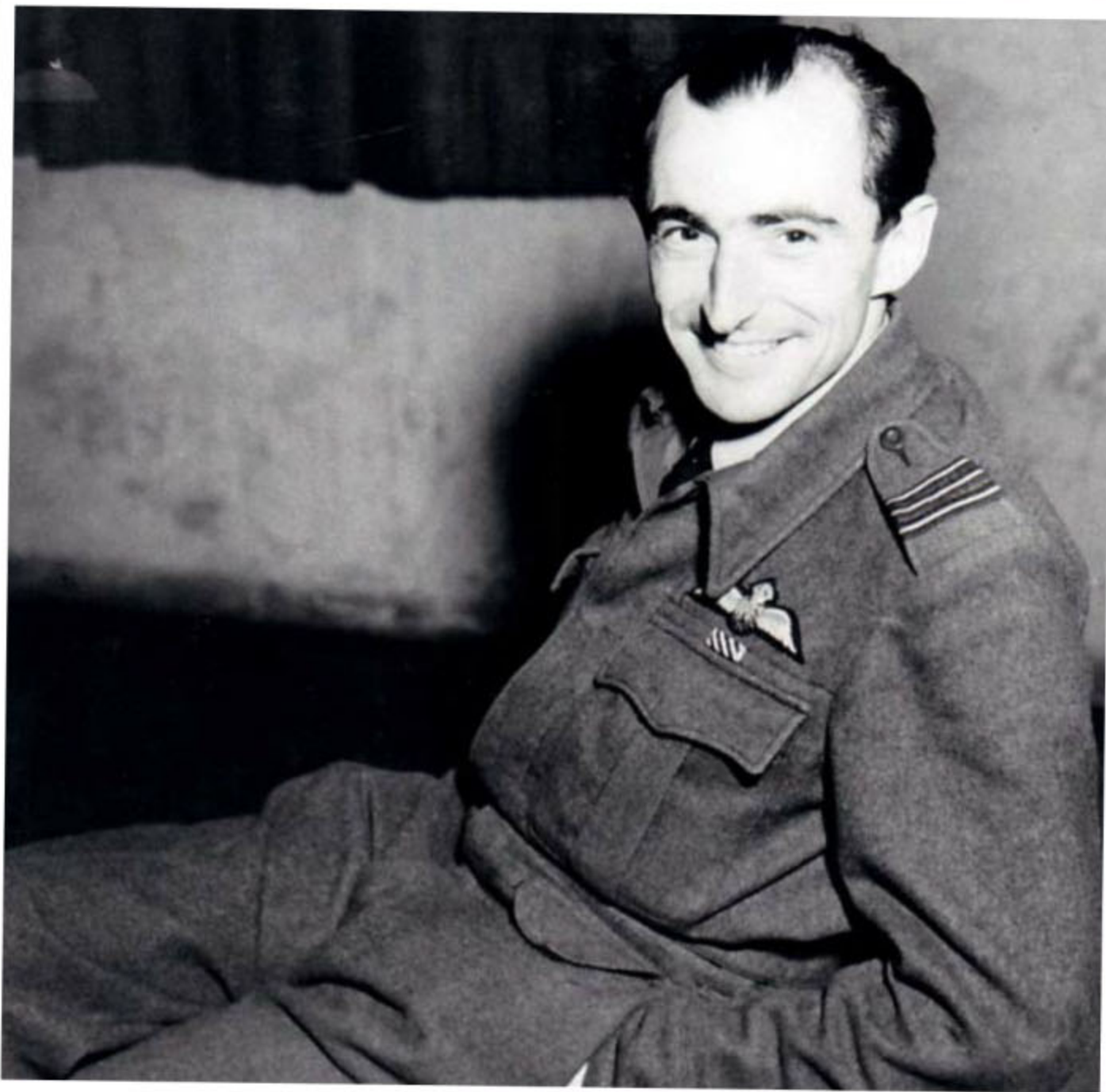
At 15:00, he carried out a short air test before returning to prepare for the main briefing of the 105 aircrew involved. He outlined the main plan on the large wall chart, before the specialist officers gave more detailed information. Once the briefing was complete, he went to the locker room with all the others.

After dressing in his heavy clothing and flying boots, he collected his parachute and jumped on the bus to drive out to the dispersal where JD173 and its ever-faithful and diligent ground crew were waiting. After inspecting the aircraft, he signed the documents, had a brief

word with the sergeant before climbing into the pilot’s seat. Then it was time to start up, taxi, and take-off before setting course.

He and his crew returned safely after an eight-hour flight. It was almost 04:00, and others started to arrive in the debriefing room to give their accounts to the intelligence officers. They all reported heavy flak





Left
Guy Lawrence, OC of 78 Squadron.

An attack against the marshalling yards at Cannes on November 11 achieved poor results, and Lawrence struggled back, landing at Beaulieu, Hampshire, after almost ten hours behind the controls of LV271. Two weeks later, over Frankfurt, Lawrence had to exert all his skill as he 'corkscrewed' to the directions of his gunners as a night fighter singled out their Halifax.

On the 19th it was announced that Harris had approved the immediate award of the DSO to Guy Lawrence. The citation described him as: "an excellent example of a most fearless and efficient squadron commander. His exceptional qualities of courage and leadership, and his scornful disregard for enemy opposition over Germany's most heavily defended targets has been an inspiration to his squadron."

The main Battle of Berlin reached a peak during the winter of 1943-1944, and Lawrence next attacked

and plenty of night-fighter activity in the target area. As the airmen drifted away, Lawrence remained with the station commander in the control tower waiting for news of four crews. By 06:00 it was clear that four Halifaxes would not be returning.

Exhausted, he walked slowly to his room in the officer's mess where his batman was waiting. Soon he would have to get up and write 28 painful letters.

Reaching a peak

The single most destructive 'op' of this period was on October 22 when 569 bombers set off for

Kassel, Germany; the home of important fighter assembly plants. Lawrence took off at 17:26 with a mixed HE and incendiary load. The Pathfinders had identified the centre of the town and placed markers accurately as the main force approached.

Lawrence arrived over the target at 17,500ft, and bombed the centre of the markers. Aiming was so accurate that a firestorm developed and damage was greater than any raid since Hamburg in July. The cost was high, with 43 aircraft missing, and Lawrence had another 14 sad letters to compose.

Sir Guy Lawrence

Guy Lawrence was promoted to Group Captain and commanded RAF station Warboys in Huntingdonshire. In 1945 he returned to civilian life and in 1976 was knighted for services to the food industry.

the city on January 20. The northerly route chosen took the 769 bombers close to Kiel before turning for Berlin, which was completely covered by cloud. The Pathfinders had to drop their sky markers blind. Lawrence's navigator recognised the aiming point on his H2S radar and the bomb load was dropped successfully. Losses among the

Below
Crews of 78 Squadron preparing to depart.



SPOT FACT Its first operational sortie was a night raid on Le Havre in March 1941

Right
Lt Noel Langdon
RNVR with his
crewman LAC R
Atkins with a 278
Squadron Walrus.

Below
A Halifax III of 420
Squadron operating
from Tholthorpe.

Halifaxes were particularly heavy and 78 Squadron lost another crew.

During late January, 78 converted to the higher performance Mk.III powered by Bristol Hercules radials. The squadron resumed operations in February, but Lawrence was approaching the end of his tour. On March 15 he took off to attack Stuttgart. The results were assessed as poor due to adverse winds causing the Pathfinder markers to drift over open countryside. On the way home, Lawrence had to shut down the port inner when the oil pump failed and he made an emergency landing at Odiham, Hampshire. His second tour was over.

Ditching positions

On the night of September 15, 1944, Flt Lt Vic Motherwell and his crew of 420 (Snowy Owl) Squadron RCAF, took off to attack Kiel. It was his 14th operation, but for the rest of his fellow Canadians, it was to be their 13th.

Halifax III NA629 was airborne from Tholthorpe in Yorkshire just before 20:00. The aircraft was new and had recently been delivered to 420. It had the dubious distinction of being a non-starter on two previous 'ops' due to malfunctions. Shortly after leaving the English

coast near Flamborough, all the navigation aids failed and navigator Flg Off Ian McGown had to resort to dead reckoning. Approaching the Danish coast, searchlights and flak were seen to starboard indicating that they were on track north of Flensburg, and a turn towards Kiel was made.

Just after bomb release there was a loud bang and the hydraulic pressure dropped to zero. The bomb doors remained open and the wing flaps started to droop. The undercarriage partially lowered and all this additional drag required an increase in power to enable the Halifax to maintain height.

As soon as the enemy coast was cleared, Motherwell started a slow descent in an attempt to conserve fuel. It soon became apparent that they would not be able to make England, and the crew considered their options. They decided to press on, rather than head for Holland and bale out over enemy territory.

At 3,000ft the fuel tanks were reading empty and the Halifax was still 50 miles (80km) off the coast. With the undercarriage down and bomb doors open, Motherwell knew that he must make a powered approach so he decided to ditch before the engines cut. The crew

took up ditching positions. Flt Sgt L Engemoen, the wireless operator, continued transmitting their co-ordinates until it was time to clamp the key down and take up his position.

There was a heavy swell with 20ft waves as Motherwell approached into the strong westerly wind. With the speed down to 90 knots (166km/h), holding the nose high under power, he completed a masterful job ditching in the most difficult circumstances. All the crew were able to get clear as the fuselage filled with water. The rogue Halifax had completed just 13 hours flying time when it finally slipped below the waves.

Dinghy drill

Motherwell escaped from the top hatch and walked along the fuselage and was virtually dry when he stepped into the dinghy, which had inflated automatically and floated to the tail. It was an eerie scene, pitch dark, the wings awash and the red-hot engines cracking with steam rising as the water engulfed them.

The crew were kept busy during the night, baling out the dinghy as waves constantly broke over it. By first light, all



except Saskatchewan 'landlubber' Engemoen, had been seasick and conversation was limited.

Back at Tholthorpe, two Halifaxes took off to search at first light. During the afternoon, Flt Lt E S Heimpal RCAF sighted the dinghy and dropped a series of flares. Within a short time other aircraft appeared overhead, including a Hudson that dropped a Lindholme gear – a self-inflating dinghy, lights and emergency rations. The crew were able to retrieve the dinghy and supplies, which included dry suits. Just as it was getting dark, a Supermarine Walrus amphibian appeared on the horizon.

Flying the 278 Squadron Walrus was Lt Noel Langdon RNVR with his crewman LAC R Atkins. After circling, Langdon landed on the rough sea and taxied to the dinghies where the seven men were taken on board.

With nine men crammed into the Walrus, it was impossible to take-off and Langdon started to taxi slowly towards England. After an hour, Lt Don Mackintosh RNVR brought rescue motor launch RML 512 alongside and took the survivors on board, giving them dry clothes and the obligatory tot of rum. Last to embark were Langdon and Atkins.

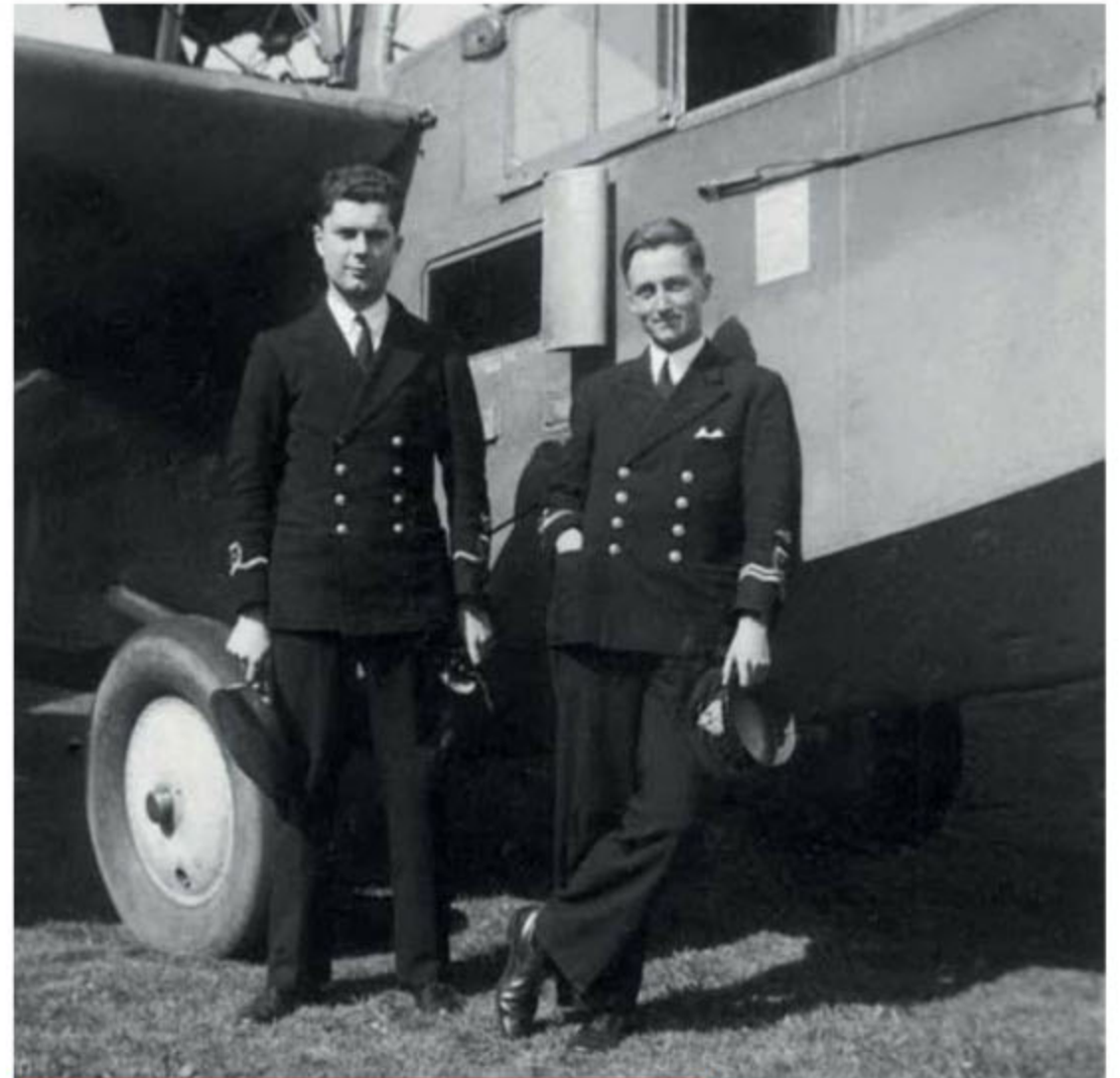
The Walrus was taken in tow and the combination headed for Yarmouth. However, one of the circling aircraft detected a German E-boat and it was decided to cut the biplane loose and increase speed. During the early hours of September 17, RML 512 arrived at Yarmouth.

Vic Motherwell and most of his crew returned to complete their tours with 420. Motherwell became the flight commander on promotion to squadron leader and was awarded the DFC for his outstanding airmanship and leadership. Lyle Engemoen was awarded the DFM for remaining at his position transmitting SOS messages until the last possible moment and for his conduct in the dinghy.

All survived the war, Vic flying with Air Canada for 30 years. In 1999 he and four other crew members came to England for a reunion with Noel and Don.

Making contact

John Tweed had just celebrated his 21st birthday when he took off at 20:30 on May 12, 1943, to drop supplies to the French Resistance. He had only recently joined 138 (Special Duties) Squadron at Tempsford, Bedfordshire, so was acting as the second pilot of



Air-Sea Rescue 'Ace'

Set adrift after the rescue of the Motherwell crew, the 278 Squadron Walrus was expected to take in water and sink. But it survived the night and was retrieved by the Navy. It was towed to Yarmouth and beached on a sandbank. Although it had endured quite an ordeal, the flying-boat was still fit to fly, which goes to show the strength of that sturdy, unglamorous aircraft type.

Reunited with it, Noel Langdon taxied it out to sea, took off and returned to Martlesham Heath. It was soon back in service. Langdon was awarded the AFC having completed 65 air-sea rescue sorties during which he was responsible for saving 19 personnel.



“...Langdon landed on the rough sea and taxied to the dinghies where the seven men were taken on board”

SPOT FACT The B.II Series 1A was the first to feature rectangular fins

Below
A Halifax II of special duties 138 Squadron.

Halifax II BB313, with Sqn Ldr Robinson DFC as captain.

They had successfully dropped supplies to a resistance group and were near the town of Troyes, 100 miles or so east of Paris, on their return, when their low-flying aircraft was hit by flak. A fierce fire started and Robinson had to make a crash-landing in open country. The crew had not had time to take up crash positions and Tweed sprained his ankles, badly damaged his hand, and suffered a deep cut on his leg.

After helping to free the injured from the wreckage, he hobbled off to find cover for the night, eventually finding a field of corn where he slept for a few hours. He realised that he would have great difficulty travelling in his injured condition so he took a Bensedrine tablet from his survival kit before staggering off in the direction of a village.

Entering the village of Pommereau, he saw a light in a house, which he approached. He knocked on the door and a woman holding a small boy came to the door, immediately recognised the RAF pilot's wings and ushered him inside. He had arrived at the home of the Charton family.

Sheltering him in a semi-derelict farm building, Madame Charton brought him food twice daily and she modified his uniform to look like a farm worker's. Doctor Goupis visited to attend to his injuries, and said that 'arrangements' were

being made.

Tweed had unwittingly stumbled into the local resistance network and Louis 'Gustave' Joubin, head of intelligence for the Goélette Resistance Group, was checking the details he had provided to ensure he was not a Gestapo 'plant'. After three weeks, Tweed bade the Charton's farewell as he was taken to a rendezvous in Troyes. Later that evening, an Englishman visited him and asked some penetrating questions before moving him to another house. The following afternoon, Pierre Mulsant, leader of the Goélette Resistance Group, conveyed him to a safe house in the country. He gave Tweed his new identity, Phillipe Bonnard a commercial traveller who was born in Vitry-le-Francois, east of Paris, in 1918.

Tweed's new location was the café in the small village of Dierrey-St-Julien, eight miles west of Troyes, and owned by Maurice Bourgeois and his wife. After three weeks he was moved to Paris.

Black Lysander

In the second week of September, the Englishman from Troyes visited and handed Tweed over to Pierre Piot, who used his office as a member of the Swiss Red Cross to cover up his assistance to Allied evaders. After seven days, the Englishman returned

in great haste at 08:00 on September 17 with the news that they were to leave at midday on a train for a place near Angers, 190 miles or so southwest of Paris. At a small country station they disembarked and were met by a farmer who told them that the 'reception' was that evening.

The Englishman said he would be travelling with Tweed and identified himself as Captain Ben Cowburn, leader of the Special Operations Executive 'Tinker' group supporting the resistance movement in the Troyes area. The two men were taken to a farm where they met four other 'passengers' before having a splendid supper.

Towards midnight, the party set off on bicycles to a very large meadow in the bend of the River Sarthe a few miles north of Angers. This was a landing ground run by agent Henri Dericourt. After an hour the faint sound of an aircraft could be heard and the recognition signal 'R' was flashed by torch while the reception committee set up a flare path with their torches.

A black Westland Lysander, piloted by Wg Cdr Bob Hodges DSO DFC, the Commanding Officer of 161 Squadron and one of the earliest RAF evaders through France, landed and taxied back to the start of the flare path. With engines running, three passengers were disembarked, messages and a





“Pierre Mulsant, leader of the Goélette Resistance Group... gave Tweed his new identity, Phillipe Bonnard a commercial traveller who was born in Vitry-le-Francois, east of Paris, in 1918”



Above left
John Tweed with Claude while biding his time at Pommereau.

Above
John Tweed of 138 Squadron.

parcel were exchanged, and three people climbed into the cramped rear cockpit. It was airborne again within six minutes, just as a second Lysander, flown by Fg Off Jimmy Bathgate, started its approach.

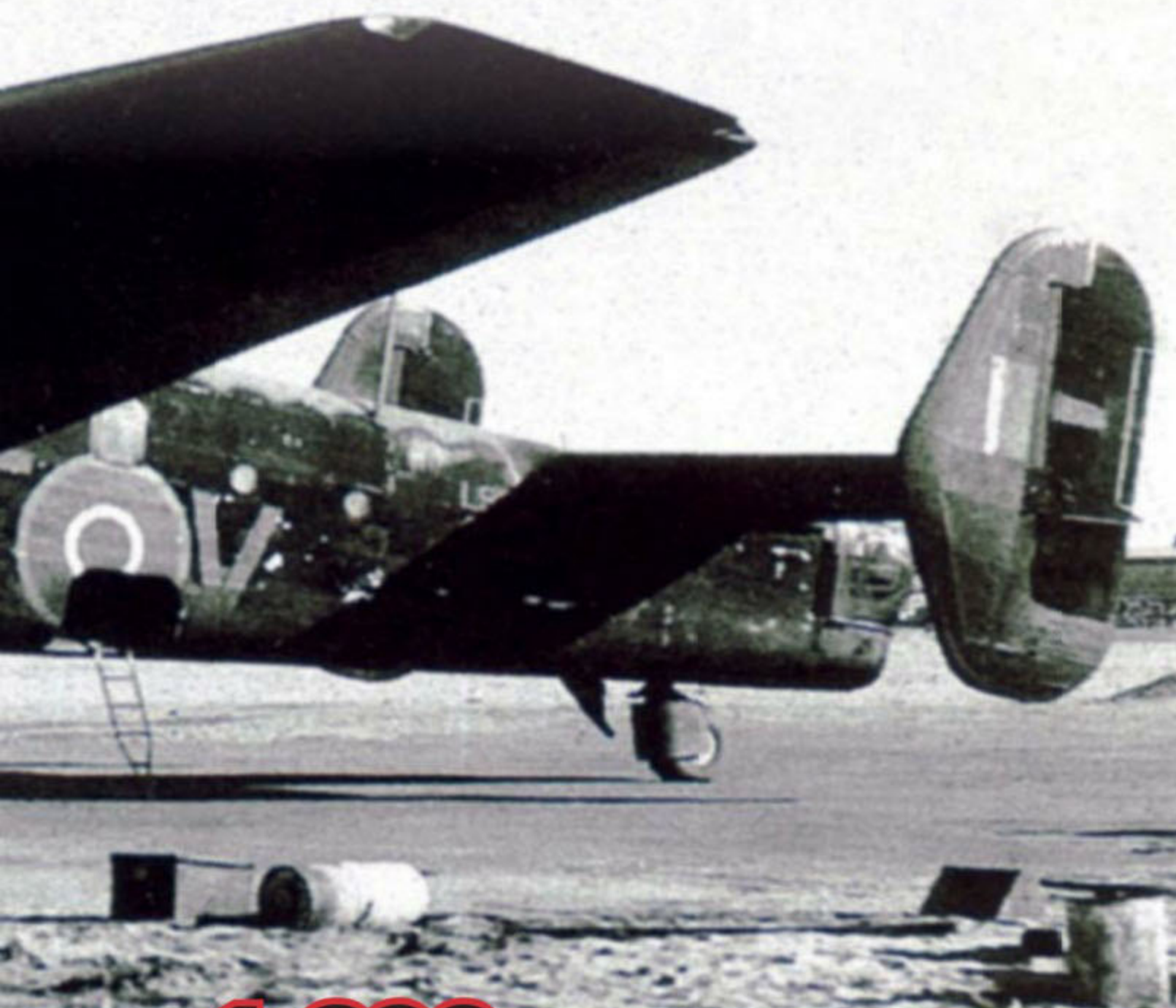
The same procedure was followed and Tweed, Cowburn and one of Dericourt's assistants climbed aboard. They were airborne two minutes later, heading for Tangmere. The whole pick up had been completed in less than 15 minutes.

John Tweed was back on English soil four months and five days after he had taken off to deliver arms to the underground movement. It was fitting that members of the resistance should have sheltered him and that he had returned with one of his fellow 'Special Duties' squadrons. ●

Returning to give thanks

After recovering from his injuries, John Tweed returned to flying, and once France had been liberated, he joined an Avro Lancaster unit and completed a number of bombing operations over Germany before the war ended when he left the RAF.

After the war, he visited France to thank his resistance 'helpers'. He later wrote about them: "Thanking them before I left was quite impossible, these gallant people just did not seem to realise the hazard attached to giving assistance to RAF personnel. It was always the same, a deprecating wave of the hand, 'it is nothing', or else they were sorry that they could not do more for you."



Handley Page Halifax



Lady of the

The Halifax was at its most effective on nocturnal operations.

Pete West profiles an aircraft that survived the war

Handley Page
Halifax B.VIII PN230
'Vicky The Vicious
Virgin' of 408
Squadron, RCAF. PETE
WEST-2012

By 1945, extensive night bombing of German targets was being carried out by Avro Lancaster and Handley Page Halifax 'heavies'. One of the latter was Halifax B.VII PN230, which flew with 408 'Goose' Squadron RCAF from Linton-on-Ouse, Yorkshire.

This aircraft's bright and distinctive artwork was created by its bomb aimer, W/O Bert 'Scratch' Evans. Finishing his training at Topcliffe, Bert and the rest of his crew were posted to 408 and assigned PN230 on February 22, 1945.

The Halifax received the code EQ-V. The crew deliberated over a suitable name for their aircraft, and eventually opted for *Vicky The*

Vicious Virgin following a doubtless humorous exchange concerning their more amorous exploits since arriving in England. Perhaps for similar reasons, pilot W/O Ron Craven attained the somewhat dubious soubriquet 'Dirty Old Man', which was duly painted beneath the cockpit.

Bert painted the aircraft's name on both sides of the nose, and created the image of a pin-up girl from a photograph he had been given by a friendly barber. Such frivolity aside, the crew went on to complete 21 operations, the last 13 in PN230. Before a major raid on Cologne, Ron noticed that the black underside paint on the Halifax was very rough and consequently had

the entire surface waxed. On return from the March 2 'op', the crew observed that their airspeed had increased by about 20mph as a result of the waxing.

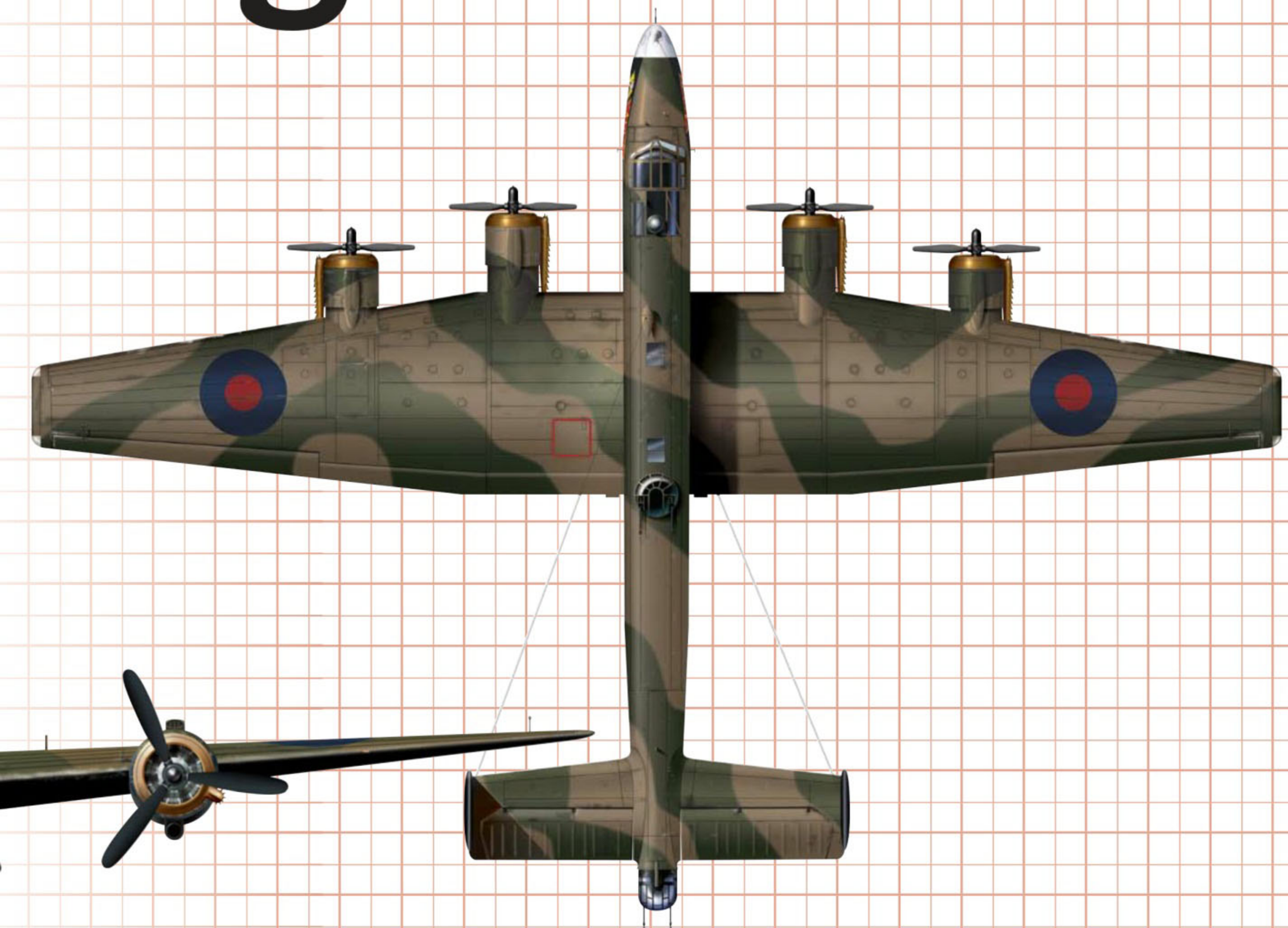
Throughout March, 408 and *Vicky* relentlessly attacked German targets, including Hamburg, Essen, Dortmund and Witten. While raiding the latter on the 18th, PN230 was attacked by a night-fighter but returned successfully. Another fighter attack on April 8 caused Ron to "corkscrew down to 3,000ft" in order to evade. The crew converted onto Lancasters the following month, and having survived the war, PN230 was finally decommissioned on December 30, 1949.





Night

The Halifax was at its most effective on nocturnal operations. **Pete West** profiles an aircraft that survived the war

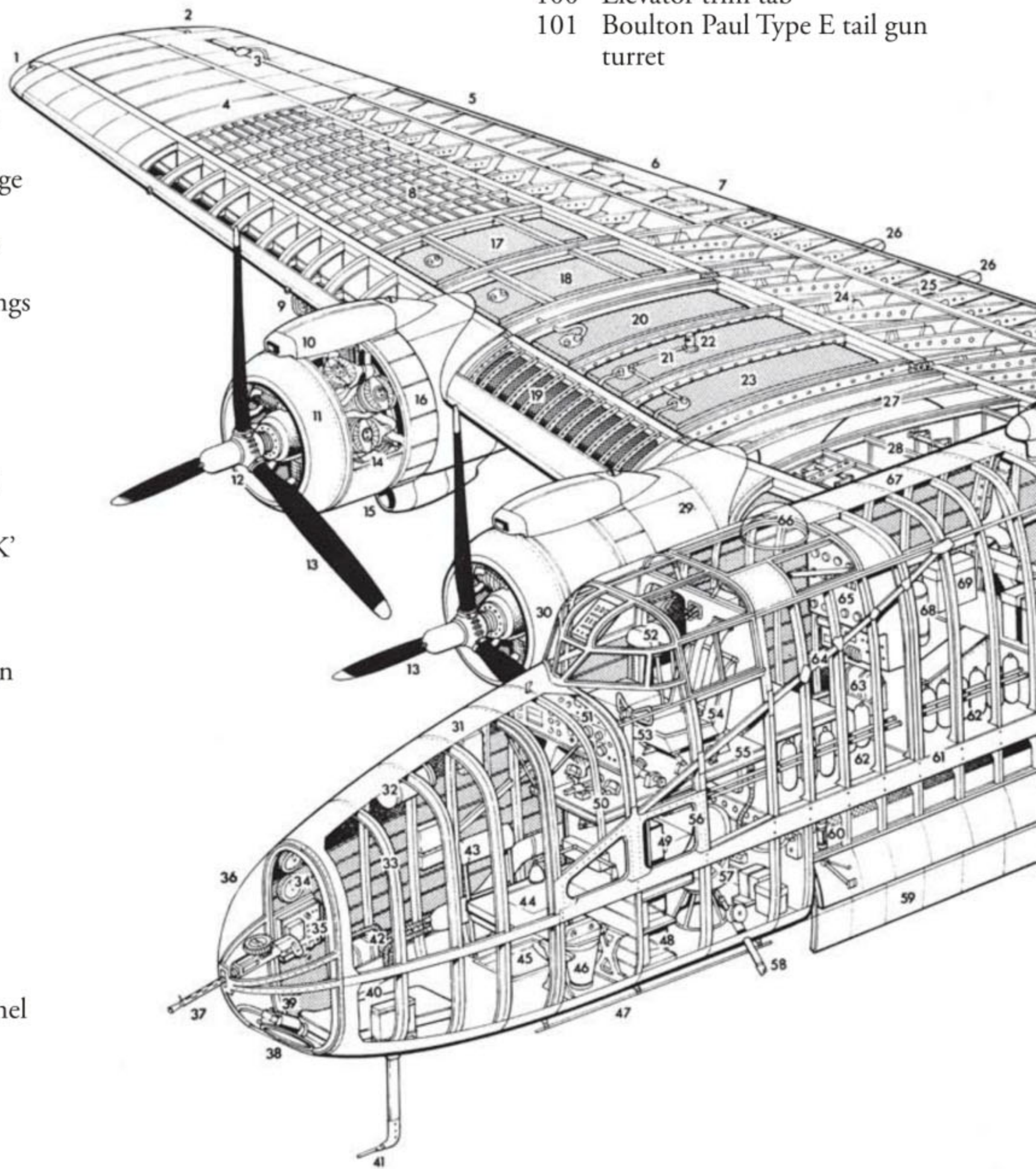


Spotlight

Handley Page Halifax

Handley Page Halifax B.III

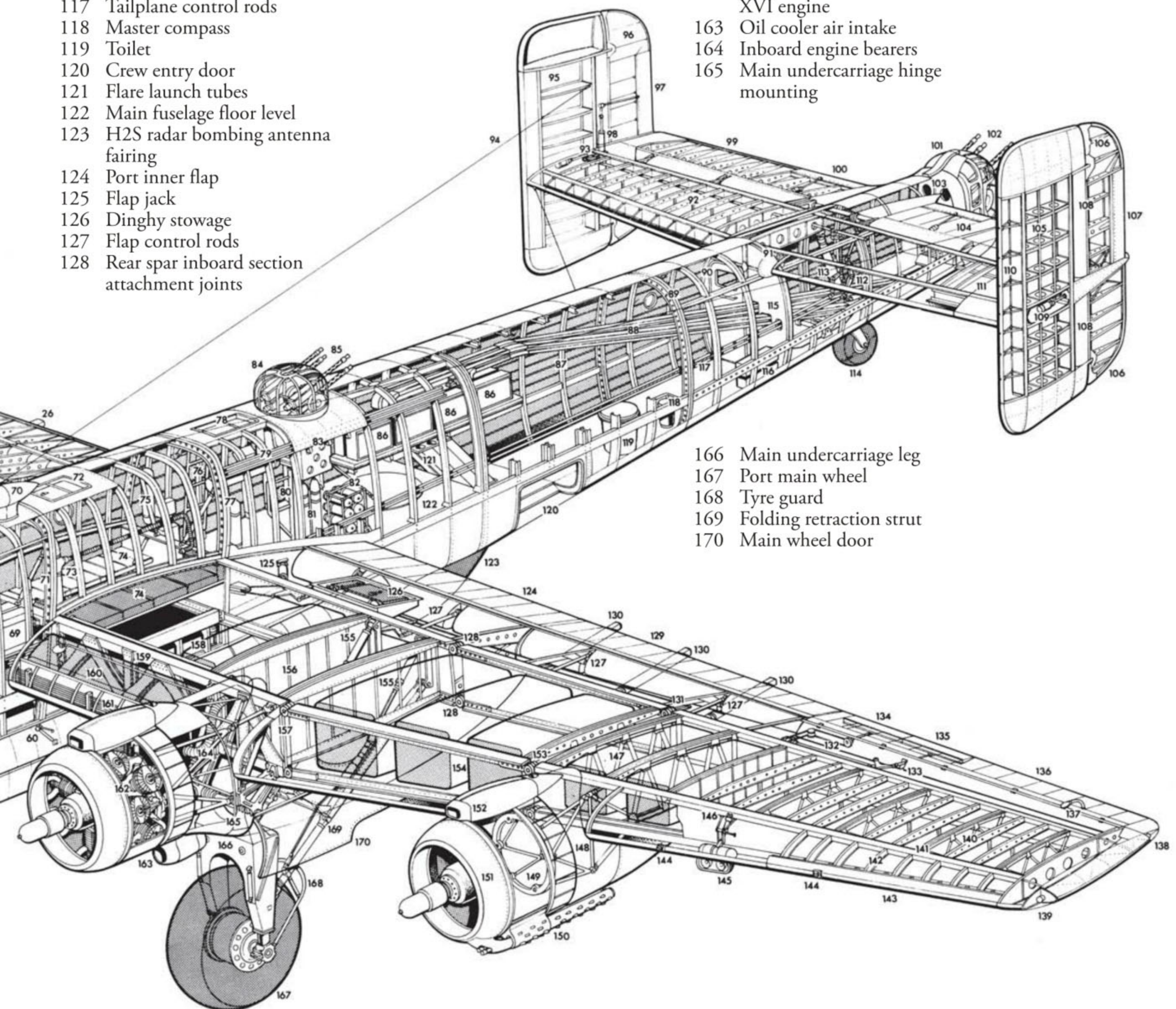
- 1 Starboard navigation light
- 2 Formation light
- 3 Aileron balance weight
- 4 Wing skinning
- 5 Starboard aileron
- 6 Aileron servo tab
- 7 Trim tab
- 8 Wing stringer construction
- 9 Landing/taxying lamp
- 10 Carburettor air intake duct
- 11 Exhaust collector ring
- 12 Propeller hub pitch change mechanism
- 13 De Havilland three-bladed propellers
- 14 Bristol Hercules XVI radial engine
- 15 Oil cooler intake
- 16 Cowling air outlet flaps
- 17 No.6 fuel tank
- 18 No.5 fuel tank
- 19 Leading edge oil tank
- 20 No.4 fuel tank
- 21 No.3 fuel tank
- 22 Fuel tank breather
- 23 No.1 fuel tank
- 24 Trailing edge ribs
- 25 Starboard flap construction
- 26 Fuel jettison pipes
- 27 Starboard main undercarriage wheel bay
- 28 Inboard wing section bomb cells
- 29 Starboard inner wing cowlings
- 30 Windscreen panels
- 31 Nose skinning
- 32 De-icing fluid tank
- 33 Nose section frames
- 34 Spare ammunition drums
- 35 Bomb aimer's control panel
- 36 Nose glazing
- 37 0.303in (7.7mm) Vickers 'K' gun
- 38 Bomb aiming panels
- 39 Bomb sight
- 40 Bomb aimer's prone position couch
- 41 Pitot tube
- 42 Parachute stowage
- 43 Navigator's folding seat
- 44 Chart table
- 45 Ventral escape hatch
- 46 Camera
- 47 Aerial rail
- 48 Radio transmitters and receivers
- 49 Radio operator's control panel
- 50 Rudder pedals
- 51 Instrument panel
- 52 Co-pilot's and engineer's folding seats
- 53 Control column
- 54 Pilot's seat
- 55 Cockpit floor level
- 56 Cabin side windows
- 57 Radio operator's seat
- 58 Training aerial winch
- 59 Bomb-bay doors
- 60 Bomb door operating jacks
- 61 Main floor/bomb-bay support longeron
- 62 Oxygen bottles
- 63 Parachute stowage
- 64 Front fuselage diagonal bracing strut
- 65 Engineer's control panel
- 66 Astrodome
- 67 Fuselage skin plating
- 68 Hydraulic accumulator
- 69 Batteries
- 70 D/F loop aerial fairing
- 71 Nose/centre section joint frame
- 72 Cabin roof escape hatch
- 73 Heater duct
- 74 Rest bunks, port and starboard
- 75 Hydraulic accumulators
- 76 Escape ladder
- 77 Fuselage/rear spar joint frame
- 78 Rear escape hatch
- 79 Fuselage upper longeron
- 80 Upper turret ladder
- 81 Flare stowage
- 82 Sea marker stowage
- 83 Turret mounting ring
- 84 Boulton Paul A Mk.III mid-upper gun turret
- 85 Four 0.303in (7.7mm) Browning machine-guns
- 86 Tail gun turret ammunition boxes
- 87 Rear fuselage frame construction
- 88 Ammunition feed tracks
- 89 Tail fuselage joint frame
- 90 Tail gunner's access door
- 91 Tailplane mounting
- 92 Starboard tailplane construction
- 93 Rudder hinge control
- 94 Aerial cable
- 95 Starboard tailfin
- 96 Starboard rudder upper section
- 97 Rudder trim tab
- 98 Rudder hinge post
- 99 Starboard elevator construction
- 100 Elevator trim tab
- 101 Boulton Paul Type E tail gun turret



- 102 Four 0.303in (7.7mm) Browning machine-guns
- 103 Turret sliding doors
- 104 Port elevator
- 105 Port tailfin construction
- 106 Rudder upper and lower sections
- 107 Rudder trim tab
- 108 Rudder aerodynamics balances
- 109 Trim tab control jack
- 110 Leading edge bracing struts
- 111 Port tailplane
- 112 Rudder and elevator control hinges
- 113 Tailwheel strut
- 114 Semi-retractable tailwheel
- 115 Rear fuselage bulkhead
- 116 ARI 5122 radar bombing control units
- 117 Tailplane control rods
- 118 Master compass
- 119 Toilet
- 120 Crew entry door
- 121 Flare launch tubes
- 122 Main fuselage floor level
- 123 H2S radar bombing antenna fairing
- 124 Port inner flap
- 125 Flap jack
- 126 Dinghy stowage
- 127 Flap control rods
- 128 Rear spar inboard section attachment joints

- 129 Port outer flap
- 130 Fuel jettison pipes
- 131 Rear spar outer panel attachment joint
- 132 Trim tab controls
- 133 Aileron hinge control
- 134 Trim tab
- 135 Aileron servo tab
- 136 Port aileron
- 137 Aileron balance weight
- 138 Formation light
- 139 Port navigation light
- 140 Wing rib construction
- 141 Front spar
- 142 Leading edge nose ribs
- 143 Armoured leading edge
- 144 Cable cutters
- 145 Retractable landing/taxying lamps

- 146 Lamp operating jack
- 147 Outer engine mounting ribs
- 148 Engine bearer struts
- 149 Engine mounting ring
- 150 Flame suppressor exhaust pipe
- 151 Exhaust collector ring
- 152 Carburettor intake duct
- 153 Outer wing panel joint
- 154 Port wing fuel tanks
- 155 Main undercarriage jacks
- 156 Port main wheel bay
- 157 Inner wing panel front spar joint
- 158 Wing bomb cell long range fuel tank
- 159 Front spar girder construction
- 160 Leading edge No.2 fuel tank
- 161 Engine control runs
- 162 Port inner Bristol Hercules XVI engine
- 163 Oil cooler air intake
- 164 Inboard engine bearers
- 165 Main undercarriage hinge mounting



- 166 Main undercarriage leg
- 167 Port main wheel
- 168 Tyre guard
- 169 Folding retraction strut
- 170 Main wheel door

225,000 tons of bombs were dropped by Halifaxes



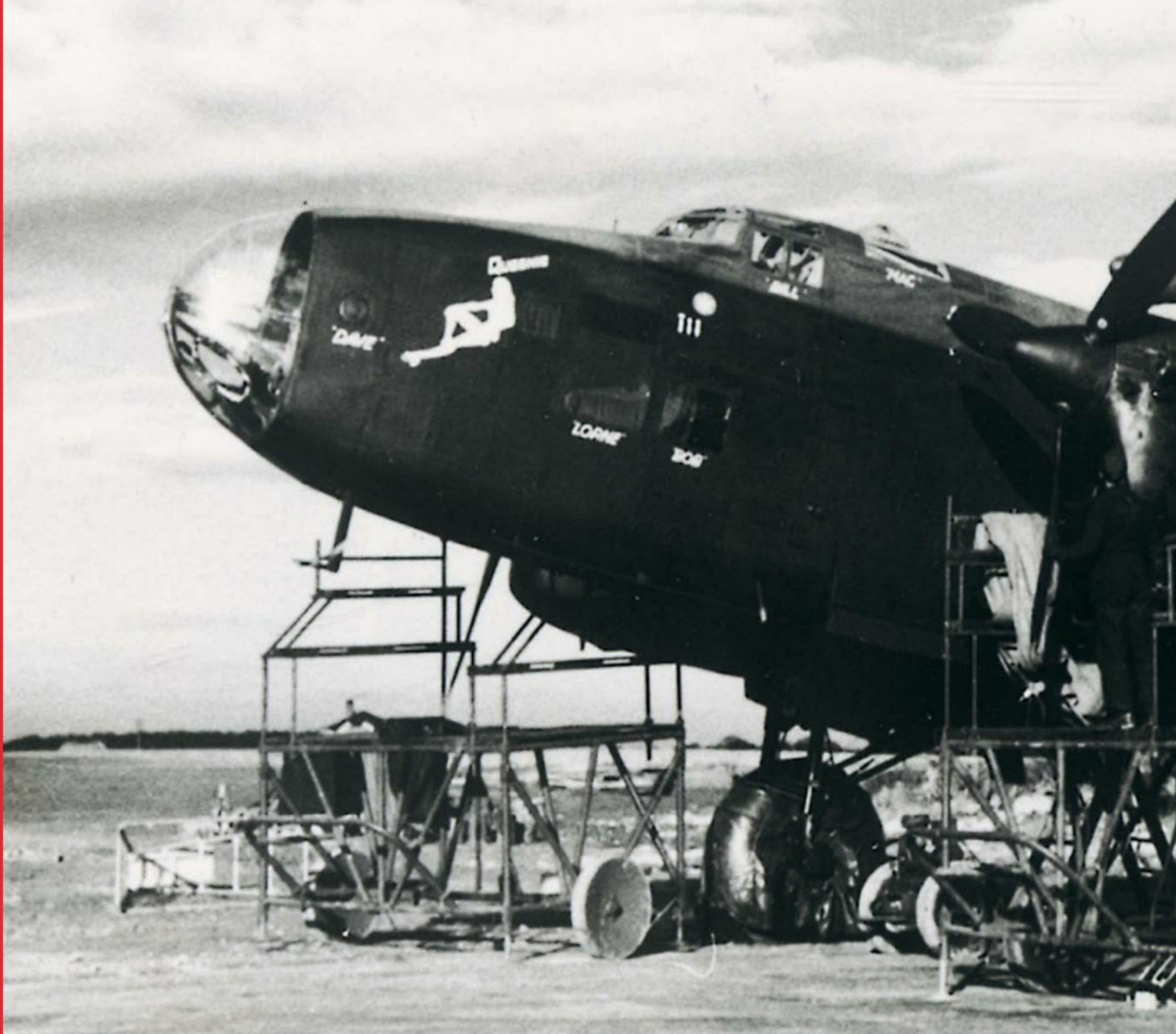
Spotlight

**Handley Page
Halifax**

Iroquois Braves

Crews of the RCAF's 431 Squadron flew Halifaxes through the worst of the night bomber offensive.

Sqn Ldr **Andrew Thomas** describes their exploits



Canada made a massive contribution in World War Two, the RCAF grew to be the fourth largest Allied air force, providing an entire group for the strategic offensive against Germany. The eleventh RCAF bomber unit formed overseas was 431 'Iroquois' Squadron which was established at Burn in November 1942 as part of the Yorkshire-based 4 Group.

No.431 adopted the motto 'Warriors of the Air' which was to prove particularly apt. In the coming months 431's crews endured some of the bloodiest moments of the offensive against Germany. Operations began in early March 1943 with Vickers Wellingtons, but this era was brief. The last sortie with the type, mine-laying off the French ports of Brest and St Nazaire, took place on the night of July 12, 1943.

The previous month the CO had been lost and so it was Wg Cdr Bill Newson who three days later led the move north to Tholthorpe,

Yorkshire. Working alongside 434 'Bluenose' Squadron as part of the all-Canadian 6 Group, conversion began to Merlin-engined Halifax Vs.

The change-over was a lengthy process, as a larger crew meant more personnel had to be posted in and the existing staff, particularly pilots, had to become familiar with a much more complex aircraft.

Halifax debut

Operations resumed on the night of October 2, with a dozen Halifaxes from Tholthorpe participating in sea mining - known as 'Gardening' - off Heligoland and in the Baltic. Crews dropped their 1,500lb (680kg) mines - usually referred to as 'vegetables' - from between 3,000 and 7,000ft (914 to 2,133m) before returning to base. Sqn Ldr Pleasance in LK640 'SE-Q' was hit by flak and flew home with a dead engine.

The following night, 431 joined a raid on the industrial and rail centre

at Kassel with 75 RCAF Halifaxes, dropping almost 300,000lb of high explosives and incendiaries from between 17,000 and 20,000ft. Among the 15 Halifaxes lost was one from 431 - having successfully bombed, LK925 *R-for-Robert* was attacked by a night-fighter near Liege at 17,000ft and the fuselage quickly filled with smoke and flame. Plt Off Reynoldson ordered his crew to bale out before he himself left. He broke a leg on landing and, like three others, became a prisoner of war. Sadly three others were killed - possibly in the initial attack. Sgt Ray de Pape evaded capture and eventually returned to England.

Bomber Command targeted Hanover 88 times - one of these raids took place on the night of October 8, 1943. Clear skies resulted in an accurate attack with severe damage being caused. Two Halifaxes of 431 were lost, flown by F/Sgt Chalmers and Sgt Ryan - the latter's aircraft blew up after a direct hit by flak. There was just one survivor from the two crews, whose age averaged 22. ➔

Below
Halifax V LK640 'SE-Q' took part in 431's first Halifax operation, returning with one engine out. RCAF



SPOT FACT The first production B.III flew in July 1943

Known 431 Squadron Halifax losses

Serial	Code	Date	Target
LK925	SE-R	Oct 3, 1943	Kassel
DK265	SE-C	Oct 8, 1943	Hanover
LK657	SE-K	Oct 8, 1943	Hanover
LK632	SE-M	Nov 18/19, 1943	Mannheim
LK640	SE-Q	Nov 18/19, 1943	Mannheim
EB137	SE-N	Dec 3/4, 1943	Leipzig
LK685	SE-C	Dec 3/4, 1943	Leipzig
LK898	SE-O	Dec 3/4, 1943	Leipzig
LK968	SE-P	Dec 3/4, 1943	Leipzig
LK659	SE-A	Dec 29, 1943	Berlin
LK701	SE-L	Dec 29, 1943	Berlin
LK680	SE-R	Jan 20, 1944	Magdeburg
LK918	SE-F	Jan 28/29, 1944	Berlin
LK963	SE-H	Jan 28/29, 1944	Berlin
LL150	SE-N	Jan 28/29, 1944	Berlin
LL181	SE-Q	Jan 28/29, 1944	Berlin
LK905	SE-D	Feb 19/20, 1944	Leipzig
LK964	SE-T	Feb 19/20, 1944	Leipzig
MZ514	SE-P	Apr 22/23, 1944	Düsseldorf
LK842	SE-N	Apr 27/28, 1944	Montzen
MZ522	SE-U	Apr 27/28, 1944	Montzen
MZ529	SE-E	Apr 27/28, 1944	Montzen
MZ536	SE-F	Apr 27/28, 1944	Montzen
MZ629	SE-B	May 12, 1944	Leuven
LK837	SE-L	Jun 16/17, 1944	Sterkrade
MZ520	SE-O	Jun 16/17, 1944	Sterkrade
MZ537	SE-H	Jun 16/17, 1944	Sterkrade
NA514	SE-B	Jun 16/17, 1944	Sterkrade
MZ657	SE-K	Jul 5, 1944	Biennais
MZ858	SE-Y	Jul 25/26	Stuttgart
LK833	SE-R	Jul 28/29	Hamburg
LK845	SE-J	Jul 28/29	Hamburg
MZ589	SE-H	Jul 28/29	Hamburg
MZ597	SE-B	Jul 28/29	Hamburg
MZ859	SE-A	Jul 28/29	Hamburg
MZ434	SE-D	Oct 15, 1944	Wilhelmshaven

Notes: Compiled with the assistance of W R Chorley's *Bomber Command Losses of the Second World War*, published by Midland Counties in 1997.



Battle of Berlin

With the increasing size of Bomber Command and development of better tactics, navigation and marking procedures, its head, ACM Arthur Harris, embarked during 1943 on a series of 'battles' with the aim of reducing individual German cities to ruins. As winter approached, it was the turn of the German capital Berlin that had been hit periodically since 1940. It was to be a long, bloody fight though the dark winter when the weather was as much of a hazard as the formidable German defences.

The Battle of Berlin opened with vigour on November 18/19. To disguise the primary objective, smaller raids on other targets were often mounted to split the enemy defences and the more vulnerable Merlin-engined Halifaxes and Stirlings were usually employed on these. As over 400 Lancasters headed for Berlin, an almost equal number of bombers went for Mannheim, 431 contributing to the 94 Handley Pages despatched

from 6 Group.

While casualties over Berlin were light, 23 aircraft were lost against Mannheim where thick cloud was encountered. The 431 crews of Fg Off Garnet Carefoot and F/Sgt Burge, an Australian on his first 'op' came down near Worms, Germany.

The entire bomber stream went for the 'Big City' four nights later, with 431 participating in its first raid there. Dropping from around 18,000ft and despite cloud cover, significant damage was achieved in several areas at an intensity never seen there previously. The squadron avoided any losses, though 13 Halifaxes from other units failed to return.

Tired and traumatised

A smaller raid returned the next night with a fourth major attack going ahead on the 26th when 431 was part of a diversion and headed for Stuttgart. However, bombing was affected by cloud, became scattered and little damage was done.





“...in the face of increasing casualties the discomfort and mental anguish suffered by the crews was intense...”

The pressure was maintained, but in the face of increasing casualties the discomfort and mental anguish suffered by the crews was intense as friends and colleagues were regularly lost. On December 3, 1943, the squadron headed for Leipzig, Germany – it was to prove to be 431’s bloodiest night of the war so far. A devastating attack was delivered in the heaviest raid on the Reich’s sixth largest city.

Four of 431’s aircraft – those of Sqn Ldr Cook, Fg Off Edgar, F/Sgt Ritchie, and F/Sgt Long – were lost. This was grim, hard, fighting – the winter weather over Yorkshire proving as much of a threat to tired and traumatised crews as the enemy. Leipzig was 431’s last operation

from Tholthorpe as on the 10th it moved across the county to Croft – the most northerly of Bomber’s Command’s bases. The men of the ‘Iroquois’ squadron returned to action on December 20 when its Halifaxes lifted off from their new base and headed once more for Frankfurt.

While some serious damage was done, the enemy set some effective dummy fires which helped divert the attack and the RAF’s results were disappointing. Although the force lost 28 Halifaxes, all of 431’s got back safely. On Christmas Eve there was a return to ‘Gardening’ and then No.431 closed 1943 by taking part in another heavy raid on Berlin on the 29th, when two of its



Halifaxes went down: Fg Off Nelson (LK659 ‘SE-A’) near the target and Fg Off Bishop (LK701 ‘SE-L’) near Hanover; only one man from these crews survived. Another of the unit’s aircraft was badly damaged, but F/Sgt King brought his Halifax home with an engine out and a shattered windscreen following a flak hit.

Maximum effort

After a three-week break, 431’s next attack was a maximum effort on the enemy capital on January 20, 1944. Plt Off Frank Guillevin’s crew in LK952 *H-for-Harry* flew the first ‘op’ of their tour, in one of almost 770 bombers despatched. Forty of these were lost, many falling victim to night-fighters, though No.431 escaped unscathed.

The following night Magdeburg, Germany, was the target when a further 55 bombers became statistics, including F/Sgt Krentz’ crew from 431, shot down by flak near the River Weser en route to the target. Krentz was the sole survivor when LK680

Above, left to right
One crew that completed a full tour of operations with 431 was that of Plt Off Frank Guillevin.

J GEDDES VIA L MILBERRY

A 431 Squadron crew relaxing before setting off on a raid in the spring of 1944. RCAF

ranked from a Boeing KC-135 before the crew of Halifax III LK828 ‘SE-S’ used Indian tomahawks to denote successful missions. On the ladder is Plt Off Bob Tomlin who shot down a Ju 88 on August 26, while Sgt Sid Grey pats the ‘victory’ swastika! RCAF

Below
Halifax IIIs including MZ600 ‘SE-N’ dispersed at Croft, mid-1944. RCAF



SPOT FACT Later B.III's had extended, rounded wingtips, improving service ceiling



Above
A Halifax III of 431 Squadron during a raid on a V-1 site during the summer of 1944. RCAF

Right
Sqn Ldr Bentley briefing lively crews at Croft. RCAF



to 700 yards. The enemy appeared to be using a large quantity of tracer. The mid-upper gunner gave evasive action [intrusions], and opened fire when the enemy aircraft closed to 300 yards.

“The Ju 88 dived away to the starboard quarter below. At this point, F/Sgt Clarke, the rear gunner, took over and fired a short burst. The Ju 88 broke away out to the

‘SE-R’ blew up. The Guillevin crew flew their second ‘op’ that night. They had joined 431 from 1664 Heavy Conversion Unit at Croft the previous September and went on to complete a full tour of 31 operations.

The next visit to Berlin was on the night of January 28. A total of 53 bombers were lost – three from 431, while a fourth had crashed taking off from Croft. The cost to Bomber Command – particularly to units like 431 flying the Merlin-powered Halifax – was becoming unsustainable, though the courage and fortitude of the crews remained undiminished.

Fighting back

There was then a pause until the middle of February when on the 15th almost 900 bombers headed

for Berlin once more in the heaviest raid so far. Results were mixed as the target was partially covered in cloud and with the enemy defences well organised, losses were again heavy.

None came from 431, though two crews had close calls with night fighters. Plt Off Davis’ LK905 *D-for-Dog* was attacked and severely damaged by a Junkers Ju 88 and the flight engineer wounded. In the mid-upper turret W/O Beresford fought back, as Davis wrote afterwards:

“The enemy aircraft was first sighted by the mid-upper gunner coming in from the port bow and up, firing machine-guns and cannon from a range of 600

Iroquois Squadron

No.431 Squadron was formed at Burn, Yorkshire, on November 11, 1942, with the head of an Iroquois brave as its badge and the motto ‘Warrior of the Air’.

Equipped with Wellington Xs from establishment until July 1943, Halifax Vs and then Mk.III's followed. In October 1944 the unit took on Lancaster Xs, flying them until disbanding in September 1945 at Croft.

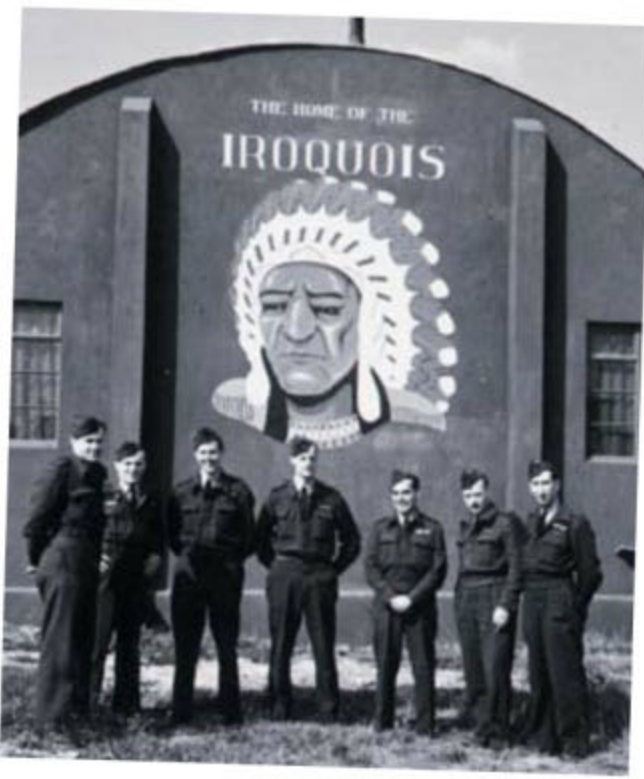


No.6 Group's badge. MARY DENTON-BADGE MADE UNDER LICENCES FROM THE SECRETARY OF STATE FOR DEFENCE

port beam and attacked from this position. The mid-upper gunner gave a [call to carry out a] feint combat manoeuvre, enticing the enemy to close its range. As the Ju 88 did this, he [F/Sgt Clarke] changed the manoeuvre to a diving turn to port, opening fire at the same time at a range of 400 yards.

"Hits were observed on the port wing and engine, which sent the enemy into a spin downwards into the clouds below. Approximately 10 seconds later, the clouds were illuminated by an orange glow observed by the bomb aimer and rear gunner. Both gunners claim this enemy aircraft was destroyed."

Four nights later, 431 returned with the main force to Leipzig which cost it two more crews among 78 bombers that were lost. It had been the command's worst night thus far but so vulnerable for deep penetration missions were the Merlin Halifaxes that they were now largely restricted to mining or hitting less well defended tactical targets in France. On March 25 for a strike on



the rail yards at Aulnoye, France, Sqdn Ldr Higgins' crew had AVM Mike McEwen, the AOC 6 Group, along as co-pilot. This was the same night as the last heavy attack in Berlin.

Invasion targets

On March 29, 1944 the Iroquois squadron attacked the rail yards at Vaires-sur-Marne, France, hitting two ammunition trains causing massive destruction over a large area. These targets were part of the so-called 'transport plan' to disrupt enemy communications before the coming invasion. Ironically, it was during April that 431 re-equipped with more powerful Hercules-engined Halifax IIIs fitted with the short-lived Preston Green ventral turret.

This weapon was of little use to 1st Lt Ed Boyle's crew in MZ514 'SE-P' on April 23. Having bombed Düsseldorf accurately, the American's aircraft was hit by flak over Bonninghardt, Germany, and all on board were killed. No.431 had sustained its first Mk.III loss. On the 27/28th, the rail yards at Montzen in Belgium were hit but were ferociously defended by the Germans – four aircraft fell to night-fighters. One of these was probably the 23rd victim for 'experte' Olt Georg-Herman Greiner of II/NJG 1.

The CO, Wg Cdr Bill Newson, who was on the raid considered on return that: "...the attack was tactically unsound". This was one of his last



Left
Flt Lt Dave Borland (second left) and his crew pose for an album shot.
VIA L MILBERRY

'ops' as soon afterwards Sqdn Ldr Dow was promoted and became 'Chief of the Iroquois'.

It was also a night-fighter – but one of the rare Heinkel He 219s – that shot down W/O Campbell's crew that fell on the battlefield of Waterloo in Belgium when attacking Leuven, Belgium, on May 12. They were the 12th victory of Hptn Ernst-Wilhelm Modrow of I/NJG 1.

Tactical support continued after the Allied landings on June 6 in efforts to prevent German reinforcements reaching Normandy and to destroy launch sites for V-1 flying-bombs that were targeting London in increasing numbers. German oil facilities were also regularly attacked with Sterkrade on the Ruhr being struck on the night of June 16 when four of 431's Halifaxes were shot down.

The navigator of NA514 *B-for-Baker*, Fg Off Roy Carter, managed to bale out of the blazing aircraft with great difficulty and later linked up with the Dutch resistance. In early July he was betrayed and shot by the Gestapo.

It was in early July that Fg Off Harrison's crew crashed at Croft and caught fire when taking off on a raid. W/O Robert Hooker, the wireless

operator, dragged the engineer from the blazing hulk and then returned twice more to ensure all the crew were clear. For his courage he was awarded the George Medal.

Counting the cost

Strategic targets began to feature more regularly and cost 431 its CO when Wg Cdr Dow's crew went down against Stuttgart in late July; he was succeeded by Wg Cdr Eric Mitchell on the 27th.

While losses had been steady, they had not been as severe as through the previous winter. On the night of July 28 the squadron's Halifaxes headed for Hamburg. The raid cost five crews, from which only seven men

survived, one of them being Sgt Eddie Eastwood:

"I put my feet out of the escape hatch and the slipstream caught my boots. When I bent over to grab them, my parachute caught on the hatch. The next thing I can remember is hurtling through space. I couldn't really do anything when I landed because I just had my socks on."

It was 431's worst night of the war. Further tactical targets, notably the bombing of the by-passed garrison at Le Havre, were hit over the succeeding weeks, as were German ports, such as Keil, and oil production plants.

No.431's last operation with Halifaxes was against the naval base at Wilhelmshaven, Germany, on October 15 when MZ434 'SE-D' was shot down, Fg Off A M Parks and his crew, perished. This was the last Halifax lost by the squadron which then briefly stood down to re-equip with Lancasters.

During the war 431 Squadron flew over 2,500 operational sorties, the majority on the Halifax, but at a cost of over 460 men. Its members had been awarded a DSO, 63 DFCs, ten DFMs, a GM and two of the very rare Conspicuous Gallantry Medals (CGMs) – a magnificent record. ●

Middle left
The squadron HQ at Croft was hard to miss! CO Wg Cdr Eric Mitchell is flanked by some of his experienced captains.
RCAF