

Large print guide

BATTLE OF BRITAIN

Ops Block

Battle of Britain: Ops Block

This Operations Block (Ops Block) was the most important building on the airfield during the Battle of Britain in 1940.

From here, Duxford's fighter squadrons were directed into battle against the Luftwaffe. Inside, you will meet the people who worked in these rooms and helped to win the battle.

Begin your visit in the cinema.

Step into the cinema to watch a short film about the Battle of Britain.

Duration: approximately 4 minutes

DUXFORD ROOM

Duxford's Role

The Battle of Britain was the first time that the Second World War was experienced by the British population. During the battle, Duxford supported the defence of London. Several squadrons flew out of this airfield. They were part of Fighter Command, which was responsible for defending Britain from the air.

To coordinate defence, the Royal Air Force (RAF) divided Britain into geographical 'groups', subdivided into 'sectors.' Each sector had an airfield known as a 'sector station' with an Operations Room (Ops Room) that controlled its aircraft. Information about the location and number of enemy aircraft was communicated directly to each Ops Room.

This innovative system became known as the Dowding System, named after its creator, Air Chief Marshal Sir Hugh Dowding, the head of Fighter Command. The Dowding System's success was vital to winning the Battle of Britain.

Fighter Command Group Layout

August 1940

Duxford was located within 'G' sector, which was part of 12 Group. This group was primarily responsible for defending the industrial Midlands and the north of England, but also assisted with the defence of the southeast as required.

The Dowding System

Incoming information

1. Radar stations on the southeast coast detect the incoming German raid. They report the raid's size, direction and height to RAF Fighter Command headquarters at Bentley Priory.
2. Once the incoming aircraft are over land, Observer Corps monitoring posts begin tracking the raid. They send information to the relevant Group Command's filter room, where it is quickly processed.

Outgoing orders

3. Bentley Priory passes the relevant raid information to Group Command at Hucknall.
4. Group Command decides which Sector Station should 'scramble' its aircraft into action to intercept the raid, then contacts the relevant Operations Room.
5. Incoming raid information is telephoned to the WAAF (Women's Auxiliary Air Force) personnel working in the Operations Room who plot this on the map table.
6. The Sector Station scrambles its aircraft to intercept the raid.
7. Group Command contacts the Royal Artillery's anti-aircraft batteries to warn them of the incoming raid.

The Women's Auxiliary Air Force

Members of Women's Auxiliary Air Force (WAAFs) conducted vital work in the Ops Room during the Battle of Britain.

The Controllers

The Controllers coordinated Duxford's squadrons during the Battle of Britain.

The Pilots

Several celebrated pilots flew from Duxford during the Battle of Britain.

WAAF ROOM

The Women's Auxiliary Air Force

WAAFs (members of Women's Auxiliary Air Force) played an important part in the successful outcome of the Battle of Britain. In the Ops Room, they were responsible for plotting. This highly skilled job involved receiving radar and Observer Corps information about enemy aircraft numbers and flight direction, known as 'plots'. These plots were placed on the map table with blocks to show the positions of friendly and enemy aircraft.

WAAFs processed this vital raid information quickly and accurately, often working under great pressure.

(Showcase labels)

WAAF uniform

The WAAF uniform was introduced when the service was formed in 1939 and closely resembles the type worn by men in the Royal Air Force (RAF). Duxford WAAF Peggy Balfour liked her uniform so much that she refused to 'ruin' her jacket by sewing corporal

stripes on the sleeve when she was promoted. She only agreed to make the alteration after being threatened with disciplinary action.

Ops Room clock

The red, blue and yellow triangles on this clock face are spaced at five minute intervals. These symbols directly corresponded to the coloured arrows on the main plotting table. This colour-coordination enabled everyone in the room to see how long a plot had been in place. This clock was a mechanical back up which could be used if the electric clock in the room failed.

(Wall quote)

‘The planes went up and it was always exciting when we heard ‘Tally ho!’ over the intercom. We felt we were doing our bit to help stop the Germans.’

Jill Pepper, Duxford Ops Room WAAF

(Personal stories)

Jill Pepper

Jill was an Ops Room WAAF who came to Duxford in 1939 to work as a plotter, tracking enemy and friendly aircraft movement. When she first arrived, she noted that activities could be quiet. After the Dunkirk evacuation in June 1940, she became much busier, recalling that 'concentration and calmness were essential to get the plotting right.'

Zena Robertson

Zena was 17 years old when she arrived at Duxford. She worked on the main table from May to December 1940, receiving information from both radar stations and Observer Corps look out posts. After leaving Duxford, Zena worked in the Ops Room at Biggin Hill Sector Station in Kent.

Jean Mills

Jean joined the WAAF in 1940. After completing her training in August, she was allocated to Duxford's Ops Room during the height of the Battle of Britain, a time of intense activity and pressure. She recalled

being on duty one day and placing a raid block on the map table practically over where her family lived in Harrow, thinking 'I hope they're alright.' Jean later worked in Fighter Command headquarters at Bentley Priory.

(Listening post)

New Raid zero one North West of Robert, eight one two niner, eight one two niner, three zero plus aircraft at two one...

Listen to WAAF plotters call out the map coordinates of incoming friendly and enemy aircraft that they receive through their headphones.

CONTROLLER ROOM

The Controllers

During enemy raids, the Ops Room was a busy place of highly coordinated activity. Three jobs were critical to the control of the Duxford squadrons: Ops A, Ops B and the Controller.

Ops A received orders about the level of the enemy threat and reported the information to the Controller, who passed it to Ops B. Ops B scrambled the squadrons and kept careful watch of the tote boards, which show each squadron's status (for example 'At readiness' or 'Left ground'). The Controller was the most senior officer and talked directly to the pilots by radio, guiding them to their targets.

(Showcase labels)

Wing Commander Alfred 'Woody' Woodhall's monocle

At the outbreak of the Second World War, Woody was found to be short sighted in one eye. Since Air Ministry regulations stated that any pilot who

needed glasses could no longer fly, Woody found a creative solution to get round the regulation: by wearing this monocle. As the rules did not ban monocles, Woody could continue flying aircraft. He later became Duxford's station commander.

Flight Lieutenant Eric Sayers' Controller training notebook

Eric kept this notebook whilst training for his role as RAF Fighter Controller. His notes detail the many duties of a Controller and indicate how a Controller needed to think. Sayers notes that one should 'never show indecision or flap'.

(Wall quote)

'I got to know every member of the squadrons..... If they didn't get to know you, they wouldn't have confidence in you.'

Flight Lieutenant Teddy Morton, Duxford Ops B

(Personal stories)

Wing Commander Alfred 'Woody' Woodhall

Woody was Duxford's best-known Controller and its station commander during the Battle of Britain. The

Ops Room staff and pilots admired Woody, especially for his calm voice over the radio. He successfully led 310 Squadron on three occasions in September 1940. Woody was also a supporter of the Big Wing of five squadrons and its commander, Douglas Bader.

Flight Lieutenant Henry 'Teddy' Morten

Teddy served as Ops B at Duxford during the Battle of Britain. He realised it was essential to win the pilots' trust and made sure he got to know them all personally. On night shifts, he also filled the role of Controller, but had to phone Woody if enemy build ups were detected. He later became a full time Controller at Sawston Hall in Cambridgeshire.

Photo courtesy of Dilip Sarkar Archive

Peggy Balfour

Peggy began her career as a plotter at RAF Digby. She was rapidly promoted to floor supervisor, then Ops A. Whilst Peggy enjoyed her duties, she really wanted to be an Ops B. She achieved this ambition at Duxford in 1941, learning the job from Teddy Morten, with whom she got on very well.

(Listening post)

It looks a pretty big show. I think the bombers are in front about Angels eighteen, the fighters behind up to two eight...

Pick up the telephone to hear a re-created conversation between Duxford's Ops Room Controller, Woody Woodhall, and Big Wing commander, Squadron Leader Douglas Bader.

PILOTS ROOM

The Pilots

Pilots were the most celebrated part of the Fighter Command system. Fighter squadrons of 12 aircraft usually operated in pairs, but Duxford's pilots were part of a five squadron group known as the 'Big Wing'. The Wing's forceful leader, Douglas Bader, believed this large formation would be more effective in destroying enemy aircraft. Many disagreed, believing it to be slower and difficult to organise. The use of the Big Wing caused friction and clashes between commanders.

(Showcase labels)

Flight Lieutenant Gordon Sinclair's flying overalls

Gordon flew with Duxford's 19 Squadron and later with 310 (Czech) Squadron as part of the Big Wing. These overalls were issued to 19 Squadron pilots before the Second World War, although many continued to wear them during the Battle of Britain. The 19 Squadron crest can be seen on the left breast pocket.

Flight Sergeant George Unwin's flying log book and combat report

George was one of Duxford's most successful pilots. His log book describes the Luftwaffe's raid on 15 September 1940, in which he shot down two fighters. In another section, he mentions his windscreen freezing whilst he chased a German aircraft.

Combat reports like this were official documents that pilots completed when they successfully shot down an enemy aircraft or believed they had done so. The RAF used these reports to record the number of enemy aircraft destroyed or damaged and verified pilots' 'claims', allowing them to add downed aircraft to pilots' personal scores.

RAF B Type flying helmet and MK IIIa flying goggles

This type of leather flying helmet was worn by Duxford's pilots during the Battle of Britain. The helmet would have had a D Type oxygen mask attached to the metal fasteners on either side.

Pilots disliked the MK IIIa style of goggles. The curved lenses were easily scratched and distorted

the wearer's vision. They also did not fit well. Despite these drawbacks, they were still widely used during the Battle of Britain.

RAF 1932 pattern life preserver and 1936 pattern flying boots

Pilots used this type of life preserver during the Battle of Britain. These flotation devices were a khaki colour, but some pilots painted theirs a bright yellow to make themselves easier to spot if they were shot down over the sea. Due to this practice, the 1941 pattern life preserver was manufactured in yellow as standard.

These boots were perhaps the most elegant made for the RAF in the lead up to the war and are often associated with the Battle of Britain. Cheaper models were developed later, but these were not as popular.

Squadron Leader Brian Lane's silver cigarette case

Brian was one of Duxford's most popular pilots. He carried this case throughout his time on-site. It bears the inscription '11/11/38 MAGISTER L8136' scratched onto the surface, which refers to Brian's

crash whilst flying a Miles Magister aircraft in 1938. The dent in the case, clearly visible from the side view, was a result of this crash.

(Wall quote)

'It was only when we got permission to fly the Big Wing that we really did take a big part in the Battle.'
Flight Sergeant George Unwin, Duxford pilot

(Personal stories)

Flight Sergeant Bohumir Furst

310 Squadron

Bohumir was serving in the Czech Air Force when Germany invaded Czechoslovakia in 1939. He escaped to France and flew for that country until it surrendered in June 1940. After escaping again, this time to England, Bohumir joined 310 Squadron at Duxford. On 15 September, he flew twice, in the morning and afternoon raids.

Flight Sergeant George Unwin

19 Squadron

George joined the RAF in 1929 at age 16. He became a pilot in 1935 and was posted to Duxford. During the Battle of Britain, George was one of the RAF's leading aces, the name given to pilots who shot down at least five enemy aircraft in aerial combat. On 15 September alone, he shot down three aircraft.

Squadron Leader Brian Lane

19 Squadron

Brian was an inspirational leader and pilot. On 15 September, he shot down a Messerschmitt Bf 109 and later noted in his log book that the Big Wing 'ran into the whole Luftwaffe over London'. Brian was shot down over the North Sea whilst commanding 167 squadron in December 1942. His body was never found.

Squadron Leader Douglas Bader

242 Squadron and Duxford Big Wing Leader

Douglas was one of the RAF's most famous pilots. He believed that his Big Wing of five squadrons was a more effective way to fight the Luftwaffe. Not

everyone shared his opinion, however, as critics from neighbouring 11 Group claimed that the large formation was too slow arriving over its target. Douglas claimed that 11 Group usually called for the Wing too late. This led to hostility between the Groups.

Pilot Officer William 'Willy' McKnight

242 Squadron

Canadian pilot Willy joined 242 Squadron in 1939 and served in France, over Dunkirk and in the Battle of Britain. By 15 September, he had shot down at least twenty German aircraft and damaged several others.

(Listening post)

Green Leader to Blue Leader, watch out! Five 109's above you at 3 o'clock high. Climbing to engage...

Put on the helmet to hear the type of radio communications exchanged between fighter pilots as they engaged enemy aircraft. This conversation has been re-created from Duxford pilots' combat reports on 15 September 1940.

Step into the Ops Room to hear a recreation of the events that took place on 15 September 1940.

This experience includes sound and low-level lighting.
Duration: approximately 5 minutes

AFTERMATH ROOM

Teleprinter Room

Communications and coded messages were sent and received from this room. Two main machines were kept here, the teleprinter and Typex.

The teleprinter was used for everyday information, such as weather reports and status updates. The Typex was a British version of the German Enigma machine used for encoding and decoding highly secret information.

(Wall quote)

'Never in the field of human conflict was so much owed by so many to so few.'

Winston Churchill, British Prime Minister

After the Battle

The successful outcome of the Battle of Britain was a team effort involving people both on the ground and in the air.

They served in Ops Rooms, radar stations, observer posts, factories and airfields around the country. Their joint contributions prevented the Luftwaffe from destroying the RAF.

These individuals represent some of those who served at Duxford during the Battle of Britain.

Jill Pepper

After the war, Jill married a Norwegian and moved to Oslo. When Duxford's Ops Room re-opened in the late 1980s, she came back to the site with her family to re-visit the place where she had worked.

Photo courtesy of Dilip Sarkar Archive

Peggy Balfour

After achieving her ambition of being promoted to Ops B, Peggy continued serving at nearby Sawston Hall until 1943. She then spent the last few months of the war attached to the RAF's 2nd Tactical Air Force in Belgium.

Alfred 'Woody' Woodhall

After taking command of the Tangmere Wing in 11 Group, Woody worked in many senior roles throughout the remainder of the war. He retired in 1945 and moved to New Zealand, where he died in 1968.

Sasha Hess

(310 Squadron)

Aged 42, Czech Squadron Leader Sasha was one of the oldest pilots to take part in the Battle. On 15 September, he was shot down, but bailed out safely. In 1942, he went to the USA as Czech Air Attaché, where he helped recruit pilots for Czech squadrons. He remained in the USA after the war and died in Florida in 1981.

Stan Turner

(242 Squadron)

Canadian pilot Stan served over France and during the Dunkirk retreat in May – June 1940, shooting down at least seven aircraft. On 15 September, he was made a Flight Commander and destroyed at least two aircraft that day.

He went on to serve in Malta, North Africa and Italy before retiring from the Royal Canadian Air Force in 1965.

William 'Willy' McKnight

(242 Squadron)

Willy was killed whilst taking part in a low-level fighter sweep over France in January 1941. He was twenty-two years old.

