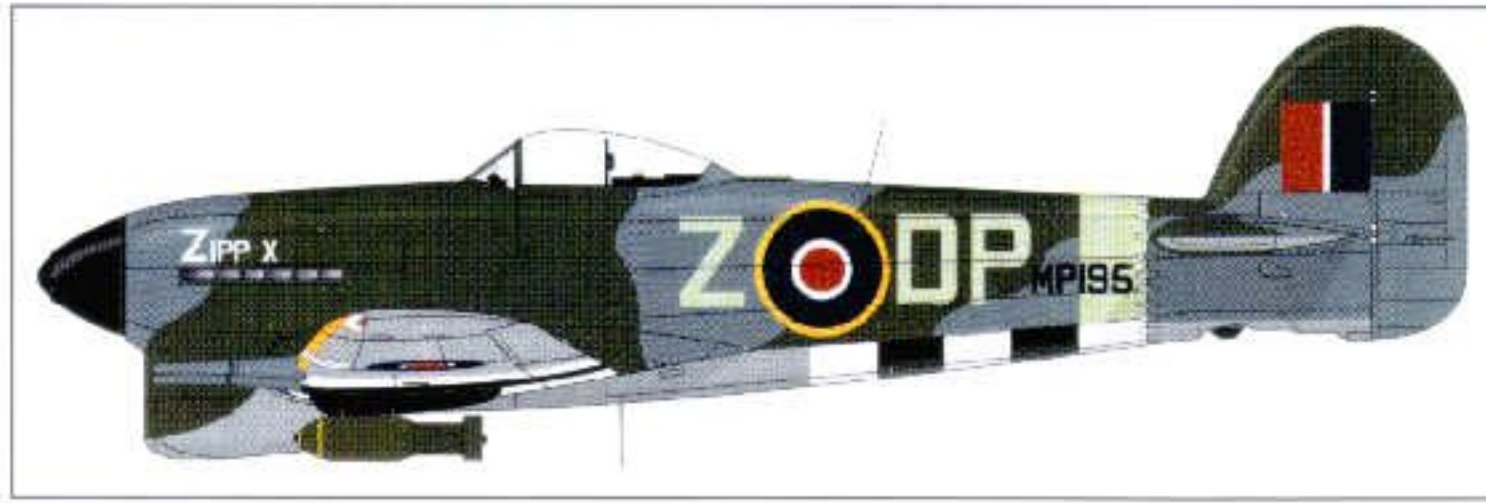


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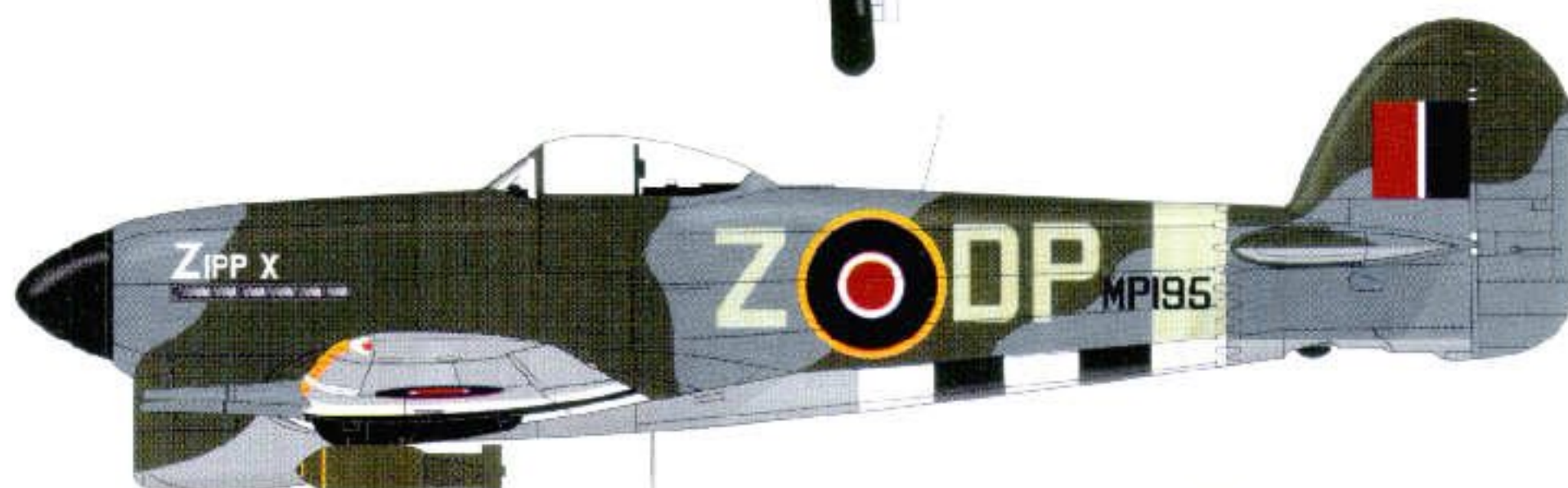
HAWKER TYPHOON

BY CHRIS THOMAS

Flying Officer 'Hank' Nixon, RCAF, prepares to taxi in a No. 137 Squadron Hawker Typhoon at Helmond, in March 1945. The aircraft is armed with eight rocket projectiles with 60-lb high explosive/semi-armour piercing heads. The airman standing by with a fire extinguisher was always an essential precaution when starting up the Typhoon. (Public Archives of Canada)

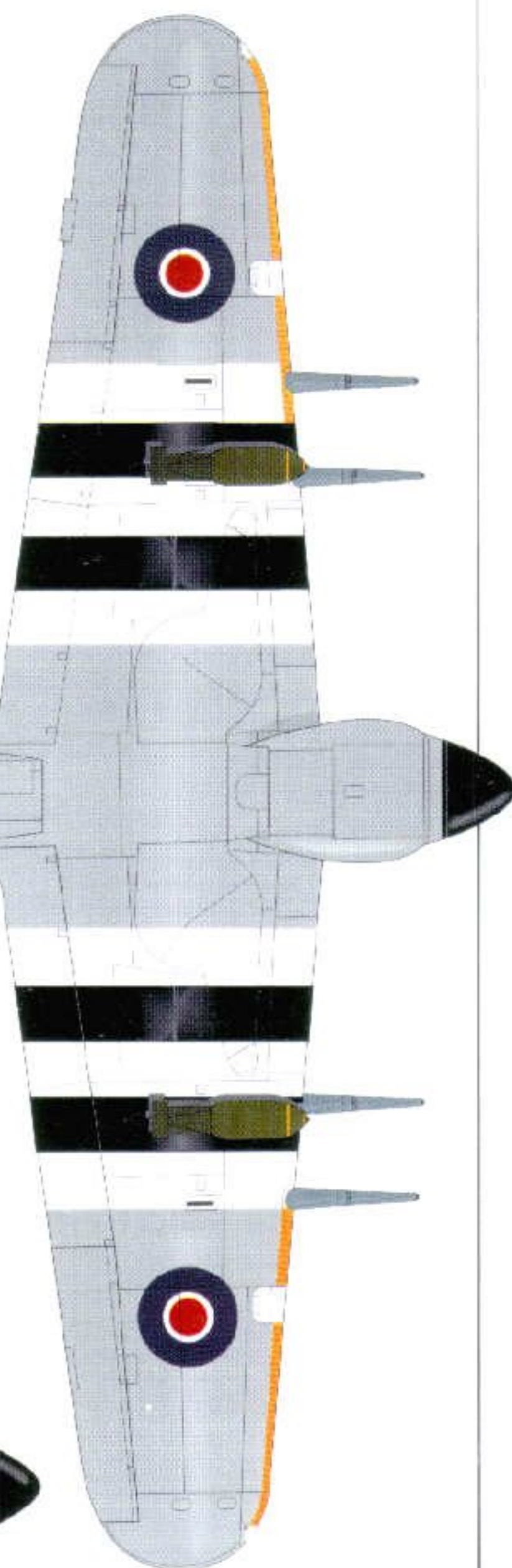
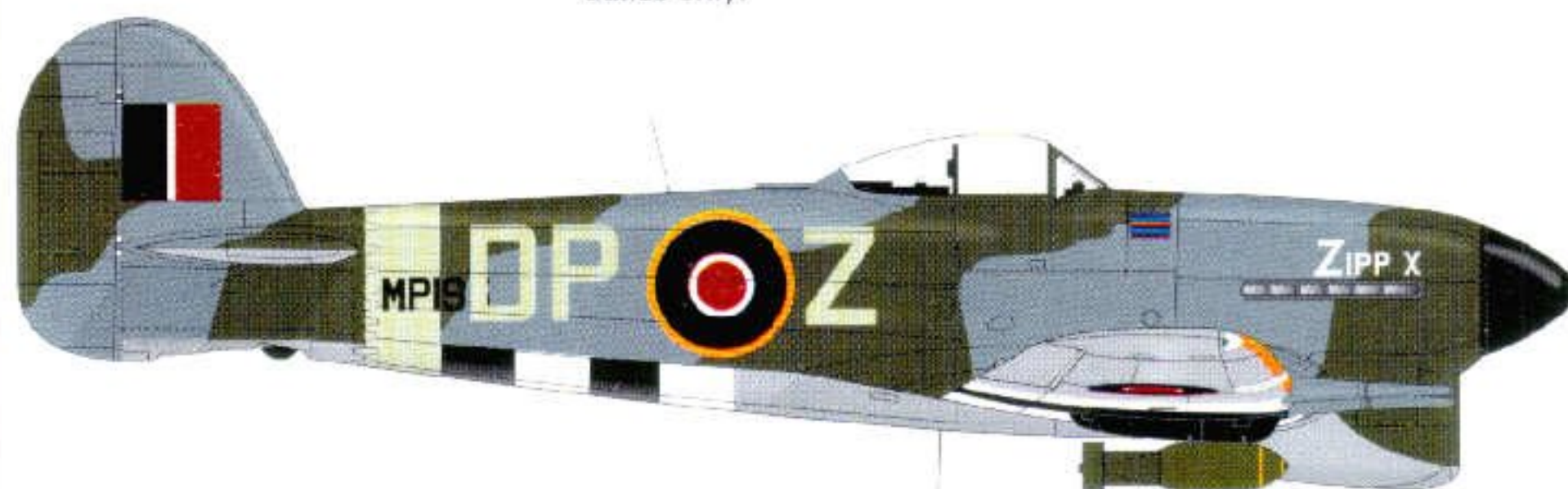


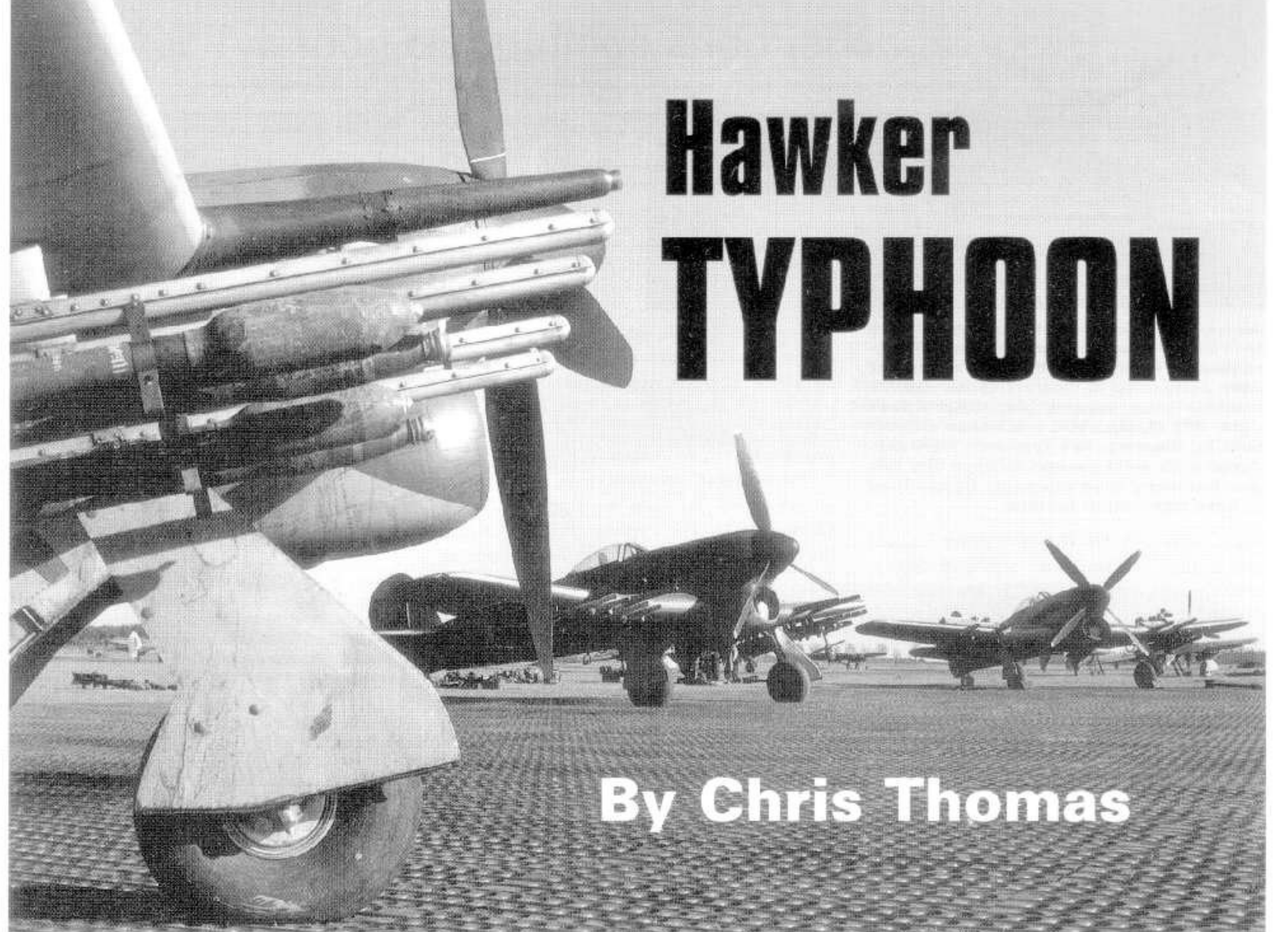
DRAWINGS BY DAVID HOWLEY



HAWKER TYPHOON

Typhoon IB MP195:DP-Z of No.193 Squadron, August 1944. Aircraft allocated to Squadron Leader J. C. Button. The aircraft carried the name 'Zipp' and a roman numeral in white on the nose. Fitted with Tempest tailplane and equipped for bombing duties only.





Hawker TYPHOON

By Chris Thomas

It is 1 June 1942. The RAF's latest fighter aircraft is in its third day of operations - small detachments operating from Manston and Westhampnett (now Goodwood) airfield and flying defensive patrols in pairs. Their aim is to counter the Fw 190 and Bf 109 nuisance raids which had proved too elusive for the RAF's Spitfire Vs. The R/T crackles and two of the new interceptors climb to investigate a 'Bogey'. At 17,000 ft cannon shells thud into both aircraft which fall into the Channel with the loss of one of the pilots. Not, however, two more victories for the Luftwaffe, but an indication of just two of the problems facing the new Hawker Typhoon on its introduction into service - lack of high level performance and misidentification as a Fw 190. The victors were two Canadian Spitfires.

The latter problem would lead to the most bizarre markings yet seen on operational RAF fighters; the lack of high level performance would never be solved but perversely would lead to the aircraft's later success, as it forced concentration on low-level operations which proved to be the Typhoon's forte.

The story had begun in 1937 when Sydney Camm (later to be knighted), Hawker's chief designer, turned his thoughts from the Hurricane, which was about to enter service with the RAF, to its prospective successor.

Typhoon prototype P5212 around the time of its first flight in February 1940. Note the original small rudder and triple exhaust stubs. There were no wheel covers fitted at the time the picture was taken. (BAe)

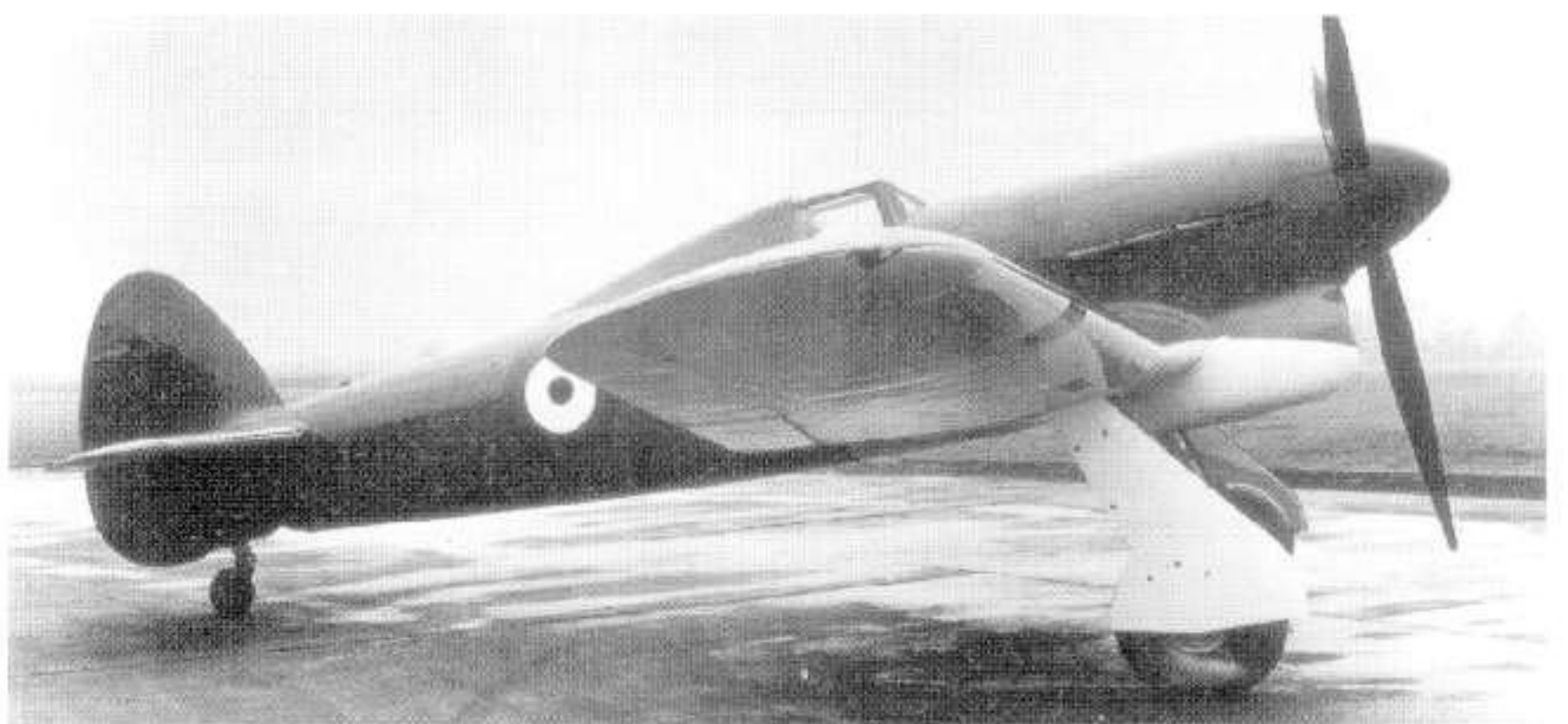
The next generation of engines promised to double the Merlin's power and Camm proposed to utilise one of these engines to give his new fighter a top speed in excess of 400 mph. This proposal was submitted to the Air Ministry in July 1937 but the company was advised that a Specification for a new RAF fighter would be issued shortly. Specification F.18/37 appeared in January 1938 and called for a replacement for the Hurricane and Spitfire (which was due to follow the Hurricane into service); its outstanding requirement was that the new aircraft should have as great a margin of speed as possible over the contemporary bomber. It was expected therefore that the successful type would have a top speed in excess of 400 mph aircraft. Armament was to be 'not less than 12 Browning guns (0.303 in)'. As both power plants considered by Camm were in

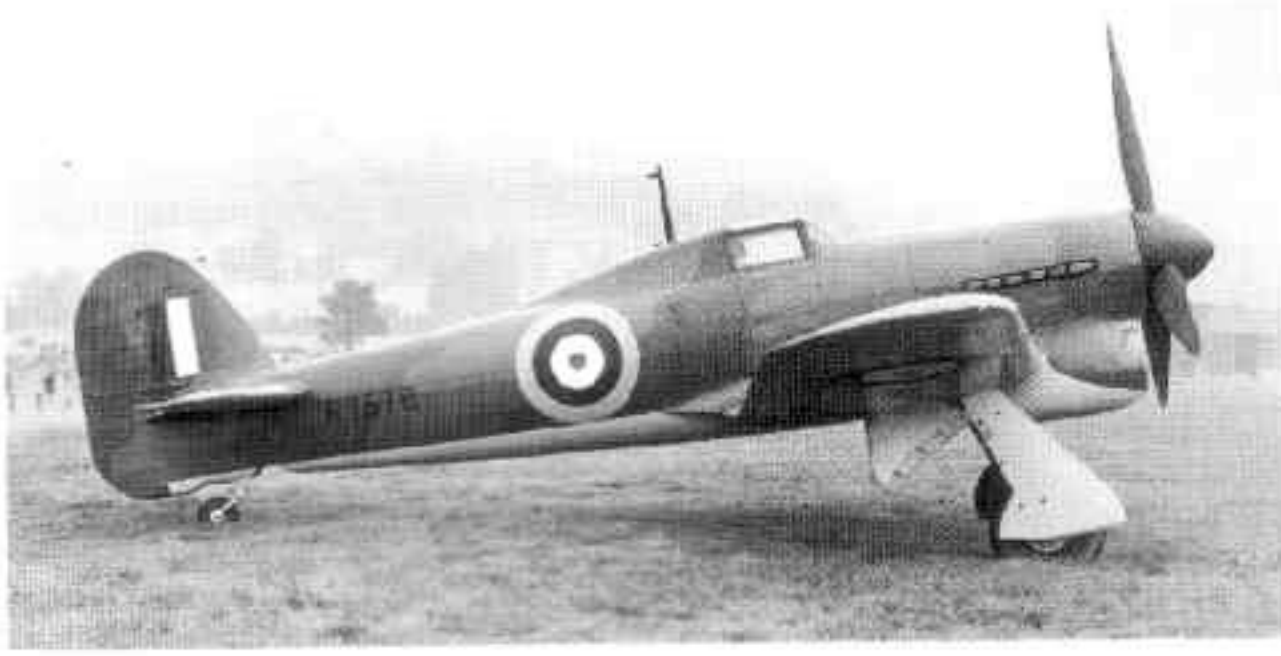
The Hawker Typhoon's forte in battle was that of a hard-hitting strike aircraft with either bombs or rockets. This picture shows several aircraft of No. 175 Squadron at Goch in early 1945, fitted with Mk. III lightweight rocket rails and a mixture of 60lb high explosive semi-armour piercing and anti-personnel rockets.

the early stages of their development, his proposal featured versions for each engine; the Rolls Royce powered version was known as the 'R-Type' and the Napier-engined design was known as the 'N-Type'. The Air Ministry responded quickly with a contract for four prototypes, two of each variant.

TWO OF EACH

Construction of the first two prototypes began at Hawker's Kingston-on-Thames factory in March 1938. The 'R-Type' was





Above: Typhoon second prototype P5216 with four Hispano 20-mm cannon. All subsequent Typhoons with this armament were designated IB whereas those with 12 machine guns became IAs. (BAe) Above right: R7578, the third production aircraft built by Glosters. 163 Typhoons were produced with solid cockpit fairings like this one, but many were subsequently modified to have transparent fairings.

fitted with a Rolls Royce Vulture engine whilst the 'N-Type' had a Napier Sabre; both engines were expected to develop in the region of 2,000 hp. Eventually the prototypes were named, the 'R-Type' becoming the Tornado and the 'N-Type' the Typhoon, thus continuing Hawker's 'winds' theme. Both types were of all-metal construction with Hawker's patented tubular construction for the front half of the fuselage and a monocoque alloy shell to the rear. Except for the tips, each wing was built in one piece and a wide-track undercarriage completed an extremely robust design. The two types were of similar appearance except for the engine mountings and the positioning of the radiators - beneath the fuselage on the Tornado (as per the Hurricane) and immediately

beneath the nose on the Typhoon. The latter position, which gave the Typhoon its characteristic aggressive look, was eventually proved to be more aerodynamically efficient and was adopted for subsequent Tornado prototypes.

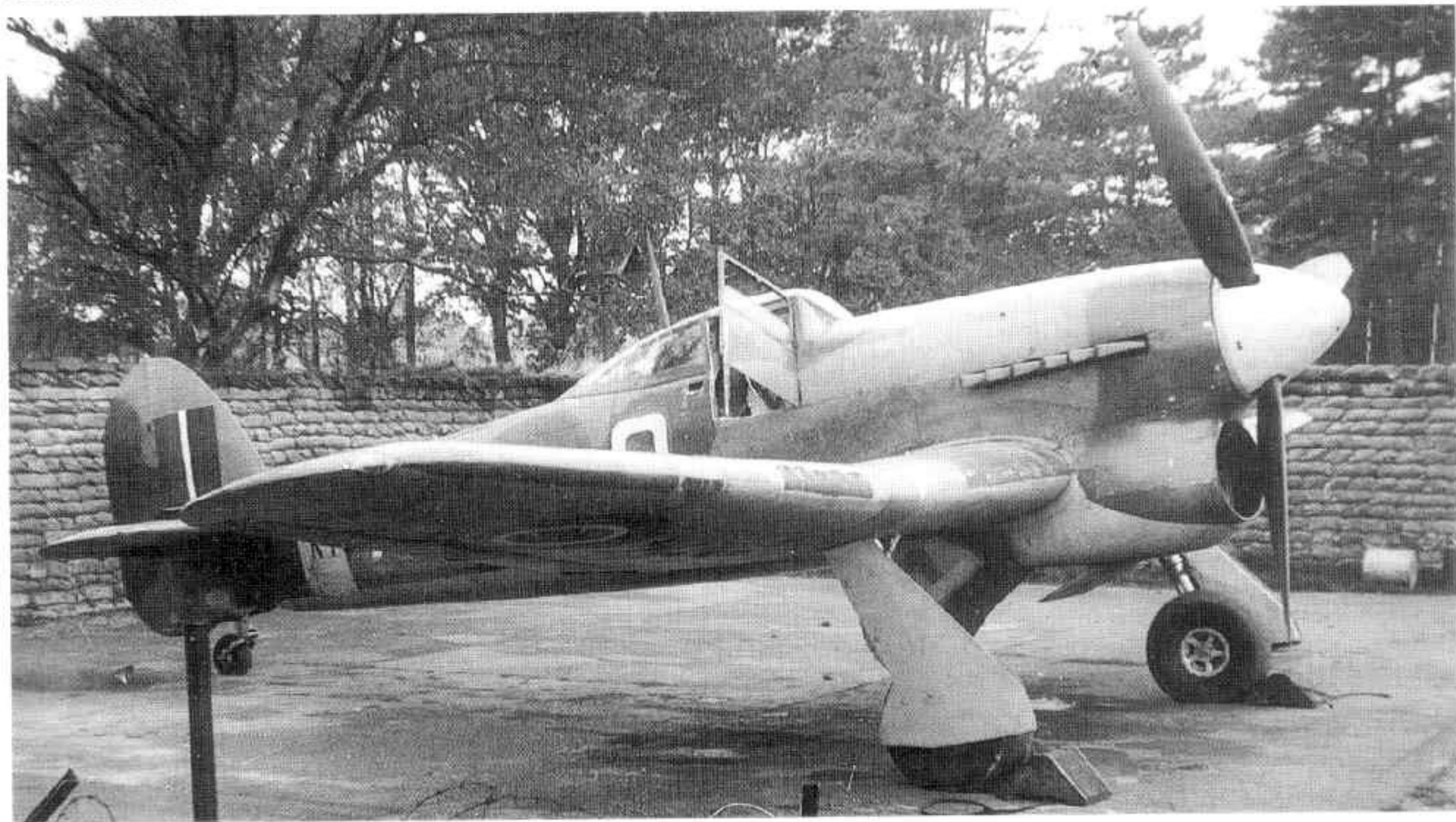
More rapid progress with the Vulture allowed the Tornado to fly first, on 6 October 1939. The Typhoon followed it into the air some four and a half months later on 24 February 1940. Britain was now, of course, at war and orders were placed for 1,000 of the new fighters, 500 Tornados, 250 Typhoons and a further 250 of whichever type proved to be the most successful. It

soon became evident that there were serious problems with both powerplants but despite these shortcomings arrangements were made for production of both types. As the parent Hawker company was fully occupied with Hurricane production the new types were to be built by other members of the Hawker Siddeley Group, the Typhoon by Gloster Aircraft at Hucclecote and the Tornado by

Typhoon IB R7646 was the first aircraft to have the transparent fairing aft of the cockpit. It was retained by Hawkers for a variety of trials and was also evaluated at A&AEE. It survived the war only to be scrapped in 1946. (BAe)



The first of several Typhoon bomber squadrons, Nos. 181 and 182 Squadrons used several obsolescent Mk. IA aircraft during their work-up on Typhoons. This Mk.IA belonged to No.182 Squadron and is seen here in a blast pen at Martlesham Heath in October 1942.

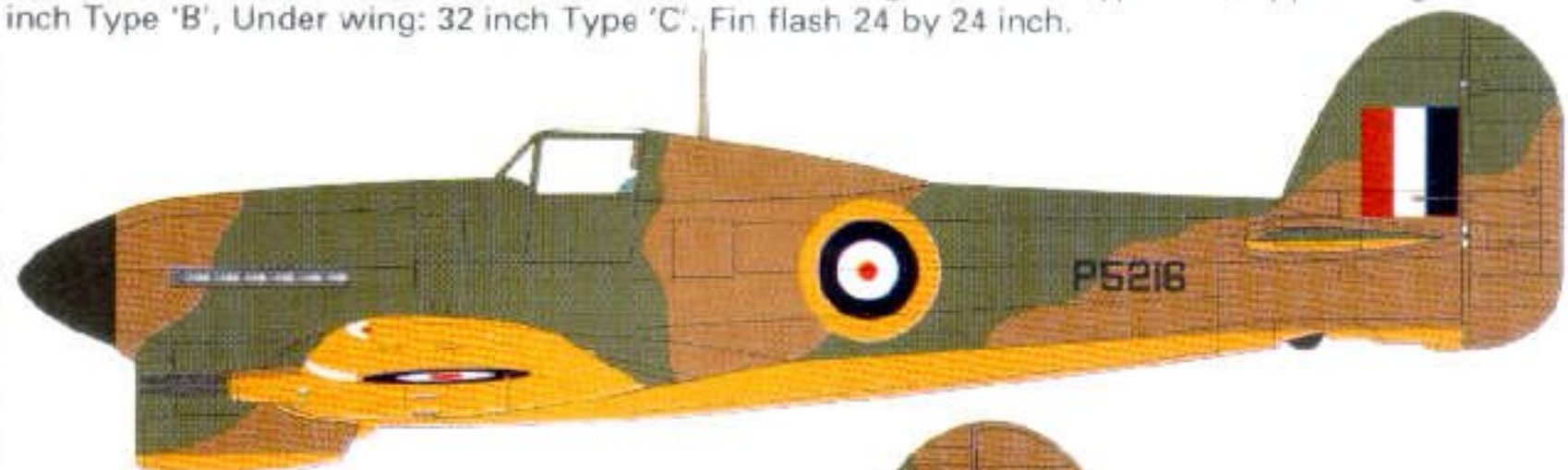


Hawker Typhoon camouflage and markings



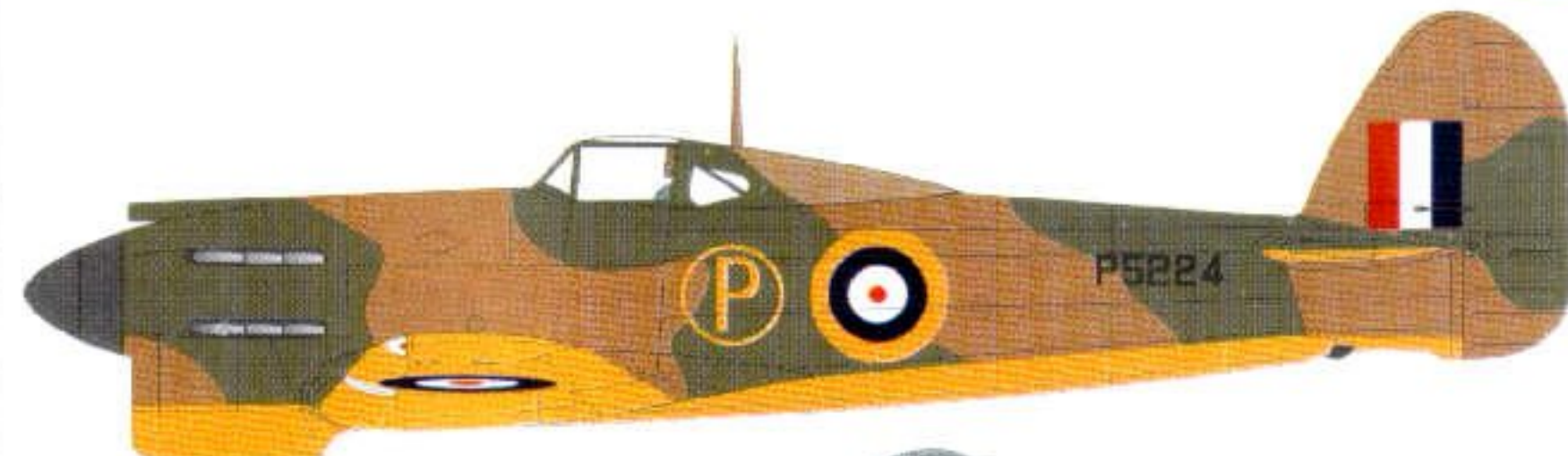
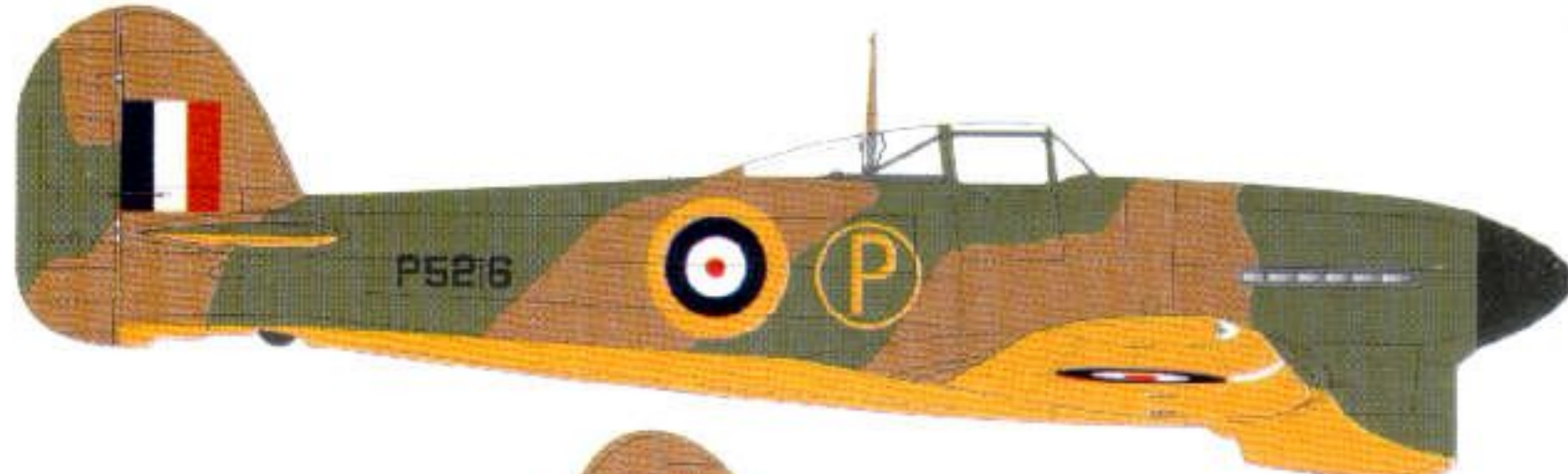
Note: Standard Typhoon camouflage (except where marked) is uppersurfaces: Dark Green and Ocean Grey. Undersides: Medium Sea Grey with Sky fuselage band and spinner. Roundels: Pre-May 1942 were Fuselage: Type 'A1', Upper wing: 50 inch Type 'B', Under wing 42 inch Type 'A' with 24 by 27 inch fin flash. Post May 1942 were Fuselage: 36 inch Type 'C1', Upper wing: 50 inch Type 'B', Under wing: 32 inch Type 'C'. Fin flash 24 by 24 inch.

**DRAWINGS BY
DAVID HOWLEY**



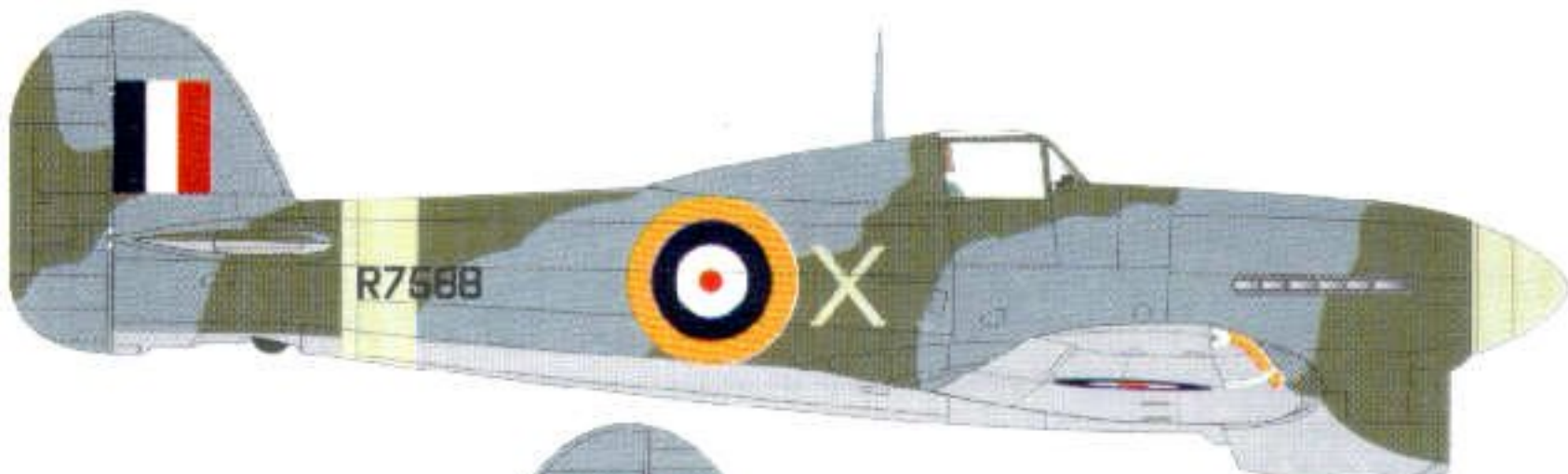
Typhoon prototype P5216 Autumn 1941. Dark Green and Dark Earth upper surfaces with yellow undersides. Black spinner, 36 inch fuselage roundel

Typhoon prototype P5216 at A&AEE Boscombe Down in early 1942 after canopy modifications and the addition of a yellow 'P' prototype marking next to the 36 inch fuselage roundel.



Tornado prototype P5224 in October 1942 at A&AEE Boscombe Down. Dark Green and Dark Earth uppersurfaces with yellow undersides. 36 inch fuselage roundel.

Typhoon IA R7588:X of No. 56 Squadron, November 1941. Dark Green and Mixed Grey uppersurfaces with Medium Sea Grey undersides.



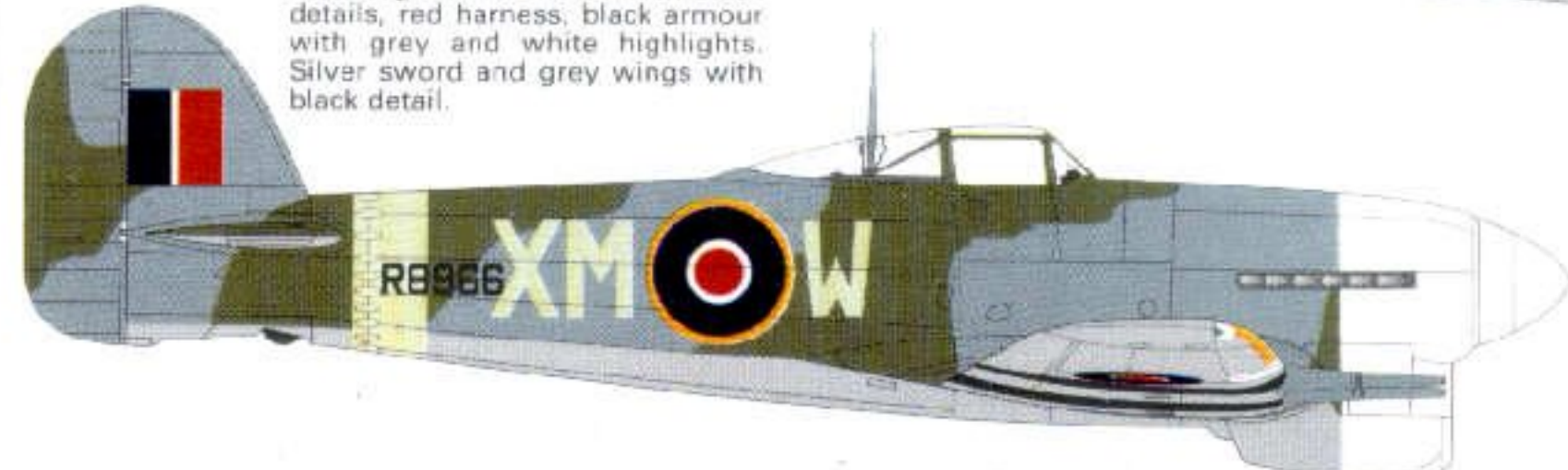
Typhoon IB R7698:Z-Z flown by Wing Commander D. E. Gillam, Duxford Wing, September 1942. A Wg.Cdr's command pennant was carried on the port fuselage and on the starboard St. George forward of the windscreen and on the entry door 'Penny' in yellow. The aircraft has been repainted in a non-standard pattern (the starboard side is speculative) and lacks its serial number. Fuselage roundel is 42 inch.



St. George: White horse with black details, red harness, black armour with grey and white highlights. Silver sword and grey wings with black detail.



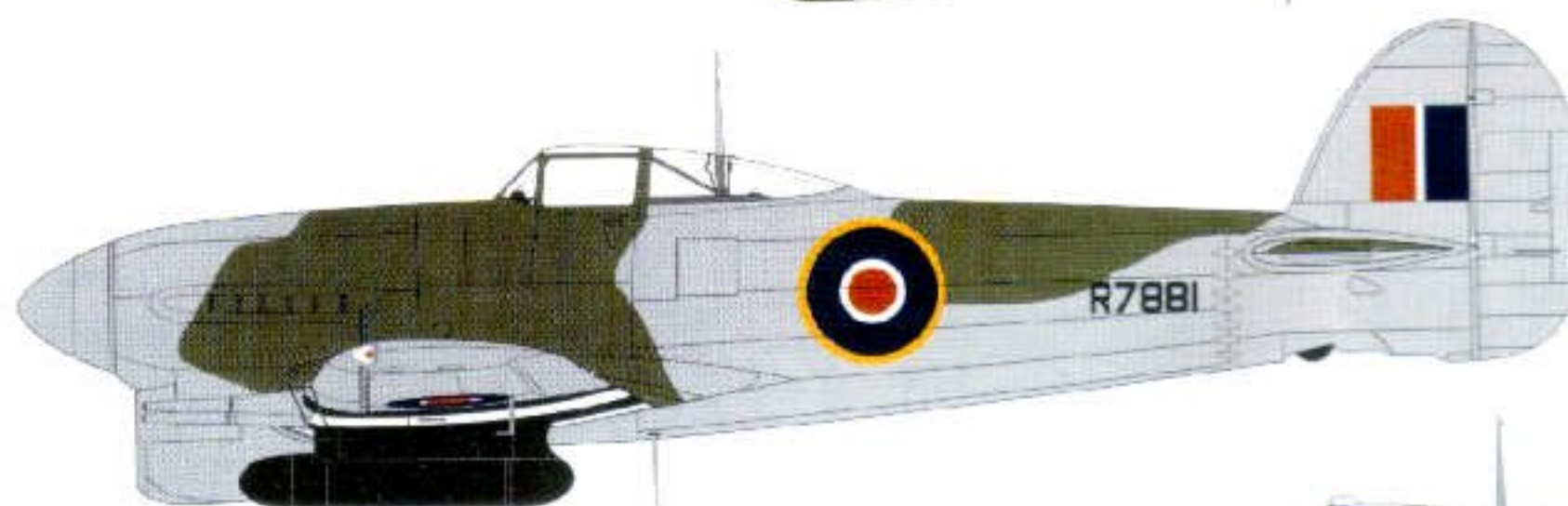
Typhoon IB R8966:XM-W of No. 182 Squadron, 25 November 1942. 12 inch yellow band on upper wing, centred on the inboard cannon. The identification marking of a white nose with three inch black stripes under each wing was carried from 19 November 1942 to 5 December 1942.





Typhoon IB R8742:EL-A of No. 181 Squadron on Exercise Spartan, March 1943. Exercise markings of white bands on both sides of the nose, black spinner and port wing undersides.

Typhoon IA R7681:OV-Z of No. 197 Squadron, March 1943. Note fresh Dark Green overpainting of white nose ID markings.



Typhoon NF.IB R7881 at RAE Farnborough, May 1943. Medium Sea Grey overall with Dark Green disruptive pattern on the upper surfaces.



Donald Duck is white with black detail, a blue jacket and cap with white flashes. A red beak and tie and yellow feet. The poker is black with an orange and yellow centre.



Typhoon IB EK273:JE-DT of No. 195 Squadron, Ludham, June 1943. Flown by Squadron Leader Don Taylor it carries the squadron code and his initials. 'Donald Duck' adorned radiator panel on port nose.



Typhoon IB DN267:DP-B 'Northern Star' of No. 193 Squadron, mid-1943. Name is red between red and black lines.

Avro at Woodford.

Meanwhile test flying continued although engine faults caused many of these early flights to end with forced or precautionary landings. The Typhoon programme would have been further delayed had it not been for a superb demonstration of the test pilot's art by Philip Lucas. On 9 May 1940 the Typhoon prototype P5212 which he was testing, suffered a failure of the internal structure aft of the cockpit which caused distortion of the fuselage and progressive tearing of the stressed skin covering of the rear fuselage monocoque. The failure could easily have continued to the complete destruction of the aircraft but Lucas did not abandon the prototype but nursed it back to Langley airfield. This not only saved the valuable airframe but allowed study of instrument readings which helped pinpoint the cause of the failure and Lucas was awarded a well-earned

George Medal.

With the onset of the Battle of Britain, development work throughout the aircraft industry was curtailed in favour of production of much needed existing types and as a result the second Typhoon did not fly until 3 May 1941. This machine was armed with four 20-mm cannon whereas the first prototype had carried 12 machine guns. It also incorporated several improvements includ-

ing an enlarged fin and rudder which improved directional stability. It was soon followed by the first production Typhoon which took to the air on 27 May 1941, and was similar to the second prototype except that it reverted to the machine gun armament owing to the shortage of Chatellerault cannon feed mechanisms. This version would be known as the Mk. IA and 110 were built before the cannon supply problem was over-

Hawker Typhoon IB EJ927 of No. 257 Squadron based at Warmwell during the period that Typhoons were engaged in combating low-level raids on the south coast by Fw 190s and Bf 109s. The underwing black and white stripes are particularly evident to help identify the aircraft to anti-aircraft gunners. (RAF Museum)





Left: An early Typhoon IA in service with No. 56 Squadron at Duxford late 1941 or early 1942. The machine gun ports in the leading edge of the wing have been covered by doped patches to keep out dust - standard RAF practice. (Public Archives of Canada)



This aircraft EK122, shows the production standard in the Spring of 1943. The cannon barrels are now faired, a rear view mirror is housed in a small blister on the canopy and the external rudder balance has been replaced by an internal one. EK122 was retained by Hawkers for trials into high speed dives during the investigation into tail failures. It was later used by Napiers for engine development. (BAe)

come. The subsequent cannon-armed version was identified as the Mk. IB; this designation applied to the rest of the production run despite a variety of changes to the airframe. The Typhoon Mk.II which featured a completely re-designed thinner, elliptical wing, was renamed as the Tempest at an

early stage.

FIRST DELIVERIES

At the beginning of September 1941 two of the first Typhoons were delivered to the Air Fighting Development Unit (AFDU) at Duxford for brief tactical trials. In comparative tests with RAF Fighter Command's latest fighter in service, the Spitfire Mk.Vb, the Typhoon proved to be 40 mph faster at all levels above 15,000 ft while below that the differential was even greater. The Spitfire was more manoeuvrable but it was considered that the Typhoon's speed would more than compensate for any deficiency. So,

after four years of changing priorities and technical problems, some as yet unsolved, the decision was made to put the Typhoon into squadron service without delay. The dubious honour of being the first Typhoon unit went to No. 56 Squadron who took their Hurricanes to Duxford and began receiving Typhoons on 11 September; by the end of October 1941 they had 16 Typhoons on charge.

Soon the extent of the Typhoon's shortcomings became evident. A fatal accident in November, eventually blamed on carbon monoxide poisoning the pilot, caused the type to be grounded for more than a month while tests were carried out and modifications made to the exhausts and cockpit sealing. The defect was, however, never fully remedied and subsequently Typhoon pilots wore oxygen masks from start up to shut down.

The hurriedly developed Sabre engine was found to be prone to frequent failure, mostly attributable to the sleeve valves. While engineers worked on this problem, all that could be done in the field was to change and inspect engines after short periods - as little as 25 hours running time.

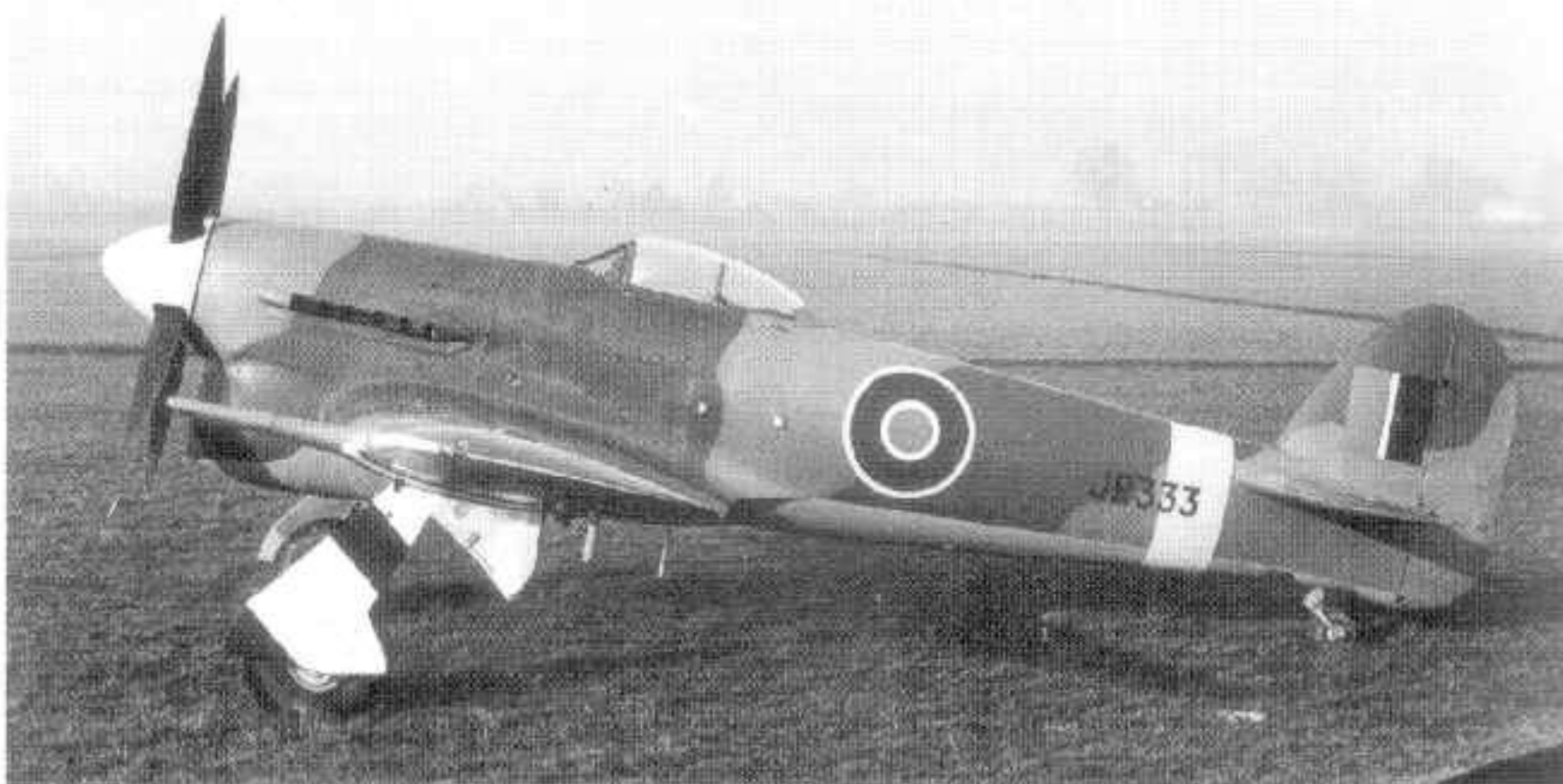
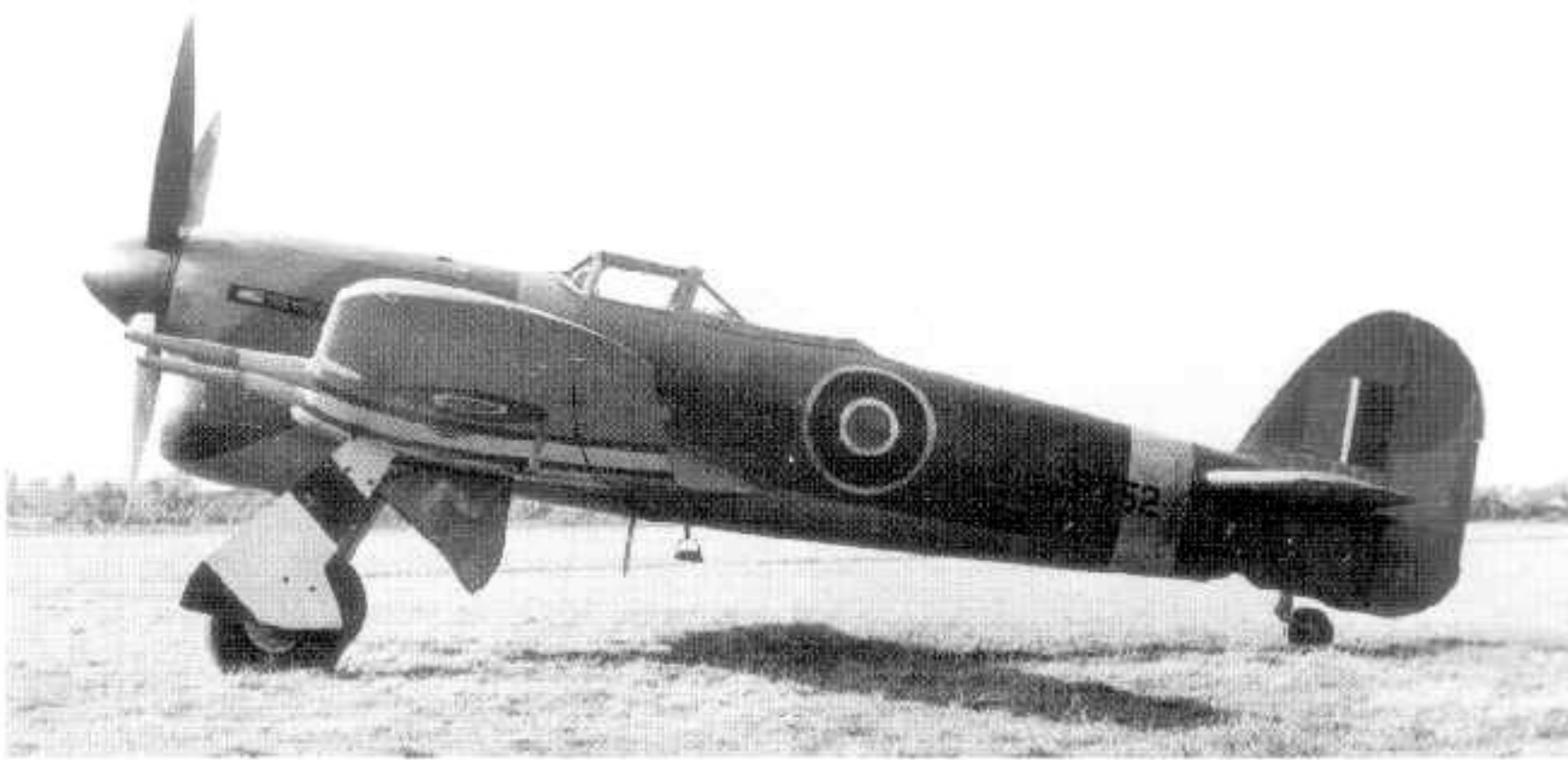
TEETHING TROUBLES

Yet another drawback for the early Typhoon pilots was the poor view to the rear. A transparent fairing soon replaced the solid one aft of the cockpit and a rear view mirror in a blister on the cabin roof was added, but these were only interim measures and work on an improved canopy was given priority.

Despite all these problems, two further units converted to Typhoons, No. 266 Squadron starting in January 1942 and No.

An atmospheric and very rare picture of an operational white-nosed Typhoon XM-M R8893 of No. 182 Squadron in a blast pen at Martlesham Heath, November 1942.





Left: Typhoon JP752 seen at Langley around September 1943 has the whip aerial and 'bayonet' IFF aerials above and below the fuselage respectively. The four-bladed propeller was for test only, not being introduced into service until Spring the following year. Below left: The first production Typhoon JR333, with the new bubble canopy. (BAe)

609 Squadron in the following April, to complete the Duxford Typhoon Wing. The first Typhoon victory came on 9 August 1942 when two aircraft from No. 266 Squadron caught a Junkers Ju 88 some 50 miles off Cromer and three days later the Wing operated together for the first time, carrying out three sweeps in support of Operation Jubilee, the ill-fated Dieppe raid. Suspicions that the Typhoon was not being used to its best advantage were now confirmed. It had been designed as a bomber destroyer and bombers were no longer a day-time threat. The Sabre's reduced performance at height and the aircraft's lack of manoeuvrability above 15,000 ft rendered it unsuitable for normal fighter operations, however, its electrifying performance at low-level (it could achieve nearly 400 mph at sea level, where most other fighter's performance declined) suggested other roles.

NEW ROLE DEFINED

Accordingly, in September 1942, the Duxford Wing and two of the three new Typhoon squadrons (Nos. 257 and 486) which had equipped during the late summer, were dispersed along the south coast to deal with the Luftwaffe fighter-bombers which had proved almost invulnerable in their attacks on coastal towns. This move was a great success and by mid-1943 over 60 German raiders had been destroyed, including more than 40 Fw 190s. The interceptions often ended with a chase at zero feet across the Channel, which left the Luftwaffe pilots little option but to crouch behind their armour plate and push the throttle to the fire-wall. The Typhoon could overhaul even the vaunted Fw 190 'like a train' (as one pilot put it in his combat report) and any attempt to turn or climb merely shortened the process as the Typhoon could out-turn the 190 'on the deck'. With five degrees of flap selected the Typhoon could pull extremely tight high speed turns, whereas the Fw 190, if its pilot attempted to match this performance, had a nasty habit of stalling and flicking in the opposite direction to the turn, which was invariably fatal at sea level.

IDENTIFICATION MARKINGS

The misidentification problem mentioned earlier was overcome in 1943, largely due to specially developed markings. Following

Above left: The only Typhoon NF.IB R7881. The transmitter aerials of the AI Mk. VI radar were mounted on the wings and the long-range tanks were permanently carried as one internal tank had been removed to make room for the radar equipment. (BAe) Left: The second squadron to equip with Typhoons was No. 266 which changed its code letters from UO to ZH soon after receiving them. The roundels also show evidence of having been changed from the larger Type 'A' to Type 'C'. (RAF Museum)



Rearming FM-L R8656 of No. 257 Squadron at Warmwell on 13 May 1943. (Charles Brown RAF Museum)

problems at Dieppe, yellow wing bands, one foot wide, encircling the wings outboard of the cannons, were introduced. Although effective in air-to-air situations, anti-aircraft gunners, trigger-happy due to the German low-level raiders, were still making unfortunate errors, so further markings were promulgated. From 19 November 1942 all Typhoons were to have white painted noses, from spinner tip to wing leading edge, and four one foot wide black bands beneath each wing. The operational pilots soon objected to the white nose scheme which made them just *too* identifiable, and from 5 December 1942 original nose colours were restored but the spaces between each black wing band were painted white. These markings were carried by all Typhoons from that date until February 1944 and proved very effective in providing instant identification to coastal defenders in particular.

The success against the Luftwaffe's nuisance raids was vital in keeping the aircraft in service while the manufacturers worked flat out to solve the various other problems. However, on 29 July 1942 there occurred the first of a series of distressing accidents which would prove another severe challenge to the Typhoon's progress towards service acceptability. A Hawker test pilot died when his Typhoon shed its tail during a spinning trial. Suspicion fell on the rear fuselage transport joint and strengthening modifications were devised. First an external steel strap was employed but this soon gave way to 'Mod 286' which included the rivetting of some 20 fishplates across the suspect joint. This became standard on all Typhoons from the 820th production aircraft and there was a massive modification programme, between December 1942 and March 1943, for aircraft

already in service. The main effect of this modification was to boost pilot morale, for of the 13 Typhoons known to have been lost to this cause by the end of May 1943, five had already received Mod 286 strengthening. Eventually elevator flutter was identified as the true cause and this was remedied by modifying the elevator balance weights and replacement of the tailplane by the larger Tempest unit. At least 25 Typhoons were lost due to structural failure (there may have been more, unrecorded on operations) and only two of their pilots survived.

An even greater threat to the Typhoon had been the intractable Napier Sabre. Serviceable engines were in such short supply that between April 1942 and July 1943 large numbers of Typhoon airframes were delivered directly into storage and their engines removed for use on successive

Typhoons off the production line. The major fault with the engine lay with the sleeve valves but by mid-1943 Napier at last had an answer; by using selected materials and production techniques the problem was overcome and the Sabre reached an acceptable standard. The squadrons already formed were rapidly equipped with new JP-serialled machines and the old Typhoons were returned for refurbishing and updating, or were simply scrapped to provide spares for the repair programme.

Typhoon IA R7681 OV-Z of No. 197 Squadron in early 1943 displays a rather patchy paint scheme following the removal of the white nose and addition of underwing black and white stripes.

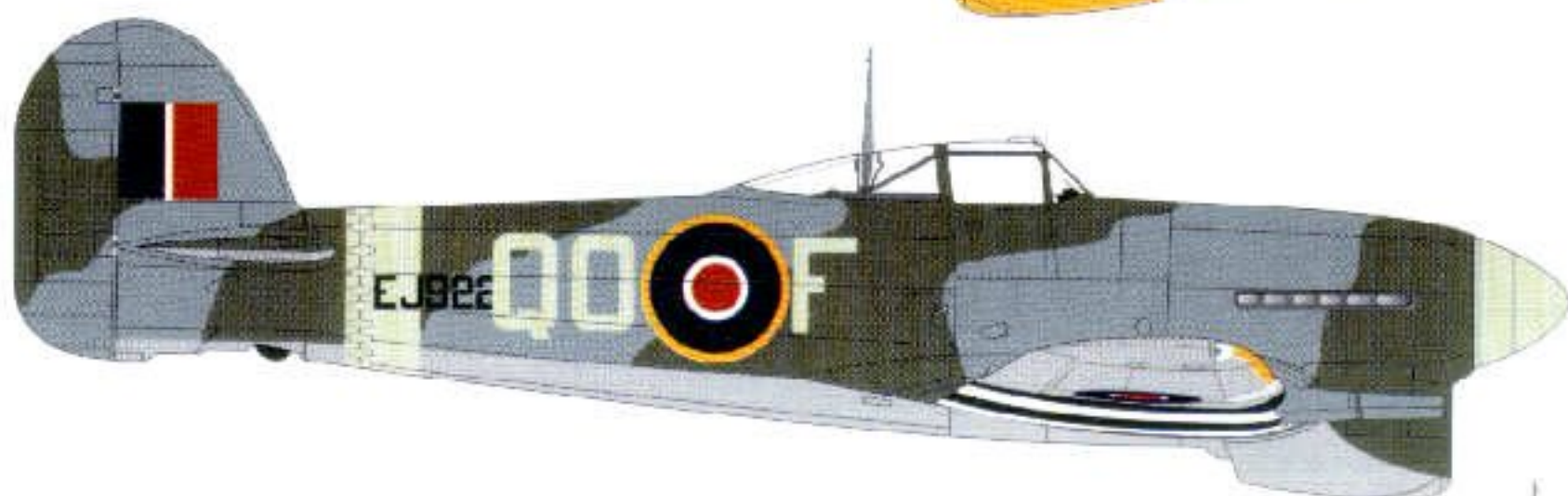
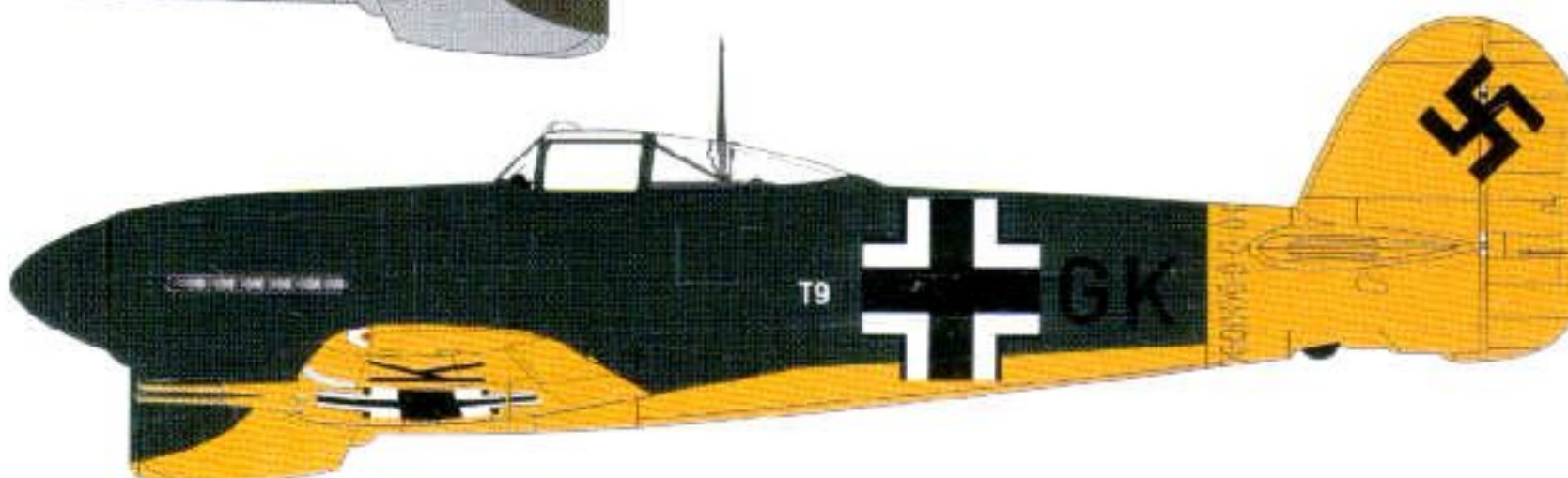


Typhoon IB EK176:JX-K of No. 1 Squadron, July 1943



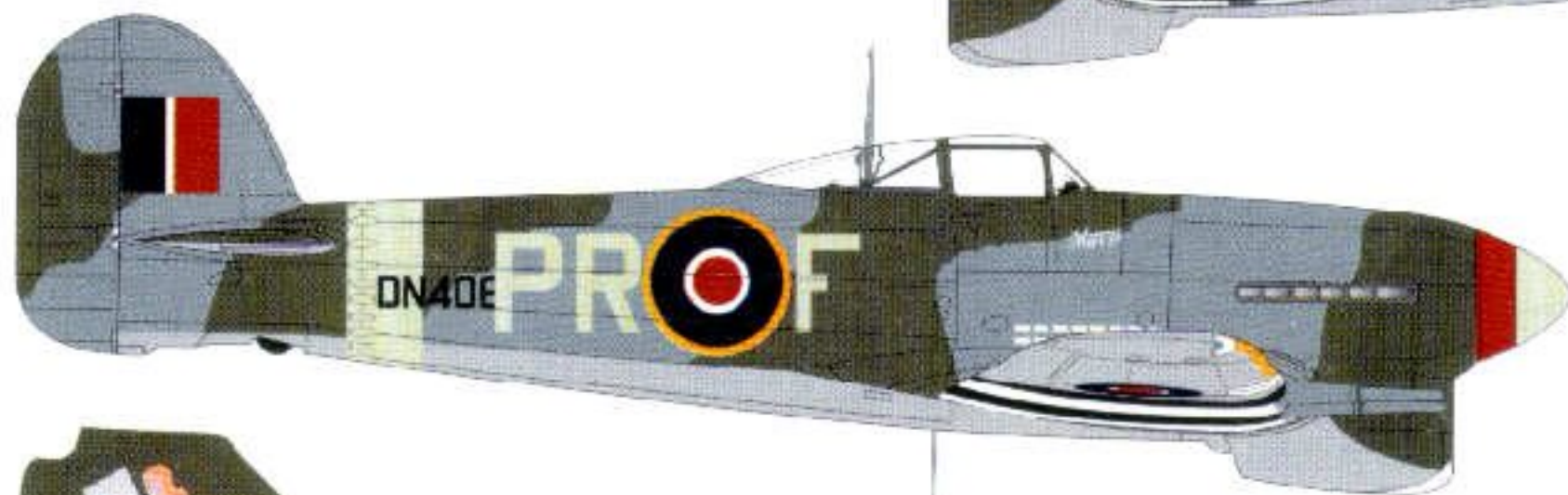
Typhoon IB EJ956:SA-I of No. 486 Squadron in 1943.

Typhoon IB EJ956 T9+GK. Repaired after forced landing on the Continent and flown by the Luftwaffe's Versuchsverband/Ob.d.L which test flew captured aircraft. RLM 70 Dark Green uppersurfaces with RLM 04 Yellow on undersides and tail unit.



Typhoon IB EJ922:QO-F of No. 3 Squadron in 1943.

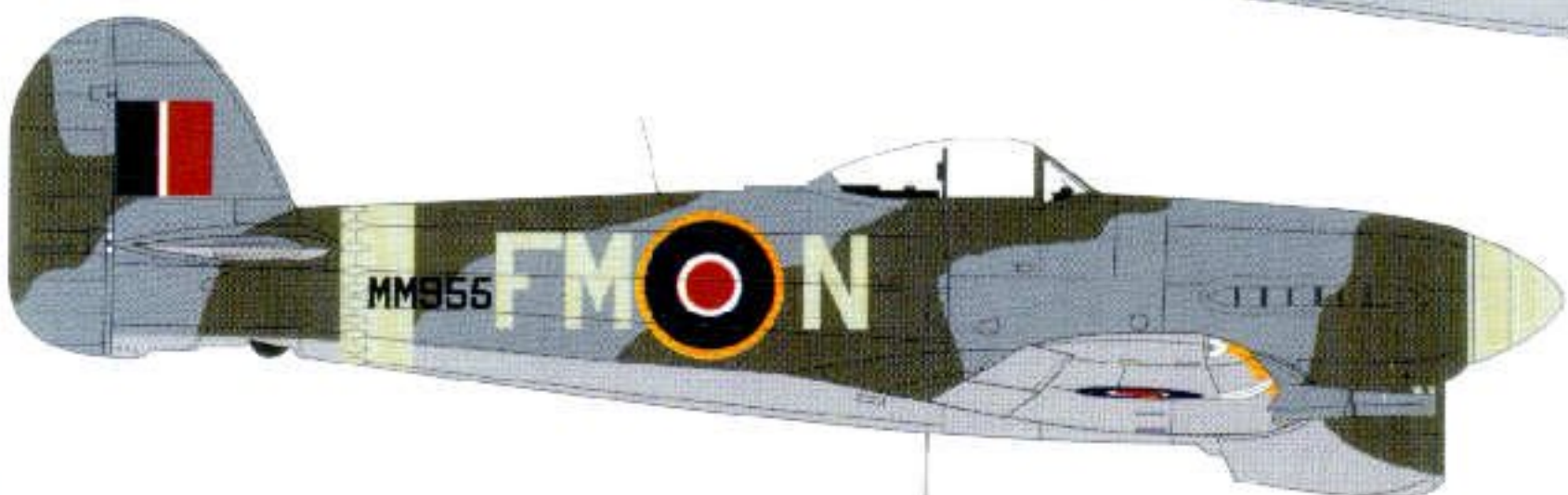
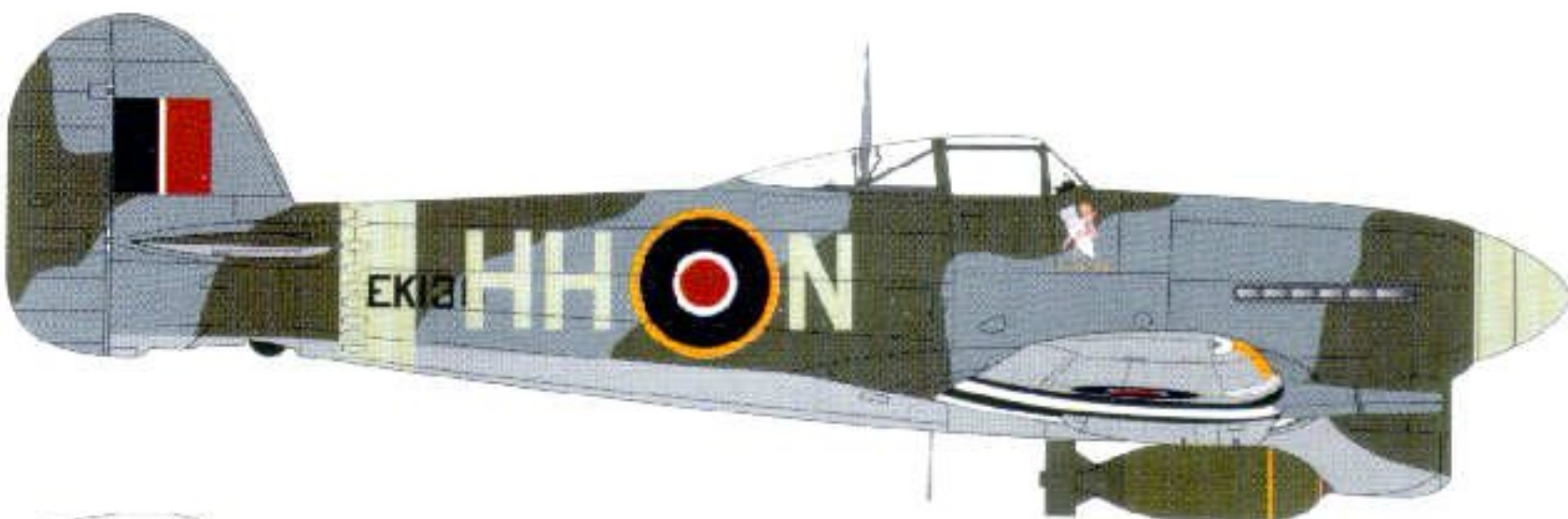
Typhoon IB DN473:OV-E of No. 179 Squadron, May 1943. The 'paper horse' marking was on the door commemorating Plt.Offr. Jean Parisse's previous service with 4^{ème} Escadrille of the Belgian Air Force. The 'horse' and the four bars are in white.



Typhoon IB DN406:PR-F 'Mavis' of No. 609 Squadron in 1943. 'Mavis' is in white under the cockpit and 18 white locomotives are recorded above the wing fairing on the starboard side. The spinner is red and Sky. On the radiator intake there is a white flash.



Typhoon IB EK139:HH-N 'Dirty Dora' of No. 175 Squadron, Spring 1943. The individual code letter 'N' is painted on the leading edge half way between the inner cannon and the fuselage. Bombs only.



Typhoon IB MM955:FM-N of No. 257 Squadron, Tangmere, March 1943.



Left: Two USAAF pilots seen with visiting Typhoon JP488 SA-L of No. 486 Squadron RNZAF at Raydon, January 1944. Clearly visible is the exhaust fairing which featured on Typhoons delivered in late 1943. (Harvey Mace)

squadrons in co-operation with Turbinlite Havocs; these proved unsuccessful as the Typhoon's minimum cruising speed was uncomfortably close to the Havoc's maximum. One Typhoon (R7881) was fitted with AI Mk. VI radar. The transmitter and receiver were fitted in the space normally occupied by the port wing fuel tank, the loss in capacity being compensated for by the permanent carriage of 45-gallon underwing tanks. Although trials were successful and opera-

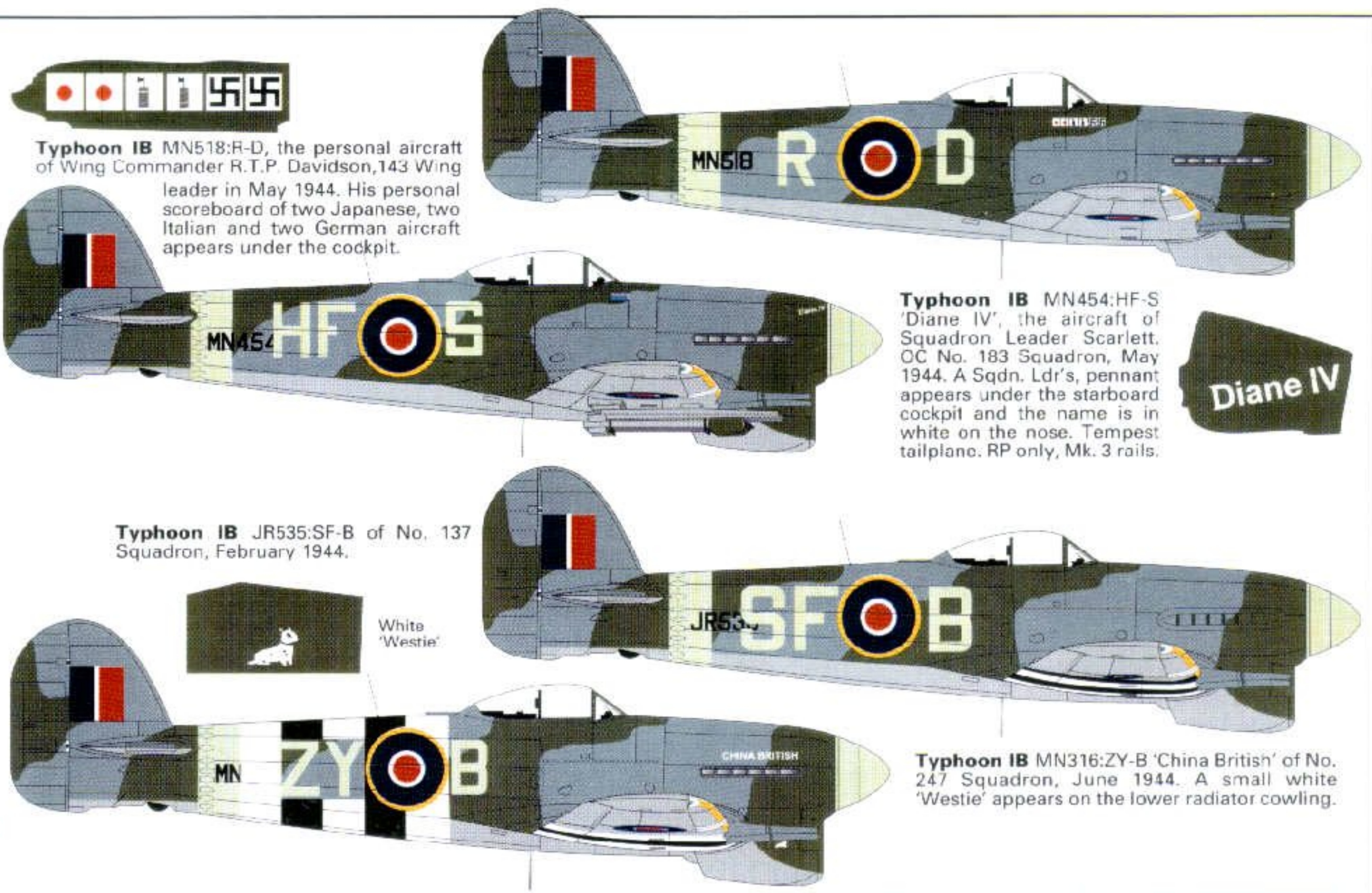
Below: Squadron Leader C. L. C. Roberts starting Typhoon EK172: FM-M at Warmwell on 13 May 1943. Note the foot-wide yellow wing band. By this date some other squadrons had already dispensed with this marking. (Charles Brown RAF Museum)

Meanwhile, other ways of utilising the Typhoon's low-level, load-carrying ability and steadiness as a gun platform, were being developed. In September 1942 the first two Typhoon fighter-bomber squadrons had been formed, Nos. 181 and 182; their aircraft were equipped to carry a 250 or 500-lb bomb under each wing. Throughout 1943 they were joined by a steadily increasing number of specialised bomber squadrons who set about attacking airfields, factories, railways, harbours and shipping in or around occupied France, Belgium and the Netherlands. Towards the end of 1943, 'Noballs', the V-1 launching sites became priority targets for these squadrons.

As the Typhoon proved easy to fly at night, a number of appropriate roles were investigated. First trials were flown by some

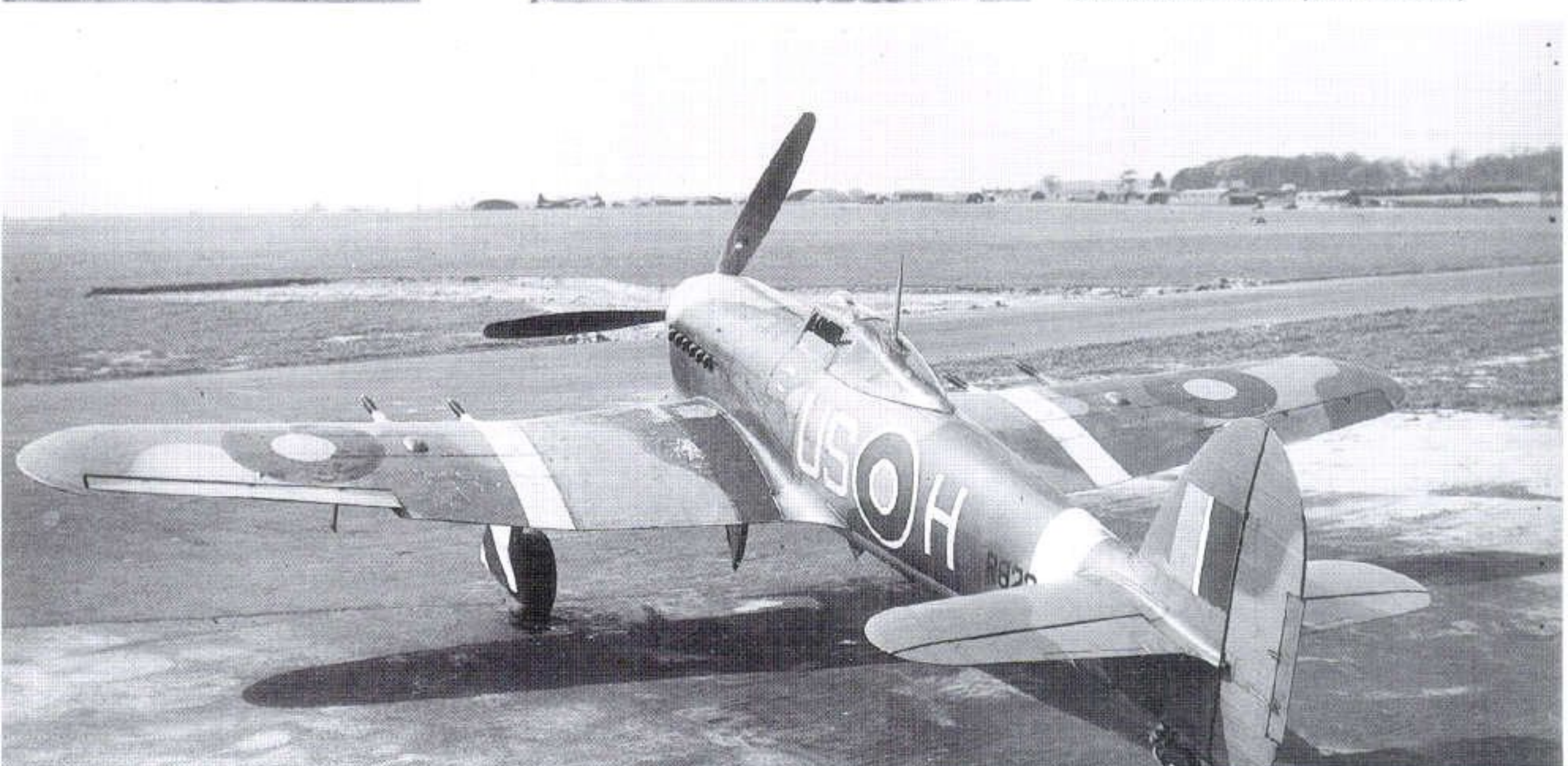
After success in the north of England No. 1 Squadron took their Typhoons to Biggin Hill and then Lympne, where EK176:JX-K was photographed in July 1943. (Public Archives of Canada)





tional patrols were actually flown by the AFDU, the project was abandoned, no doubt as the role was adequately filled by the Mosquito, with the advantage of a two-man crew. Night intruders were flown by a number of squadrons, No. 609 at Manston pio-

Left: Another Typhoon with non-standard nose camouflage, R7713: PR-Z of No. 609 Squadron displays the final version of the underwing identity markings. Note the 'Z' on the leading edge of the wing and the unit's white rose emblem in front of the windscreen. Below: R8224 of No. 56 Squadron was one of 15 production Typhoons built by Hawkers and was donated by the Women's Land Army and named 'Land Girl'. The Land Army crest was on the starboard door. (RAF Museum)





Squadron Leader Holmes of No. 197 Squadron in the cockpit of his Typhoon at Tangmere in September 1943. His Squadron Leader's pennant is painted on the cockpit door. (IWM)

neering this role and achieving impressive results.

Another avenue explored was that of a tropical variant. In November 1942 three standard Typhoons (R8889, R8891 and R8925) were modified with the addition of an air-cleaning filter in a fairing beneath the fuselage, between the wings. Accidents to two of these aircraft (R8889 and R8925) before they left the UK, led to their replacement by DN323 and EJ906. The three modified aircraft were shipped out to North Africa, erected at Casablanca, and flown to Egypt for trials with No. 451 Squadron RAAF at Idku. Although the trials established the feasibility of operating Typhoons in these climates, build up of the 2nd TAF mean that none could be spared for the Desert Air Force. One further Typhoon, MN290, was sent to the Middle East for trials, arriving at Alexandria in October 1944, but the trials at Khartoum were abandoned after two cooler failures.

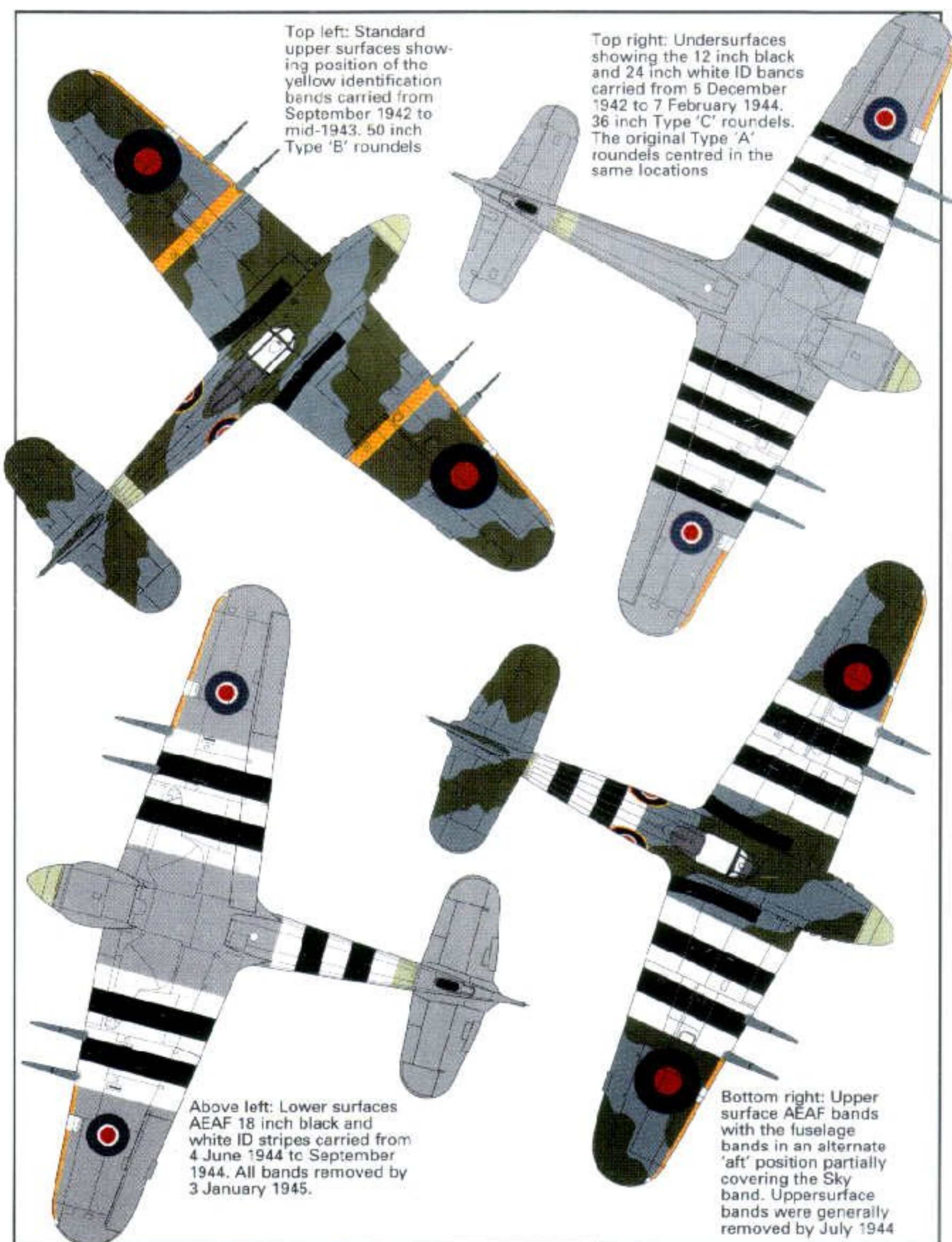
MORE IMPROVEMENTS

Throughout 1942 and the first half of 1943 efforts to improve the Typhoon continued. The rear-vision was further improved by replacement of the large mast protruding through the cockpit transparency with a whip aerial on the rear fuselage. More than 300 left the production line in this form before the ultimate canopy was introduced. This was the 'bubble' canopy, on sliding rails, and although it had first been installed on R8809 and test flown as early as January 1943, it did not begin entering service until September of that year. The first Typhoons with the new hood to reach the operational squadrons were in fact earlier production aircraft which had been in store and then modified by Glosters; the first new production aircraft was JR333 but new and old canopies were produced together for a while until full supplies of the blown hood were available.

The easy access, all-round vision canopy was an immediate success and early examples became the jealously guarded property of squadron commanders. Typhoons with the old canopy (known as 'coffin-hood

jobs') disappeared from the front-line squadrons shortly after D-Day but were still in use at training units at the end of the war.

At the end of 1943, no less than 18 squadrons of Typhoons were operating,





Typical of the Typhoons used by No. 198 Squadron on long-range sorties over France, Belgium and Holland early in 1944 is JR371:TP-R seen at its Manston base in January of that year.

mostly as fighter-bombers. With the major engine problems overcome and the incidence of tail failures much reduced, the Typhoon was chosen as the premier ground attack aircraft for the 2nd Tactical Air Force, which was then being formed to provide air support for the British and Canadian armies in the forthcoming invasion of Europe. Following the large scale Exercise Spartan in March 1943, the first mobile Typhoon Wings had been formed, and they began perfecting their techniques in further exercises and visits to Armament Practice Camps.

A handful of squadrons, however, were still able to demonstrate the Typhoon's excellence as a low-level fighter. With the battle against the cross-Channel raiders won, the introduction of 45-gallon long range tanks (increasing range from around 600 to nearly 1,100 miles) permitted sorties well into occupied France, Belgium and Holland, even as far as the German border. Luftwaffe airfields were the favourite hunting grounds and between October 1943 and February 1944 some 80 German aircraft were claimed with Nos. 198 and 609 Squadrons being particularly successful. The victims included Dornier Do 217s, Junkers Ju 88s, Messerschmitt Bf 110s as well as trainers and communications aircraft and even a couple of Fw 200 Condors were shot down as

Accident pictures prove useful in providing views not normally seen. This No. 181 Squadron Typhoon JP513:EL-F displays the upper surface camouflage pattern and wing walkways while balanced in a ditch at New Romsey on 4 August 1943.



Right: Refuelling Typhoon IB FM-L at Warmwell, Dorset in May 1943. Below right: On standby at Bradwell Bay in June 1943, this No. 247 Squadron Typhoon EK224:ZY-B, shows squadron and individual identity letters reversed from their normal positions. This anomaly was often seen (on either side of the fuselage), particularly on Nos. 193, 263 and 486 Squadron Typhoons.

well as the customary Fw 190s and Bf 109s.

ROCKET POWER

In October 1943 a new weapon was added to the Typhoon's armoury - the rocket projectile. This simple but effective device had already seen action with Hurricane and Swordfish squadrons, but its partnership with the Typhoon, whose stability and high speed made it the ideal accurate delivery platform, would become legendary. Successful trials were carried out by Hawkers, A&AEE and AFDU on EK497 carrying eight rockets (or RPs as they were usually known) launched from Mk. I steel rails under the wings and the first squadron, No. 181, was hurriedly equipped. At first the rockets were considered interchangeable with bombs, depending on the target, but the high groundcrew workload required to make the change soon dictated the specialisation of Typhoon squadrons as bomb or rocket equipped. Both weapons were used extensively in the campaign against Noball sites mentioned earlier, and then in May 1944, in the campaign to cripple the German coastal radar system before the Allied invasion of occupied France. By then the maximum bomb load had been increased to two 1,000-lb bombs, these being dropped on operations for the first time in April 1944 by 143 Wing RCAF.

Attempts were made to increase the RP load by linking two rockets together - they remained linked when fired. Although successful, trials on Typhoon MN861 at the A&AEE and EK290 at the AFDU, showed that this load might prove too much of a handling problem on operations so this ability was never fully utilised operationally, although 12 RPs, linked pairs on the inner two rails of each wing, saw some very limited use.

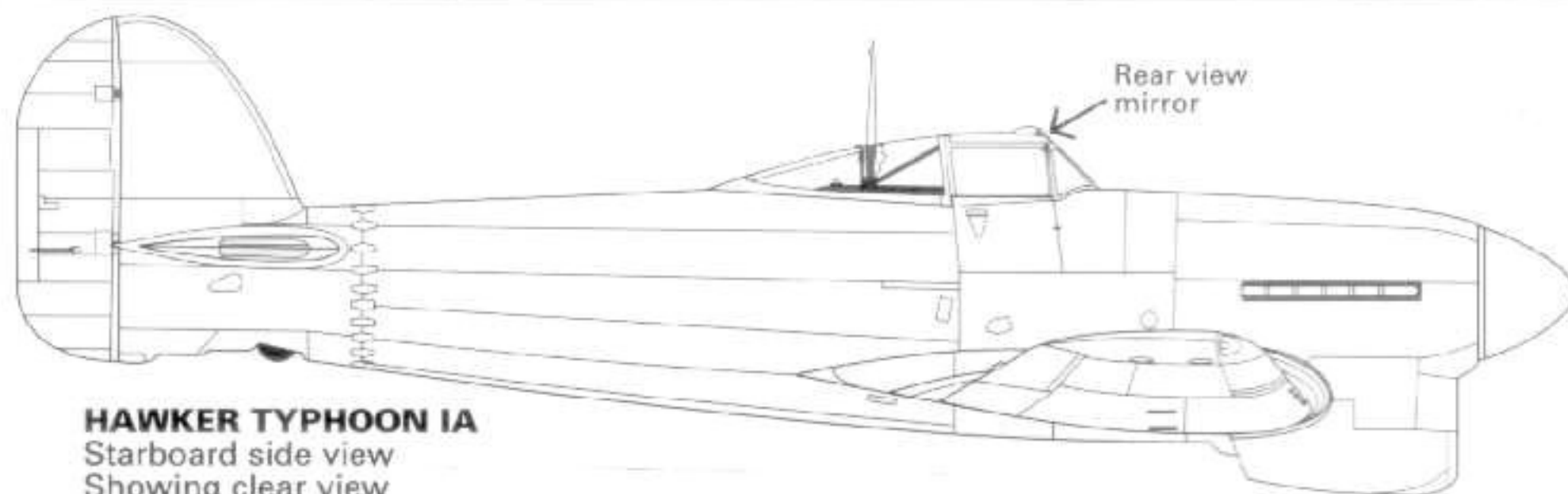
The vast majority of RP used carried 60-lb HE/SAP (high explosive/semi-armour piercing) heads, but some 25-lb armour-piercing were used against shipping. In the last few months of the war a smoke-producing head (for target marking) and a 60-lb high explosive/fragmentation head for use against personnel and thin-skinned vehicles also saw service.

On 4 June 1944, in common with all the Allied aircraft involved in operations in the invasion area, Typhoons were once again painted in black and white stripes (chosen, no doubt, owing to the efficiency of the Typhoon's earlier stripes). Five 18-inch bands, three white and two black, encircled the wings and rear fuselage. Despite orders

Top right: Taxying at Tangmere in September 1943 JP789:SA-C shows the typical appearance of Typhoons at his time. Note the black band extended over the bomb rack. (IWM). Right: A two cannon Typhoon FR.IB EK427. Three cameras replaced the inner port cannon and a cine-recorder the starboard one. (IWM)



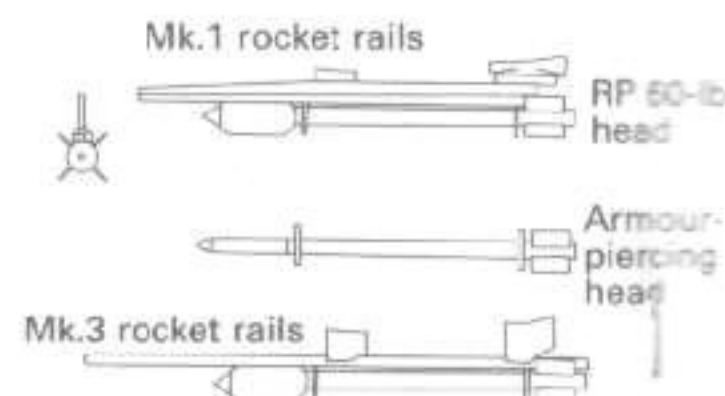
HAWKER T



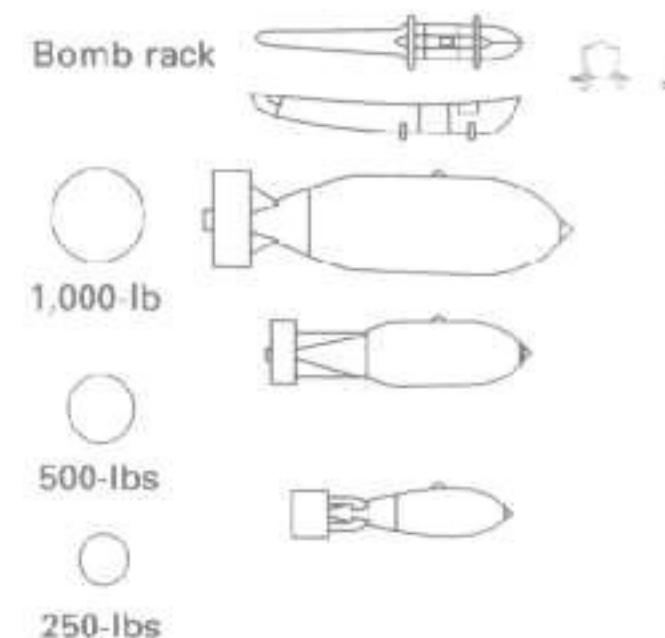
HAWKER TYPHOON IA
Starboard side view
Showing clear view
rear canopy



HAWKER TYPHOON IB
Starboard side view

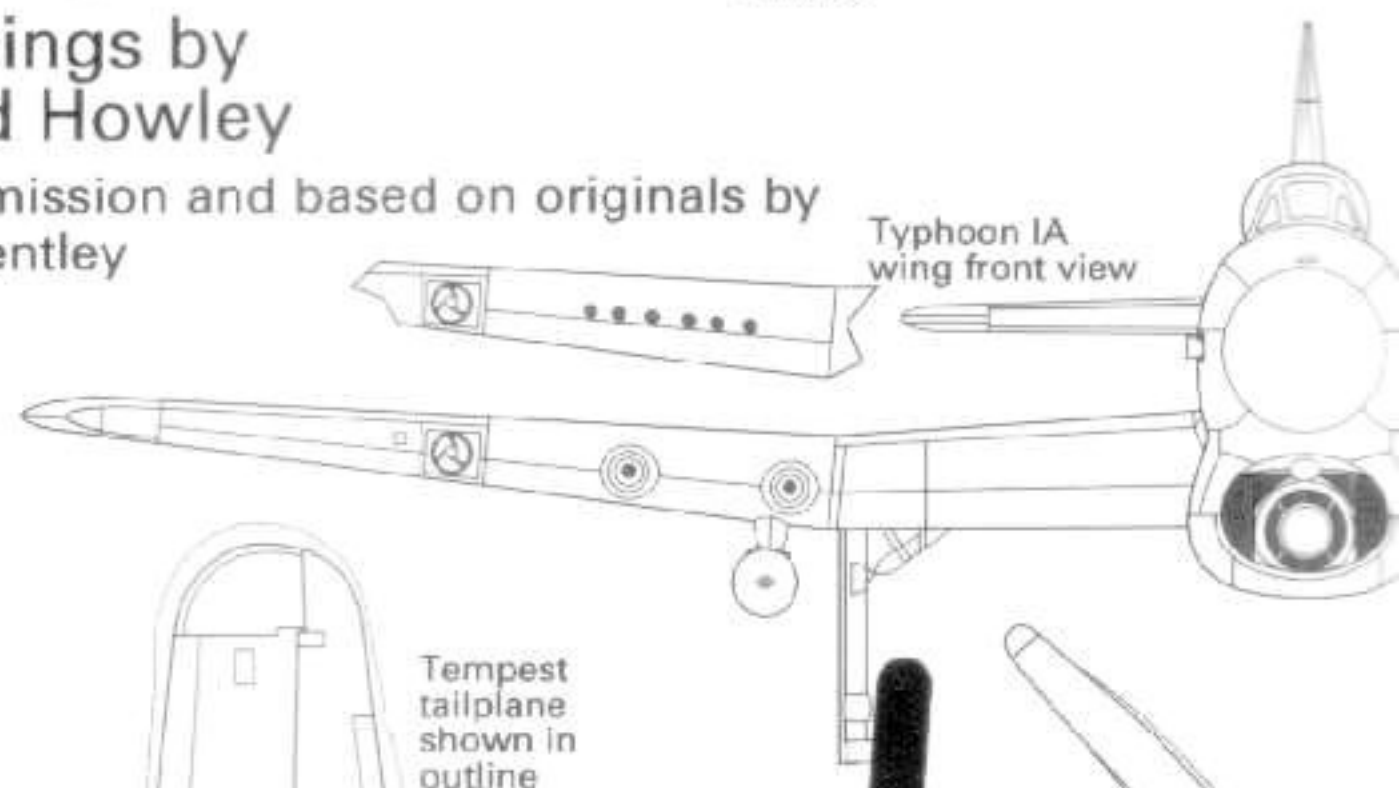
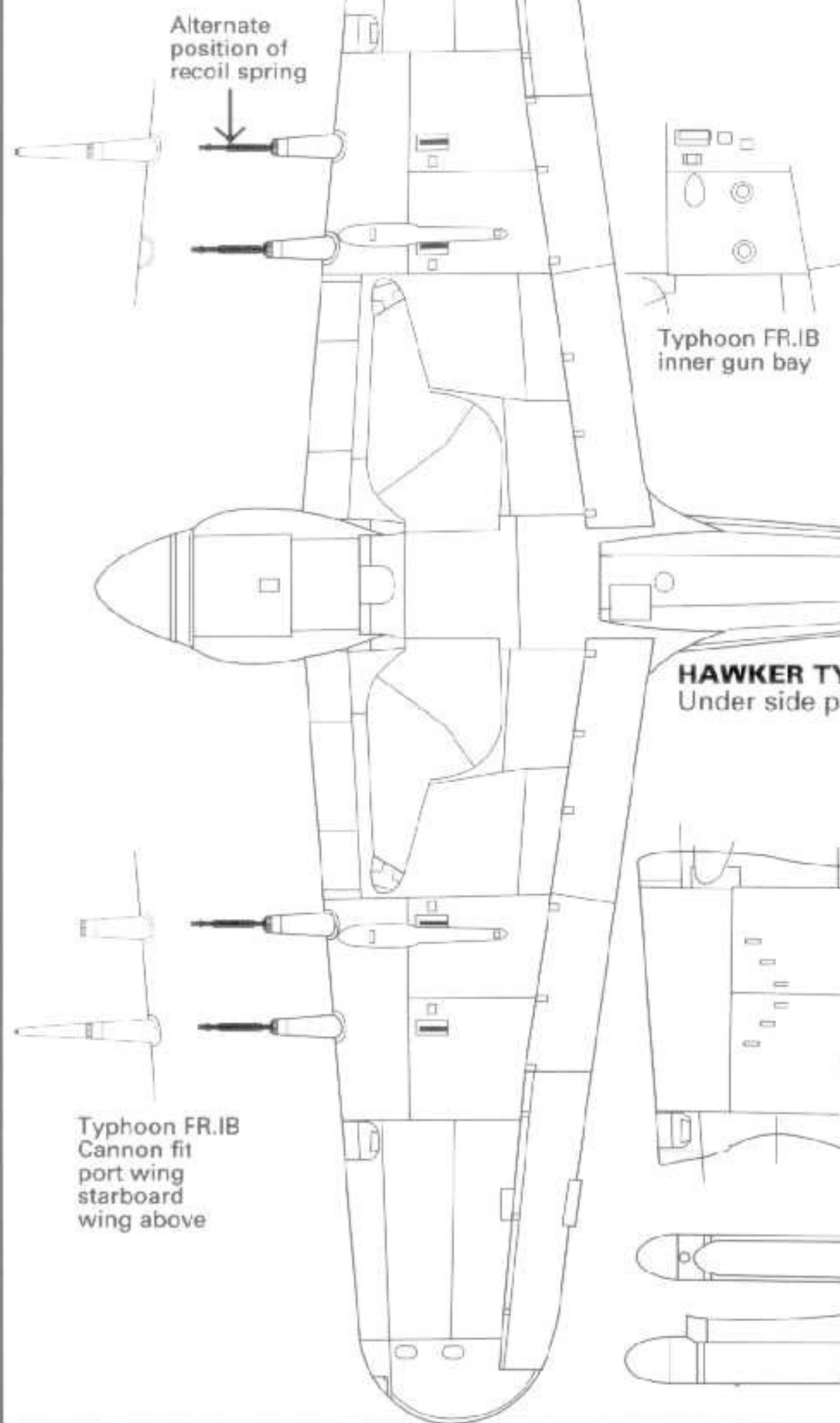


HAWKER TYPHOON ARMAMENT



Drawings by
David Howley

By permission and based on originals by
A. L. Bentley



HAWKER TYPHOON IB
Under side plan view

Scrap view of
Mk. IA wing
underside

Developed
outline

Three-blade
propeller

44-gallon long-
range tanks

HAWKER TYPHOON IA
Early production port
side view.

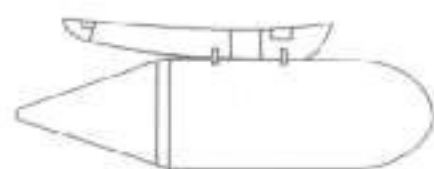
ER TYPHOON

RP 50-lb
heat

Armour-
piercing
heat

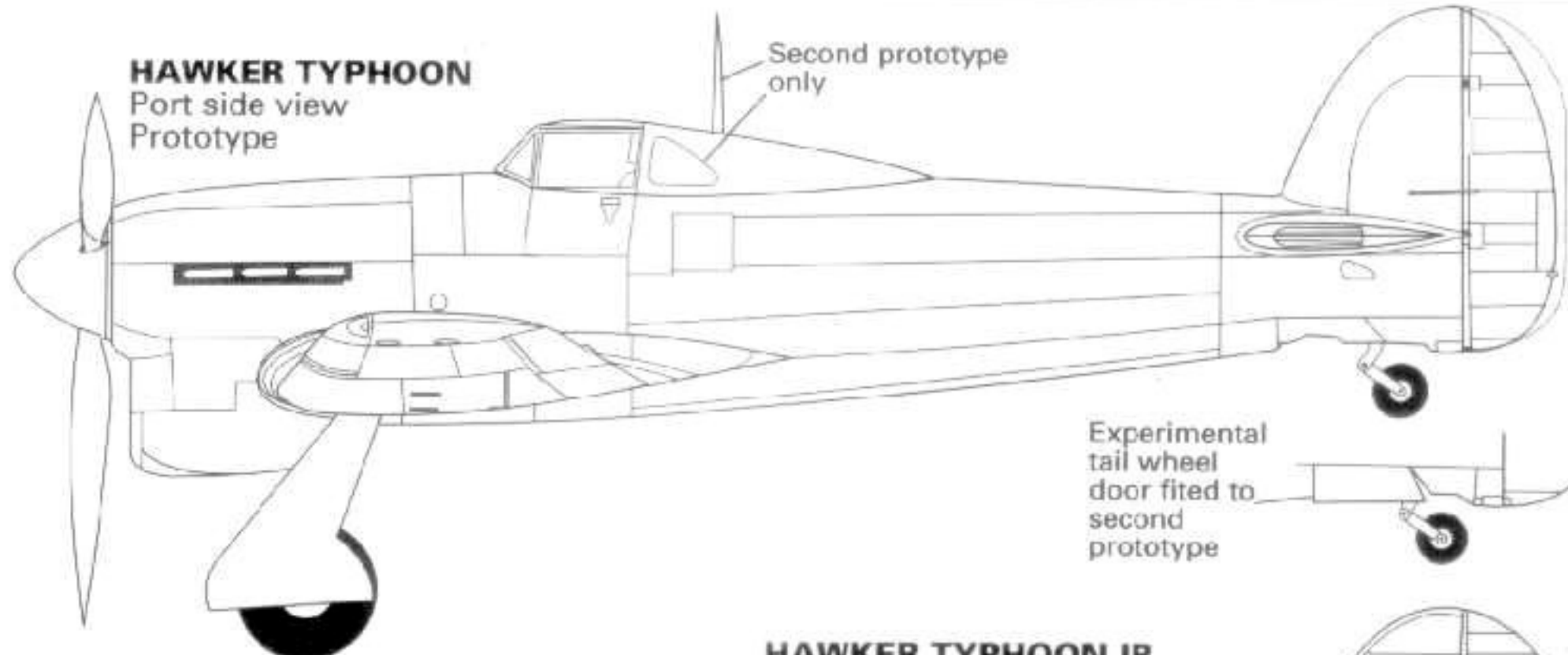
IN

Experimental
main wheel
door fitted to
second
prototype



90-gallon drop tank

HAWKER TYPHOON
Port side view
Prototype

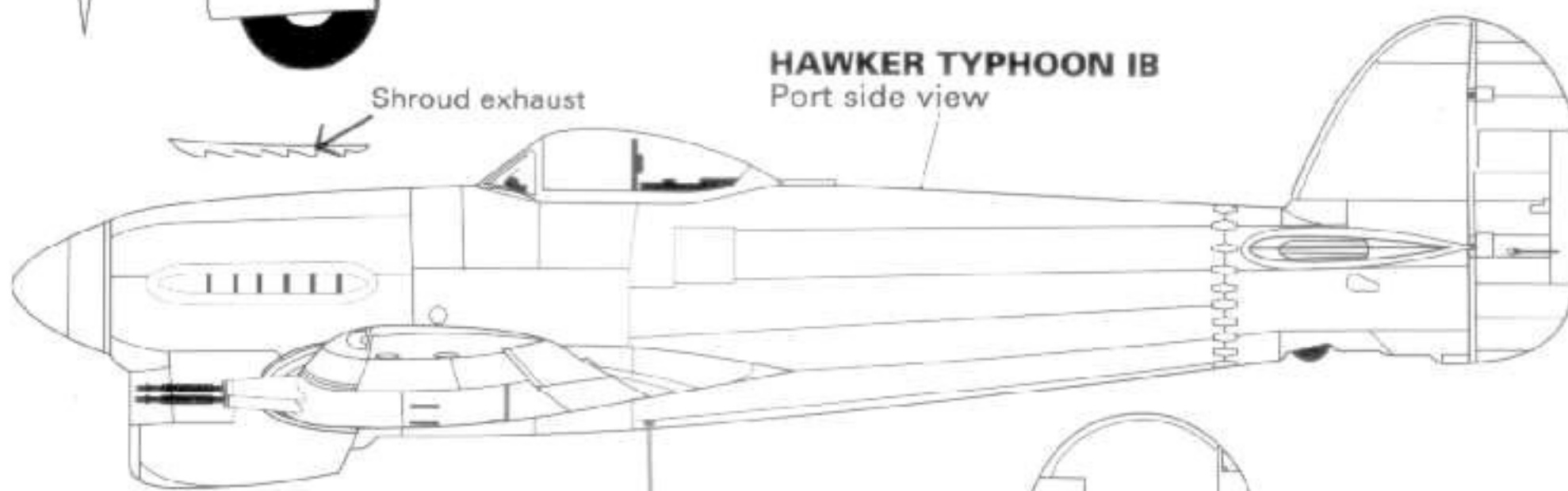


Second prototype
only

Experimental
tail wheel
door fitted to
second
prototype



HAWKER TYPHOON IB
Port side view

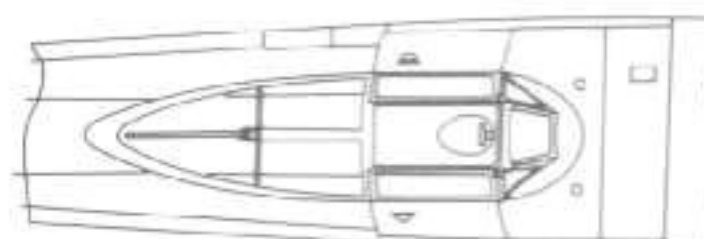
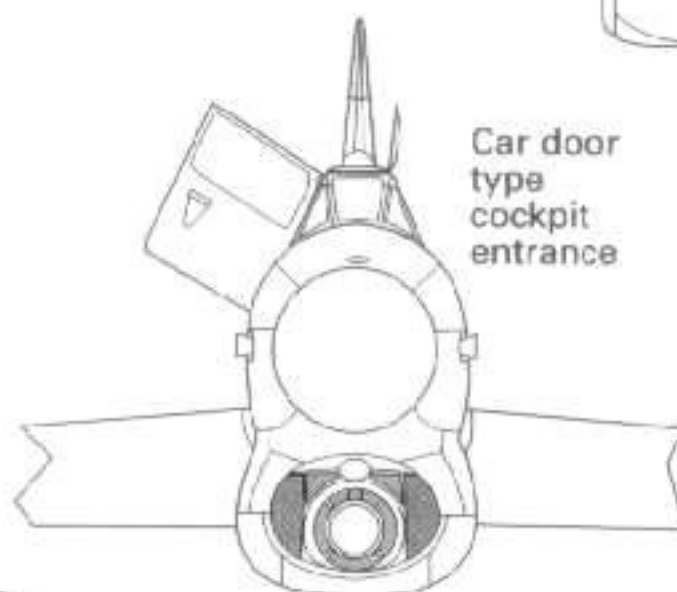


Shroud exhaust

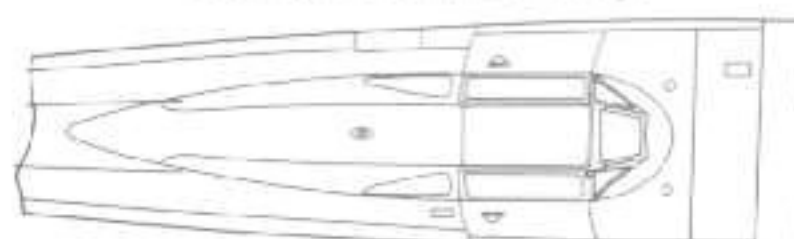
Detail of shell
case deflector
and shute



Car door
type
cockpit
entrance



Modified clear vision car
door with rear view mirror

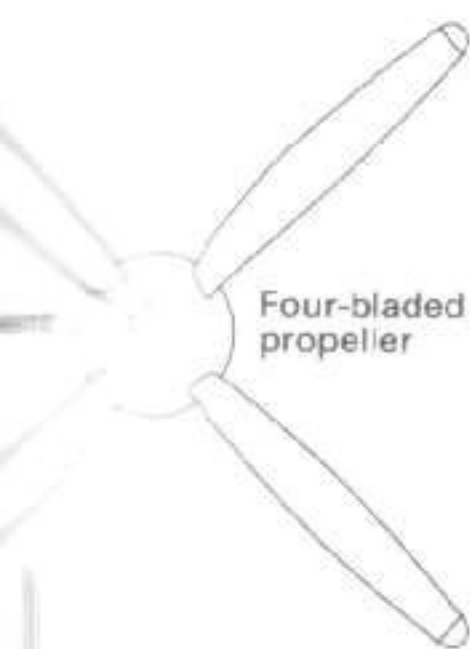


Original hard
top car door

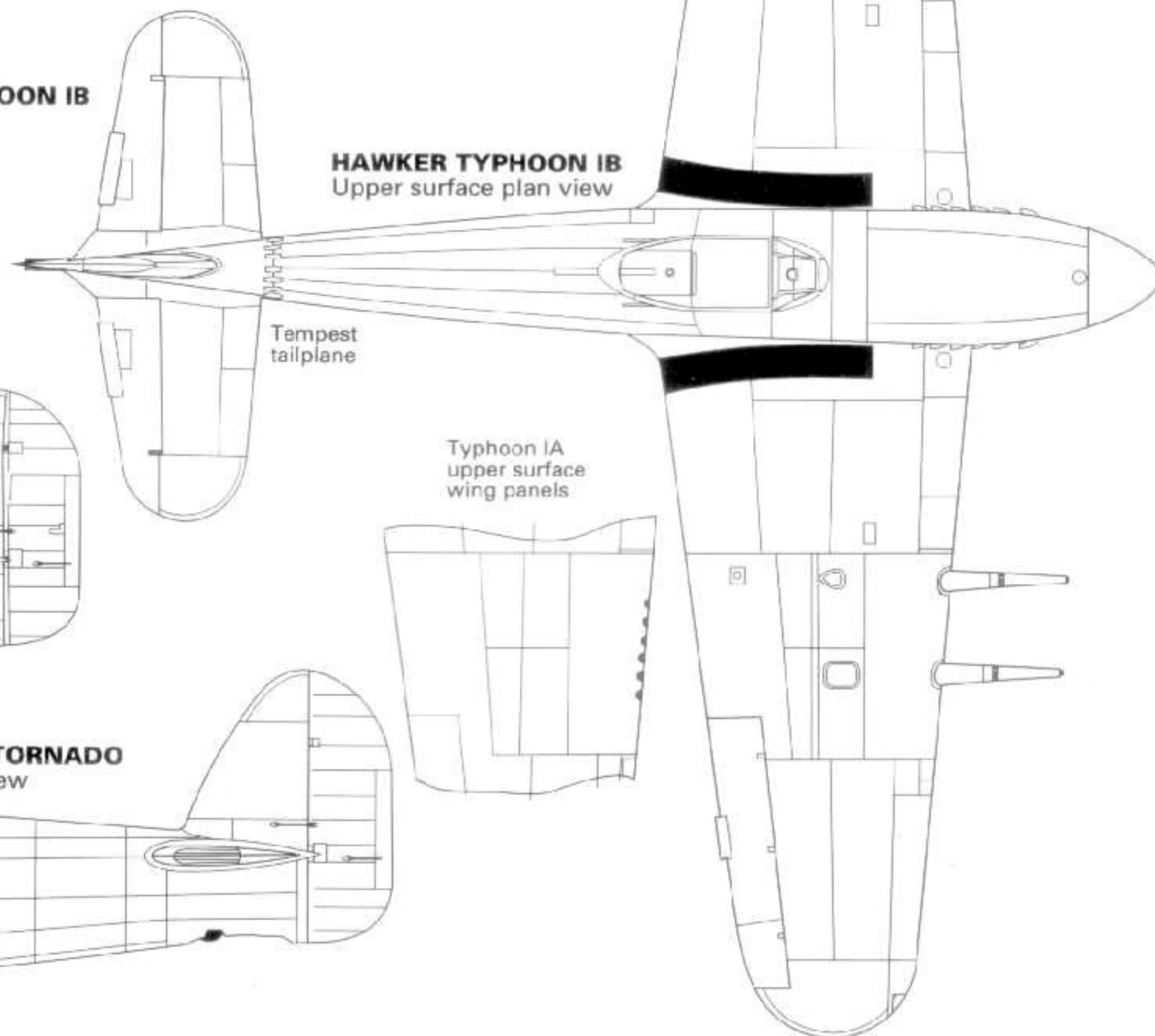


HAWKER TYPHOON IB
Front view

Four-bladed
propeller

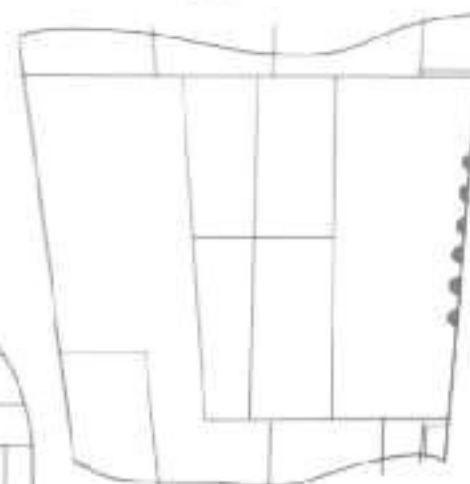


HAWKER TYPHOON IB
Upper surface plan view

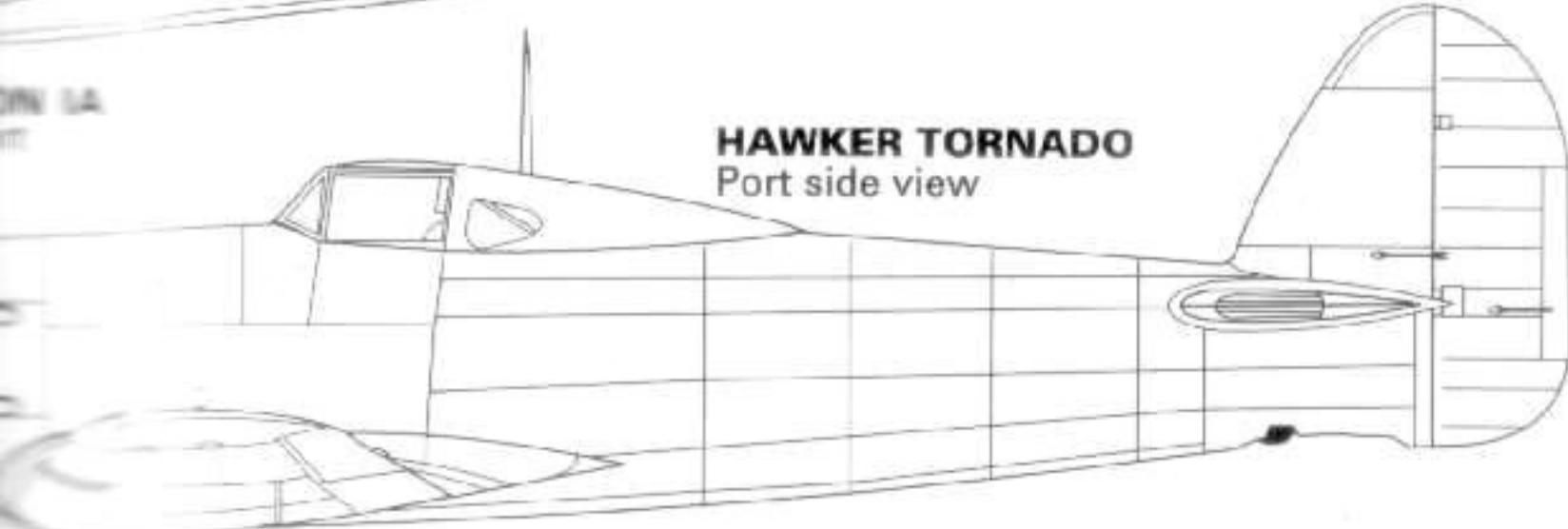


Tempest
tailplane

Typhoon IA
upper surface
wing panels



HAWKER TORNADO
Port side view





Left and below left: By April 1944, when both of these photos were taken, the Typhoon force was a mixture of old and new. JP440:BR-R of No. 184 Squadron is an early example of a production Typhoon with the ultimate canopy design; it has bomb carriers though 184 was about to become a dedicated RP unit. JP671:XP-R of No. 174 Squadron, at Holmsley South, retains the old canopy but is sporting rocket rails - a little seen combination - as most Typhoons received RP and canopy modifications at the same time.

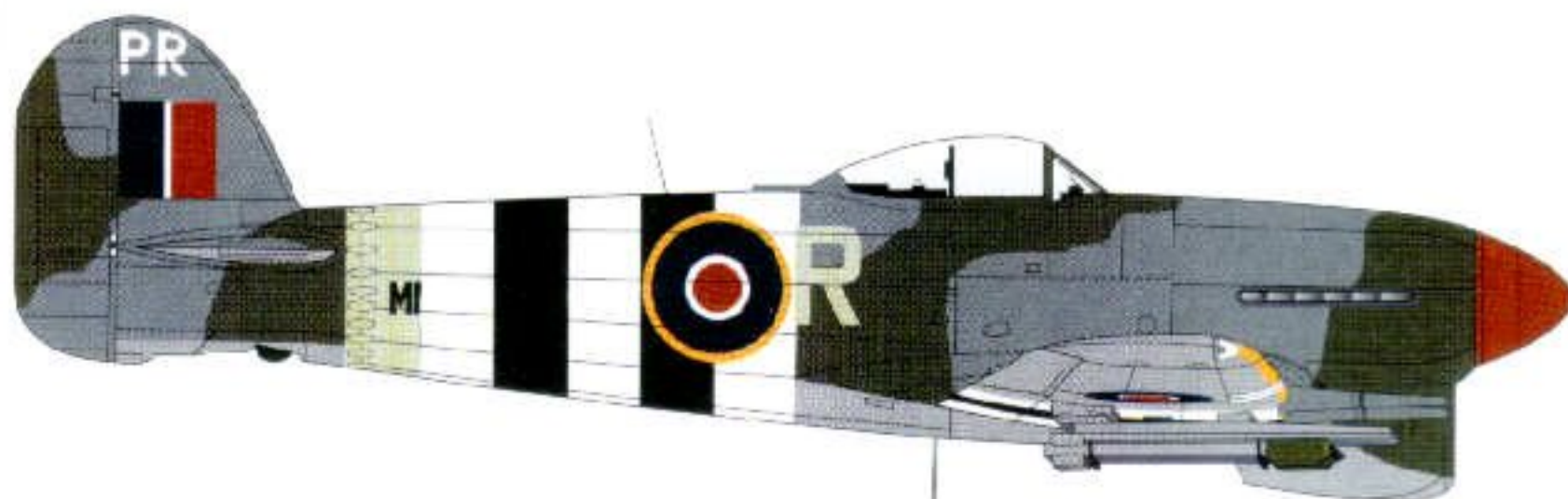


to the contrary, many units painted out their code letters and repainted them, often crudely in alternative positions; other units left gaps in the stripes to leave their letters visible. The stripes were painted in haste and sometimes with unsuitable brushes, resulting in some inaccurate and untidy applications.

On D-Day the RAF and RCAF fielded 20 squadrons of Typhoons, some of which were among the first over the beach-head. Two of the squadrons Nos. 137 and 263, based at Manston and Harrowbeer respectively, remained under the control of Air Defence of Great Britain, ready to intervene on any German attacks on Allied shipping in the Channel; the other 18 squadrons were based close to the coast in Sussex and Hampshire, giving the shortest possible journey to the Allied bridgehead. The Manston-based squadron, No. 137, was the only Typhoon squadron to fly regular anti-Diver patrols, knocking down more than 30 V-1s, including two destroyed by rockets - surely an avi-

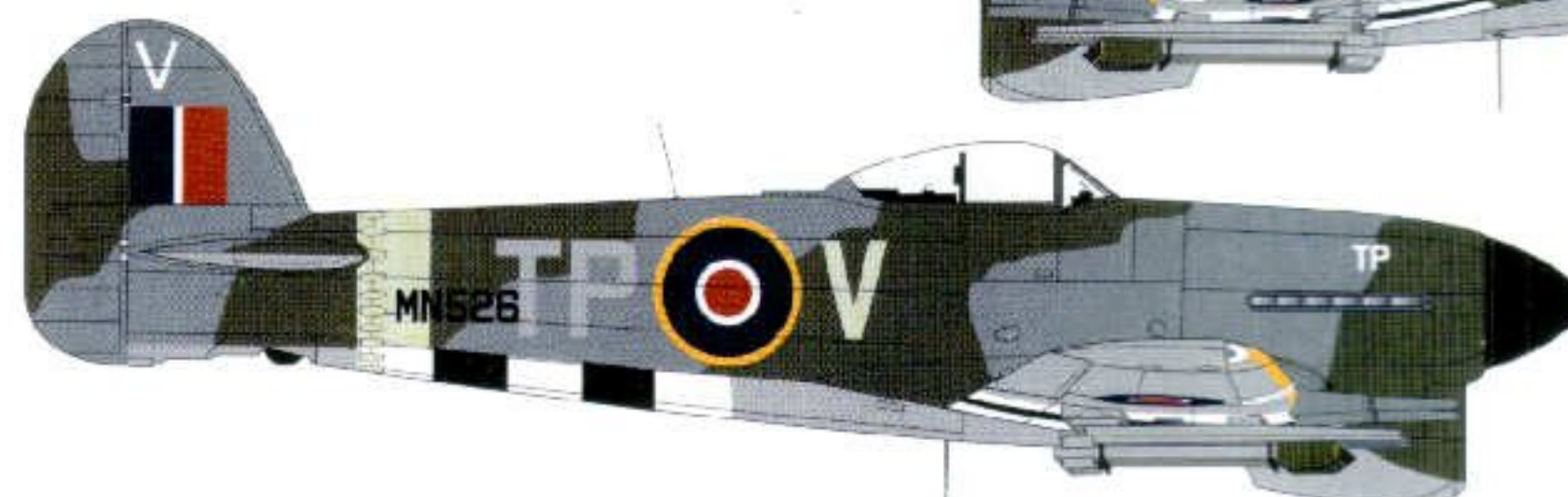
Groundcrew watching Typhoons take off from Thorney Island on D-Day. Behind them, PR-A an MN-serialled Typhoon, wears hastily painted 'D-Day stripes' which have almost obscured the unit code letters, hence the appearance of 'PR-A' above the fin flash. (IWM)





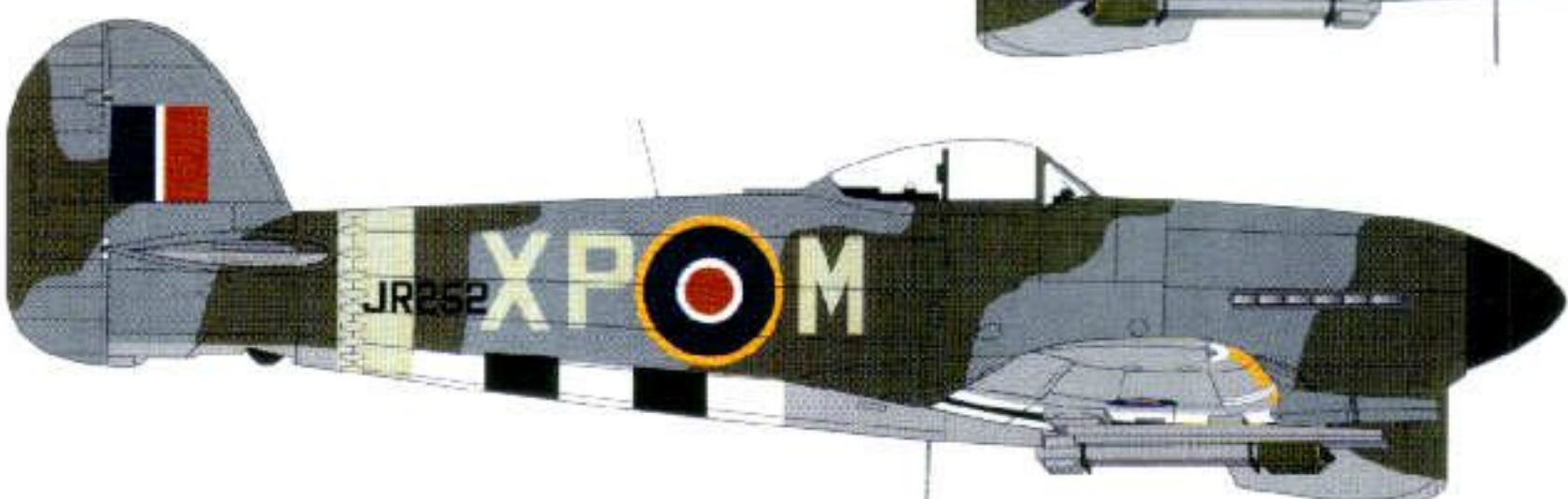
Typhoon IB MN777 PR-R of No. 609 Squadron on 6 June 1944. Note the rough painting of the squadron codes on the fin, replacing those covered by the stripes. Red spinner; RP Mk.1 rocket rails.

Typhoon IB MN819:MR-7, the personal aircraft of Squadron Leader Jack Collins, OC, No. 245 Squadron at Holmsley South in June 1944. The Sky spinner has a blue spiral similar to Luftwaffe fighters of the period. Tempest tailplane, RP Mk.1 rocket rails



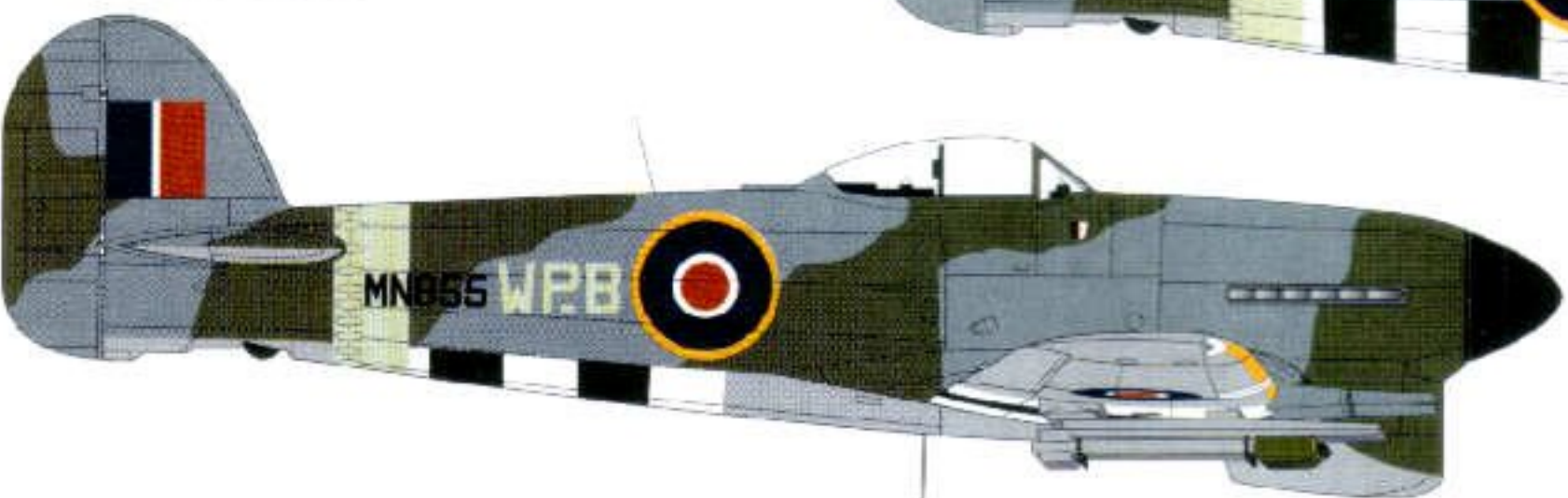
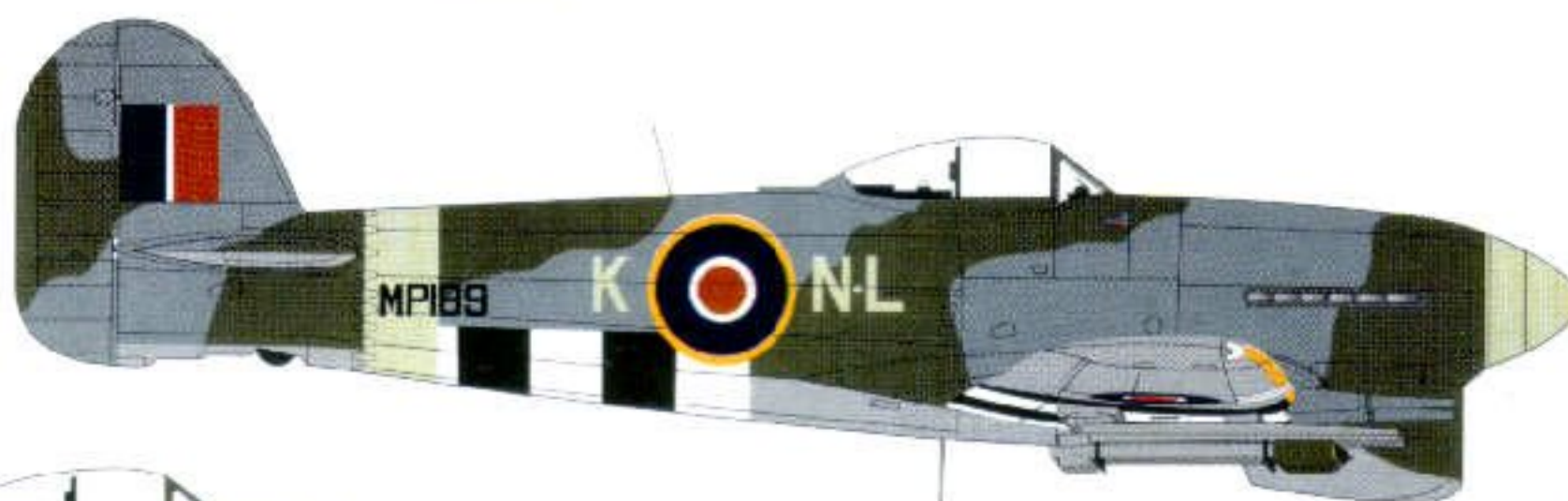
Typhoon IB MN526:TP-V of No. 198 Squadron, at B.10 Plumetot in July 1944. AEAF bands on undersurfaces only. Code letters 'TP' in Medium Sea Grey and repeated in small white letters on the nose. Sky 'V' repeated in white on the fin. Tempest tailplane. RP Mk.1 rocket rails.

Typhoon IB MN536:HH-D of No. 175 Squadron, July 1944. Serial repeated in small white letters above fin flash. AEAF stripes on lower surfaces only. RP Mk.1 rocket rails.



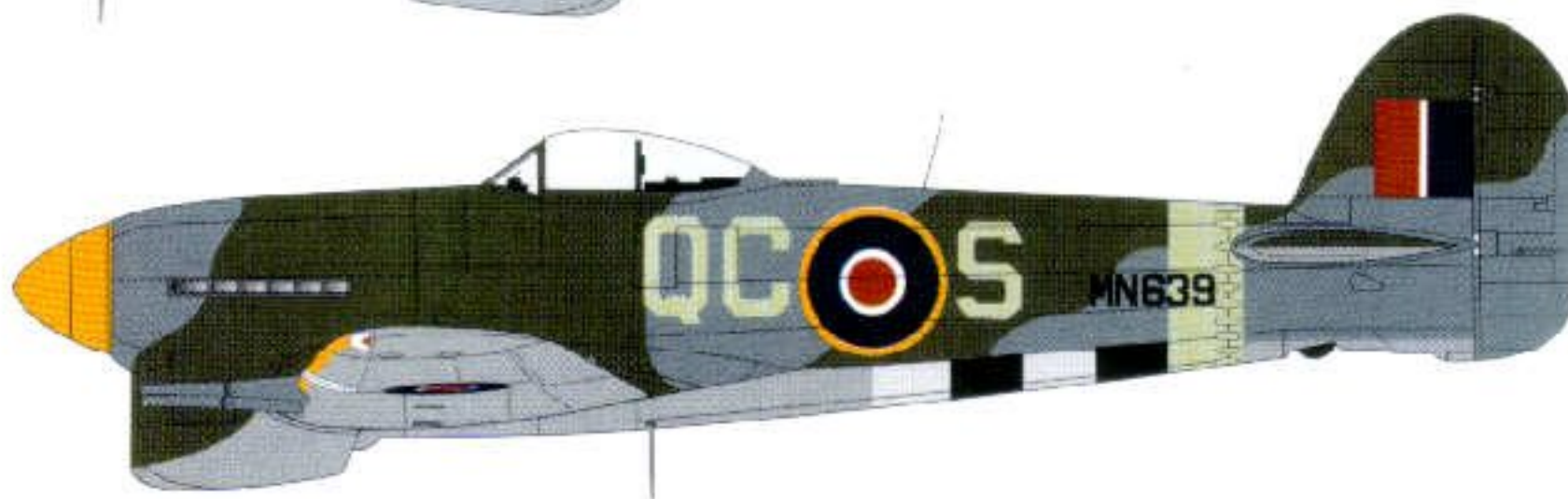
Typhoon IB JR252:XP-M of No. 174 Squadron in August 1944. AEAF stripes on lower surfaces only. RP Mk. 1 rocket rails.

Typhoon IB MP189:KN-L, the personal aircraft of Wing Commander 'Kit' North-Lewis, 124 Wing, September 1944. The Sky spinner has a small red, white and blue roundel on the tip. AEAF stripes on lower surfaces only. Tempest tailplane. RP, Mk. 1 rocket rails.

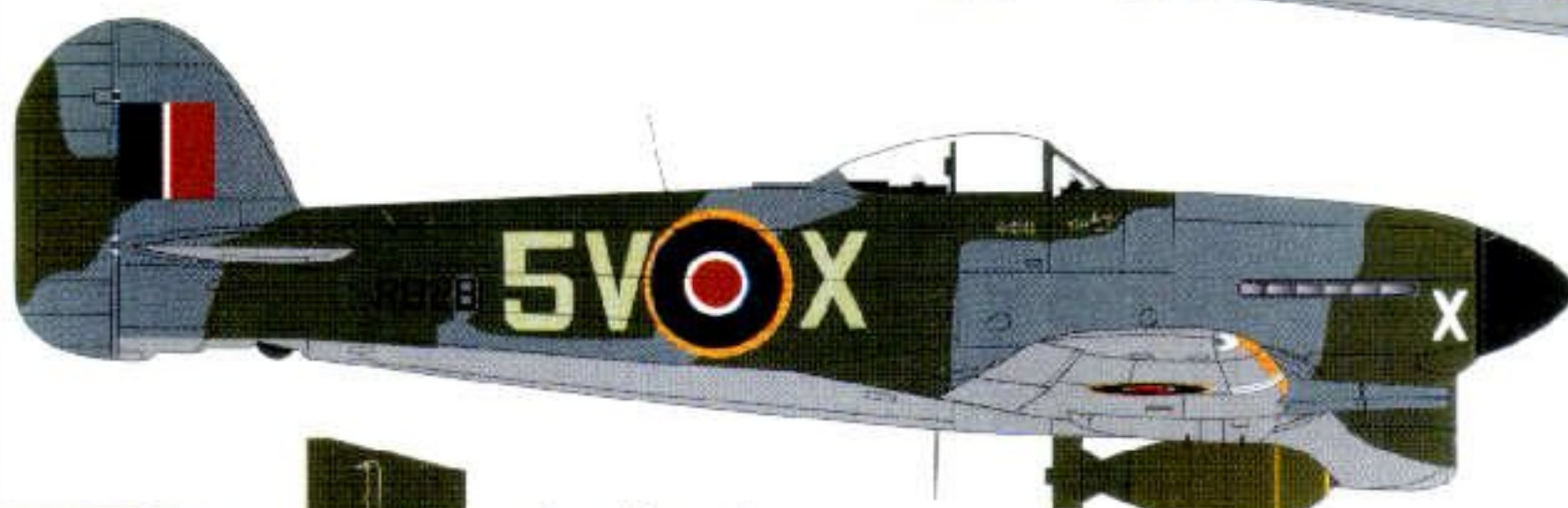
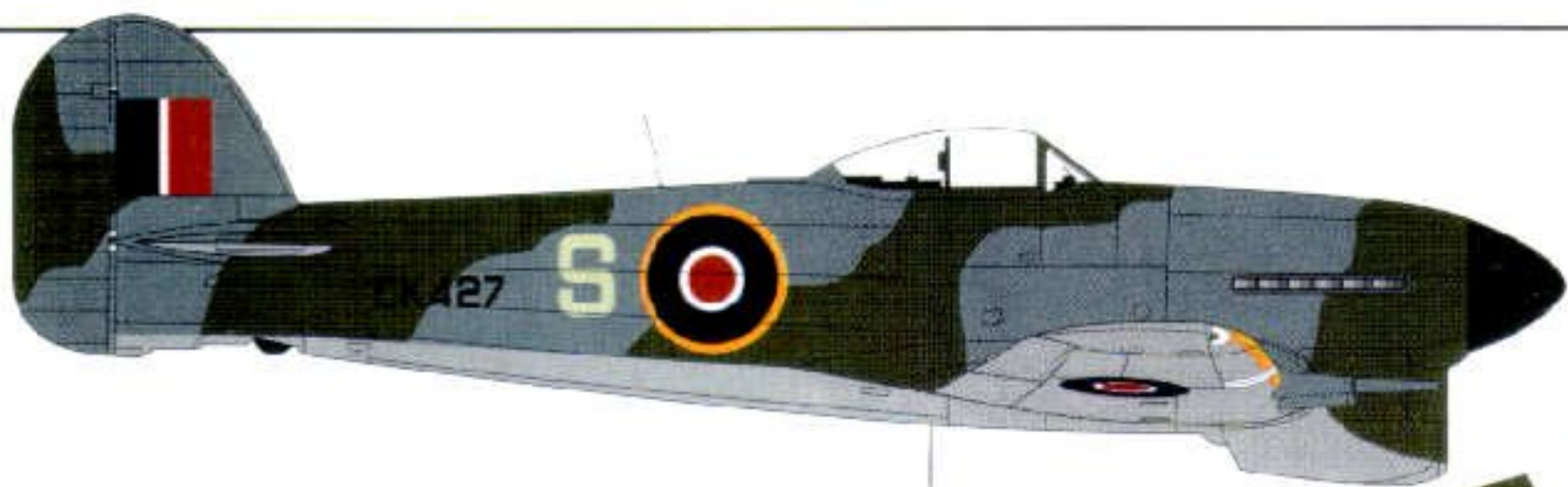


Typhoon IB MN855:WP-B, the personal aircraft of Wing Commander Bill Pitt-Brown, 121 Wing, Volkel, October 1944. AEAF stripes on lower surfaces only. Tempest tailplane. RP Mk. 1 rocket rails

Typhoon IB MN639:QC-S of No. 168 Squadron Eindhoven in late 1944. Yellow spinner. AEAF stripes on lower fuselage only. Tempest tailplane.



Typhoon FR.IB EK427:S of No. 4 Squadron in 1945. Note outer cannons only, inner stub on starboard wing only, Cameras carried in port wing. Black spinner.



Typhoon IB RB281:5V-X 'Nicky' of No. 439 Squadron in 1945. Three German crosses on the door and name under cockpit in white. Aircraft extensively repainted, covering Sky band. Code letter 'X', repeated on the nose. Black spinner. Tempest tailplane. Bombs only.

DOREEN

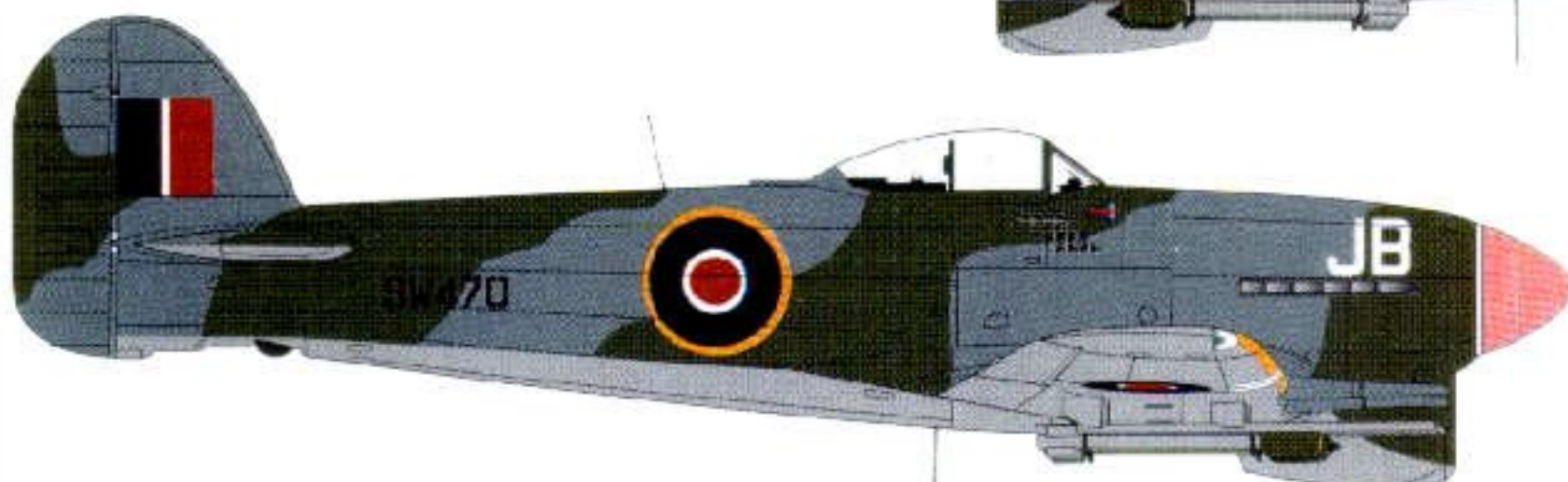


Name 'Doreen' and ostrich

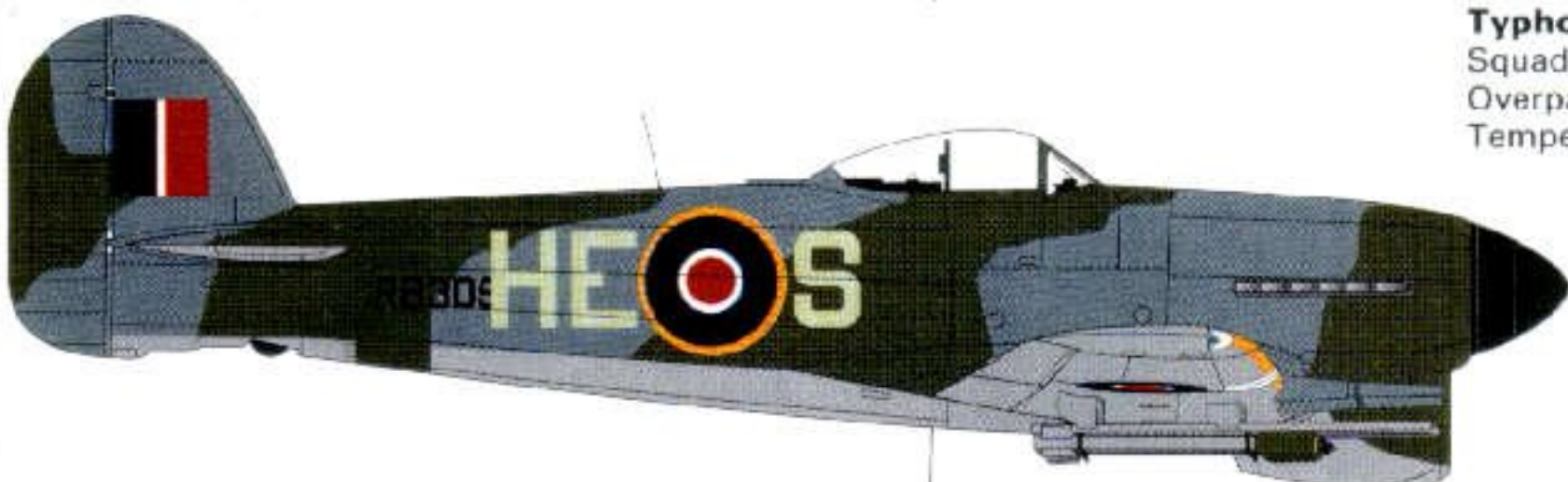
Typhoon IB RB455:FJ-H 'Doreen' of No. 164 Squadron. Name Doreen and ostrich in white. Tips of cannon also painted white. Overpainted Sky band. Black spinner with white backplate. Tempest tailplane. RP, Mk.3 rocket rails.



White outlined, black swastikas and command pennant

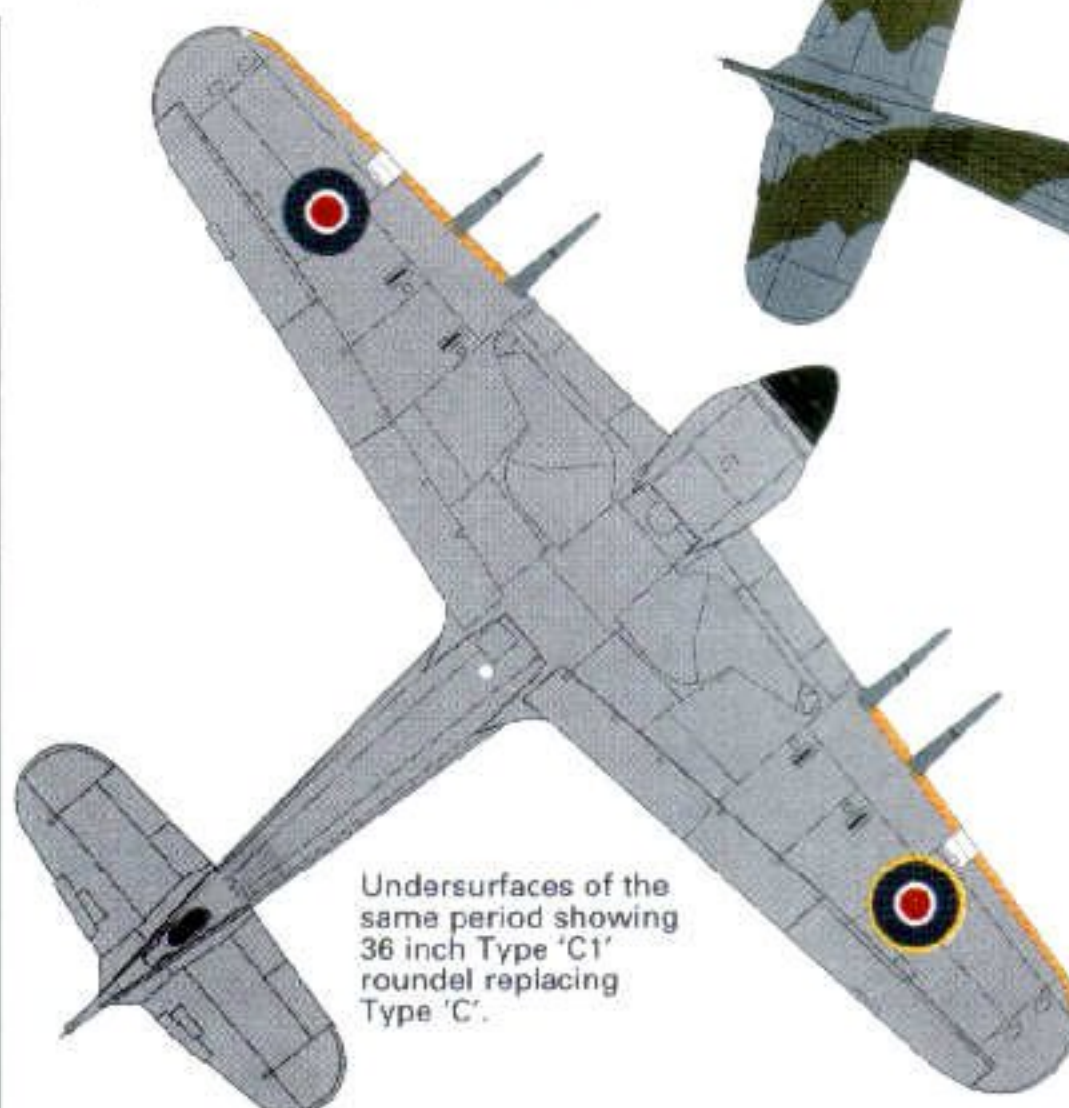
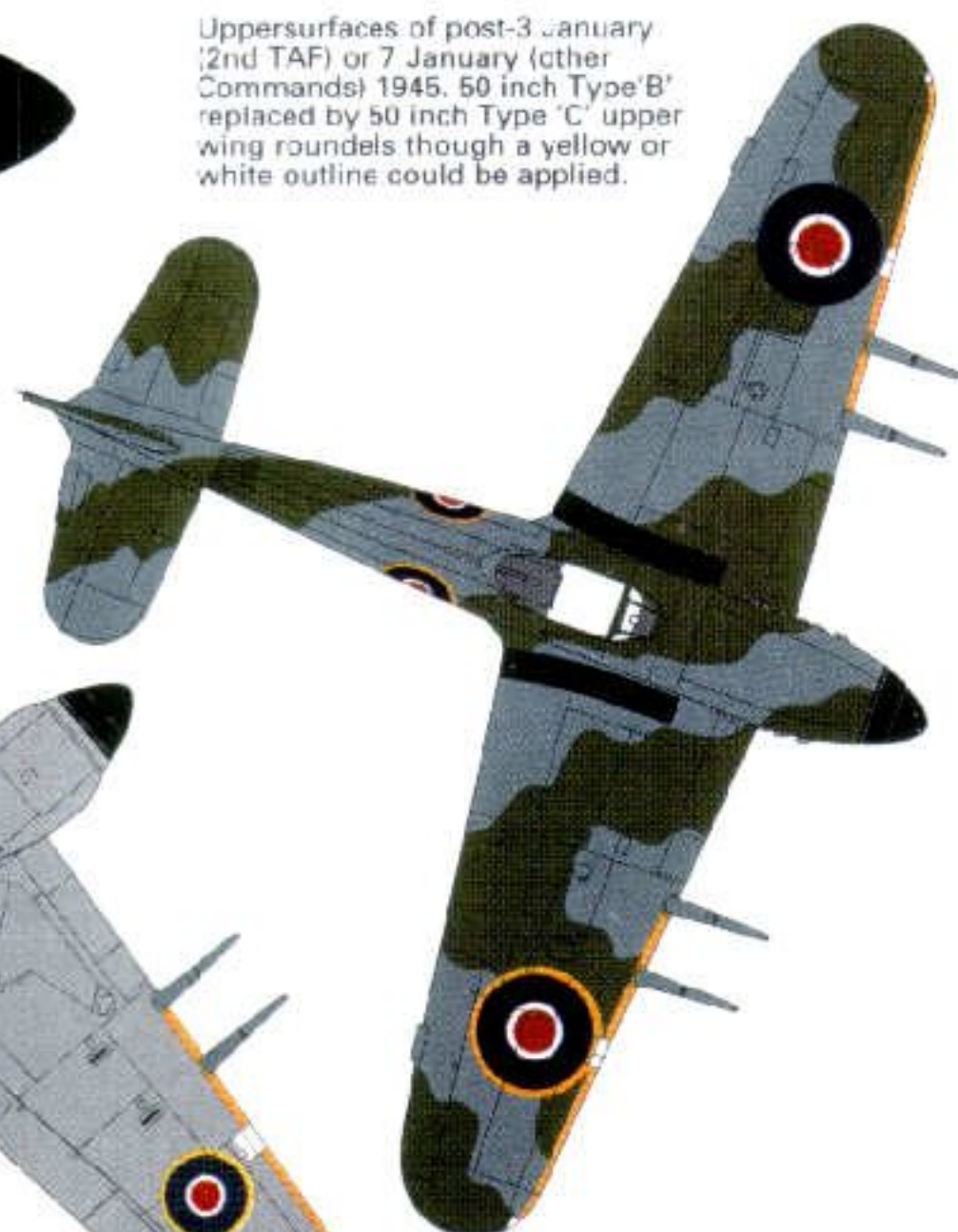


Typhoon IB SW470:JB, the aircraft of Group Captain J. Baldwin, it carries a Grp Capt's pennant. Pink spinner with a white backplate. Tempest tailplane. RP. Mk. 3 rocket rails.



Typhoon IB RB305:HE-S of No. 263 Squadron, B.89, Mill, in February 1945. Overpainted Sky band. Black spinner. Tempest tailplane. RP, Mk.3 rocket rails

Uppersurfaces of post-3 January (2nd TAF) or 7 January (other Commands) 1945. 50 inch Type 'B' replaced by 50 inch Type 'C' upper wing roundels though a yellow or white outline could be applied.



Undersurfaces of the same period showing 36 inch Type 'C1' roundel replacing Type 'C'.



Undercarriage doors. Examples of identification colours on the inner surfaces of undercarriage doors. Far left: No. 182 Squadron, CO's aircraft in mid-1943. Centre: SW399:HH-K of No. 175 Squadron in 1945. Left: SW411:PR-J of No. 609 Squadron in 1945.

ation first - pilotless aircraft destroyed by air-launched rocket?

NORMANDY BATTLES

In the following weeks the Typhoon squadrons played a vital role in the battle for Normandy, establishing a well-earned reputation for fast and accurate close support, with bombs or rockets. From D+7 the Typhoons began operating from strips hurriedly built on Normandy farmland, returning to their bases in Sussex and Hampshire each night. A week later the arrival of full ground support allowed Typhoons to operate full time from the French strips, although their proximity to the German lines, and the consequent shelling, led to a withdrawal for a few days. The 'invasion stripes' now compromised camouflage on the strips and were soon removed from upper surfaces, and progressively down the fuselage sides; by September many Typhoons had stripes under the rear fuselage only.

In mid-July the Typhoons began operating 'cab ranks' (officially known as VCP - Visual Control Post) - standing patrols of

Already armed with two anti-personnel bombs, well-worn Typhoon RB326:5V-V of No. 439 Squadron, RCAF, receives 20-mm ammunition from two 'volunteers' for a publicity photo taken at Eindhoven in March 1945. (Public Archives of Canada)

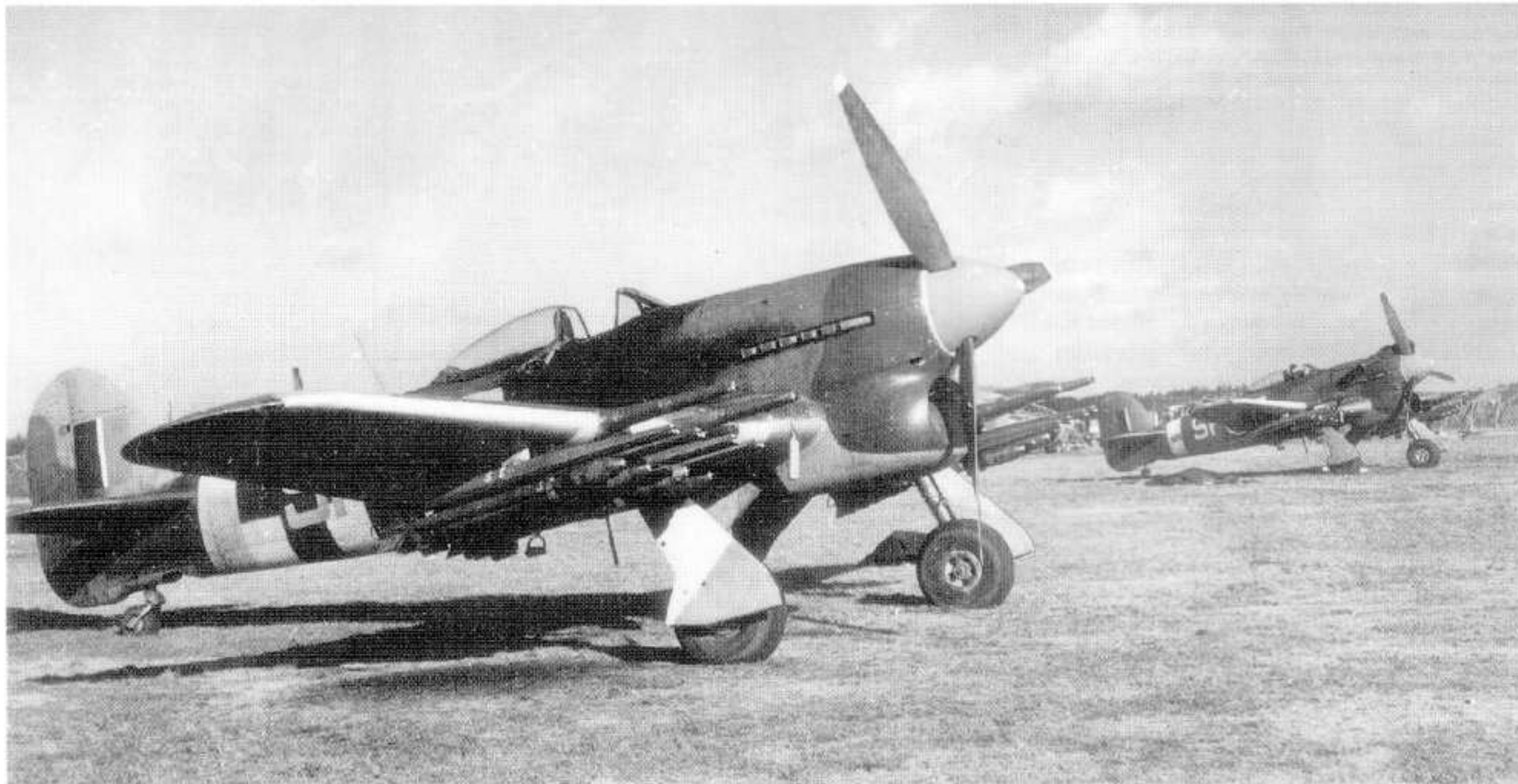
Typhoons which could be called down by Forward Air Controllers to attack targets marked with smoke or on specific map references. German supplies and reinforcements were constantly hindered by interdiction missions and Typhoons also carried out a series of highly-successful 'pin-point' attacks on German Army headquarters, in which many staff officers, including Generals, were killed. Air combat had become a rarity thanks to the cover of Spitfires and Mustangs, but despite the handicap of rocket rails (bomb racks made little difference to performance or handling) Typhoons could still give a good account of themselves if the Luftwaffe was encountered.

Operating from the Normandy strips brought new problems; swirling clouds of dust ingested by the Sabre engines brought a return of the frequent failures. Napiers swiftly designed and produced a mushroom shaped dome to fit over the carburettor intake, in the centre of the Typhoon's radiator, to deflect the offending dust particles. Although this proved effective it was not the complete answer, for the Sabre had a habit of back-firing, on which occasions a red-hot dome would be projected across the airfield, to the consternation of those in line! Eventually this device was replaced by a drum shaped filter with 'cuckoo doors' capable of swinging in or out as appropriate.

On 7 August 1944 Typhoons played a major role in the battle of Mortain, when German armoured thrusts which threatened

Parked among 'Jerry' cans and ammunition boxes, MN582:HH-A of No. 175 Squadron at B.5 in August 1944, shows the markings displayed by most Typhoon units in Normandy. It is fitted with a Tempest-style tailplane which overlaps the pre-painted Sky fuselage band. Production aircraft later in the MN series had the band moved further forward, clear of the larger tailplane.





to split the Allied forces in Normandy, were halted and then savaged by incessant air attack. By dusk nearly 300 sorties had been flown and claims against tanks alone totalled 84 'flamers', 35 'smokers' and 21 damaged. The Typhoons had turned the tide in a battle which itself was the turning point in the battle for Normandy. The German retreat from France began and the Typhoon squadrons

On 3 January 1945 all 2nd TAF aircraft markings were revised - last vestiges of 'invasion stripes' and Sky bands being removed. All roundels were Type 'C1' and spinners black. The new markings are well illustrated on this No. 440 Squadron Typhoon MN658:18-E victim of a landing accident at Eindhoven on 22 January 1945. (IWM)

added their considerable firepower to the carnage wrought in the Falaise pocket.

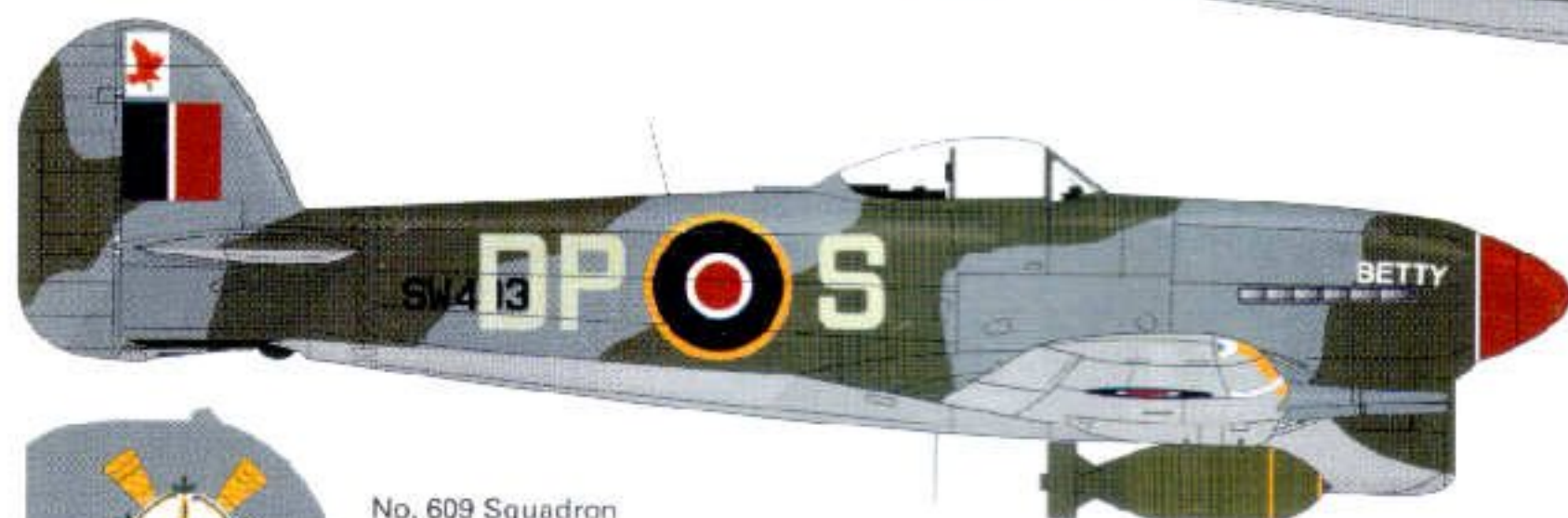
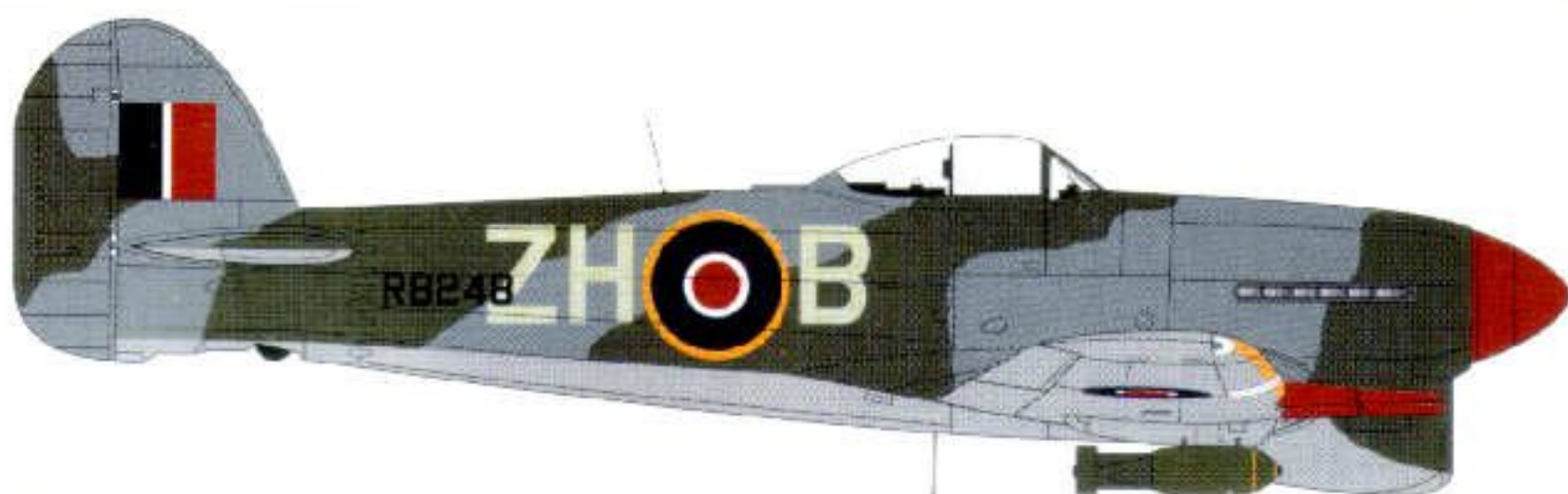
Towards the end of the Normandy campaign a new variant entered operational service, the Typhoon FR.IB. At the beginning of 1944 the RAF had been faced with the problem of replacements for the Mustang Is and IIs which had very adequately filled the role of low-level fighter-reconnaissance. A trial installation of cameras was made on JR207 and assessed by No. 400 Squadron RCAF and plans were made to convert 200 stored airframes. The production prototype was MN315 which was equipped with one 14-inch and two 5-inch cameras in the port wing, necessitating the removal of the inner cannon. By July, with a Typhoon shortage

Rocket-armed Typhoons of No. 137 Squadron dispersed at Eindhoven in September 1944. The nearest aircraft is MN134:SF-S and still retains stripes beneath the rear fuselage, whereas the one behind, MN234:SF-T, having recently arrived on the unit, has no 'invasion stripes' at all. Both aircraft have red spinners with white backplates and centre dots. The objects dangling from the inner cannons on both machines are fire extinguishers, ready for the next start. (Australian War Memorial)

looming and doubts about the Typhoon's efficiency in the role as it suffered from vibration which affected the cameras, the programme had been curtailed but sufficient aircraft to part equip one squadron, No. 268, had been produced. This unit used the



Typhoon IB RB248:ZH-B of No. 266 Squadron, Hildesheim, late 1945. Red spinner and cannon fairings. Tempest tailplane. Bombs only.



Typhoon IB SW493:DP-S 'Betty' of No. 193 Squadron, August 1945. Betty in white and squadron badge on white panel above fin flash. Tempest tailplane. Bombs only.

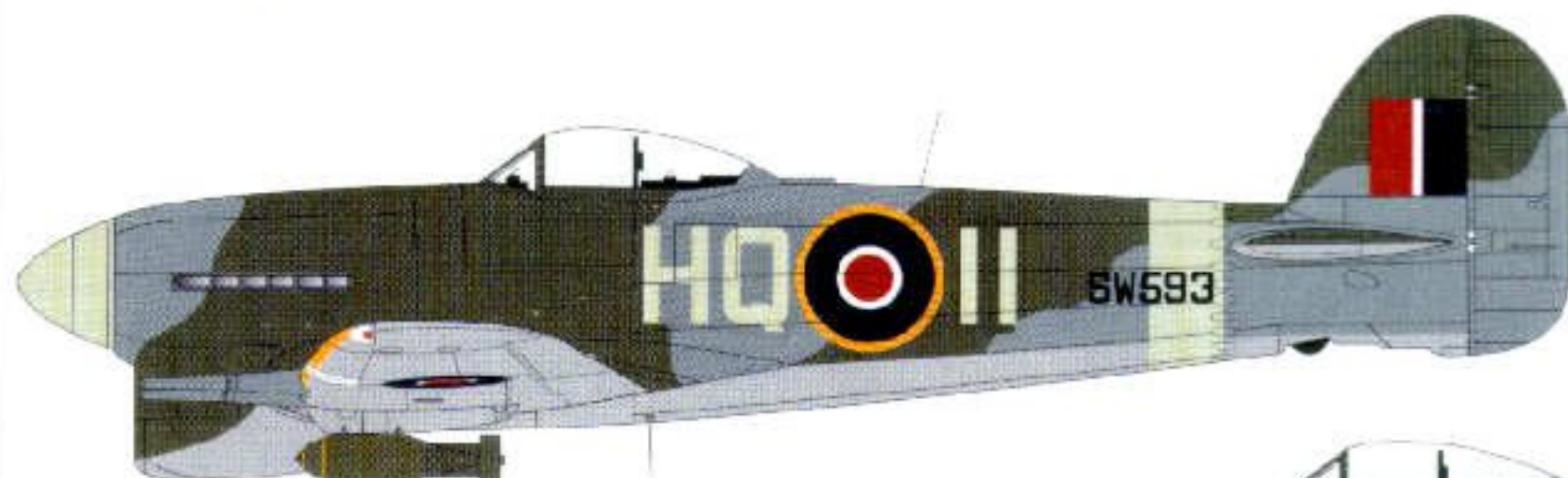
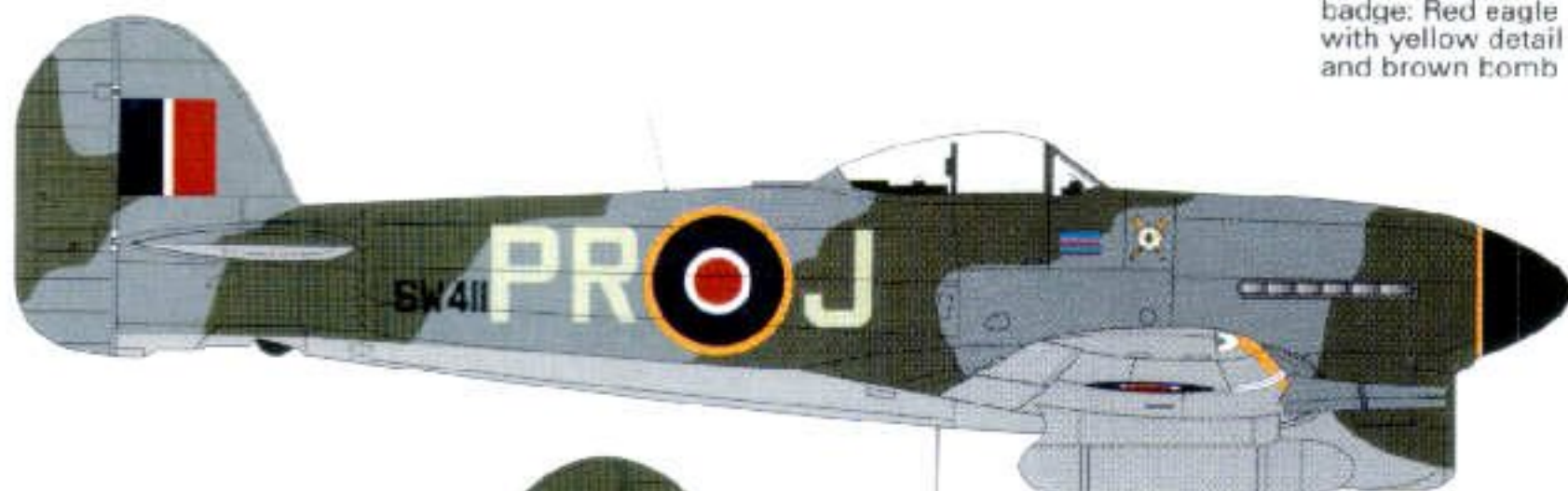


No. 193 Squadron badge: Red eagle with yellow detail and brown bomb



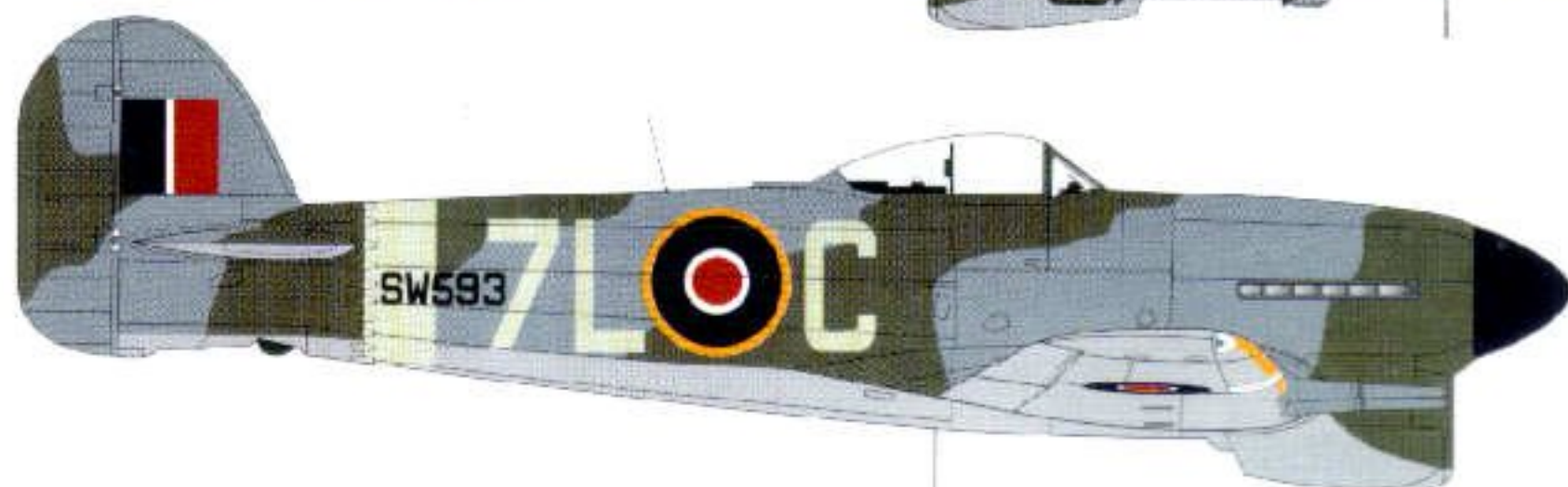
No. 609 Squadron badge. White rose, yellow and green detail and yellow horns

Typhoon IB SW411:PR-J of No. 609 Squadron, September 1945 CO, Squadron Leader 'Pinkie' Stark's aircraft. Sqdn. Ldr's pennant and 609 squadron badge under cockpit. Spinner black with yellow backplate. See undercarriage legs on page 18. Tempest tailplane.



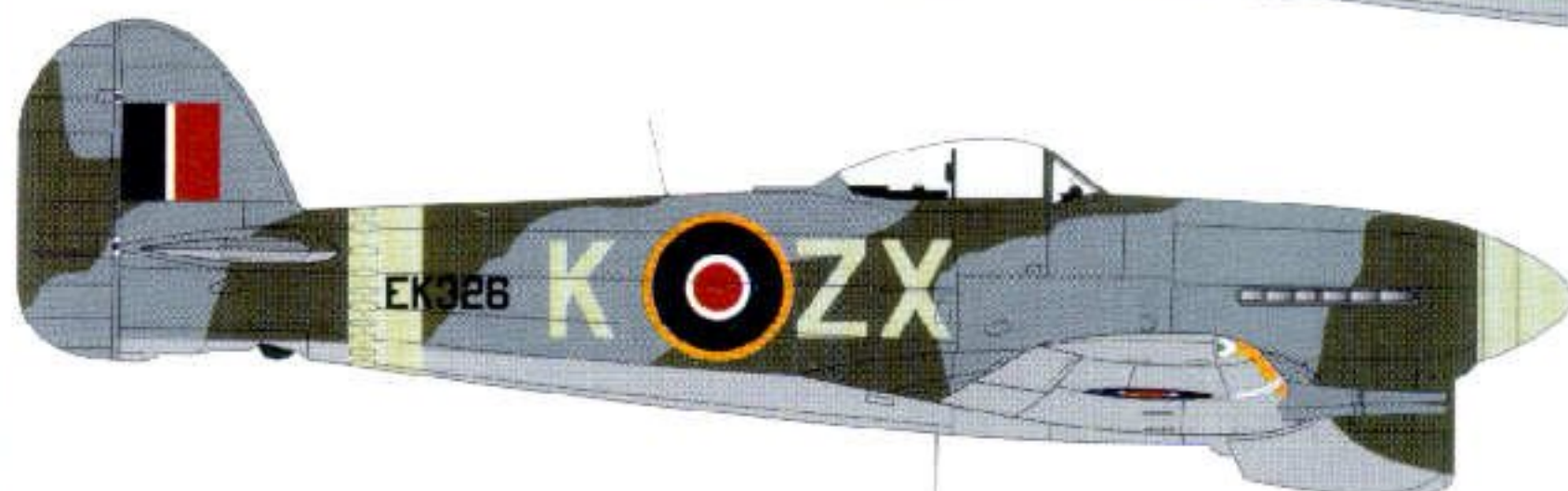
Typhoon IB SW593:HQ-II of 56 Operational Training Unit Millfield, 23 August 1945. Tempest tailplane.

Typhoon IB RB509:7S-X of 82 GSU, Dunsfold, early 1945. Note crude 7S and white X. Overpainted Sky band. Tempest tailplane. RP Mk.3 rocket rails.



Typhoon IB SW593:7L-C of No. 3 Squadron, 59 OTU, Acklington, May 1945. Blue spinner.

Typhoon IB JR183:PA-H of No. 2 Squadron, 55 OTU, Ashton Down (previously 3 Tactical Exercise Unit) in 1945. Latterly this aircraft became 5345M at RAF Locking in 1945.



Typhoon IB EK326:ZX-K of No. 1 Squadron, 55 OTU, Ashton Down (previously 2 Sqdn., 3 Tactical Exercise Unit) in 1945. Latterly this aircraft became 5446M at RAF Locking.

Taxying a Typhoon was not easy at the best of times, and on crowded poorly paved strips a guiding 'erk' on the wing was essential. This No. 137 Squadron aircraft carries anti-personnel rockets under the port and a mixture of types under the starboard wing.

Typhoons to supplement its Mustangs until November 1944 when they were passed on to No. 4 Squadron, which used them until February 1945. Three of the camera-equipped Typhoons saw operational use with 146 Wing right up to the end of the war, providing immediate photographic assessment of the results of the Wing's pin-point attacks.

ONWARD TO GERMANY

September 1944 saw the first Typhoon squadrons based in Holland, remaining there throughout the winter of 1944-45. With the battlefield relatively static, interdiction became the order of the day, and to increase the scope for this some squadrons operated

with long-range tanks and a reduced load of four RPs. In December 1944 the rocket squadrons began fitting their Typhoons with the light-weight Mk. III aluminium RP rails. There was a significant benefit as the Mk. I

rails weighed 408-lbs, the Mk. IIIs only 240-lbs, conferring an extra 15 mph at maximum speed (the Mk. I rails had reduced the Typhoon's top speed by some 38 mph). In fact, it was discovered in trials in 1945, that RP rails were not required at all on aircraft with the Typhoon's speed, but the 'zero length' launchers developed were too late to see operational use during the war.

The increased tempo of operations after the invasion led to an inevitable increase in casualties. An attempt to equip an Operational Training Unit with Typhoons in mid-1943 had to be abandoned owing to lack of serviceable aircraft but in April 1944, with the built-up of Typhoon squadrons for D-Day well in hand, No. 3 Tactical Exercise Unit began receiving large numbers of Typhoons and running conversion courses

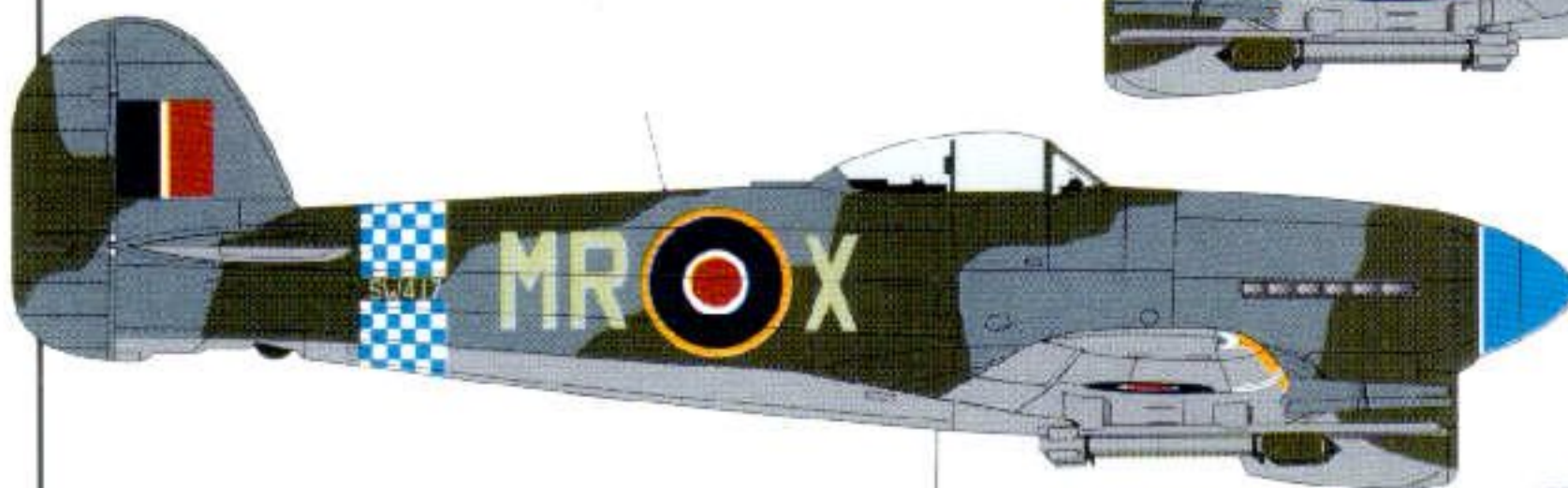
Full flap is nicely illustrated on this No. 183 Squadron Typhoon, RB448:HF-E landing on a captured Luftwaffe airfield in the Spring of 1945.



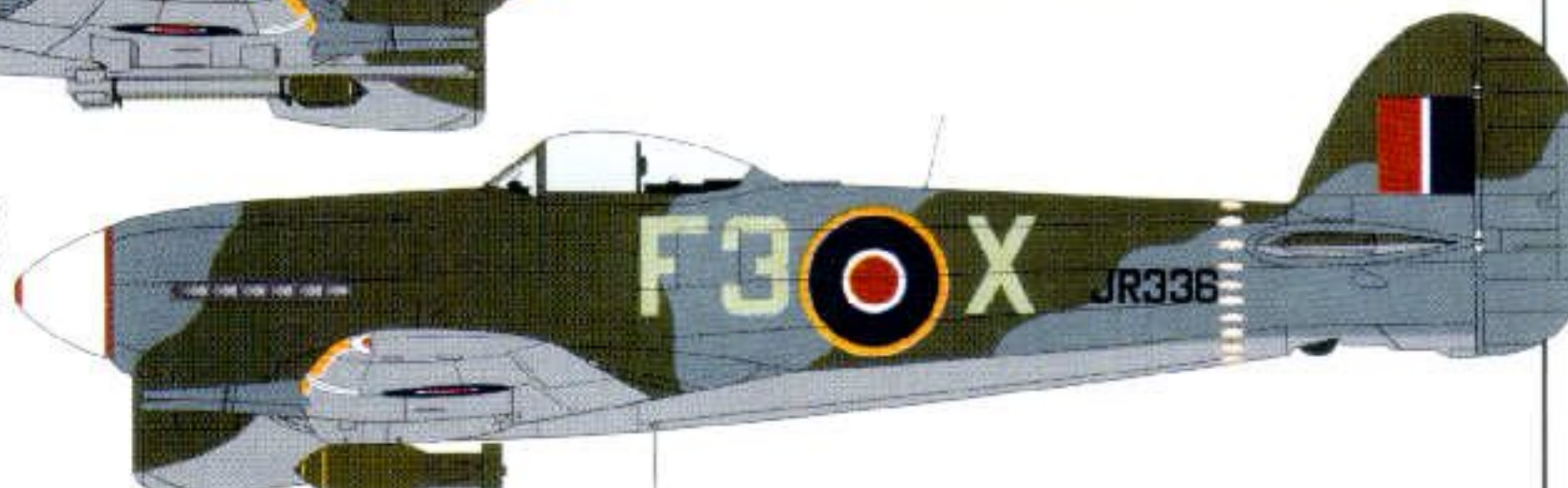
Typhoon IB RB382:BR-M of No. 184 Squadron, August 1945. Spinner and fuselage bands red and white. Tempest tailplane, RP, Mk. 3 rocket rails.



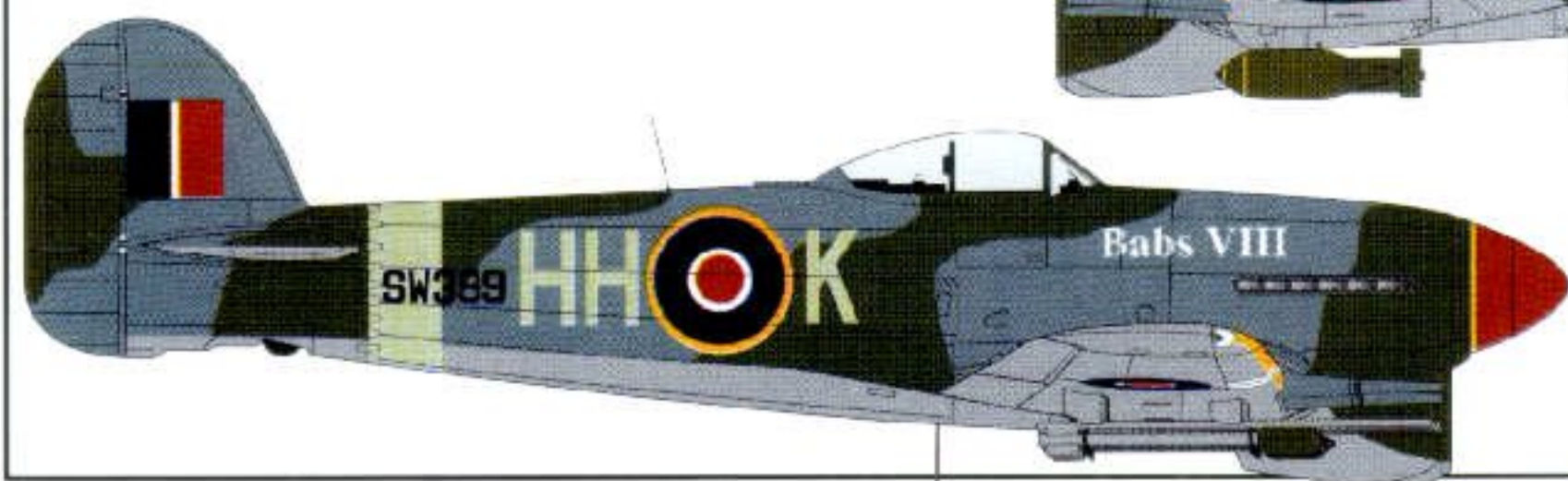
Typhoon IB SW417:MR-X of No. 245 Squadron, August 1945. Blue and white check band, blue spinner with white backplate. Serial non-standard lettering in white. Tempest tailplane. RP, Mk. 3 rocket rails



Typhoon IB JR336:F3-X of No. 440 Squadron, July 1945. Spinner and Mod 286 plates red and white. Tempest tailplane. Bombs only.



Typhoon IB SW399:HH-K 'Babs VIII' of No. 175 Squadron, B.164 Schleswig, July 1945. Name in white, spinner red with yellow backplate. Tempest tailplane. RP, Mk. 3 rocket rails.





Just airborne from Helmond on 26 March 1945, SW494:EL-F from the last production batch wears the 2nd TAF markings which were standard for the last four months of the war.

for pilots used to the more docile Hurricane or more refined Spitfire. Towards the end of 1944 the lack of pilots was reaching crisis point: No. 3 TEU, at Aston Down, was renamed No. 55 OTU and two further OTUs, Nos. 56 and 59 were formed at Milfield and Acklington respectively. With the OTUs training inexperienced fighter pilots, conversion courses were now run by Nos. 83 and 84 Group Support Units, in addition to their accustomed task of supplying aircraft to their parent 2nd TAF Group units. Tactics and leadership were taught to experienced Typhoon pilots at the Fighter Leaders School which operated its own squadron of Typhoons.

With a steady supply of pilots ensured, there remained problems in keeping enough Typhoons available for the front-line units. The Typhoon's successor the Tempest, was now in service with seven squadrons in the

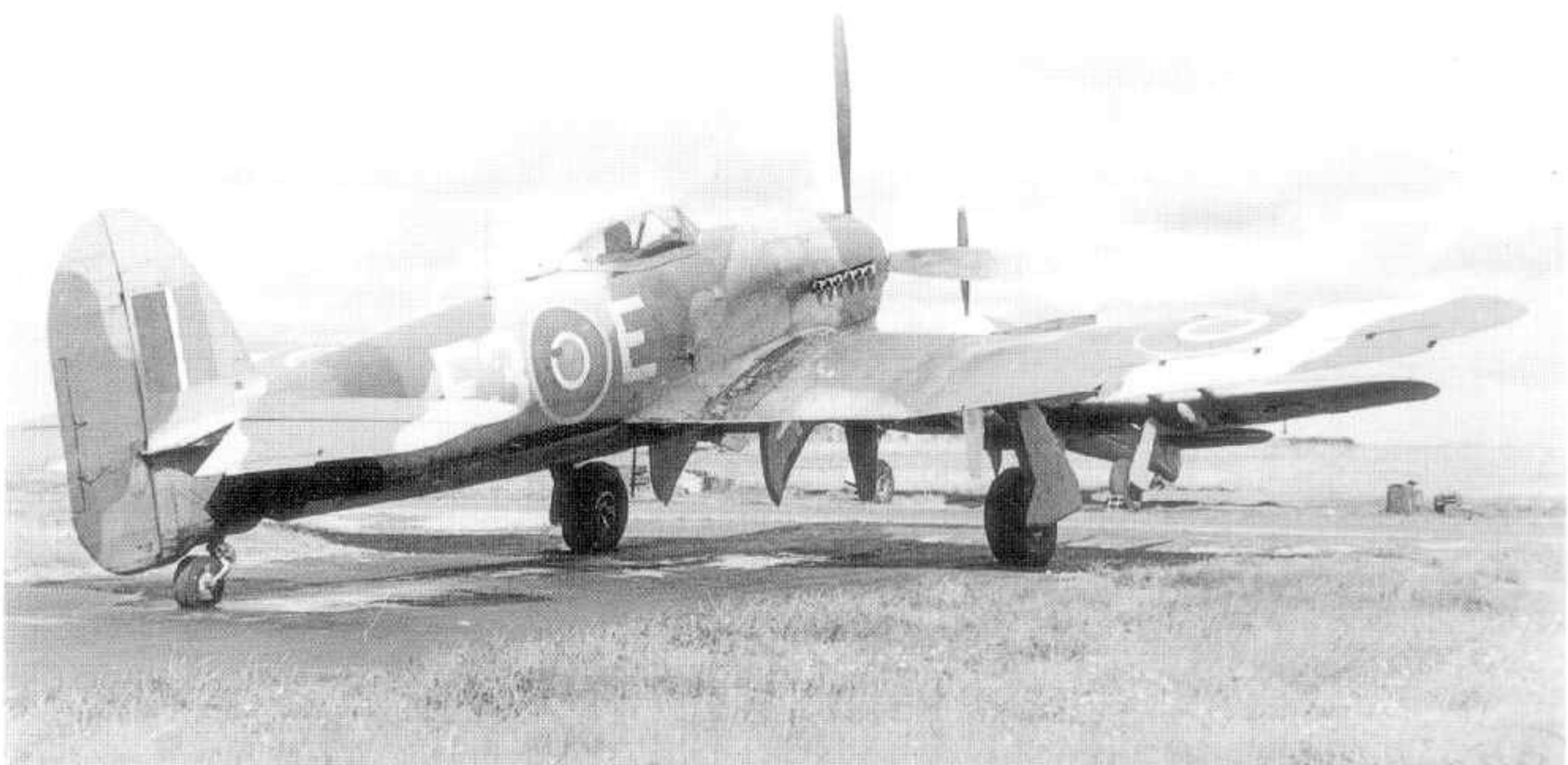
2nd TAF, but production was barely keeping up with losses, so none of the Typhoon units could be re-equipped. Glosters had now begun production of their own Meteor but managed to keep a flow of new Typhoons running, along with a steady trickle of rebuilt aircraft - utilising the airframes which had been in store since 1942-43. The Typhoon bomber squadrons had the priority for new production aircraft as these were,

from May 1944, fitted with four-bladed propellers, which proved much more effective in getting Typhoons airborne when loaded with 2,000-lbs of bombs. From late 1944 onwards the rocket squadrons operated a mixture of 'new' and 'old' Typhoons - some with three-bladed and some with four-bladed propellers, original or Tempest-style tailplanes.

The New Year, 1945, brought a change in markings for 2nd TAF squadrons. In an effort to persuade their USAAF allies that not all camouflaged aircraft were Luftwaffe, Type 'C1' roundels (ie, with yellow outer rings) were introduced above and below the wings, matching those already in use on the fuselage. In order to remove the possibility of the rear fuselage band being mistaken for the Luftwaffe's Defence of the Reich bands, these and the remaining 'invasion stripes' were painted out. This drab scheme was worn for the remainder of hostilities.

March 1945 saw the crossing of the Rhine, with Typhoons heavily involved in the anti-flak role. New weapons were now

Right and below: A pair of well-used 143 Wing, RCAF, Typhoons photographed near the end of the war. RB262:5V-A of No. 439 Squadron still bears the letter 'X' on its nose from its previous identity as 5V-X; SW398:F3-E has faded camouflage and carries the name 'Moonie' in script beneath the windscreen.



entering service, the anti-personnel rockets mentioned earlier were joined by a similar purpose 520-lb fragmentation bomb, which split into 26 20-lb segments. Napalm was also used in the last days of the war but only on a trial basis.

THE TYPHOON'S DEMISE

After a few hectic weeks in which the Typhoon squadrons played a full part, the cessation of hostilities was announced on 4 May 1945. For eleven months the Typhoon had been the very epitome of close support during its operations with the British Second and Canadian First Armies in north-west Europe. Swift to respond, accurate and hard-hitting, it had been the scourge of the Wehrmacht's mobile forces, but within five months of VE-Day the Typhoon had been withdrawn from front-line service, its place taken by the Hawker Tempest. During those summer months of 1945, the Typhoon squadrons remaining in Germany took the opportunity to decorate their aircraft in previously unacceptable hues. Brightly coloured spinners, undercarriage doors and rear fuselage bands became normal, but by the end of September they had all gone, flown back to the UK for scrapping or short-term storage.

Those which escaped the axe had only a short spell in storage as most of the remaining Typhoons were sold off to the scrap yards in 1947; a few lingered on as ground instructional airframes but all of these had also been disposed of by the end of 1955. Fortunately one example, MN235, had gone to the USA for trials in 1944 and had eventually come under the protection of the Smithsonian Institute. Thanks to the Institute's generosity, and desire for an exchange Hurricane, this sole survivor of the 3,317 built now resides in the RAF Museum at Hendon. In 1994 it was fittingly decorated with 'invasion stripes' to commemorate the exploits of its contemporaries some 50 years earlier.

Sporting a two-tone spinner, RB195:XM-K of No. 182 Squadron at Lubeck in July 1945, is unusual for a late production Typhoon in that it has a three-blade propeller.

HAWKER TYPHOON KITS, DECALS AND ACCESSORIES

Compiled by David Hannant, Correct to May 1996

Injection moulded and vacuform kits

Scale	Manufacturer	Identification	Details
1:144th	Revell	RV4026	Injection moulded
1:72nd	Airfix	AX01027	Injection moulded
1:72nd	Novo	NOV389	Frog original
1:72nd	Aviation Usk	USK1005	Limited run injection moulded
1:48th	Monogram	MG5221	Injection moulded
1:32nd	Revell	RV4782	Injection moulded

Conversion parts, white metal and brass etched accessories

1:72nd	Aeroclub	ABP059	One four-bladed propeller
1:72nd	Aeroclub	ABV039	Typhoon wheels, radiator
1:72nd	Airkit	ATC16	Typhoon instrument panel
1:72nd	Czech Master Resins	CMR1077	Early version, resin moulded parts
1:72nd	Squadron/Signal	SQS9110	2 Vacuform canopies
1:48th	Eduard	ED48017	Typhoon set of etched brass
1:48th	Falcon	FNCV31	Vacuform canopies for Typhoon and Sea Fury.
1:48th	Squadron/Signal	SQS9510	2 Typhoon vacuformed canopies
1:48th	Squadron/Signal	SQS9534	Typhoon car type door
1:48th	True Details	TD48036	Resin wheels
1:48th	True Details	TD48806	Photo etched parts
1:32nd	Mole	MOLE1	Three inch rockets in white metal

Decals

1:72nd	Superscale	SS72719	4 sets decals for Typhoon IB
1:48th	Aeromaster Decals	AMD48059	Storms in the Sky; Typhoons
1:48th	Superscale	SS48543	4 sets decals for Typhoon IB
1:48th	Tally Ho Decals	TH4106	2 sets decals for Typhoon IB

Line up of No. 193 Squadron Typhoons at a German base after the end of hostilities. The first aircraft in the row is SW493:DP-S, named 'Betty', which had part of the squadron badge on a white ground on the fin. Note that long-range tanks have been fitted.



Typhoon armament



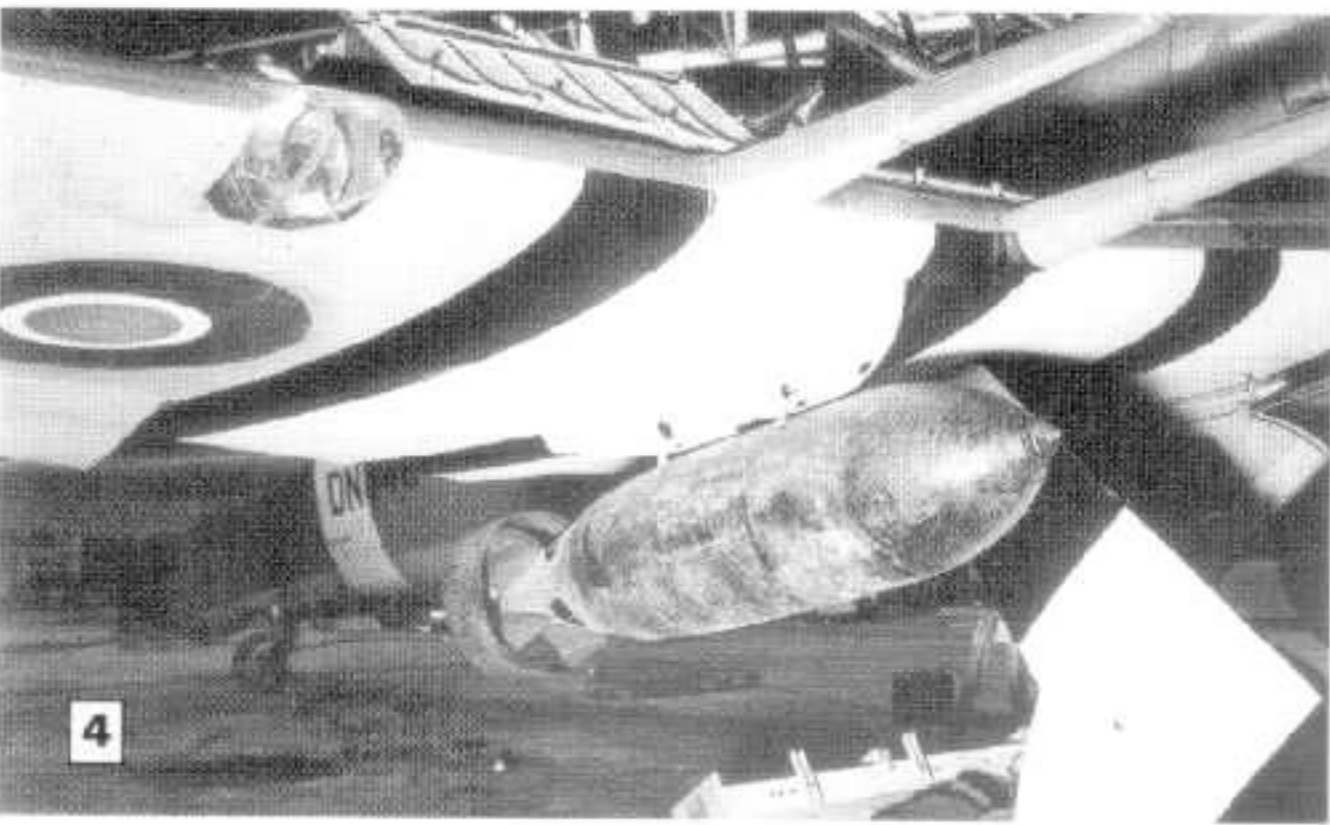
1. The seldom used 12-rocket installation on MN178:PR-V of No. 609 Squadron which also features non-standard, narrow, 'invasion stripes' below the fuselage. (IWM)

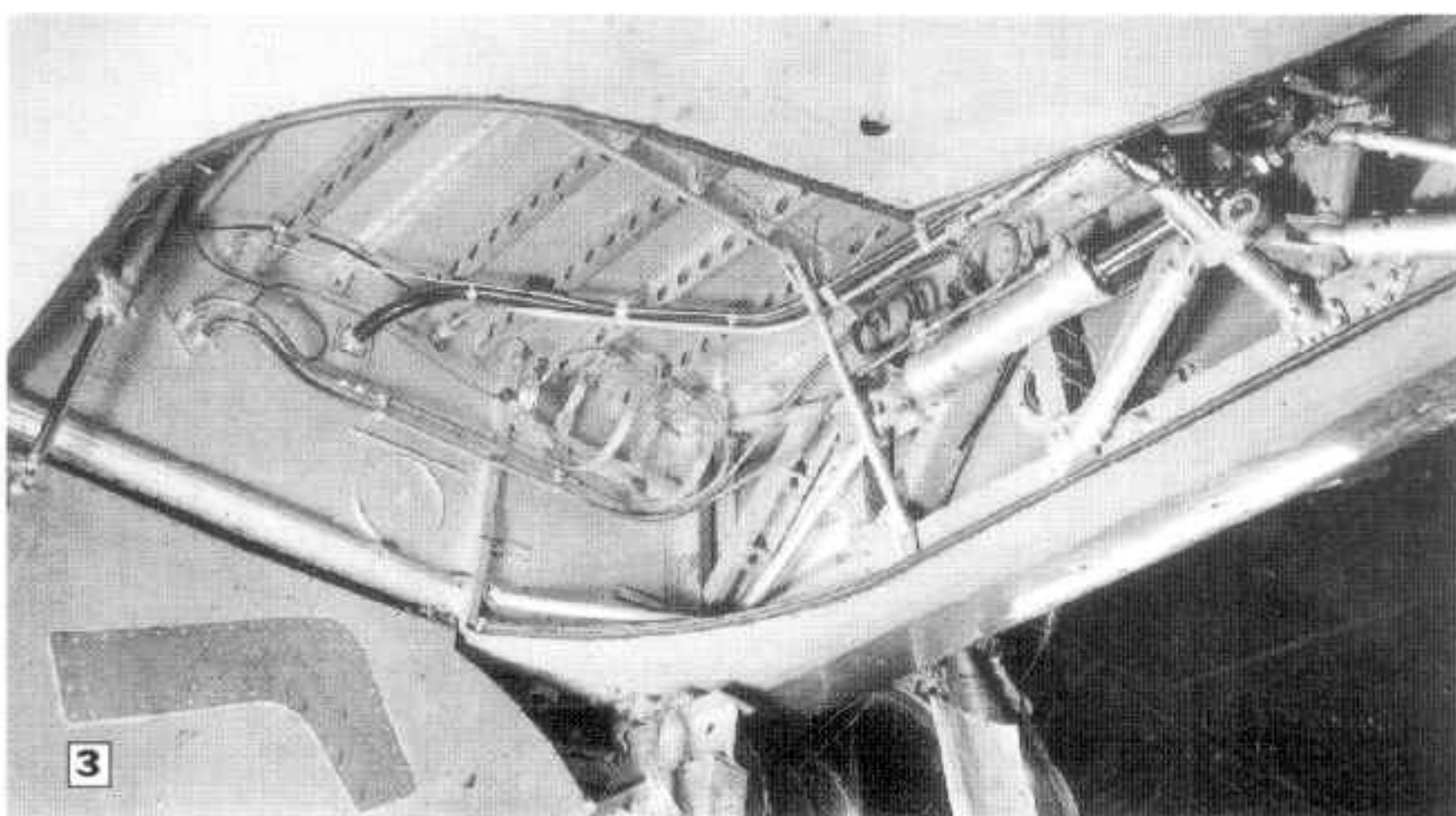
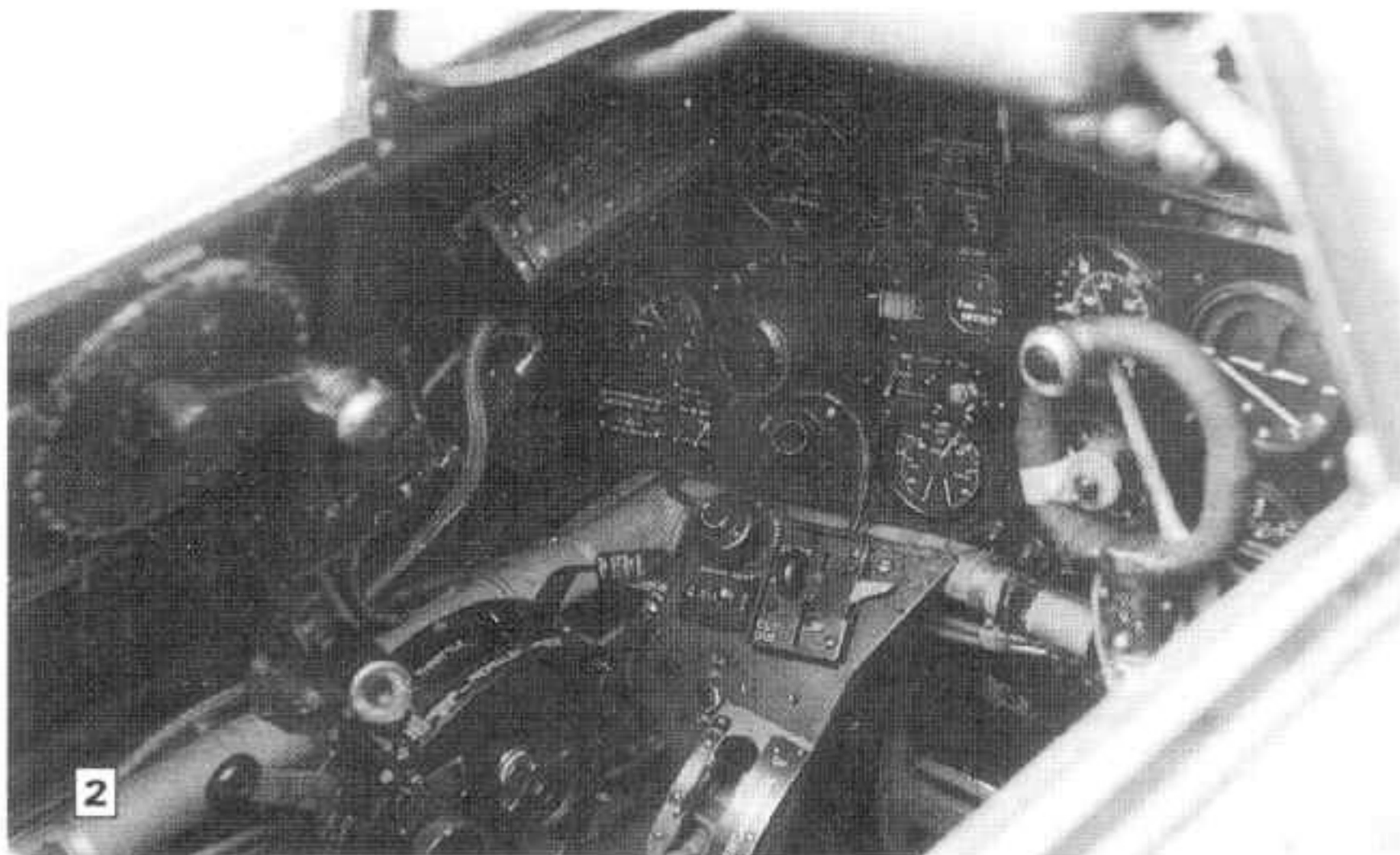
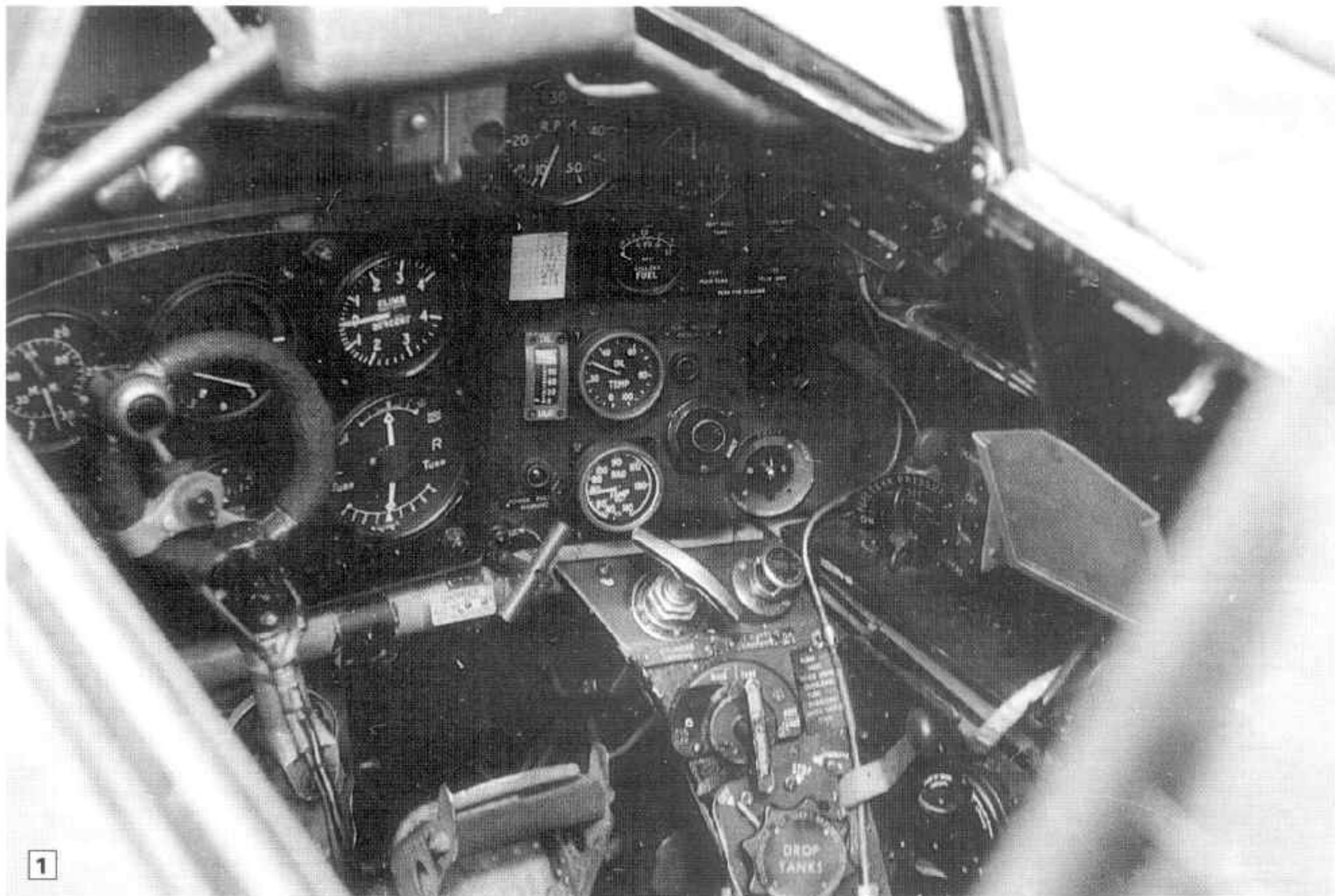
2. Armourers feeding belts of 20-mm ammunition into MR-J of No. 245 Squadron. The rocket projectile installation features the original (on Typhoons) Mk.1 rails on which the 'pigtales' (electrical firing leads) have yet to be connected. Note the landing light bay on the wing leading edge has been faired over - reflecting fears that the perspex would catch fire. Single lights were eventually replaced on some aircraft. (Public Archives of Canada)

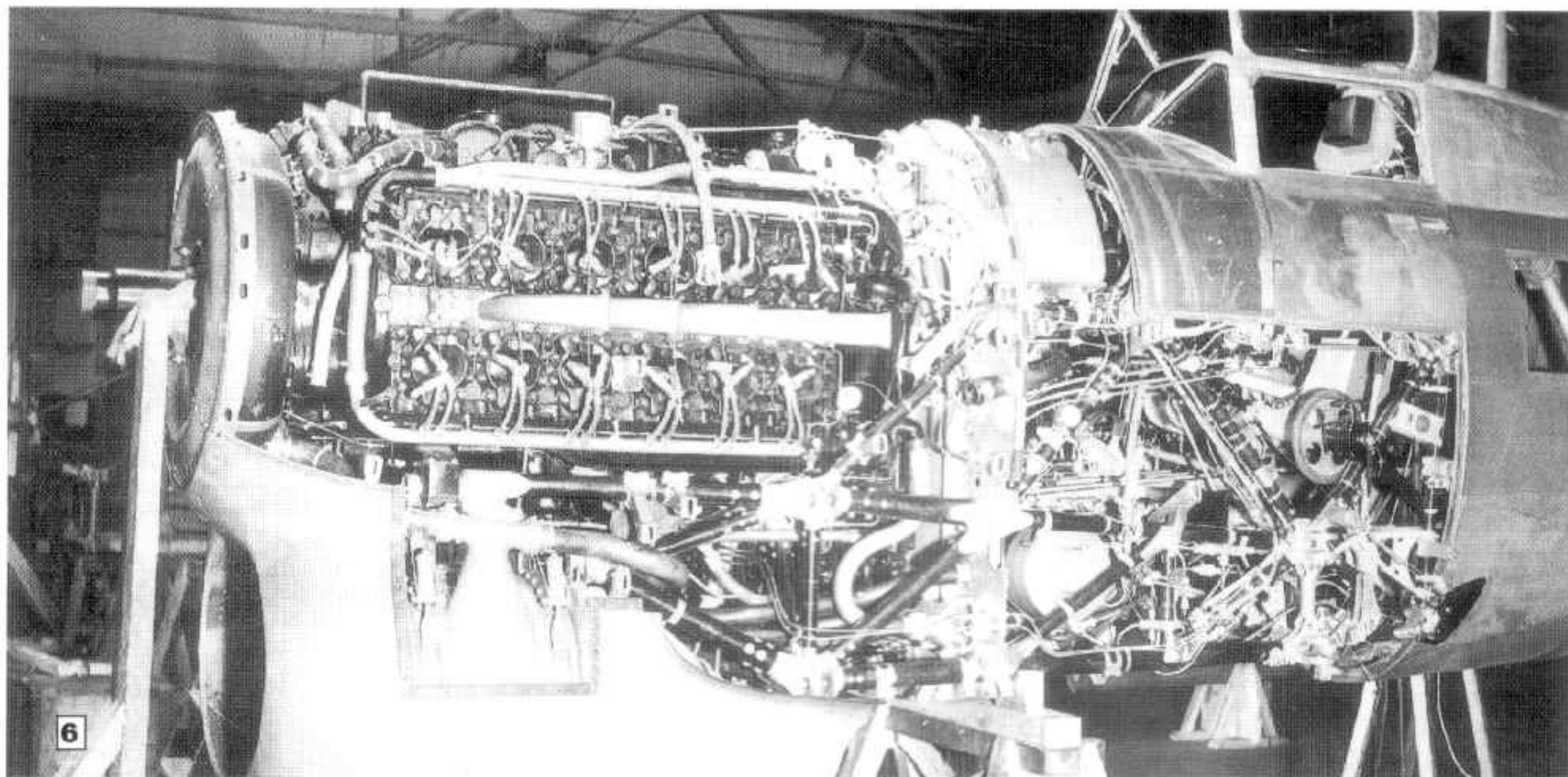
3. An armourer filling the ammunition boxes with belts of 20-mm cannon shells.

4. A clear view of the installation of a 500-lb bomb under the starboard wing of Typhoon DN340. This particular aircraft appears to be near factory fresh as the paint work, for wartime, looks immaculate. (BAe)

5. Bombing up JP802:MR-M of No. 245 Squadron with 500-lb bombs at Westhampnett early in 1944. (IWM)







TYPHOON IN DETAIL

A series of wartime photographs taken of the Hawker Typhoon during its development

1 and 2. Two pictures of the cockpit interior of an operational Typhoon, 5V-C of No. 439 Squadron. **3.** The starboard undercarriage bay of a Typhoon IB. **4.** This shot of the damage to the tail of R8889, one of the original tropical trial Typhoons, shows good rudder and tail wheel detail and the Mod 286 fishplates. **5.** This picture shows the complex panelling around the Typhoon's nose and a close-up of the radiator. The aircraft is MM963 seen at Langley after repair and modification. **6.** Napier Sabre installation on an early Typhoon IB. **7 and 8.** Right: Close up of the canopy which was standard on Typhoons from early 1942 until late 1943. The square panel below the cockpit gave access to the radio equipment and first aid kit. Below: The trial installation of the bubble canopy on Typhoon R8809 in 1943. On production aircraft the identification light was not installed. (BAe)



PRODUCTION DETAILS

SERIAL NUMBER ALLOCATION AND CONTRACTS

Serials	Mark	Quantity	Contract No.	Contractor
P5212, 5216	Prot	2	815124/38	Hawker
R7576-7599	IA/B	250	12148/39	Gloster
R7613-7655				
R7672-7721				
R7738-7775				
R7792-7829				
R7845-7890				
R7913-7923				
R8198-8200	IA	15	12148/39	Hawker
R8220-8221	IA			
R8222-8231	IB			
R8630-8663	IA/B	250	12148/39	Gloster
R8680-8722				
R8737-8781				
R8799-8845				
R8861-8900				
R8923-8947				
R8966-8981				
DN241-279	IB	300	Acft/943	Gloster
DN293-341				
DN356-389				
DN404-453				
DN467-512				
DN529-562				
DN576-623				
EJ899-934	IB	400	Acft/943	Gloster
EJ946-995				
EK112-154				
EK167-196				
EK208-252				
EK266-301				
EK321-348				
EK364-413				
EK425-456				
EK472-512				
EK535-543				
JP361-408	IB	600	Acft/943	Gloster
JP425-447				
JP480-516				
JP532-552				
JP576-614				
JP648-689				
JP723-756				
JP784-802				
JP836-861				
JP897-941				
JP961-976				
JR125-152				
JR183-223				
JR237-266				
JR289-338				
JR360-392				
JR426-449				
JR492-535				
MM951-995	IB	800	Acft/943	Gloster
MN113-156				
MN169-213				
MN229-269				
MN282-325				
MN339-381				
MN396-436				
MN449-496				
MN513-556				
MN569-608				
MN623-667				
MN680-720				
MN735-779				
MN791-823				
MN851-896				
MN912-956				
MN968-999				
MP113-158				
MP172-203				
PD446-480	IB	145	Acft/943	Gloster
PD492-536				
PD548-577				
PD589-623				
RB192-235	IB	255	Acft/943	Gloster

Serials	Mark	Quantity	Contract No.	Contractor
RB248-289				
RB303-347				
RB361-408				
RB423-459				
RB474-512				
SW386-428	IB	300	Acft/3864	Gloster
SW443-478				
SW493-537				
SW551-596				
SW620-668				
SW681-716				
SW728-772				
Total Production of Hawker Typhoon				3,317

SQUADRON USAGE (with examples)

ROYAL AIR FORCE

RAF Fighter Command/ Air Defence of Great Britain

Squadrons marked + were transferred to the Tactical Air Force within Fighter Command, or to the 2nd TAF as it was renamed in November 1943.

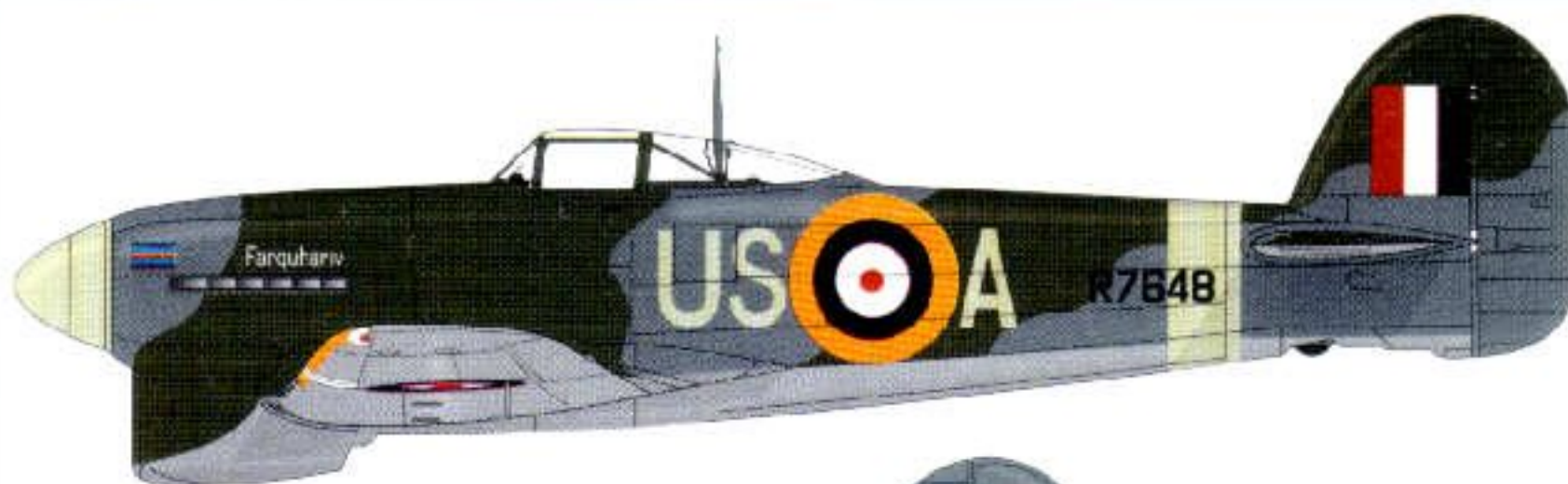
No.1 Sqn July 1942 to March 1944 (JX-H JR126). **No. 3 Sqn**. February 1943 to March 1944 (QO-E R8895). **No. 56 Sqn** September 1941 to May 1944 (US-F EK121) **No. 137 Sqn** + January 1943 to August 1944 (SF-L JR504) **No.174 Sqn** + April 1943 to July 1943 (XP-A EK186) **No. 175 Sqn** + April 1943 to June 1943 (HH-T EK133) **No. 181 Sqn** + September 1942 to June 1943 (EL-X R8877) **No. 182 Sqn** + September 1942 to June 1943 (XM-S R8839) **No. 183 Sqn** + November 1942 to April 1944 (HF-T JR130) **No. 186 Sqn** November 1943 to January 1944 (AP-U JR318) **No. 193 Sqn** + January 1943 to February 1944 (DP-C DN372) **No. 195 Sqn** + November 1942 to October 1943 (JE-A DN315) **No. 197 Sqn** + November 1942 to April 1944 (OV-X EK141) **No. 198 Sqn** + December 1942 to March 1944 (TP-V JP670) **No. 245 Sqn** + December 1942 to June 1943 (MR-? DN507) **No. 247 Sqn** + January 1943 to July 1943 (ZY-B DN430) **No. 257 Sqn** + July 1942 to April 1944 (FM-D R8637) **No. 263 Sqn** + December 1943 to August 1944 (HE-V JR531) **No. 266 Sqn** January 1942 to April 1944 (UO-Q R7622, ZH-L JP906) **No. 486 Sqn** July 1942 to April 1944 (SA-V EJ976) **No. 609 Sqn**. April 1942 to March 1944 (PR-H R8224)

2nd Tactical Air Force

No. 4 Sqn October 1944 to February 1945 (S EK427) **No. 137 Sqn** August 1944 to August 1945 (SF-Q RB252) **No. 164 Sqn** February 1944 to June 1945 (FJ-V MM952) **No. 168 Sqn** September 1944 to February 1945 (QC-L MN267) **No. 174 Sqn** July 1943 to September 1945 (XP-K RB303) **No. 175 Sqn** July 1943 to September 1945 (HH-G MN628) **No. 181 Sqn** June 1943 to September 1945 (EL-A MN208) **No. 182 Sqn** June 1943 to September 1945 (XM-X MP200) **No. 183 Sqn** April 1944 to June 1945 (HF-P MN923) **No. 184 Sqn** March 1944 to September 1945 (BR-M MN948) **No. 193 Sqn** February 1944 to August 1945 (DP-R PD509) **No. 195 Sqn** October 1943 to January 1944 (JE-K JR377) **No. 197 Sqn** April 1944 to August 1945 (OV-S PD620) **No. 198 Sqn** March 1944 to September 1945 (TP-V MN951) **No. 245 Sqn** June 1943 to August 1945 (MR-Z EJ910) **No. 247 Sqn** July 1943 to November 1945 (ZY-P EK371) **No. 257 Sqn** April 1944 to March 1945 (FM-V RB319) **No. 263 Sqn** August 1944 to August 1945 (HE-H PD550) **No. 266 Sqn** April 1944 to July 1945 (ZH-S SW583) **No. 268 Sqn** July 1944 to November 1944 (EJ905) **No. 438 Sqn** January 1944 to August 1945 (F3-J MP192) **No. 439 Sqn** January 1944 to August 1945 (5V-G PD608) **No. 440 Sqn** February 1944 to August 1945 (I8-W MN720) **No. 609 Sqn** March 1944 to September 1945 (PR-Z SW469)

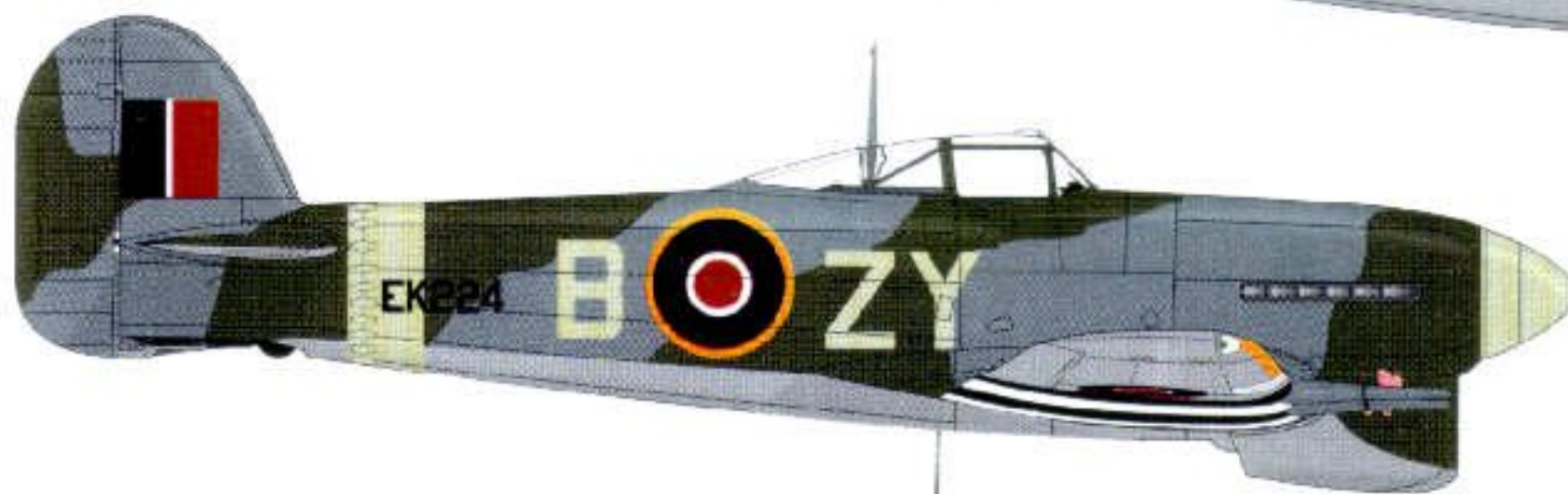
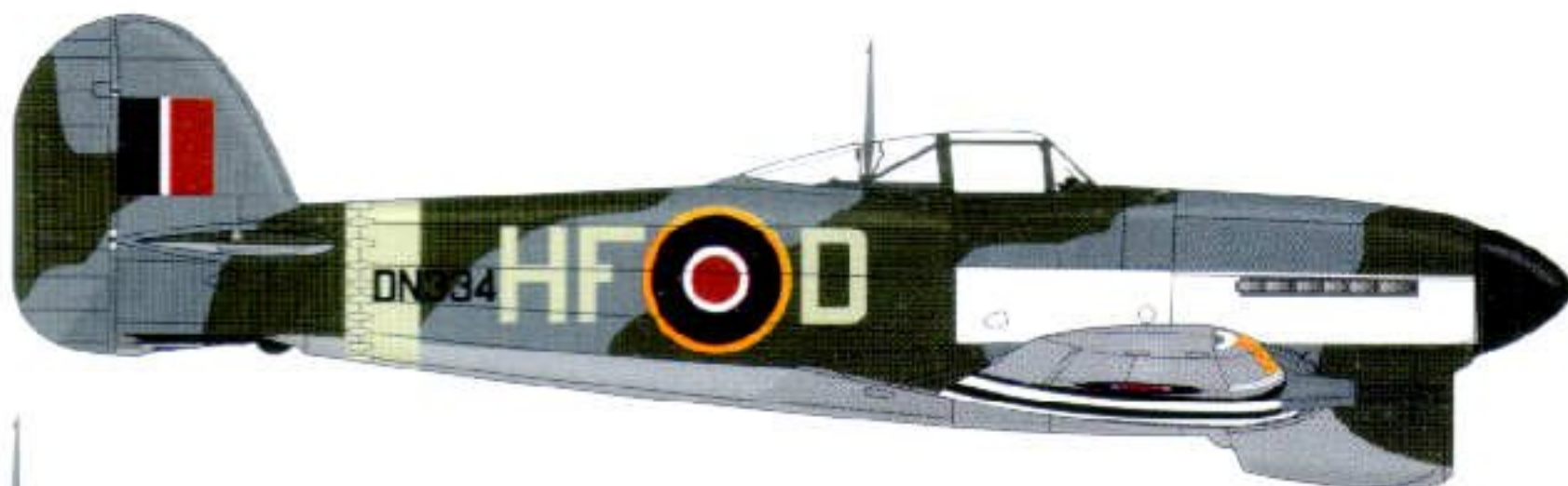
The last surviving Typhoon. Loaned to the Americans during the war MN235 was exchanged for a Hurricane by the Smithsonian Institute and now resides in the RAF Museum, Hendon. It has since had its black and white invasion stripes added. (APN)





Typhoon IA R7648:US-A of No. 56 Squadron, Snailwell mid-1942. Flown by the CO, Squadron Leader Dundas, it carried a command pennant on the nose and the name 'Farquhar IV' in white above the exhausts. Dark Green and Mixed Grey uppersurfaces with Medium Sea Grey undersides. 42 inch Type 'A1' fuselage roundels.

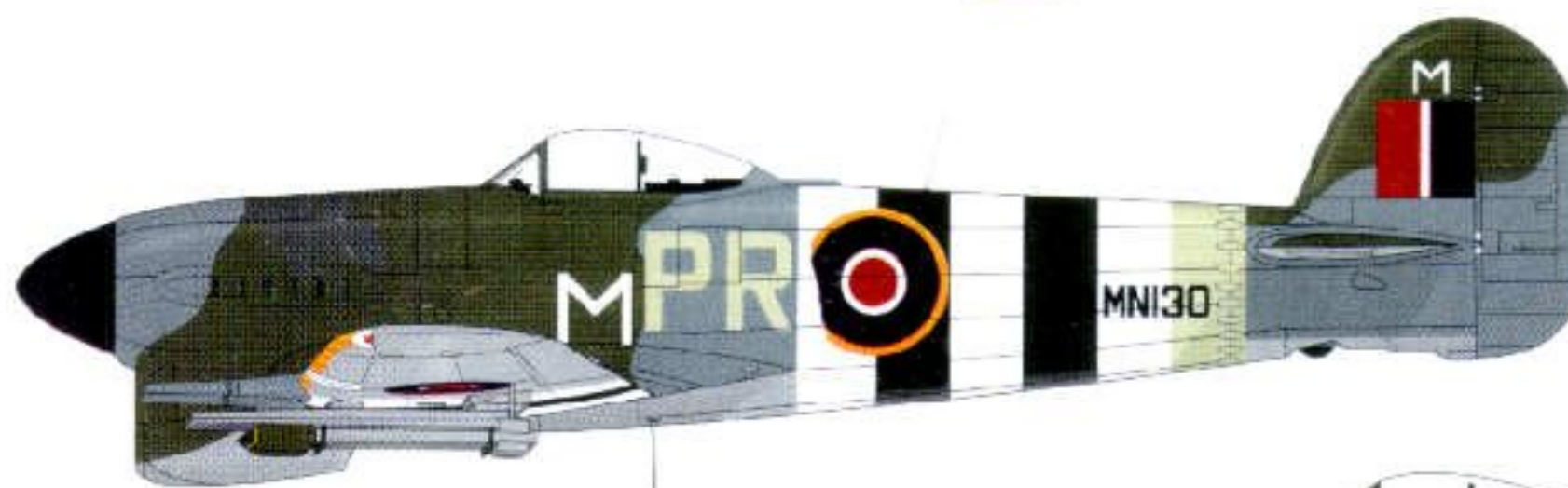
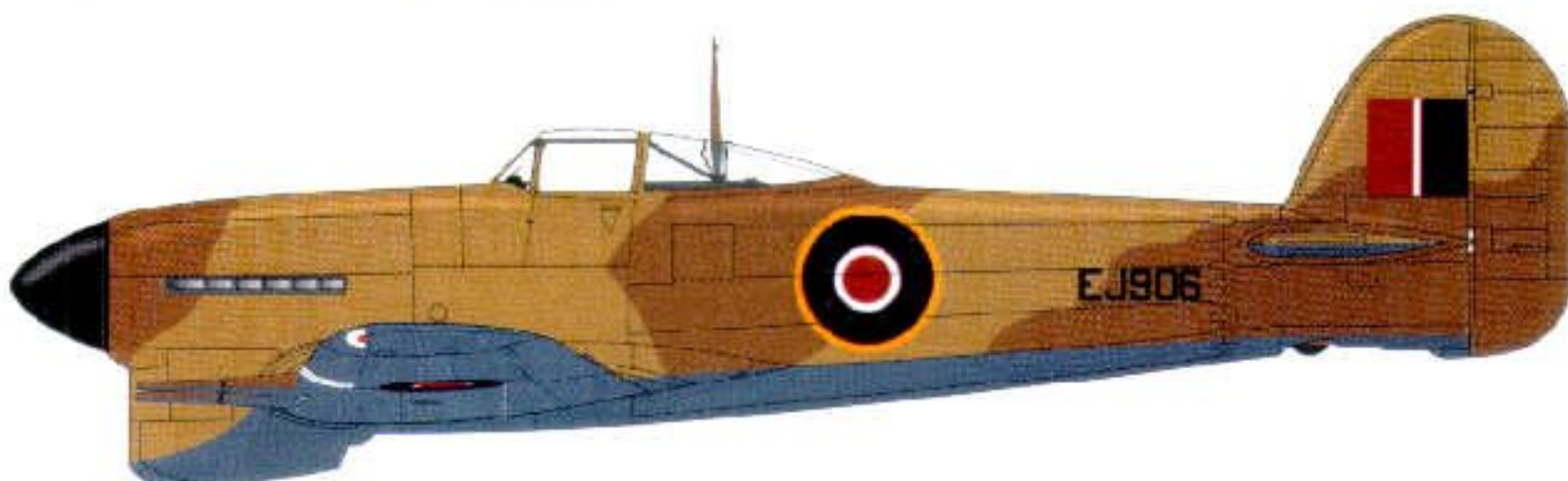
Typhoon IB DN334:HF-D of No. 183 Squadron, Exercise Spartan, Cranfield March 1943. Exercise identification markings of white bands on both sides of the nose, black spinner and port wing undersurfaces.



Typhoon IB EK224:ZY-B of No. 247 Squadron, Bradwell Bay June 1943. The radiator intake cowlings sported a pink elephant.

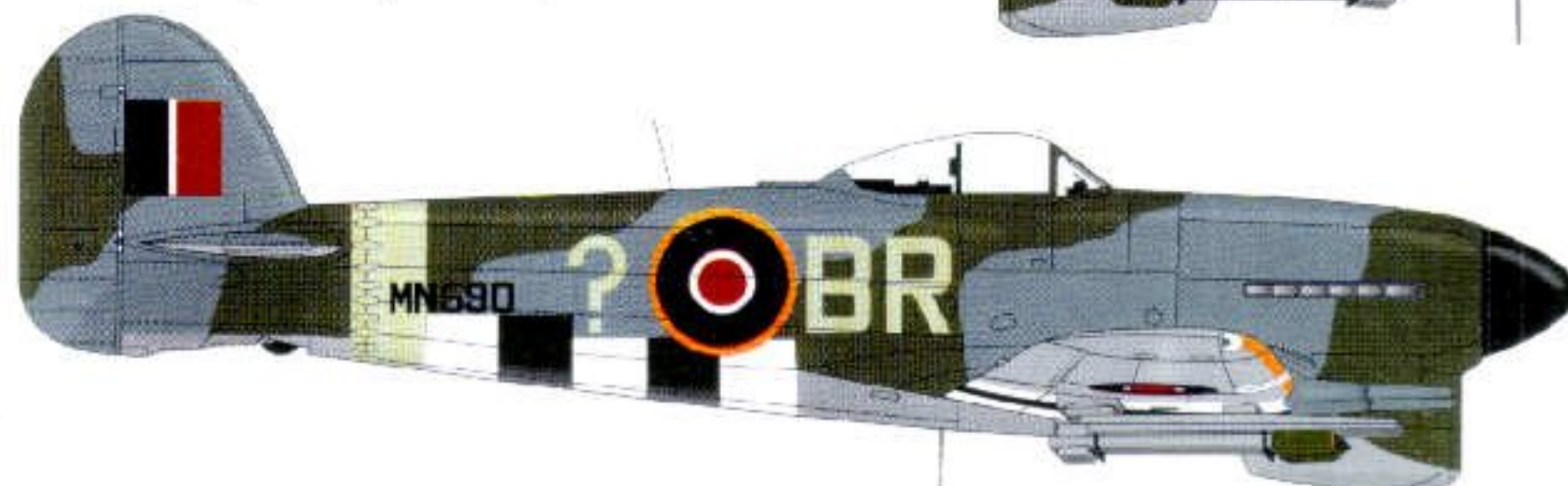
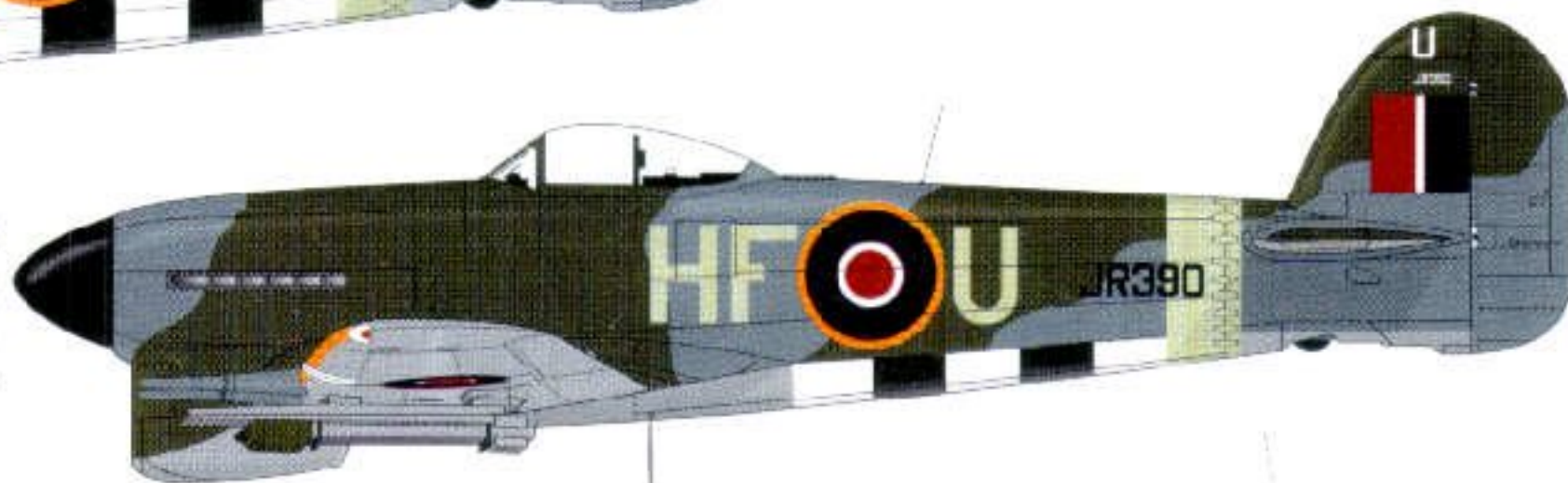


Typhoon IB EJ906 undertaking desert trials with No. 451 Squadron RAAF, El Daba, Egypt in 1943. Dark Earth and Mid-stone uppersurfaces with Azure Blue undersides and black spinner.



Typhoon IB MN130:PR-M of No. 609 Squadron, Thorney Island 6 June 1944. Blue spinner. Note overpainted edge of roundel with white. Individual letter crudely painted in white above the wing root and on the fin. RP, Mk. 1 rocket rails.

Typhoon IB JR390:HF U of No. 183 Squadron, Mortragny in August 1944. Note rounded bottom to 'U' individual letter and small serial repeated above the fin flash in white. AEAf bands under fuselage only. Black spinner. RP, Mk.1 rocket rails.



Typhoon IB MN590:BR-? of No. 184 Squadron, Le Fresnoy-Camilly August 1944. AEAf bands on undersurfaces only. Black spinner. RP, Mk.1 rocket rails.

Typhoon IB RB485:IB-E of No. 440 Squadron, Flensburg 1945. Spinner red, tip white, red and white backplate. Tempest tailplane. Bombs only.





Above: Some aircraft never reached the Royal Air Force, like this Typhoon, MN686 which left Hawker's Langley production line in May 1944 and spent its life on trials. (Charles Brown) Left: Viewed through the remains of a wrecked Luftwaffe hangar, Typhoons of No. 439 Squadron dispersed at Eindhoven on 5 October 1944. On the left JR500:5V-X and to the right MN870. (Public Archives of Canada)

HAWKER TYPHOON

Technical data and dimensions

Type: Single-seat interceptor fighter and fighter-bomber.

Dimensions: Span 41ft 7ins, Length: (early aircraft) 31ft 10ins, Length (later aircraft) 31ft 11½ins, Height: (early aircraft) 14ft 10ins, Height: (later aircraft) 15ft 4ins, Wing area: 279 sq.ft.

Powerplant: Prototypes and early production aircraft powered by 2,100 hp Napier Sabre Is driving a three-blade DH propeller. Later aircraft powered by 2,180 hp Napier Sabre IIAs, 2,200 hp Napier Sabre IIBs and 2,260 hp Napier Sabre IICs driving either a three or four-bladed DH or Rotol propeller.

Performance: (with Napier Sabre IIB and four-bladed propeller) Max. speed: 412 mph at 19,000ft. Climb five minutes 50 seconds to 15,000ft. Range: 510 miles with two 500-lb bombs; 980 miles with two auxiliary drop tanks. Service ceiling: 35,200ft

Construction: All metal construction with stressed skin covering. Monocoque rear fuselage. Fabric covered rudder.