

Hawker Tempest



ABOVE: Bill Humble enjoying himself at the controls of the beautiful Tempest I, HM599. Originally called the Typhoon II, the aircraft continued to be used for development flying until it was scrapped in 1946. VIA AUTHOR

Power and Respect

Destined to become one of the most powerful Allied fighters of the Second World War, the Hawker Tempest began life as a thin-winged Centaurus and Griffon-powered design study. **MARTYN CHORLTON** relates the story of the mighty Tempest which would become one of the most respected combat aircraft in the European theatre

Hawker's chief designer, Sydney Camm, was well aware of the limitations of the Typhoon with regard to its wing which did not lend itself to achieving good high-altitude performance. The Typhoon's thick, substantial wing was perfect for carrying heavy weapons such as bombs and rocket projectiles (RPs), but Camm was conscious of the fact that the RAF still needed an

aircraft which could take on the very latest German fighters of the day, at altitude.

This task, in the future, could not be achieved by the efforts of Supermarine Spitfires and North American Mustangs alone and, by early 1941, Camm was already presenting a development of the Typhoon with a thinner, elliptical (Spitfire-type) wing which could dramatically raise performance and cure one of the Typhoon's

problems of compressibility. The new wing, which was designed in 1940, had a root thickness/chord of just 14.5% which decreased to a mere 10% towards the tip, compared to 18% for the NACA 22 wing fitted to the Typhoon.

Power for Camm's latest fighter was also causing headaches, because the Napier Sabre fitted into the Typhoon was proving to be a very troublesome engine. The refinement of the large chin

radiator, equally was difficult to perfect.

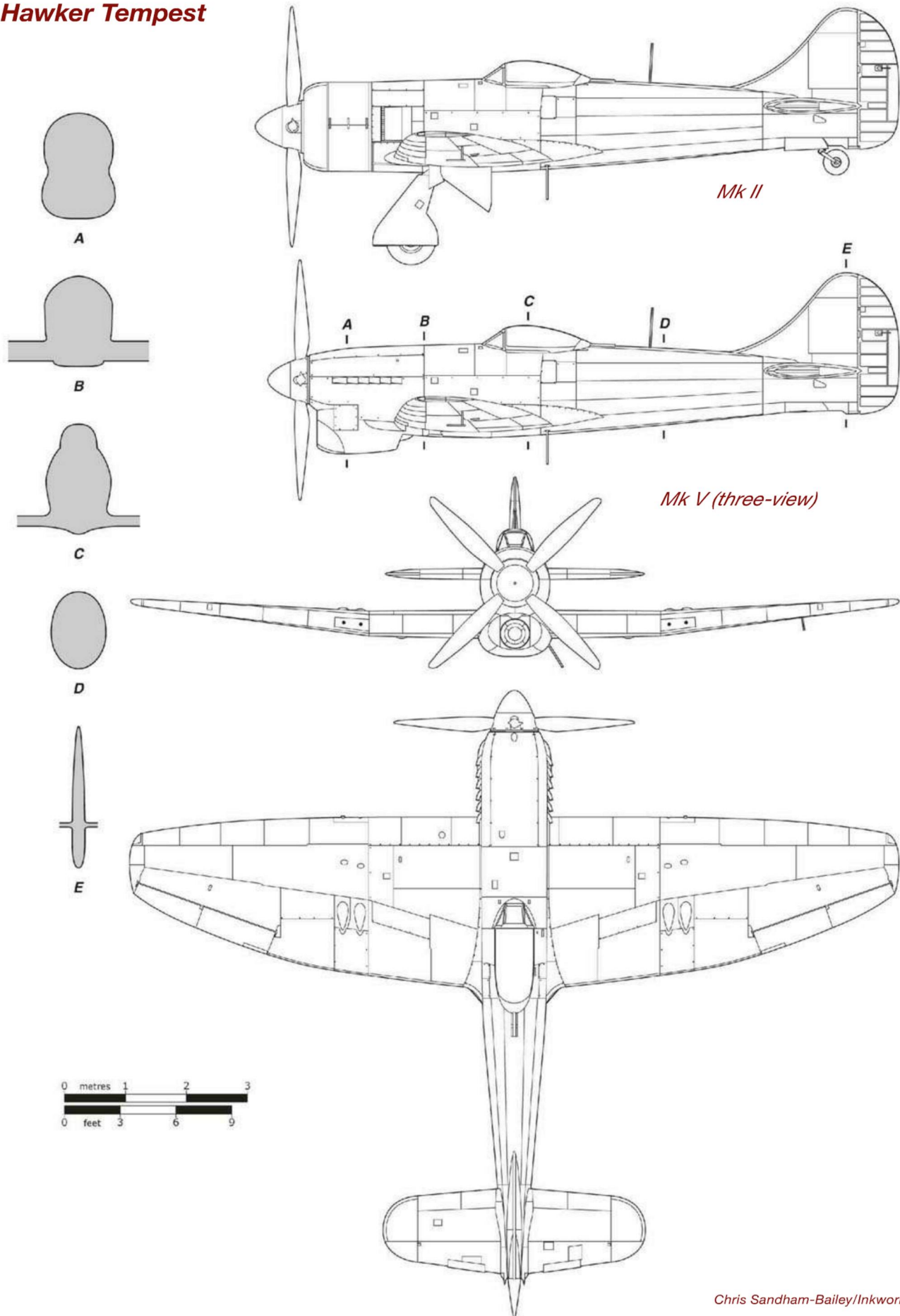
In March 1941, Camm presented his "thin-wing" Typhoon. Power was provided by a new, uprated Sabre (EC.107C of 2,400 h.p.) with a potential maximum speed of 430 m.p.h. It was presented to several members of the Directorate of Technical Development (DTD). The DTD's requirements at the time were for a fighter which could achieve such a speed above

DATAPoint The RAF could only call upon two Tempest squadrons during the D-Day invasion because of the delay caused by workers following a dispute over pay at Langley.

HAWKER TEMPEST

DEVELOPMENT

Hawker Tempest



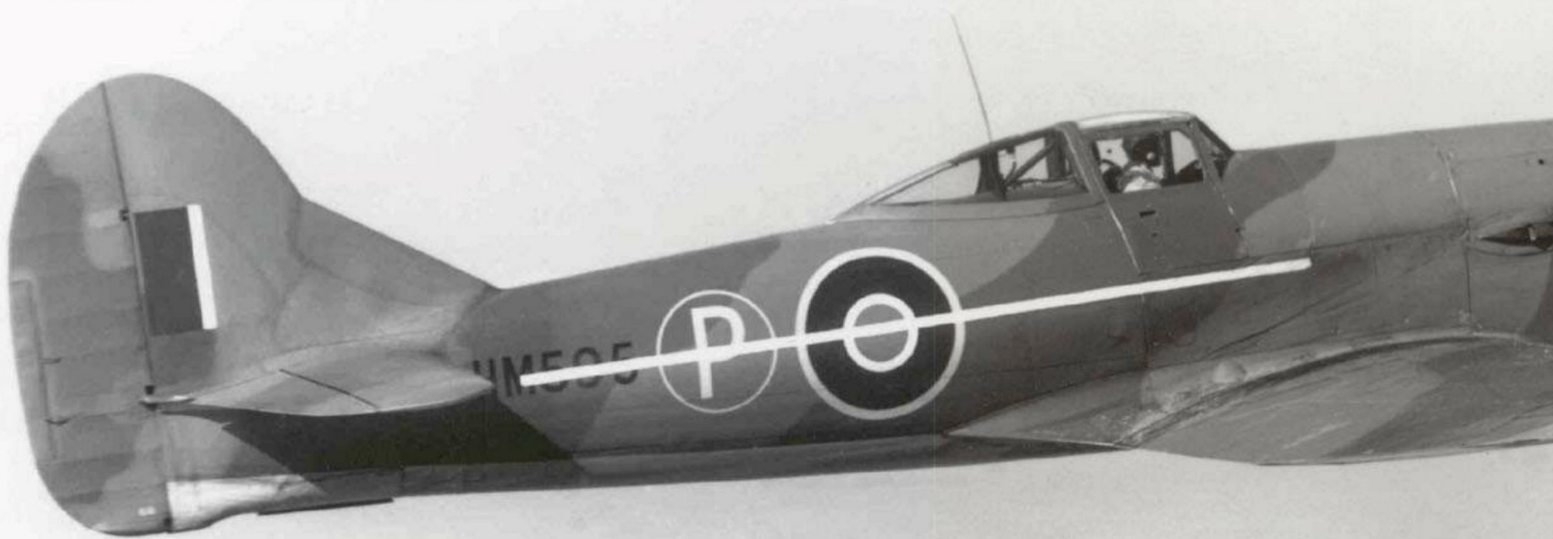
Mk II

Mk V (three-view)

Chris Sandham-Bailey/Inkworm © 2013

HAWKER TEMPEST

11 US-born Sqn Ldr D.C. Fairbanks DFC** of 3 and 274 Sqs was the "official" highest scoring Tempest pilot with 11 victories in air-to-air combat.



ABOVE: The hard-working Tempest V prototype, HM595, during trials with the A&AEE, Boscombe Down, in early 1943. Note the temporary dorsal fin extension and early "car door" type canopy as per the Typhoon. VIA AUTHOR

20,000ft and had an armament of four 20mm Hispano cannon. The draft proposal at this stage appeared to have the ability to comfortably breach both of the DTD's main requirements.

The Typhoon II, aka Tempest

The DTD was clearly very keen on the "thin-wing" Typhoon which was soon referred to as the Typhoon II. Camm was then instructed to transfer all efforts in developing the Bristol Centaurus-powered Tornado into the new fighter. To speed up the Typhoon II's entry into service, further DTD discussions proposed that as much of the original Typhoon as possible be used, including the fuselage and tail, in order to achieve an operational date of no later than December 1943.

Philip Gadesden Lucas (1902-1981)

Born at Bexleyheath, Philip Lucas learnt to fly in an Avro 504 at Stag Lane in 1924 and only two years later joined the RAF. By 1931, Lucas was serving with Hawker Aircraft as a test pilot and his rapid rise saw him in the role of chief experimental test pilot, flying from Brooklands and Langley, by the beginning of the Second World War. In 1940, Lucas was awarded the George Medal for saving the prototype Typhoon from destruction.

As well as the Typhoon, and later the Tempest, Lucas carried out a great deal of development flying with the Hotspur, Henley, Hurricane and Tornado before handing over to Bill Humble in 1946. Lucas remained with Hawker as a director of the company until he retired in 1967 with 3,450 flying hours on 120 different types in his log books.

During August 1941, Hawker was issued with Specification F.10/41 (OR.109) and, on November 18,

Contract No 1640/41/C.23a was awarded for a pair of Typhoon II prototypes serialled HM595 and

HM599. Two months later, the aircraft that eventually emerged from the specification were so different from the original Typhoon that they were re-named the Tempest and, rather than a pair of prototypes, Camm decided to produce six to cover the powerplants on the table at the time.

These aircraft (in mark order) were the Tempest I, HM599 powered by an uprated Sabre (EC.107C) engine driving a four-blade propeller. The Mk I was, by far, the cleanest of the Tempest prototypes because it dispensed with the large chin

BELOW: The unassuming Tempest V prototype, HM595, pictured at Langley on September 1, 1942, the day that Philip Lucas carried out the type's first taxiing trials. VIA AUTHOR



DATAPoint The only RAF Tempest II unit to fire its weapons in anger was 33 Sqn during Operation Firedog in Malaya.

HAWKER TEMPEST

DEVELOPMENT

BELOW: The first of two Mk II prototypes was LA602 which was first flown by Philip Lucas from Langley on June 28, 1943. The aircraft is pictured during trials with the A&AEE on May 4, 1944. VIA AUTHOR



radiator. Instead, cooling was achieved by burying the radiators into the leading edge of the wing in similar fashion to the Mosquito. Two Tempest IIs, LA602 and LA607, were fitted with the big Centaurus IV sleeve-valve radial engine which had originally been fitted into the second prototype Tornado and, something that was later admitted by Camm himself, was dismissed far too early as a potential fighter powerplant. Two Tempest IIIs, LA610 and LA614, were produced with Griffon II engines but neither were actually finished as Tempests; LA610 became the prototype Fury. Finally, the least radical of the Tempest prototypes was Mk V HM595, which was powered by an uprated Sabre II, had an extended nose and the now-traditional chin radiator method of cooling.

Pushing forward

Out of the group of prototypes being built, the easiest one to produce was the Tempest V and it was HM595 that was available first for flight testing. This aircraft would be used to confirm whether

or not the wind-tunnel information already received about the new thin-wing was correct. At this stage, the future of the Tempest was focussed on the Mk I which, on paper, was the superior performer and the Mk V was viewed as little more than a developmental aircraft. In fact, even before a single Tempest had flown, Hawker was ordered to prepare for mass production in July 1942 and, by August, had received an order for 400 Tempest Is.

At Langley, on September 1, 1942, the prototype Tempest V, HM595, was rolled out, in preparation for test pilot Philip Lucas to begin taxiing trials. Apart from its Sabre II powerplant, HM595 featured many differences that set it apart from a standard Typhoon, including a new levered-suspension undercarriage and tail-wheel doors, although the "in production" Scheme B canopy, complete with car-type access doors, was initially retained. On September 2, Lucas took HM595 on its maiden flight, during which only limited manoeuvring was

carried out and a speed of 300 m.p.h. at 10,000ft was achieved. However, the new fighter was found to possess no neutral directional stability and pressure had to be applied to the rudder all the time to keep the aircraft straight. The problem was slowly resolved by first increasing the area of the rudder and then by a complete redesign of the fin, rudder, tailplane and elevators which would considerably improve handling. The work was to be kept to a minimum on the Tempest V, which was an aircraft that was only

supposed to be paving the way for the full production version, the Tempest I.

In the meantime, Tempest V, HM595, was pushed a little further and on December 12, Lucas achieved a maximum speed of 575 m.p.h. (Mach 0.76) during a full throttle dive from 27,000ft. Lucas later commented that the aircraft began to shake and become nose heavy as the speed built up; a sure indication that compressibility was about to set in. Unknowingly at the time, Lucas had reached the highest speed ever achieved by a British-built aircraft which he reached again on January 26, 1943. On this final high-speed dive, one of the windows in the car-type doors was sucked out of its frame but this was not a major worry as the decision had already been made to fit a new single-piece bubble or teardrop-type canopy.



Pushing the Envelope

The Tempest story was an example of the classic “ugly duckling” tale in reverse. The beautiful “swan” Tempest I fell by the wayside, while the workmanlike, practical Tempest V won the day

ABOVE: Tempest II, PR533, captured during a flight test in 1946 over the future Heathrow Airport. This aircraft was the first of the breed to be fitted with 1,000lb bomb carriers under each wing. VIA AUTHOR

Because of delays in the delivery of the Napier Sabre IV engine, the Tempest I prototype, HM599, was not completed until mid-February 1943. Ground handling and taxiing tests were carried out on February 22 and, two days later, Philip Lucas flew the fighter for the first time. From the outset, Lucas reported that the Mk I had considerably better directional stability compared to the Mk V and handled much better with the exception of the elevator control which was ineffective under 110 m.p.h.

By May 1943, Napier gave Hawker the clearance to operate the Sabre engine at higher r.p.m. and boost settings. The fitment of a single-piece sliding canopy gave promise for impressive performance figures. On June 4, test pilot, Bill Humble, flew HM599 on a series of performance trials which included reaching a maximum level speed of 460 m.p.h. at 24,000ft. This was raised to 472 m.p.h. by September after several minor airframe details were improved but in part, to a new tailplane which only had an 11.5% thickness to chord ratio. Unfortunately though, all of the work being carried out with the Tempest I would prove to be academic.

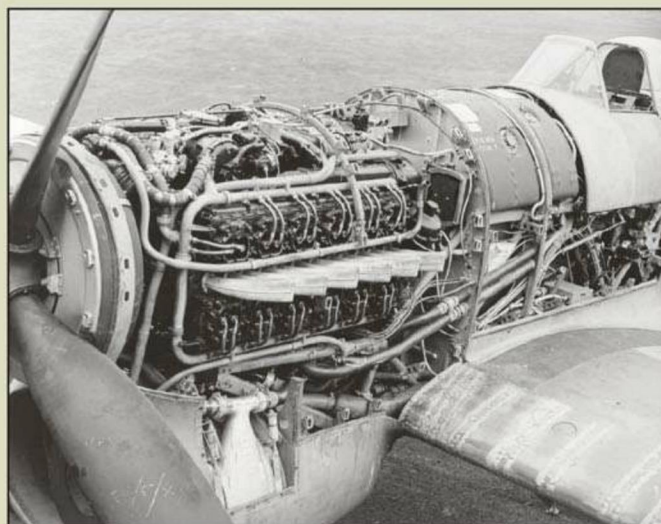
The Air Ministry was never entirely happy with the position of the radiators in the leading edge of the wing of the Tempest I, which was seen as being very vulnerable to ground fire. However, this was not the main reason for the lack of interest in the Tempest I. The problem was actually with the Sabre IV engine which was proving to be far more difficult than expected in

reaching production standard. Despite being very powerful at 4,000 r.p.m., the engine had the very annoying habit of throwing oil at revs above 3,750. On top of this, the “hand-built” engines always fell well short of achieving even 50hr between major inspections. In the air, Hawker, and in particular Bill Humble, never encountered any major problems and, given time

(which the country did not have), the Sabre IV could have been developed into quite an outstanding engine. This, combined with the beautiful lines of the Tempest I, could have proved a formidable opponent especially above 20,000ft.

A change of plan

During 1943, enemy fighters such as the Focke-Wulf Fw 190A and the



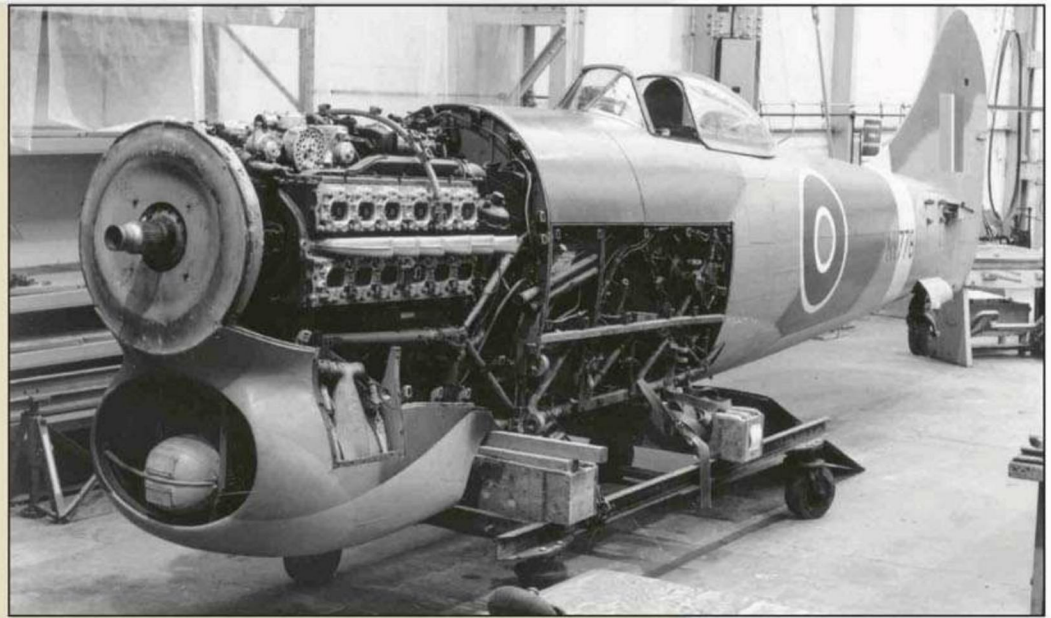
ABOVE: The 2,400 h.p. Sabre IV of a Tempest V exposes the powerplant's complexities. One bank of 12 cylinders can be clearly seen with the exhaust's stacks positioned between the two rows. VIA AUTHOR



DATAPOINT A captured Tempest V was evaluated by the Luftwaffe and on the jet-powered Me 262 was found to be faster.

HAWKER TEMPEST

TECH



ABOVE: Late production Tempest V Series 2, NV778, fitted with a Sabre IIB engine being built at Langley in late 1944. By this time, production was accelerating to approximately 12 aircraft per week. AEROPLANE

Messerschmitt Bf 109G still had the edge over any Allied fighter in combat above 20,000ft. The need for an Allied fighter capable of reaching no less than 430 m.p.h. at 25,000ft and armed with four 20mm cannon could not have been greater, and the only aircraft that came close to this specification was the Tempest V. HM595 had demonstrated over a period of four intensive months of flights trials, while fitted with an "in-service" Sabre II engine, that it was more than capable of filling the gap in the Allies' fighter armoury. During these trials, Tempest V HM595 was comfortably reaching a speed of 438 m.p.h. at 22,000ft while

fitted with the Sabre II engine. Another interesting trial occurred when HM595 was fitted with the Sabre IV engine and, on June 17, 1943, Bill Humble reached an impressive speed of 459 m.p.h. at 24,900ft. So, after receiving an initial order for 400 Tempest Is and preparing the preliminary jigs for such a task, Hawker had to prepare itself for an order of 400 Tempest Vs instead.

Despite the upheaval caused as a result of changing the production jigs, the first production Tempest V, JN729, was completed at Langley only eight weeks after the decision had been made to switch from the

Tempest I. The first production machine, JN729, made its maiden flight on June 21, 1943, in the hands of Bill Humble.

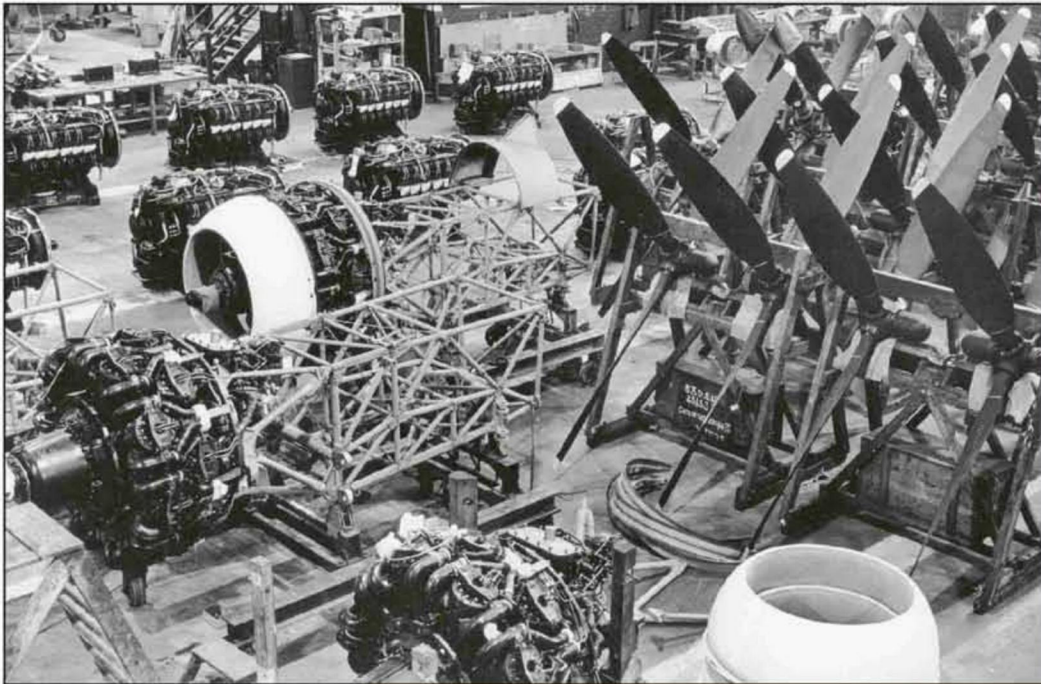
By now, the prototype Tempest V, HM595, had served its purpose and would instead be used to help develop the forthcoming Tempest VI. All development flying was then transferred to JN729, and responsibility was placed into the hands of Bill Humble and Sqn Ldr (later Wg Cdr) R.P. Beamont who had recently been seconded from the RAF after his tour of duty with 609 (West Riding) Sqn. Beamont, who had already worked closely with Sydney Camm and Hawker during

the development of the Typhoon, was ideally placed to convey to the company the exact needs of the operational pilot. Beamont's recent combat experience would prove invaluable in helping the Tempest V to enter service as smoothly as possible.

Three production Tempest Vs were in the air by September 1943, all fitted with the Sabre IIA engine. The first true example of an operational Tempest V was the sixth production machine, JN734, which managed to achieve a maximum speed of 434 m.p.h. at 22,800ft. JN734 carried representative ballast for an in-service radio, full gun armament and ammunition. Weighing in at an all-up-weight of 11,300lb, JN734 could climb to 20,000ft at 3,700 r.p.m. with +7lb boost in a respectable 6.6min. The earlier



ABOVE: A general view of the second production batch of 300 Tempest Vs, nearing final construction at Langley in mid-1944. The only identifiable aircraft is EJ607 (lower left), which joined 80 Sqn at Manston in early September 1944. The fighter was lost on September 18, 1944, flying an anti-aircraft sweep in the Flushing area. The pilot, Fg Off R.H. Hanney, was posted missing. AEROPLANE



ABOVE: A mix of Bristol Centaurus radial engines in the foreground, with Napier Sabre engines in the background, at Langley in 1945.
VIA AUTHOR

production aircraft were all worked hard as development aircraft, although JN732 with Bill Humble at the controls forced-landed following an engine problem on October 1. A similar fate befell JN733 with Sqn Ldr H.N. Sweetman at the controls on December 13, but neither pilot was injured and both Tempest Vs suffered little damage as a result.

By the end of 1943, 36 Tempest Vs had left Langley bound for Maintenance Units (MU), therefore achieving the in-service delivery date set by the DTD. At the MUs, armament, gunsight, radio and the

usual array of operational equipment was fitted in preparation for delivery to the first operational squadrons in January 1944 which would prove to be slightly premature.

Centaurus Power, the Mk II

It was Sydney Camm's original intention to power the Tempest II with a 2,250 h.p. Sabre IVA in-line engine, but instead he looked at a radial unit which was first test-flowed

in Tornado prototype HG642 in October 1941. The unit was the impressive Bristol Centaurus which, by early 1943, had all of its problems ironed out, partly thanks to the capture of an Fw 190A which helped to solve the problem of keeping a closely cowled radial engine cooled. The BMW 301 engine which powered the Focke-Wulf used an annular oil cooler which was blended into the leading edge of the cowling and kept cool through a fan driven by the engine. The exhaust

system was kept tidy through the use of a collector ring while exhaust gases were discharged via individual pipes positioned in front of louvres neatly placed along each side of the fuselage. The result for the Tempest II was that Hawker managed to produce the most aerodynamically clean radial powered fighter of the Second World War.

Thanks to the information gleaned from the German fighter, the Tempest II was redesigned and fitted with a modified Centaurus IV and re-built to Specification F.10/41. The prototype, LA602, made its maiden flight on June 28, 1943. Initial flight-testing was pre-occupied with solving engine vibration problems which was eventually solved by fitting shock-absorbing engine mounts in the second prototype, LA607.

By the time the Tempest II entered production, the war was drawing to a close. Deciding on who was going to actually build the Mk II caused quite a delay as the original plan was for Gloster to build the new mark. The company was already committed to Typhoon production and was also preparing to begin the manufacture of the Meteor. Therefore, Gloster had to pass on building the Tempest II, so the next stage was to turn to Bristol, the manufacturer of the Centaurus. Bristol had to clear the decks of its own commitments before taking on the contract and the first half a dozen Tempest IIs were built by Hawker in October 1944. The first Bristol-built Tempest II was delivered to the RAF in February 1945.

BELOW: A fine study of Tempest V NV768 (foreground) and EJ823 which was used to flight test wing root oil cooler intakes. NV768 was one of two aircraft modified by Napier for annular radiator flight trials, the radiator being contained within the cowl immediately aft of the spinner. The modification did not live up to expectations and the concept was not adopted. AEROPLANE



DATAPOINT The Me 262 was not the only Luftwaffe jet that the Tempest accounted for; one He 162 and three Ar 234s were also shot down.

Mk V under the microscope

Although the Tempest was obviously a development of the Typhoon, at first glance it was only the wing that stood out as the most significant modification. Of twin-spar configuration with an elliptical plan-form, the wing had a laminar flow cross section and blunt, elliptical tips. The wing was at its thickest at a point of 37½% of the chord, while the centre section had no dihedral. Within this section, a wide track undercarriage which retracted inwards was fitted as well as fuel tanks between the main spars and an extra tank in the leading edge of the port wing. The main undercarriage legs used Dowty levered-suspension oleo legs instead of the Typhoon's compression oleos and the retractable tailwheel had its own doors.

Large split flaps were fitted to the trailing edge of the wing, extending from the edge of the ailerons to the fuselage. Within the outer wing sections were housed a quartet of 20mm Hispano Mk V cannon.

The fuselage profile only differed from the general arrangement of the Typhoon in being longer due to the extra bay in front of the cockpit, which housed an extra fuel tank. The engine drove a four-blade de Havilland Hydromatic propeller, as per the Typhoon, but, because of the extra bay, the engine mountings were further forward. The canopy was a single piece sliding type.

Construction of the tail was the same as the Typhoon but the fin, rudder and tailplane were increased in area. A dorsal fin was also introduced in front of the main fin which blended in a pleasing concave curve.

Tropical VI

Once again the hard-working Tempest V prototype, HM595, continued to provide useful service by becoming the prototype Tempest VI. Specifically designed for operations under tropical conditions, the Mk VI was powered by a 2,340 h.p. Sabre V engine. Very similar to a standard Mk V from a distance, on scrutiny, the Mk VI featured a modified wing root with air intakes in a similar style to the Tempest II. Behind these intakes, cooling ducts were installed for the oil cooler and carburettor, which allowed for a much larger main radiator in the nose. A tropical air filter was also fitted behind the main radiator within its own fairing. These modifications were already necessary to help keep the more powerful Sabre V cool and also

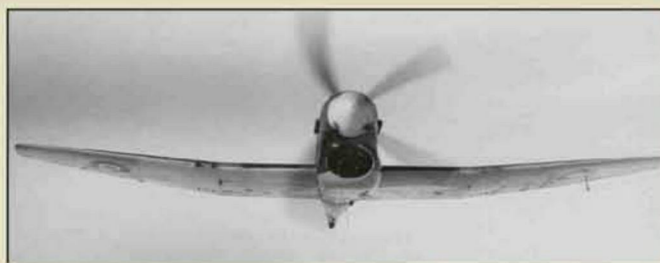


ABOVE: Bill Humble demonstrates Tempest V, NV696; a pilot who was usually quickly identified as he very rarely wore a flying helmet during flight tests. VIA AUTHOR

Flying the Tempest

"Each flight brought enjoyment of and confidence in the crisp ailerons, firm though responsive elevator, good directional stability and damping giving high promise of superior gun-aiming capability, exhilarating performance and, with all this, magnificent combat vision, with windscreen forward frame members thinned down to a bare minimum, and superb un-obstructed vision aft of the windscreen arch through a fully transparent sliding canopy.

"On every convenient occasion on the way back from tests I would zoom-climb, wing-over and rack the Tempests around in stall-boundary turns, simulating combat, looking over my shoulder down the fuselage and under my tailplane for the first time in my experience. What a fighter this would have made for the Battle of Britain, but what a fighter it was going to make for the invasion!"
Bill Humble on the Tempest V



ABOVE: The Tempest V was trialled under combat conditions by the AFDU during 1943 against a captured Fw 190 and Bf 109, and a Mustang III and Spitfire XIV. This is Tempest VJN740 during weapons trials with the A&EE in early 1944. VIA AUTHOR

helped to make the mark the prime choice as the main RAF fighter in the Middle East.

Testing the theory

Late in 1943, the A&EE test pilots at Boscombe Down had their chance to put the new fighter through its paces. Reports were generally favourable, the only main criticism being of the heavy ailerons which would later be

rectified by fitting spring-tab ailerons. The view from the cockpit was praised by all that flew it and performance figures ranging from 376 m.p.h. at sea level to 432 m.p.h. at 18,400ft, showed the Tempest had real potential. The Air Fighting Development Unit (AFDU) at Wittering was given the opportunity to test an early production aircraft against a selection of Allied and

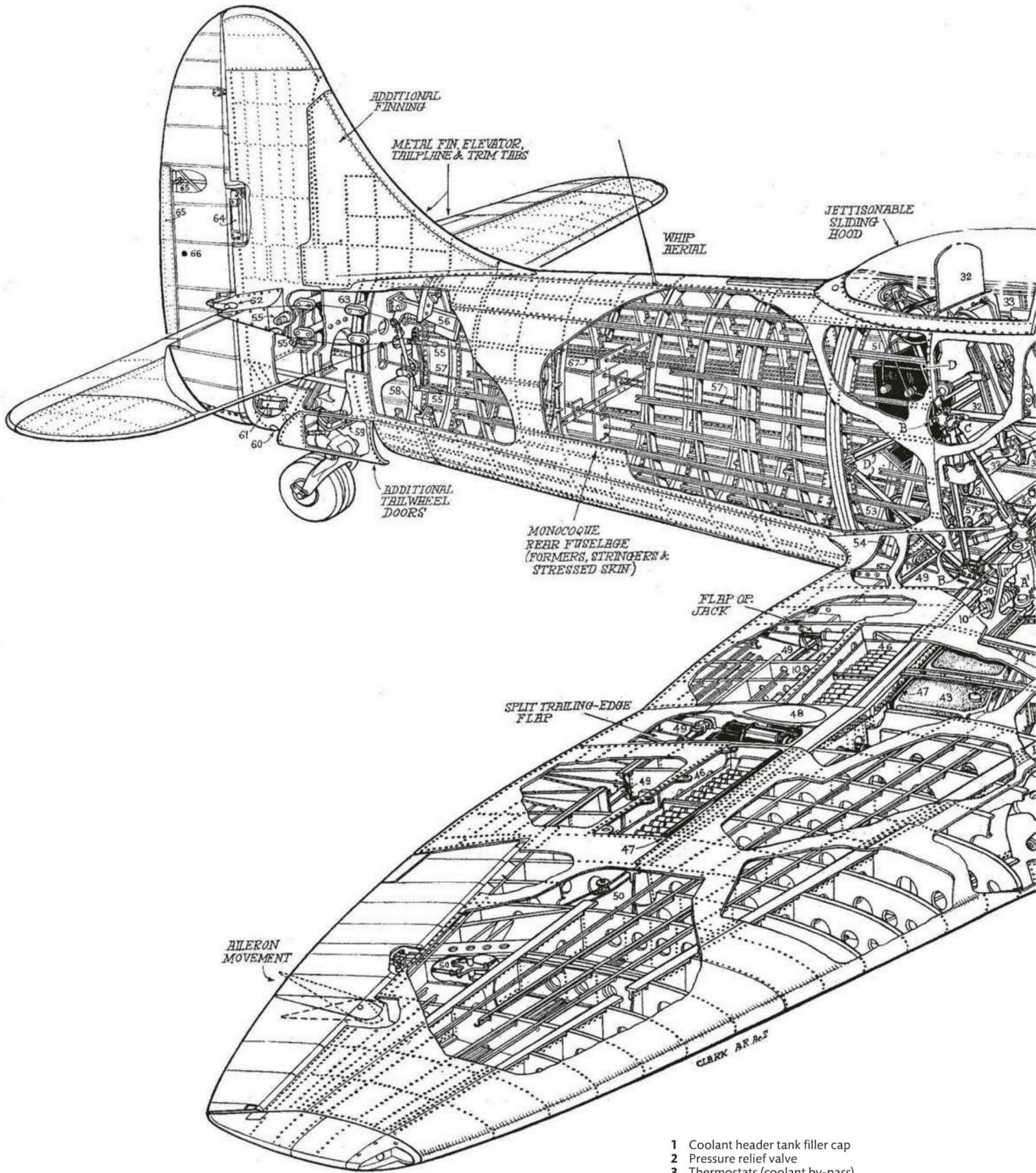
Luftwaffe fighters, although at first a comparative trial was performed against a Typhoon fitted with the old style canopy. The canopy alone made the Tempest easier to handle from take-off through to a dogfight and the visibility was undoubtedly far superior to any other fighter around at the time.

Performance-wise, the Tempest was 15-20 m.p.h. quicker at all altitudes while the engine was smoother and the rudder, elevator and ailerons were far more responsive than the Typhoon's. Thanks to the reduced fuel capacity of the Tempest, the range was the same as the Typhoon, but a pair of streamlined 45-gallon drop tanks would help to rectify this. The Tempest was also 300ft/min quicker in the climb and acceleration in a dive was incredible and very stable, making it ideal as a gun platform when it came to strafing.

The Tempest was put up against the Bf 109G, Fw 190A, Mustang III and Spitfire XIV, out-performing all of them by up to 50 m.p.h. below 20,000ft. Above this height, the tables were turned by the Allied types while the Bf 109 and Fw 190 could still be easily overhauled. Manoeuvrability-wise, the Tempest could still be out-turned easily by the Spitfire and, to a lesser extent, by the Mustang, while the Fw 190 could be matched and the Bf 109 was easily dealt with. All in all, the AFDU had shown that the Tempest was destined to be one of the RAF's great medium/low-level fighters. The AFDU also came up with a sensible policy that Typhoon squadrons should be re-equipped with the Tempest, while the Spitfire XIV should re-equip earlier mark Spitfire squadrons.

HAWKER TEMPEST

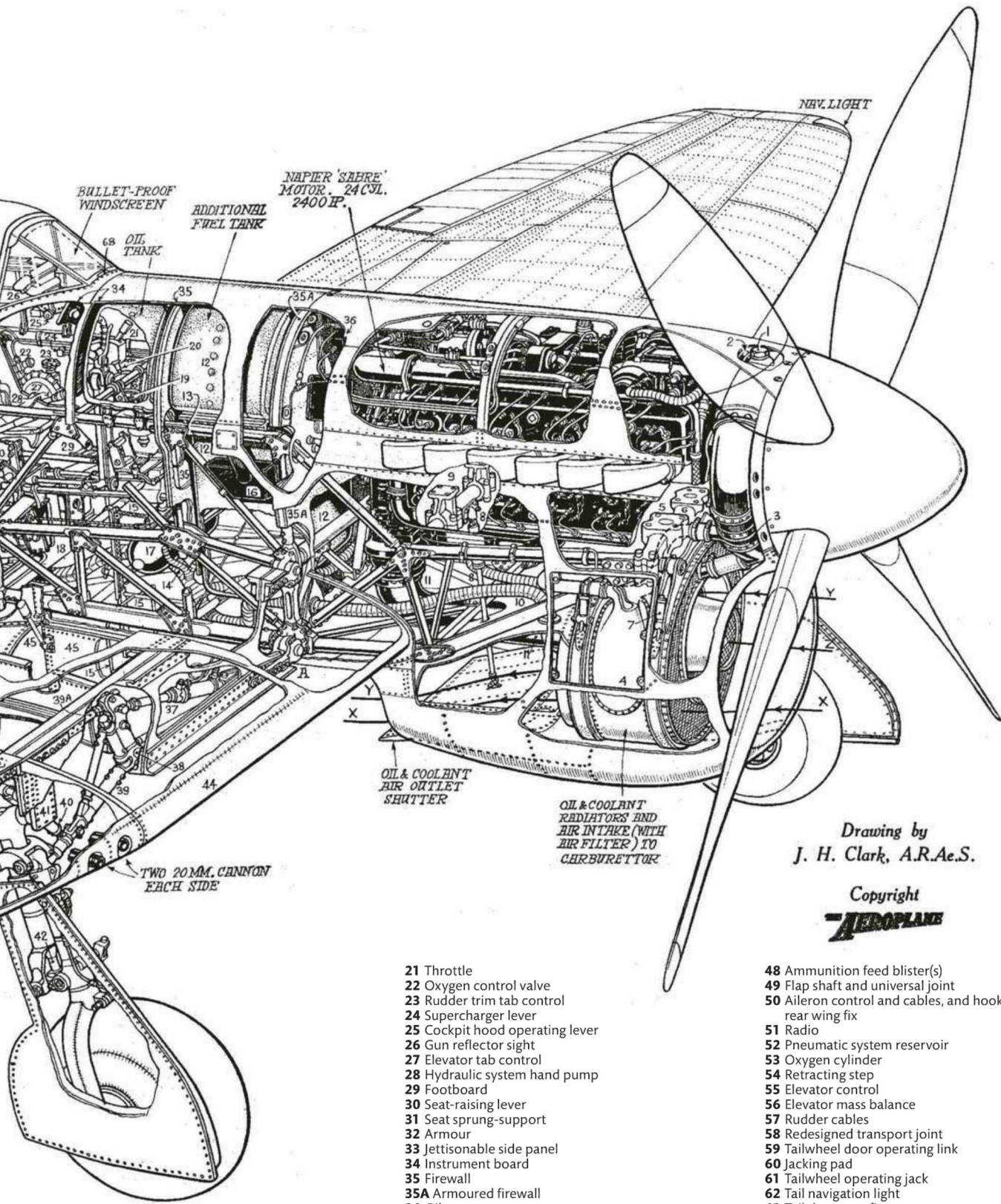
638 Out of a total tally of 1,846 V-1s destroyed by the RAF's fighters, 638 were claimed by Tempests.



HAWKER TEMPEST V cutaway drawing

- 1 Coolant header tank filler cap
- 2 Pressure relief valve
- 3 Thermostats (coolant by-pass)
- 4 Access door to radiator
- 5 Engine front mounting
- 6 Cross-member
- 7 Radiator strap mounting spring shock absorber
- 8 Shutter jack
- 9 Engine rear mounting
- 10 Gun and cockpit hot-air trunks
- 11 Carburettor air trunk
- 12 Additional fuel tank and consequent lengthened (redesigned) front fuselage

DATAPOINT The first 100 Tempest Vs built were classed as "Series 1", fitted with long-barrelled Hispano Mk IIs guns, while the "Series 2" was fitted with lighter, short-barrelled Mk Vs.



Drawing by
J. H. Clark, A.R.Ae.S.

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AEROPLANE

- 13 Front fuselage
- 14 Warm air to cockpit
- 15 Drop-down accumulator case, and rubber cord
- 16 Oil-petrol engine priming tank (de-icing tank on port side)
- 17 Hydraulic system reservoir
- 18 Front fuselage rear wing cross-bracket
- 19 Compass
- 20 Undercarriage control

- 21 Throttle
- 22 Oxygen control valve
- 23 Rudder trim tab control
- 24 Supercharger lever
- 25 Cockpit hood operating lever
- 26 Gun reflector sight
- 27 Elevator tab control
- 28 Hydraulic system hand pump
- 29 Footboard
- 30 Seat-raising lever
- 31 Seat sprung-support
- 32 Armour
- 33 Jettisonable side panel
- 34 Instrument board
- 35 Firewall
- 35A Armoured firewall
- 36 Oil separator
- 37 Undercarriage jack
- 38 Hinge point
- 39 Side stay
- 40 Assisting spring
- 41 Undercarriage hinge-plate
- 42 Undercarriage shock leg ram
- 43 Wing fuel tank (each side)
- 44 Leading edge (fuel tank on port side)
- 45 Undercarriage wheel cover top jack
- 46 Magazines
- 47 Magazine armour

- 48 Ammunition feed blister(s)
- 49 Flap shaft and universal joint
- 50 Aileron control and cables, and hook alongside rear wing fix
- 51 Radio
- 52 Pneumatic system reservoir
- 53 Oxygen cylinder
- 54 Retracting step
- 55 Elevator control
- 56 Elevator mass balance
- 57 Rudder cables
- 58 Redesigned transport joint
- 59 Tailwheel door operating link
- 60 Jacking pad
- 61 Tailwheel operating jack
- 62 Tail navigation light
- 63 Tailplane spar fix
- 64 Rudder mass balance
- 65 Rudder trim tab and operating rod
- 66 Fabric-covered rudder

- A Four wing fixes
- B Fixings (members D of monocoque fuselage to front of tubular structure C)
- E Main spar joint between centre and outer wing
- X Engine airflow cooling
- Y Oil cooling airflow
- Z Supercharger airflow with filter

Unleash the Tempest!

It was the Tempest that earned the enemy's greatest respect during the twilight years of the Second World War, despite the Luftwaffe being a mere shadow of its former self



ABOVE: Tempest VJN862, seen at Newchurch in June 1944. The fighter was the personal aircraft of Belgian pilot Flt Lt (later Sqn Ldr) R. Van Lierde, who ended the V-1 campaign with 44 to his credit. VIA AUTHOR

It was February 29, 1944 when the first Tempest V (possibly JN742) arrived at Manston to serve with 3 Sqn. This was only days before 486 (NZ) Sqn received its and many weeks before 56 Sqn relinquished its Spitfires for the new fighter. These three squadrons were chosen to form 150 (Fighter) Wing under the command of Wg Cdr R.P. Beamont DSO, DFC and Bar, who had not only been instrumental in getting the Typhoon into service, but also the Tempest. Beamont had spent a great deal of time with Hawker between operational tours and was by far the best choice of leader to introduce the Tempest into service. The main role of 150 Wing was to establish and maintain aerial superiority over an area between the Seine Bay and Brussels. Operations would obviously have to take place from airfields in the south-east of England and to control his squadrons Beamont was offered Friston, Gatwick, Headcorn or Newchurch as his Wing headquarters. After visiting each in turn in a Typhoon, Beamont chose the latter.

By March 1944, 55 Tempests had passed through MUs and 36 of them

had been made ready for operations. Several of the latter had already been delivered to 486 Sqn at Beaulieu in January, but these had just languished around the edge of the airfield, the unit being so absorbed in attacking V-1 flying bomb sites with its Typhoons. Instead, these Tempests were transferred to 3 Sqn based at Manston which, on March 6, was moved to Bradwell Bay. As the last of the unit's Typhoons departed, 3 and 486 Sqns flew north to Ayr in April to hone their skills on the new fighter with 14 Armament Practice Camp. With Beamont at the helm, a great deal of attention was paid to tight formation practice and night operations during the eight-day course. The Tempest displayed all the necessary qualities for being an excellent air-to-ground attack aircraft; Beamont alone achieved good scores of 71% and 65% respectively against a 15ft² target.

While 150 Wing was working up, Beamont had already been warned that a potential flying bomb assault could be launched against southern England. Simultaneously, forces were assembling in this area for the forthcoming invasion of Europe and the airborne threat was kept secret so as not to disrupt these plans with a massed evacuation of the civilian population. Beamont was well aware

during this period that all his efforts in training his Tempest for the air offensive role, could, at any moment, be called upon to tackle the V-1.

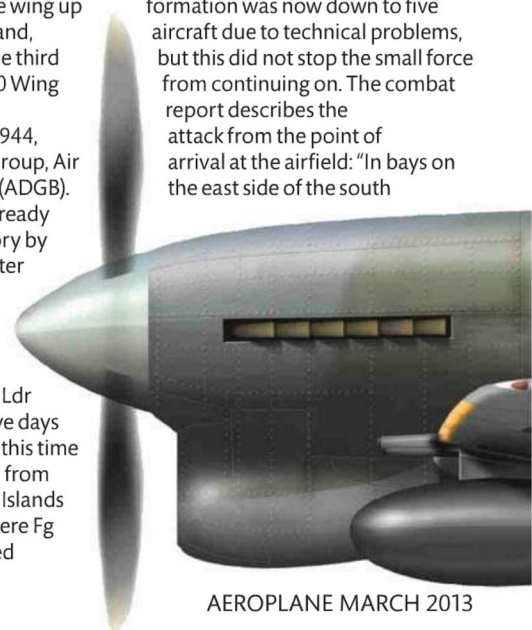
No 3 Sqn was the first unit to be declared fully operational under the command of Sqn Ldr K.A. Wigglesworth DFC on May 1. Without delay, the unit began flying *Ramrods* and *Rangers* over France, with Beamont regularly leading formations of between eight and 12 Tempests.

Beamont had already been working hard to bring the wing up to an operational status and, thanks to the arrival of the third and final unit, 56 Sqn, 150 Wing was officially formed at Newchurch on May 12, 1944, under the control of 11 Group, Air Defence of Great Britain (ADGB). Prior to this, 3 Sqn had already snatched some of the glory by carrying out the first fighter sweep over enemy-occupied territory on May 3 with a one-hour flight over Belgium and France led by its CO, Sqn Ldr A.S. Dredge AFC. Only five days later 3 Sqn was up again, this time on an intruder operation from Manston over the Dutch Islands and Northern France where Fg Off Bob Barckley achieved

another first for the unit by shooting down a V-1. Little did he know at this time that the V-1 would dominate the squadron's activities throughout the summer of 1944.

Cormeilles Airfield

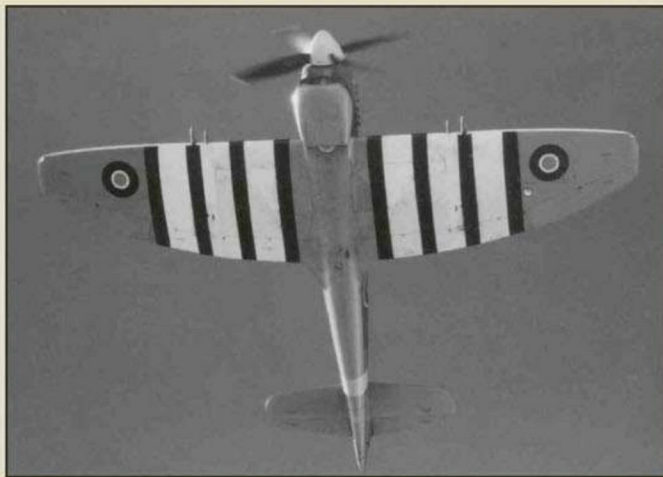
On May 28, it was decided to take the fight to the enemy and, at 1655hr, nine 3 Sqn and nine 486 Sqn Tempests, led by Beamont, set course for Cormeilles-en-Vexin (Pontoise) Airfield, north of Paris. Crossing the French coast at Ault at 8,000ft, the formation was now down to five aircraft due to technical problems, but this did not stop the small force from continuing on. The combat report describes the attack from the point of arrival at the airfield: "In bays on the east side of the south



DATAPoint A single Tempest V, SN354, was fitted with a pair of Vickers "P" 40mm anti-armour guns, but this potentially potent weapon was never unleashed against an enemy.



ABOVE: "G" of 3 Sqn is quickly turned around at Newchurch in June 1944. AUTHOR'S COLLECTION



ABOVE: One of a series of photographs taken of Tempest V JN757, which saw action with 3 Sqn before transferring to the AFDU (complete with invasion stripes). VIA AUTHOR

dispersal five T/E aircraft were seen, so Wg Cdr Beamont led the formation into a diving turn out of the sun, opening fire at about 470kts ASI, range about 800yds. The Wg Cdr's attack was $\frac{3}{4}$ head on and his target and those of the two sections were identified as Ju 88s, possibly Ju 188s, painted black all over." Beamont found his mark while Plt Off K. Slade-Betts and Flt Sgt D.J. MacKerras also set a pair of enemy aircraft on fire as well as a few airfield buildings. All returned safely back to Newchurch, having only received a few inaccurate rounds of enemy fire as they passed over the target.

Tackling the V-1

When the invasion finally arrived,

it was a very frustrating day for the Tempest squadrons who were held back in reserve until the evening when they were released to fly top-cover for the troopships. Poor weather and nightfall saw the Tempests return to Newchurch without sighting a single enemy aircraft.

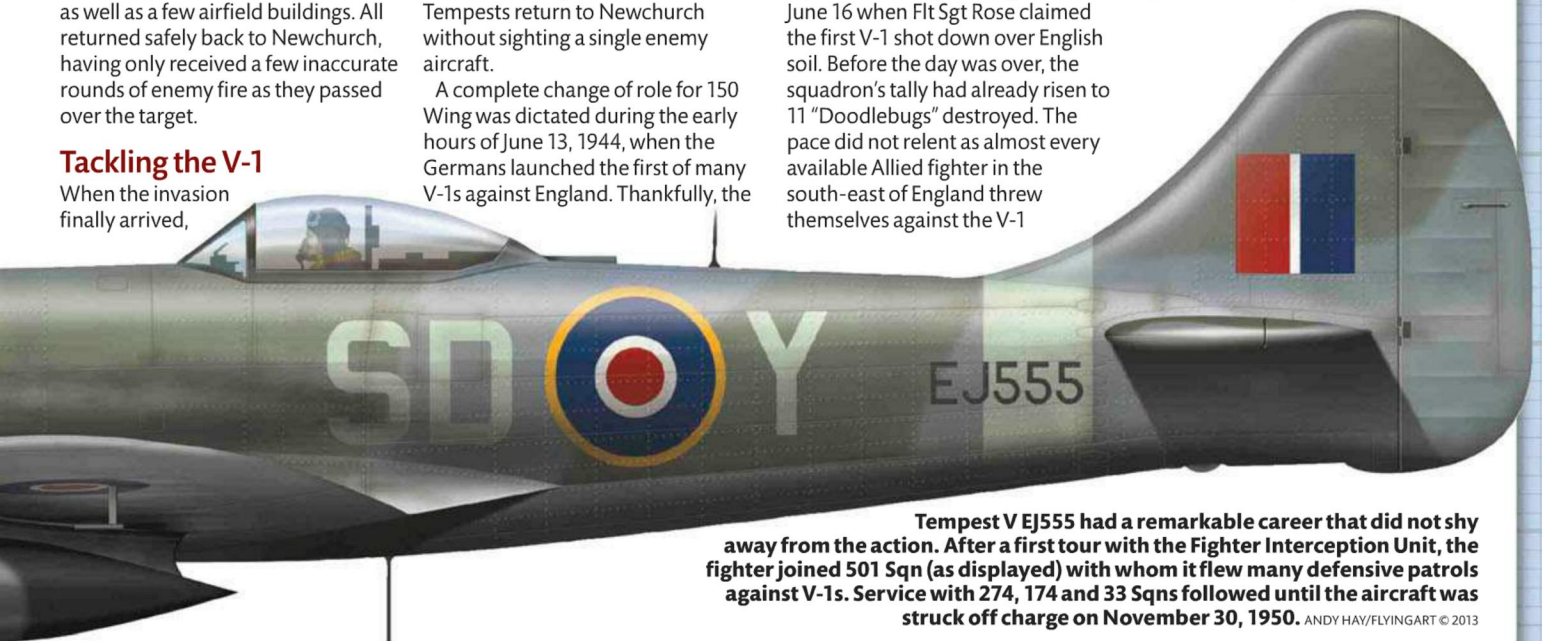
A complete change of role for 150 Wing was dictated during the early hours of June 13, 1944, when the Germans launched the first of many V-1s against England. Thankfully, the

enemy was experiencing some problems at the launch sites and the full-scale assault did not begin until June 15/16, giving the RAF some time to organise a response. No 3 Sqn's V-1 killing spree began from June 16 when Flt Sgt Rose claimed the first V-1 shot down over English soil. Before the day was over, the squadron's tally had already risen to 11 "Doodlebugs" destroyed. The pace did not relent as almost every available Allied fighter in the south-east of England threw themselves against the V-1

threat. This "free-for-all" tactic was certainly not the most effective approach, with pilots baulking each other's attacks and equally keen gunners on the ground almost shooting down the fighters as well.

It was clear that the defences needed organising, with priority given to the faster Tempest squadrons who stood the best chance of bringing the flying bombs down. A three-band system was introduced where the first line of defence was given to the Tempests over the Channel, the second line to the anti-aircraft guns arcing from the coast to London and the last resort was the barrage balloon defence on the edge of the capital.

The technique used by the Newchurch Wing was to patrol at 8,000ft over the Channel, high above the V-1s, and await radar vectors to their targets. With an average speed of 400 m.p.h., the Tempest still had to approach its quarry from the stern in a shallow dive, often overhauling the V-1 as it approached or crossed the coast. With a wing span of just 19ft, the V-1 presented a very small target and



Tempest V EJ555 had a remarkable career that did not shy away from the action. After a first tour with the Fighter Interception Unit, the fighter joined 501 Sqn (as displayed) with whom it flew many defensive patrols against V-1s. Service with 274, 174 and 33 Sqn's followed until the aircraft was struck off charge on November 30, 1950. ANDY HAY/FLYINGART © 2013

HAWKER TEMPEST



ABOVE: A Tempest V of 501 Sqn is re-armed by three LAC armourers, while a fourth makes sure that the guns cannot be fired in the cockpit, at Manston in August 1944. AEROPLANE

the only way to cleanly knock it down was to get in close, which obviously involved a great deal of risk to the attacking pilot and his aircraft. Despite this, the average Tempest pilot still had more chance of losing his aircraft to engine failure even though the Sabre engine was now achieving a higher level of reliability.

No 150 Wing was steadily increasing its V-1 tally and, by June 19, was flying an average of almost 50 sorties per day and V-1 aces were being created on a daily basis.

By the end of the V-1 campaign 3 Sqn claimed 305½ V-1s shot down, but were only credited with 288 confirmed, which still made it the most successful unit. The Newchurch Wing alone shot down 629 V-1s and the Tempest achieved a grand total of more than 800 of the 1,772 fighter claims by the time the launching sites were overrun by the Allies in September 1944.

The Tempest pilots, and in particular the Newchurch Wing, were never officially recognised for their actions, although the Press of the day were very vocal in their support. The actual numbers of V-1s shot down were heavily massaged in favour of the anti-aircraft crews, whose apparent flagging morale needed a lift. Churchill is recorded as commenting

that the V-1 campaign was the long awaited opportunity to give credit to the actions of the Anti-Aircraft Command who only really started to make inroads during the last few weeks of the campaign. Regardless, Churchill was adamant and in a memo sent to the Chiefs of Staff in March 1945 he stated: "You have no grounds to claim the RAF frustrated the attacks by the V weapons... so far as the flying bombs were concerned the RAF took their part, but in my opinion their efforts rank definitely below that of the A.A. artillery and still further below that of the army... I thought it a pity to mar glories of the

Battle of Britain by trying to claim overweening credit in this business of the V weapons."

More units re-equip

As the pace of Tempest V deliveries to RAF MUs began to accelerate and, with 150 Wing operating with a full establishment of aircraft, it was decided to begin re-equipping additional units. Rather than choosing a Typhoon unit, squadrons which were operating older fighters were chosen; the first being 501 (County of Gloucester) Sqn which began replacing its Spitfire Vbs during July 1944. Based at

Westhampnett, 501 Sqn was the first unit to receive the Tempest V Series 2 which was fitted with spring tabs. After just three days of conversion training, 501 Sqn was declared operational before moving to Manston on August 2 from where it joined the V-1 campaign. Worthy of note during the squadron's V-1 chasing was the introduction of several Tempest Vs which arrived at Manston unpainted. These natural finish Tempests could fly approximately five miles per hour quicker than those painted in camouflage and the small gain in speed, however small, contributed to a few more V-1s being brought down over the Channel rather than over land. Other units saw the gain in speed as negligible and natural finish was not generally used. No 501 Sqn was destined to take part in the V-1 campaign right up to September 1944, by which time the launch sites had been overrun in the Pas de Calais but the threat of air-launched weapons from Heinkel He 111s still briefly remained.

Having moved to West Malling in July 1944, 274 Sqn was the next in line to receive the Tempest V in place of its Spitfire IXs the following month. Under the command of Sqn Ldr Barnett DFC, who transferred from 501 Sqn, another swift conversion was achieved and, by August 12, the unit was flying its first flying bomb patrol. Just three days later, 274 Sqn claimed its first V-1 when Flt Lt O.E. Willis shot the flying bomb down two miles north east of Sittingbourne.

No 80 Sqn also re-equipped with the Tempest V in August 1944 at West Malling, having relinquished its Spitfire IXs. The unit took no part in the V-1 campaign, but would be in the front line when the Tempest units were finally allowed to operate freely in combat with the Luftwaffe.



BELOW: Tempest V JN766 of 486 Sqn pictured at Beaulieu in February 1944 – the first unit to receive the type. JN766 was later passed to 287 Sqn, where it remained until March 12, 1946, when the engine cut on take-off from West Malling. VIA AUTHOR



DATAPPOINT Humble's experience was repeated in actual combat by Wg Cdr Beamont who shot an Fw 190D down with 530 m.p.h. IAS on the clock.

Taking the fight to the enemy

From October 1944 onwards, the RAF's Tempest squadrons operated from airfields in Belgium, The Netherlands and Germany from where the true colours of this powerful, deadly fighter could be displayed



ABOVE: A trio of 501 Sqn Tempest Vs with EJ763 nearest the camera, EJ605 next and finally EJ599. Only EJ605, which served with 501 Sqn throughout its entire career, survived to be struck off charge in December 1949. CHARLES E. BROWN VIA AUTHOR

It was 56 Sqn that sounded the arrival of the Tempest again on the French side of the Channel on August 25, 1944, flying a fighter sweep from the coast to Cassel, near St Omer. Tempest units would still be retained at English airfields while there was still a threat of V-1 attacks and during the build-up to Operation Market Garden. The following day, Beamont led 486 Sqn on a ground support operation during which a column of enemy vehicles was attacked near St Omer. August 28 saw Beamont leading 56 and 486 Sqn for an attack on a Freya radar station at Cassel. Despite being held back in England, 150 Wing was getting its fair share of varied action which included bomber escort on daylight operations, ground attacks against road and rail targets and Big Ben operations. The latter were



ABOVE: Pictured at Newchurch in July 1944 is Tempest V JN812, which was 3 Sqn's first operational loss abroad when it was shot down by flak the day the unit moved to Volkell on October 1, 1944. IWM VIA AUTHOR

attacks on V-2 launching sites and on September 13, with Beamont once again at the helm, 3 and 486 Sqn attacked a site near The Hague. The site was located and clinically destroyed, but this came at a price as the 3 Sqn CO, Sqn Ldr K.A. Wigglesworth DFC, was hit by flak and crashed into the target area.

By late September 1944, the V-1 threat had subsided and 150 Wing now prepared to relocate to the Continent. A few days were spent bringing all three squadrons back up to scratch again as the Tempests had been pushed to the limit and beyond in their efforts to bring down the V-1s.

On September 28, Beamont led his wing in a massed formation of 48 Tempest Vs to B.60 Grimbergen, north of Brussels. Nos 3, 56 and 486 Sqn were now part of 122 Wing, 2nd Tactical Air Force (TAF), in a fully offensive role. Once again, the unit's

During an early gun-firing test of the prototype Tempest VI, Bill Humble fired the aircraft's guns at 560 m.p.h.; the aircraft remained "as steady as a rock".



tasking was varied, made up of bomber escort duties both for the RAF and USAAF, offensive sweeps of Luftwaffe airfields and more *Big Ben* operations. Another task was to hunt for Messerschmitt Me 262 jet fighters which, by late 1944, were becoming an increasingly common sight.

The Tempest goes "rat" chasing

No 122 Wing was moved to the much larger airfield of B.80 Volkel on October 1, a location that was so close to the front line that enemy flak could catch out the unwary in the circuit. Sadly, at least one Tempest pilot was shot down and killed by German flak over his own airfield and even Beamont was hit in the tailplane while returning from a sortie.

After only a few days of being at Volkel there had been at least six instances of Me 262s flying fast and low over the airfield, but once the Tempests had been scrambled the twin-engine jet was long gone. A lot of time and effort was expended trying to bring down one of these elusive aircraft to such an extent that a ground observer system was introduced across Belgium and The Netherlands. Once the observer spotted an Me 262 he fired off a coloured flare which denoted the direction the jet was travelling. If a flare was spotted by a Tempest pilot on patrol, who had sufficient fuel and ammunition remaining he was "encouraged" to pursue the enemy jet, or "rat" as it became known.

On October 13, 1944, the first Me 262 was brought down by the guns of a Tempest. Alerted by a ground flare, Plt Off R.W. Cole of 3 Sqn spotted the jet flying at low-level in a northerly direction towards Nijmegen. With his Sabre engine running at full boost, Cole dove down towards his quarry, reaching a speed of 530 m.p.h. before opening fire at a range of 200yds. The Me 262 was hit in one of its Jumo turbojets which trailed a plume of white smoke moments before the pilot pulled up into a steep climb and baled out to safety leaving his aircraft to crash near Grave. No 3 Sqn increased the Me 262 tally on October 21 when Flt Lt A.E. Umbers damaged one and

ABOVE: First flown by Philip Lucas on October 12, 1943, Tempest V JN730 was initially used for a variety of trials with the A&AE well into 1944. The fighter later joined 80 Sqn at Volkel and, after seeing a great deal of combat, survived the war. VIA AUTHOR



ABOVE: Ground crew of 122 Wing prepare a batch of long-range fuel tanks specifically designed for the use of the Tempest V. At first, these were jettisoned when the extra fuel was used up, but by early 1945 the tanks were in short supply and were only disposed of if the aircraft was involved in combat. VIA AUTHOR

Flt Lt G.R. Duff and Fg Off R. Dryland shared another as damaged.

The Me 262s were later found to be operating from Rheine Airfield and, in an attempt to catch the jets in the early stages of their sorties, Tempests were ordered to fly armed reconnaissance operations over the region. However, the ground defences quickly got wise to the RAF's attentions and the amount of anti-aircraft guns was increased dramatically. On November 26, Plt Off Cole fell victim to one of these guns but prior to this, the Tempest wing lost its most experienced leader.

On October 12, Beamont led an armed reconnaissance by 3 Sqn from Volkel. Heading for the Rhine area, a train was spotted near Munster and, during the subsequent attack, Beamont's Tempest V, JN768, was hit by flak, forcing the experienced Wing Commander to crash-land in enemy territory and into captivity until the end of the war. Determined to fly 100 fighter operations over enemy territory, Beamont had already been offered a test pilot's position with Hawker Aircraft. He was shot down on his 95th operation having flown a total of 630hr of operational flying in fighters.

Gaining strength

No 274 Sqn joined the fray with 122 Wing at Volkel on October 7, 1944, under the command of Sqn Ldr J.R. Heap DFC. The same day, 80 Sqn, under the command of Sqn Ldr R.L. Spurdle DSO, DFC and Bar, which had replaced its Spitfire IXs in August, also joined 122 Wing. All five of the wing's Tempest squadrons were now tasked with flying armed reconnaissance operations. One particularly successful operation was carried out by 80 Sqn on December 27 when four of the unit's Tempest Vs, led by Flt Lt R.W.A. MacKichan DFC, intercepted four Focke-Wulf Fw 190Ds close to Rheine Airfield. Enemy flak held off so that they did not hit their own machines, but within a matter of minutes all four enemy aircraft had been shot down, the quartet of 80 Sqn pilots claiming one each.

The Luftwaffe's last hope on January 1, 1945, more familiarly known as Operation *Bodenplatte*, did not affect 122 Wing a great deal with only two aircraft destroyed on the ground. By the end of the attack, 122 Wing quickly evened up the balance

when two enemy aircraft were brought down near Eindhoven and a third, an Fw 190, was shot down by Fg Off Garland of 80 Sqn.

No 122 Wing continued to fly armed reconnaissance operations throughout January 1945 but, on the 23rd of the month, a large sweep of 48 Tempests was planned. The plan was to fly the wing in three groups positioned ten miles apart on a route which extended from Rheine through to Hengelo. First blood was claimed by Flt Lt F.L. MacLeod and Fg Off R.V. Dennis of 56 Sqn, who were lucky enough to catch and shoot down an Me 262 near Paderborn after pushing their Tempests to the limit. As 56 Sqn approached Rheine, the usual flak greeting was not forthcoming, indicating that the Luftwaffe was airborne and close. Moments later, 56 Sqn was bounced by a formation of Messerschmitt Bf 109s and Fw 190s which were quickly punished when three of their number were shot down within minutes.

No 274 Sqn was also in action on this operation near Gütersloh after encountering a mixed formation which resulted in no losses for the Tempests, although a pair of Fw 190s and a single Bf 109 were shot down. No 80 Sqn was also in the thick of it near Münster, the unit bringing down a pair of Bf 109s and a pair of Fw 190s without loss. The squadron's CO, Sqn Ldr E.D. Mackie, brought down another Bf 109 in a second encounter not



far from Münster. This was his tenth victory and added a DSO to his DFC and Bar. In the same dogfight another Bf 109 was shared.

All 48 Tempests returned safely to Volkel having shot down 13 enemy fighters, all confirmed by gun camera footage. While taking nothing away from the skill of the Tempest pilots in bagging so many of the enemy, it was generally agreed by the pilots themselves that the calibre of their opponents was lacking. Inexperience had certainly brought about the end of the majority of enemy machines as nearly all made the classic error of turning away from their attacker in an attempt to get away rather than getting in close and fighting. Many of the "kills" for the remainder of the war

DATAPOINT The big Bristol Centaurus engine was 335lb heavier than the Sabre, although the lack of a radiator on the Tempest II made it a mere 20lb heavier than the Tempest V.

were achieved in the same way and with increasing frequency.

The final battles

While on a patrol near Bremen on February 3, 1945, 274 Sqn, being led by its CO, Sqn Ldr A.R. Baird DFC, came across a small formation of Messerschmitt Me 410s for the first time. While they were a vast improvement over the Me 210, the twin-engine fighters were no match for a Tempest V. Baird alone damaged three of the enemy and Fg Off R.E. Mooney shot down a fourth.

Pushing deeper into Germany, a joint patrol by 80 and 274 Sqns saw the Tempests carrying out co-ordinated sweeps more than 100 miles into the Fatherland. No 80 Sqn was first to encounter the enemy when a group of Fw 190s was intercepted near Bremen, one of which was quickly despatched by Fg Off R.S.E. Verran. Not long after, 274 Sqn, which was approaching Minden, had a brief, violent encounter with a formation of Bf 109s which saw Sqn Ldr Baird shot down. He was quickly avenged by Fg Offs Sutherland, Stark and Mossing who bagged one enemy fighter apiece.

By the end of February 1945, 274 Sqn had brought down 13 enemy aircraft, although this was for the loss of six Tempests which included two COs; Baird's replacement, US-born Sqn Ldr D.C. Fairbanks DFC and Bar,

Hawker Tempest I, II, V & VI

TYPE

Single-seat interceptor fighter and close-support fighter bomber

POWERPLANT

(I) 2,500 h.p. Napier Sabre IV; (V) One 2,200 h.p. Napier Sabre IIB; (VI) One 2,340 h.p. Sabre V; (II) One 2,520 h.p. Bristol Centaurus V

DIMENSIONS

Span 41ft
 Length (I) 34ft 2in; (V) 33ft 8in; (II) 34ft 5in
 Height, (V) 16ft 1in; (I & II) 15ft 10in
 Wing area 302ft²

WEIGHTS

Empty (I) 8,950lb; (V) 9,000lb; (II) 8,900lb
 Loaded (I) 11,300lb; (V) 12,820lb; (II) 13,600lb

PERFORMANCE

Max speed (I) 466 m.p.h. at 24,500ft; (V) 442 m.p.h. at 20,500ft; (II) 440 m.p.h. at 15,000ft
 Rate of Climb (I) 15,000ft in 4.25min; (V) 20,500ft in 6.1min; (II) 15,000ft in 4½min
 Range (V) (normal) 820 miles, (maximum) 1,530 miles; (II) (normal) 800 miles, (maximum) 1,640
 Service Ceiling (V) 33,200ft; (II) 37,000ft

ARMAMENT

Four 20mm Hispano Mk II or Mk V cannon in the wings and provision for up to 2,000lb of HE or napalm bombs, cluster bombs, supply containers, eight RPs or a pair of drop tanks or combinations carried below the wings.

RCAF, was shot down on February 28. No 56 Sqn claimed nine enemy aircraft for the loss of two of its own, while 80 Sqn shot down six for the loss three Tempests. More Tempests were in theatre on February 21, 1945, when 33 and 222 Sqns arrived at B.77/ Gilze-Rijen.

As aerial targets began to

decline, the Tempest squadrons were given more freedom to attack ground targets, railways and their rolling stock being a particular favourite. Working with Typhoon units, the general tactic was to employ the Tempest to attack the locomotive with its 20mm cannon and once it was brought to a halt, the

RP armed Typhoons would be called in to finish the job.

Fighter sweeps were still maintained and, on March 22, eight Tempests apiece from 56 and 80 Sqns headed for Hesepe. A formation of a dozen Fw 190s were caught off guard and by the end of the encounter, four enemy aircraft were shot down by 56 Sqn and two more by 80 Sqn, all without loss. The Tempests' combined tally was now rising rapidly and, by the end of the month, 88 enemy aircraft had been brought down for the loss of 21 Tempests and 17 pilots of which a minimum of nine were known to have survived by baling out or walking away from their aircraft.

Despite the Luftwaffe entering a rapid decline, April 1945 proved to be one of the most violent of the entire conflict for the Tempest pilots. Both 33 and 80 Sqns had a tough month, losing several pilots killed or missing. The wing as a whole took a blow on April 16, when Wg Cdr R.E.P. Brooker took the helm of an armed reconnaissance over Neuruppin, only 30 miles from Berlin. It was not long before the flak and fighters arrived; the group of Fw 190s encountered that day being a

ACTION



ABOVE: Re-formed at Chilbolton (after 183 Sqn was re-numbered), 56 Sqn operated the Tempest II from November 15, 1945, through to October 1946, when the jet era brought forth the Vampire F.1. MW774 briefly served with 183 Sqn before being transferred to 56 Sqn. ANDY HAY/FLYINGART © 2013

BELOW: No 486 (NZ) Sqn operated the Tempest in January and February 1944 and then again, more permanently from April 1944 through to the unit's disbandment at Lübeck on September 7, 1945. Tempest V JN129 is seen at Lübeck in the summer of 1945 while still under 124 Wing control. VIA AUTHOR



HAWKER TEMPEST

13 The last Tempest victories of the war took place on May 3, 1945, when 13 enemy aircraft were destroyed; five of them were claimed by 3 Sqn pilot Flt Lt P.H. Clostermann.



ABOVE: Ex-80 Sqn Tempest V SN329 became the prototype TT.5. The retired fighter went on to serve with APS Sylt until June 1952. VIA AUTHOR



ABOVE: One of many ex-RAF Tempest IIs supplied to the RIAF in September 1947 was PR660, seen here in an all-silver finish while serving with 10 Sqn, RIAF. AEROPLANE

particularly aggressive bunch. Although two pilots from 80 Sqn shot down one each in short order, four of the wing's Tempests failed to return that day including the wing leader. The body of the 26-year-old Wing Commander was never found and today he is one of the many who are commemorated on the Runnymede Memorial. His place was taken by Sqn Ldr E.D. Mackie DSO, DFC and Bar, RNZAF, whose place in turn as commanding officer of 80 Sqn was filled by Mjr R.A. Henwick DFC, SAAF.

The final week of the Second World War for the Tempest wing was hectic to say the least, as patrol after patrol was ordered at a moment's notice. These were more often than not recalled as higher priority targets took precedence. By late April, six Tempest squadrons were in theatre; Nos 3, 56 and 486 at Fassberg and Nos 33, 222 and 274 at Quackenbrück, while 80 Sqn was withdrawn to Warmwell for a well-earned break from the fighting. The Luftwaffe by now was withdrawing rapidly to any airfield that could provide fuel so the fight could continue to the bitter end. In turn, the RAF responded by launching its wings to either tackle large numbers of enemy aircraft in the air or on the ground, the latter accounting for the majority of Luftwaffe losses. However, the main killing ground for the Tempest was now along the German coast, mainly around Kiel and Lubeck where enemy flying-boats and seaplanes were easy prey. It was these

BELOW: A line of 33 Sqn Tempest IIs seen at Fassberg in the autumn of 1947. The unit left for Malaya in July 1949 on board HMS *Ocean* and successfully took part in Operation *Firedog*. AEROPLANE

types of aircraft that helped to elevate many Tempest pilots' scores.

The Tempest caused carnage on the ground during the final days of the conflict. Being virtually unopposed, the enemy was now being shot up continually on the ground as road, rail and any vaguely looking enemy target was raked with cannon fire. On May 5, at 0800hr, the order finally came through to "stop shooting!"

Post-war service

While the Typhoon fell by the wayside, the Tempest still had a role to play in the post-war RAF, despite the inevitable arrival of the jet. The Tempest V would still find a useful role within Germany as part of 2nd TAF and the forces of occupation. Six Tempest V units, Nos 3, 33, 56, 80, 274 and 486 Sqn, would remain in Germany while 222 and 501 Sqn

would operate in Britain.

The wave of anti-climax which descended over the Tempest pilots was difficult for them to handle and normal service life could, at best, only be described as boring compared to the vicious, exhilarating, adrenalin-pumping flying they had experienced only weeks before. The most exciting flying undertaken now were the large victory-type flypasts which were designed to show the German people how well-beaten they were, but also to raise the spirits of the Belgian, Dutch and Danish populations. These flypasts were, however, unpopular with the pilots and were incredibly difficult to organise let alone manoeuvre. Mid-air collisions were not uncommon, but the loss of four Tempest Vs and three pilots on May 12 was too much to bear

for many senior RAF staff and the large formations were quickly abandoned.

Having a sufficient number of qualified pilots to fly the Tempest V was the next problem as European pilots returned to their homelands to fly for their own countries. Units such as 486 Sqn were disbanded, this one returning to its native New Zealand. No 274 Sqn was disbanded at Warmwell on September 7, 1945, to become 174 Sqn before returning to Germany and final disbandment at Fassberg on April 20, 1946.

This left Nos 3, 33, 56 and 80 Sqn in service in Germany although, in March 1946, 56 Sqn converted to the Gloster Meteor. No 33 Sqn was the first unit in Germany to receive the Tempest II, while 3 and 80 Sqn continued to operate the Tempest V, the former converting to de Havilland Vampires in April 1948 and the latter to Spitfire F.24s in January 1948. This left a surplus of serviceable Tempest Vs which did not go to waste, as 16 Sqn was reformed at Fassberg on April 1, 1946, but these were replaced by the Tempest II in August 1946.

Many Tempest Vs now found themselves in open storage at the very same MUs where they had been prepared for action years before. A large number would return to Langley for refurbishment and, for 80 them, conversion to a less aggressive role. This was as the TT.5, a high-speed target towing aircraft and involved the fitment of a ML target winch under the port wing while a drop tank was carried under the starboard wing to balance the aircraft. Controls for the winch, speed of the windmill and cable pay-out gauges, removal of the gunsight and armament switches, made up the cockpit modifications. The tail unit was also fitted with cable



DATAPoint By late September 1944, the V-1 threat to England had subsided and 150 Wing prepared to relocate its Tempests to the Continent.

HAWKER TEMPEST



guards. Many aircraft simply dragged the target off the ground using a fixed cable mounted below the fuselage. The TT.5 entered service in 1948 with the Armament Training Station (ATS) Sylt, but also served with the ATS Acklington, CGS and 226, 229 and 233 OCU's. It was with the latter at Pembrey that the type was retired in July 1955, becoming the last of the Tempest V breed to serve the RAF.

The RAF Mark II and VI

The Tempest II was initially being prepared to serve in the Far East against the Japanese as part of the Tiger Force under the leadership of Wg Cdr Beamont. This never came to pass as the first unit to receive the Mk II was 183 Sqn at Chilbolton in August 1945, followed in September by 247 Sqn, also at Chilbolton.

By 1946 some Tempest IIs had been modified into a fighter-bomber, being redesignated as the FB.2. This was a role that the FB.2 conveniently bridged until the arrival of the Vampire FB.5 in December 1948. The FB.2 only saw action in Malaya with 33 Sqn, flying anti-terrorist sorties as part of Operation *Firedog* until it was replaced by the de Havilland Hornet in June 1951.

The Mk II only saw brief service with Fighter Command, pending the arrival of the Vampire F.1 which arrived from May 1946. Four squadrons were based in India from March 1946 to August 1947, becoming some of the last RAF machines to serve in the region before independence arrived; many of these going to serve with the Royal Indian Air Force (RIAF).

No 26 Sqn, which was reformed at Wunsdorf on April 1, 1946 with the Tempest II, was destined to be the last RAF unit in Europe to be equipped with the mark. The squadron re-equipped with the Vampire FB.5 in April 1949.

In all 142 Tempest VIs were built, the first of them joining 249 Sqn at Habbaniyah and 6 Sqn at Nicosia in December 1946. No 213 Sqn, also based at Nicosia, followed in January

1947 and 8 Sqn replaced its de Havilland Mosquitos in March. A reformed 39 Sqn was the last unit to receive the Tempest VI at Khartoum on April 1, 1948. The type's service with 39 Sqn was short as the unit was disbanded on February 28, 1949.

Because of an unsettled post-war Middle East, the Tempest VI squadrons found themselves helping to keep an uneasy peace while Britain worked out exactly what its role in the region should be. Aden, Iraq and Palestine were particularly difficult regions while ground attack operations were not uncommon in Mogadishu and Eritrea. The germinating state of Israel found RAF Tempests engaging ex-RAF aircraft flown by pilots who had been allies a few years earlier. By early 1950, the Tempest VI had been withdrawn from operations to make way for the Vampire.

India and Pakistan

The Tempest II entered RIAF service with 3 Sqn at Kolar in September 1946, the first aircraft being ex-RAF machines left by the departing British units. No 10 Sqn was next to form with the Tempest in November, followed by 4 Sqn, which had been

BELOW: A very rare air-to-air picture of a pair of RIAF Tempest F.2s, circa 1949. The front machine is HA-622 (ex-MW741) and to the rear is HA-621 (ex-MW828). Both were sold to the RIAF on May 25, 1948. AEROPLANE



flying Spitfires on occupation duties in Japan. Nos 7 and 8 Sqs had re-equipped by mid-1947 and, by the end of the year, 1 and 9 Sqs RIAF had also converted to the Tempest II. The latter two squadrons only briefly existed as they had their combined strength of 35 Tempests transferred to the Royal Pakistan Air Force (RPAF) following partition, thus leaving the RIAF with five operational squadrons. On India's Independence Day on August 15, 1947, 12 Tempest IIs were among the flypast over Red Fort when Nehru raised the national flag.

It was not long before the RIAF Tempests were in action in support of operations in Jammu and Kashmir in October 1947, a conflict that would last for 15 months, finally ending on January 1, 1949. The Tempests were employed on ground attack operations in support of the Indian Army against insurgents. During this period, the RIAF took delivery of an additional 89 Tempest F.2s (from 1948 RAF aircraft designations used Arabic numerals exclusively) direct from Langley and by 1951 a further 20 had been supplied by the RAF.

By early 1950, the RIAF became

the IAF as the country became a republic and Tempests remained in operational service with 3, 4, 8 and 10 Sqs. By now, the IAF was losing an alarming number of Tempests in flying accidents, mainly related to engine failures as the Centaurus was being pushed continually beyond its limits. Regardless, the type remained in service with 4 Sqn until 1955 and several more continued to serve with second line units from Hakimpet and Jamnagar until 1956.

The first Tempest F.2 units of the RPAF were 5 and 9 Sqs which were formed on August 15, 1947. Both squadrons were soon in action against rebel tribesmen along the historically troublesome North West Frontier, 5 Sqn alone flying 47 ground attack operations. By 1949, the RPAF was growing and part of the expansion was to equip another unit, 14 Sqn, with a further 24 Tempest F.2s. In total, Pakistan received 80 Tempest F.2s.

Tempests remained in operational service in Pakistan until 1954, by which time they had been replaced by the Hawker Fury. **A**

Bibliography: The Hawker Typhoon and Tempest by Francis K. Mason and AVIA 46/134.

BELOW: Tempest F.2 A136 (ex-PR876) awaits delivery to the RPAF at Langley in May 1948. VIA AUTHOR



Next Month
Database
Examines...



The Armstrong Whitworth AW.52

An amazing piece of aviation engineering, the AW.52 was an ambitious proposal for a jet-powered flying wing airliner. In next month's Database, Tony Buttler tells the remarkable progressive story of the AW.52 from the half-scale glider through to the 34,000lb AW.52s which were still only half the size of the final projected airliner. Includes scale drawings and profiles. (Contents may be subject to change)