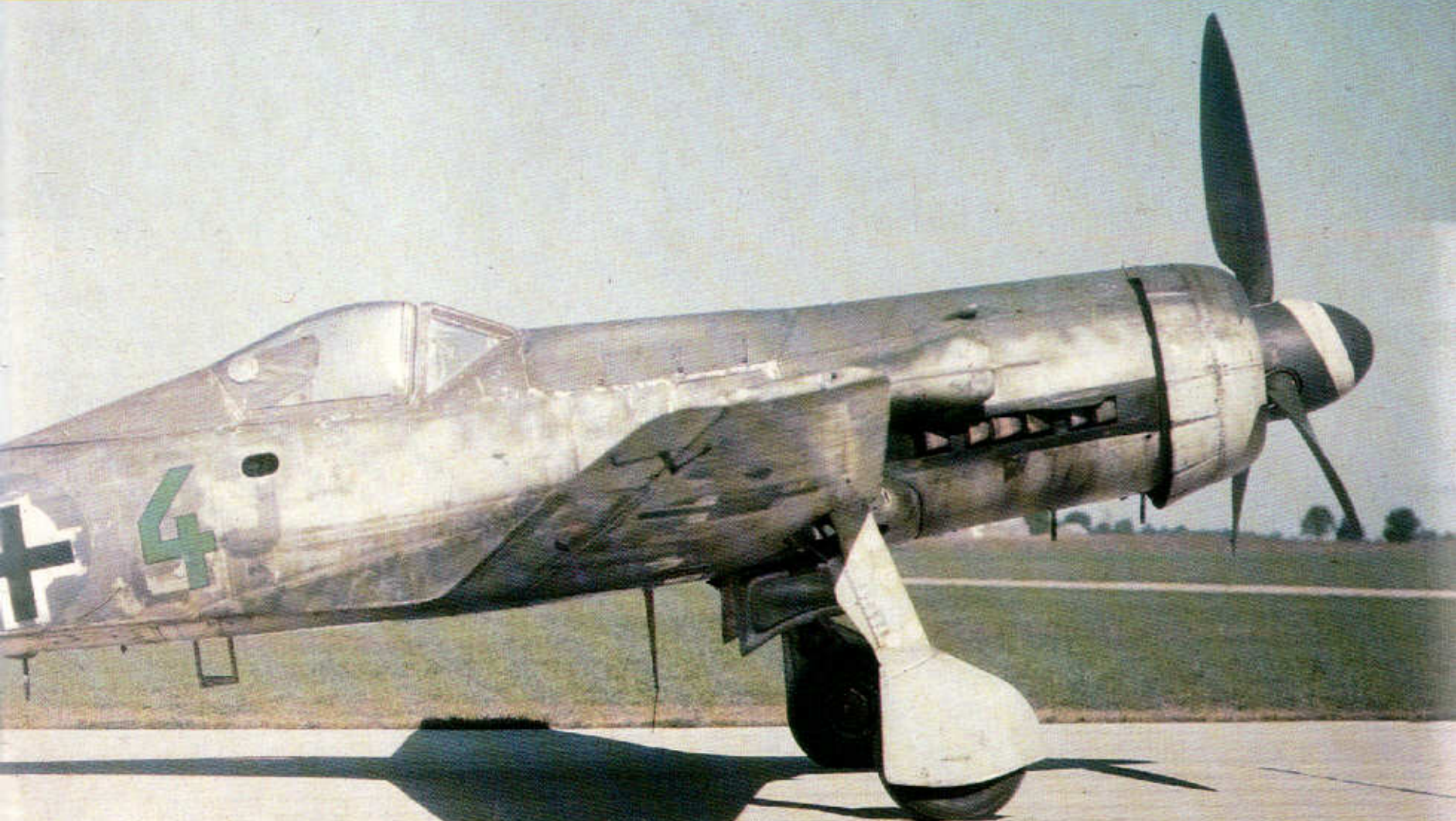
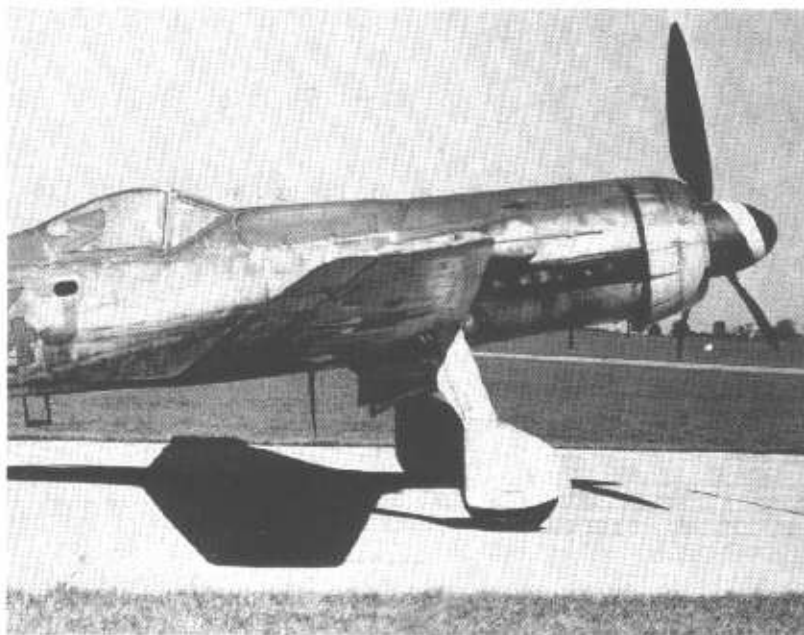


MONOGRAM

Close-Up 24



TA 152



Ta 152 H-0, green 4, FE-112 at Wright Field, 1945.

When asked what was the finest German fighter of WW II, most people have the idea it was the Me 109 or Fw 190. Relatively few had even heard of the Ta 152, much less know that it was the final development of the Fw 190. Author Jeff Ethell, long an ardent admirer of the Ta 152, excitedly accepted the challenge of documenting this remarkable aircraft.

His task was not an easy one. In the course of his initial research it was necessary to sweep away old myths and misconceptions before any meaningful investigation could begin. Assisted by a team of dedicated enthusiasts around the world over a period of several years, Jeff Ethell has successfully assimilated the wealth of documentation into the story

which follows. The Ta 152 was not significant in terms of numbers completed or for its combat record. Like so many other propeller-driven combat aircraft which appeared during the last year of the war, its importance was overshadowed by the jet age. Yet, the Ta 152 was historically significant for other reasons. Like the American Bearcat, P-51H, the British Spiteful and Hornet, the Ta 152 represented the culmination of experience, talent and skill devoted to one of the finest piston-engined fighters of WW II; the remarkable Fw 190.

An aesthetically pleasing airplane, the Ta 152 combined the most powerful engines with a rugged airframe housing large caliber weapons. As author Ethell clearly states, the Ta 152 was created around a specific high altitude fighter requirement. Ironically, by the time the Ta 152 was rolling off the assembly lines, the need which gave rise to the design no longer existed since the Allies did not introduce the dreaded high altitude bomber over Europe. In bland recognition of this, the Ta 152 was reclassified as an escort fighter or "normal fighter" by the *Luftwaffe*.

The author and publisher are deeply grateful to many people for their assistance in the preparation of this report. Among them are Koichiro Abe, Arno Abendroth, Susanne Blount, Bruce Culver, *Dipl. Ing.* Hollendieck, Edith Kreslin, George Petersen, Alfred Price,

H. Rosenboom, Jürgen Rosenstock, Jay Spenser and Eberhard-Dietrich Weber. *Dr. Ing.* Elmar Wilczek was extraordinarily resourceful in serving as a liaison with former Ta 152 pilots. Several JG 301 pilots responded to requests for assistance, among them Rudi Driebe and Ludwig Bracht. Former Focke-Wulf test pilot *Dipl. Ing.* Hans Sander clarified many points concerning the flying characteristics of the Ta 152. Gen. Harold E. Watson (USAF ret), together with one of his pilots, Fred McIntosh, provided answers regarding American testing of the Ta 152.

• Photographic Credits

United States Air Force: Cover, 13, 16, 17, 27T, 29T
Imperial War Museum: 27B
Canadian Armed Forces Photographic Unit: 28B
Vereinigte Flugtechnische Werke: 5B
Public Record Office: 3, 21
Robert Bracken: 30B
Eddie J. Creek: 28T
Heinz J. Nowarra: 6LL, 7, 19BR
Hanfried Schliephake: 18
Günter Sengfelder: 20T, 24

• Drawing Credits

ROC Graphics: 9T, 10, 11, 22, 23, 25
Marco Guelli: 15
Keith Woodcock: 6, 7, 8, 12T, 14

•Back cover design: Focke-Wulf monogram

Copyright © 1990 by
Monogram Aviation Publications
P.O. Box 223
Sturbridge, Massachusetts 01566, U.S.A.
Library of Congress Catalog Card Number 85-63202
ISBN 0-914144-20-0
Printed in Hong Kong
All Rights Reserved

Ta 152 WERK NUMMERN

All Ta 152s received six digit *werk nummern* (serial numbers) which were preassigned by their factory of origin. The ten firms listed below were the intended principal manufacturers. All prototypes and most preproduction (0-series) aircraft carried numbers within the 110000 or 150000 block. Aircraft built to H-1 standards were also found within the 150000 block. Serial numbers 110001 to 110005, which were originally assigned to Sorau built H-0s, were canceled. Instead, the first H-0 prototype was 150001, which was completed at Cottbus. *Werk Nummer* 110006 was assigned to the first C-0 prototype.

The ten principal production centers were Focke-Wulf at Bremen, Siebel at Halle, Ago at Hersleben, Fieseler at Kassel, Erla at Leipzig, Gotha Waggonfabrik at Gotha, Mimetall (MML) at Erfurt, Norddeutsche Dornier Werke (NDW) at Wismar, *Arb. Gem.* Roland and Allegemein Transportanlage GmbH (ATG) at Leipzig. In addition, various other firms were involved in the construction of subassemblies. Wings for the E-1 and C-1 models were to be made by Leichbau at Budweis, Czechoslovakia; C-2 series wings were to be built by Concordia at Bunzlau and the Volkswagen Werk at Märk; Metallbau at Oranienburg (MMO) and Asch.

Industries in the Sudenengau were to be involved in the construction of H-1 wings. H-2 wings were to be assembled by Henschel at Berlin; H-10 wings by Leichbau at Kiel. Moreover, four additional firms were to be involved in the manufacture of major components, including: Junkers at Bernburg (wings), Weserflug at Nordenham (fuselages), ATG at Leipzig (fuselage extension and tailplanes) and the Siebel works at Halle (top cowling nose sections). Final assembly of Ta 152 C-2 components were then undertaken by Mimetall at Erfurt and Weserflug at Nordenham, Lemwerder and Berlin.

Focke-Wulf	Siebel	Ago	Fieseler	Erla	Gotha	Mimetall	NDW	Roland	ATG
200000	360000	380000	480000	510000	580000	600000	710000	790000	830000
	440000			640000	720000	870000			920000
						950000			
				B-5	B-5				
		C-0							
		C-1	C-1			C-1	C-1		
					C-1/R11			C-1/R11	C-1/R11
	C-1/R11				C-2	C-2	C-2	C-2	C-3
	C-3		C-2		C-4	C-11/R11	C-4	C-4	
						E-0			
						E-1			
				H-1	H-1				
H-1/R11				H-1/R11	H-1/R11				
				H-2	H-2				
						H-10			



TA 152

By Jeffrey L. Ethell

Kurt Tank, a designer who insisted on flying his own creations, flew an early Ta 152 H to 45,920 ft (14,000 m) and succeeded in reaching a speed of 463.6 mph (746 km/h) at 42,640 ft (13,000 m). But it was late in 1944 when this performance was life saving. Tank was caught by P-51s while taking off from Langenhagen for a staff meeting at Cottbus. Just after he lifted off in one of the first Ta 152 H-1s equipped with MW 50 powerboost, the tower warned him: "*Achtung! Achtung! Vier Indianer am Gartenzaun!*" (Attention! Attention! Four Indians at the

garden fence!). Glancing over his shoulder, he saw four Mustangs rapidly overtaking him. Tank shoved the throttle forward to War Emergency power, kicking in the methanol-water injection at the same time. The P-51s never caught the new fighter, which disappeared safely into the haze. Such was the outstanding performance of the Ta 152 as demonstrated by no less a pilot than the designer of the aircraft himself.

The story of the remarkable Ta 152 actually began four years prior to the collapse of the • Third Reich. During this early period the talented designer of the Fw 190, Professor Kurt W. Tank, accurately foresaw the need to improve altitude performance of his new creation, the sensational Fw 190 A. Soon after operational deployment of the first Fw 190s in 1941, Professor Tank began to investigate various options in realizing improved altitude performance. By May 1942, when the new Fw 190 A-3 was entering production, Prof. Tank completed a series of design studies based on the Fw 190 A, but incorporating various engines, wings and airframes formulated around a variety of intended roles. At the same time, the German Air Ministry's Technical Office (RLM GL/C), formulated a requirement to address what they perceived

to be a serious potential threat to the security of the Reich; American long-range high altitude bombers. Although it was never committed to battle, the experimental USAAF XB-19 was of sufficient potential to arouse considerable concern within certain quarters of the RLM where its implications were fully appreciated.

During a meeting held on May 20, 1942, at Messerschmitt's Augsburg plant, attended by representatives of Focke-Wulf, Messerschmitt and the Reich's Air Ministry, the RLM outlined their requirement for a "*Spezial Höhenjäger*" (Special high altitude fighter) capable of intercepting high flying bombers with a secondary mission of reconnaissance. The Air Ministry asked both firms to submit proposals as soon as possible.

Messerschmitt's design staff recommended modification of their Me 155 to take the new DB 628 engine plus extending the wing tips to further increase wing span. It was also recommended that initial design work should be undertaken in Paris with staff recruited from SNCAN (*Société Nationale de Constructions Aéronautiques du Nord*). However, the Me 155 had yet to be built. The initial design for this type was created to meet a special carrier aircraft requirement. But, by switching the engine and making other changes it was felt a modified version of the Me 155 (the Me 155B) would meet the new RLM specification.

Above: Ta 152 V3, W.Nr. 150003, CW+CC, shortly after completion at Langenhagen late in 1944. This aircraft was the third H-series prototype.



Professor Tank and his design staff, on the other hand, felt a triad approach was more likely to succeed. First, he would investigate the practicality of working with a standard Fw 190 A-3. Second, he would consider the potential proffered by the promising DB 603 engine. And third, he would pursue his "analytical" design studies.

The first to bear fruit involved the modification of an existing Fw 190 A-3, which was wistfully designated "*Höhenjäger 1*" (High

altitude fighter 1). In September 1942, three standard production A-3s (W.Nrn. 528, 530 and 531), designated Fw 190 A-3/U7, were lightened by the removal of their cowl weapons and allocated to altitude trials. Between December 1942 and April 1943, six development prototypes powered by the new DB 603A (V18/U1, V29, V30, V31, V32 and V33), designated "*Höhenjäger 2*," were set aside for flight trials each with exhaust-driven turbosuperchargers. Finally, Prof.

Tank directed his engineers to move ahead with design study Fw 190 Ra-6 (Ra — *Rechnerische Ankündigung*/Analytical prospectus) as this was well within the parameters of the RLM specification. Work had in fact already been started with this project which now bore the designation Fw 190 H. Centered around a new wing of 22.5 m² (242 ft²) area, extended fuselage and three possible powerplants, (DB 603G, DB 632 and Jumo 213E) this design offered considerable promise.

In the meantime, work on the Me 155 B was progressing very slowly in Paris due in part to Messerschmitt's lack of support personnel and other commitments. In January 1943, Messerschmitt decided to shift development priority for the special high altitude fighter from the Me 155 B to his Me 209 A-4 high altitude fighter project, which was formally submitted to the RLM on April 23, 1943. It was expected this special high altitude fighter would be powered by the same engine (DB 628), which would deliver essentially the same performance as the more complex Me 155 B.

As expected, trials with the three Fw 190 A-3/U7s, the *Höhenjäger 1*, proved disappointing and Focke-Wulf was experiencing all manner of problems attendant to their *Höhenjäger 2* program. Protracted technical problems associated with the troublesome turbosuperchargers were endless. In the



Left and above: Two views of the Fw 190 V29/U1, W.Nr. 0054, GH+KS, after completion to H-0 standards on September 23, 1944. In spite of the fact this development prototype appears to have provision for cowl-mounted weapons, none were ever mounted on the Ta 152 H.



meantime, the RLM Technical Office (*C Amt*), gave verbal suggestions that Messerschmitt should investigate the possibilities of obtaining better ceiling performance than those offered, even if this meant additional support equipment and personnel. Consequently, Messerschmitt authorized engineering time be allocated to his "*extremer Höhenjäger*" which bore the *projekt nummer* Me P 1091. This advanced design called for an aircraft with a long wing span to be powered by either the DB 605 with TK 11 turbosupercharger, the DB 628, the DB 632 with counter-rotating propellers or the DB 603E with TKL 15 turbosupercharger. Messerschmitt roughly calculated the Me P 1091 could reach a ceiling of 57,416 ft (17.5 km).

Above and below: Two views of the Fw 190 V30/U1, W.Nr. 0055, GH+KT. The development prototype was flight cleared on August 6, 1944 but crashed one week later on August 13, 1944. Both the V29/U1 and the V30/U1 were fitted with the Jumo 213E engine.

In order to save engineering time, it was decided to incorporate many P 1091 features directly into the new Me 155, which officially became the Me 155 B-1.¹

By early spring 1943, *Prof.* Tank recognized that both his *Höhenjäger 1* and *Höhenjäger 2* projects would never fulfill the RLM's specification. Instead, a new solution had to be found if he hoped to meet the Technical Office requirement. Basically, this meant reliance upon a new engine offering substantially greater power and reliability than those currently in production.

Several options were available from BMW, Daimler-Benz and Junkers. But the two powerplants which seemed to offer the twin hope of availability and improved performance were the DB 603 E, G and L plus the Jumo 213 E. However, development of these engines lagged behind schedule and there was some doubt precisely when they would be available in sufficient numbers. Never-

theless, *Prof.* Tank now turned his attention to a new series of single-seat fighters which were complementary to previous designs yet distinct. Sometime earlier in 1942, Tank had advanced his design study Fw 190 Ra-4 to meet the RLM's request for a *Begleit* (Escort) day fighter. This design study was based on either the Jumo 213A or DB 603A engines with hydraulic undercarriage and an extended fuselage. Within a short time the project had been assigned the RLM GL/C number 153, becoming the Ta 153. This Technical Office number allocation occurred after the number 154 had been assigned to *Prof.* Tank's twin-engined "*Moskito*."²

The Ta 153 had been designed in competition with a new series of the Me 209 but, as

¹See Blohm & Voss 155, Close-Up 20, Monogram, 1990 by Thomas H. Hitchcock.

²See Moskito, Close-Up 22, Monogram, 1983+1990 by Jay P. Spenser.





Left and below: Two additional views of the Fw 190 V30/U1 which illustrate features common to all Ta 152 H-series machines such as the large supercharger intake and the high aspect ratio wing. The latter was a very well-engineered item contributing significantly to the aircraft's exceptional handling qualities.

events unfolded, the entire Ta 153/Me 209 program was cancelled at the end of May 1943. Tank's new series of single-seat fighters, with which he hoped to capture the *Spezial Höhenjäger* requirement, were broadly based on the Ta 153, but incorporated many refinements.

Assigned the Air Ministry's GL/C number 152, the new series was formulated around the Jumo 213 A engine enclosed in an aerodynamically clean cowl with exceptionally heavy offensive armament. The proposed **Ta 152 A-1** would have utilized a new wing, tail assembly and cowl with enclosed exhaust collectors designed to increase power by thrust augmentation. Two 20 mm MG 151/20 cannons were to be positioned above the engine with an additional pair in the wing roots. In the outer wing, two 30 mm MK 108s were to be installed while the designated engine cannon was the new 30 mm MK 103. The **Ta 152 A-2** would have been

identical to the first series, apart from the outer wing cannons which substituted the MK 108s for the smaller calibre, but faster firing, MG 151/20s.

In addition to the Ta 152 A-series, Prof. Tank and his engineers evolved three design studies known as the Ta 152 Ra-1, Ra-2 and Ra-3, which were respectively tied to the *Normaljäger*, *Höhenjäger* and *Schlachtflugzeug* (medium altitude fighter, high altitude fighter and ground attack aircraft) classifications. Soon these temporary identifiers gave way to permanent series designators. The normal altitude fighter became the Ta 152 C, the high altitude fighter became the Ta 152 H, and the ground-attack model became the Ta 152 B. The letters D, F and G were not considered for the Ta 152 in order to avoid possible confusion with the currently existing Fw 190 D, F and G series. The projected reconnaissance fighter Fw 190 E and the long-span high altitude fighter proj-

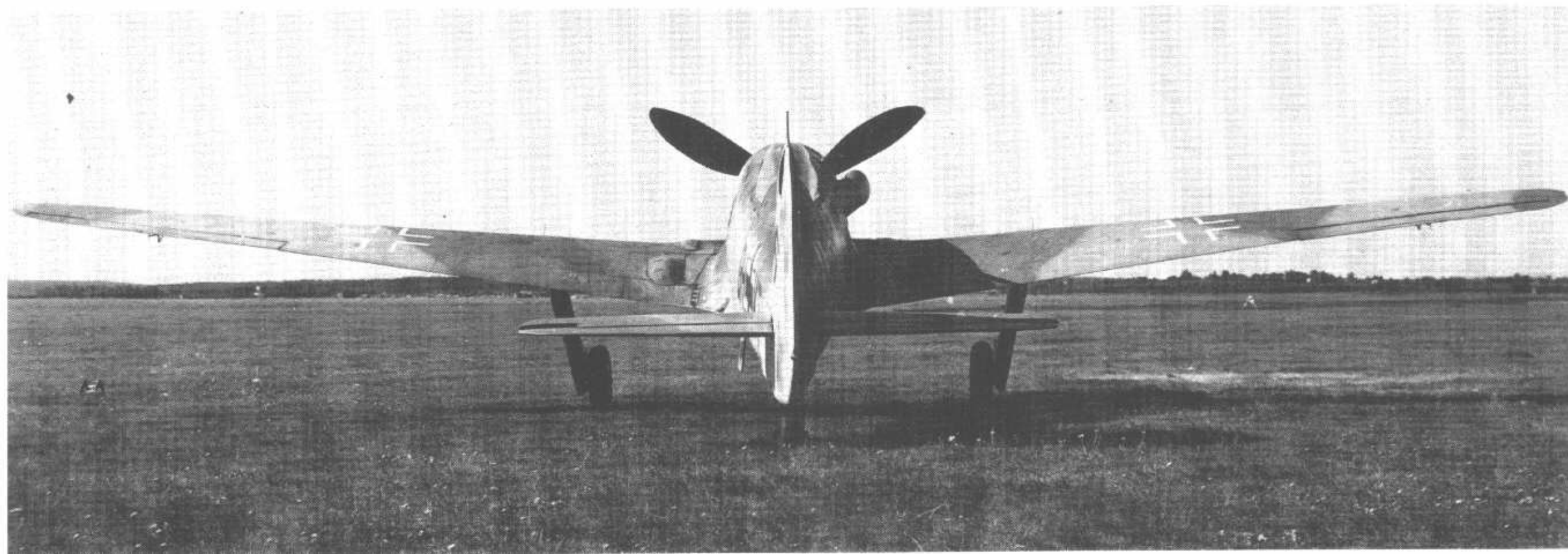
ect Fw 190 H were never built and thus, the transfer of the letters E and H to corresponding models of the Ta 152 was both appropriate and logical.

By mid-1943 serious doubts arose within the RLM concerning the ability of the two firms to produce a suitable contender for the special high altitude fighter before the end of 1944. Consequently, at a meeting held at Focke-Wulf's Bad Eilsen facility on July 5, 1943, the Air Ministry requested both firms seek a "*Schnellösung*" (quick solution) altitude fighter. Focke-Wulf and Messerschmitt were asked to submit proposals based on existing series types with as little design change as possible. As a consequence of this meeting, Prof. Tank moved ahead of Messerschmitt in meeting the challenge by quickly producing the successful Fw 190 D.³ Prof. Messerschmitt's entry, the Bf 109 H, did not fare well and ultimately progressed no further than two prototypes.

By this time Focke-Wulf had decided not to proceed with the Ta 152 A, owing to the fact that, apart from the new wing, fin and cowl with enclosed exhaust collectors, it was essentially a duplication of the Fw 190 D-9 (*Schnellösung jäger*) then already ordered into series production. In addition, another determining factor which precluded the A-series from production was the unfavorable supply situation with respect to the planned engine cannon: the MK 103.

During the second half of 1943, detail design drawings for both the Focke-Wulf and Messerschmitt High altitude Fighters had been started. The Focke-Wulf design study Ta 152 Ra-2 and the Messerschmitt *Höhenjäger Stufe I* (High altitude fighter

³See Fw 190 D, Close-Up 10. Monogram, 1986+1990 by Smith & Creek.





Above: Another view of the Ta 152 V3 shown on page 1. The noted Focke-Wulf test pilot, Hans Sander, flew this machine on December 3, 1944.

Below: Shown on its compass swing, the Ta 152 V5, W.Nr. 150005, CW+CE. This Cottbus built prototype was completed to Ta 152 H-1 Standards.

Stage I) were now respectively known as the Ta 152 H-1 and Me 209 A-4.

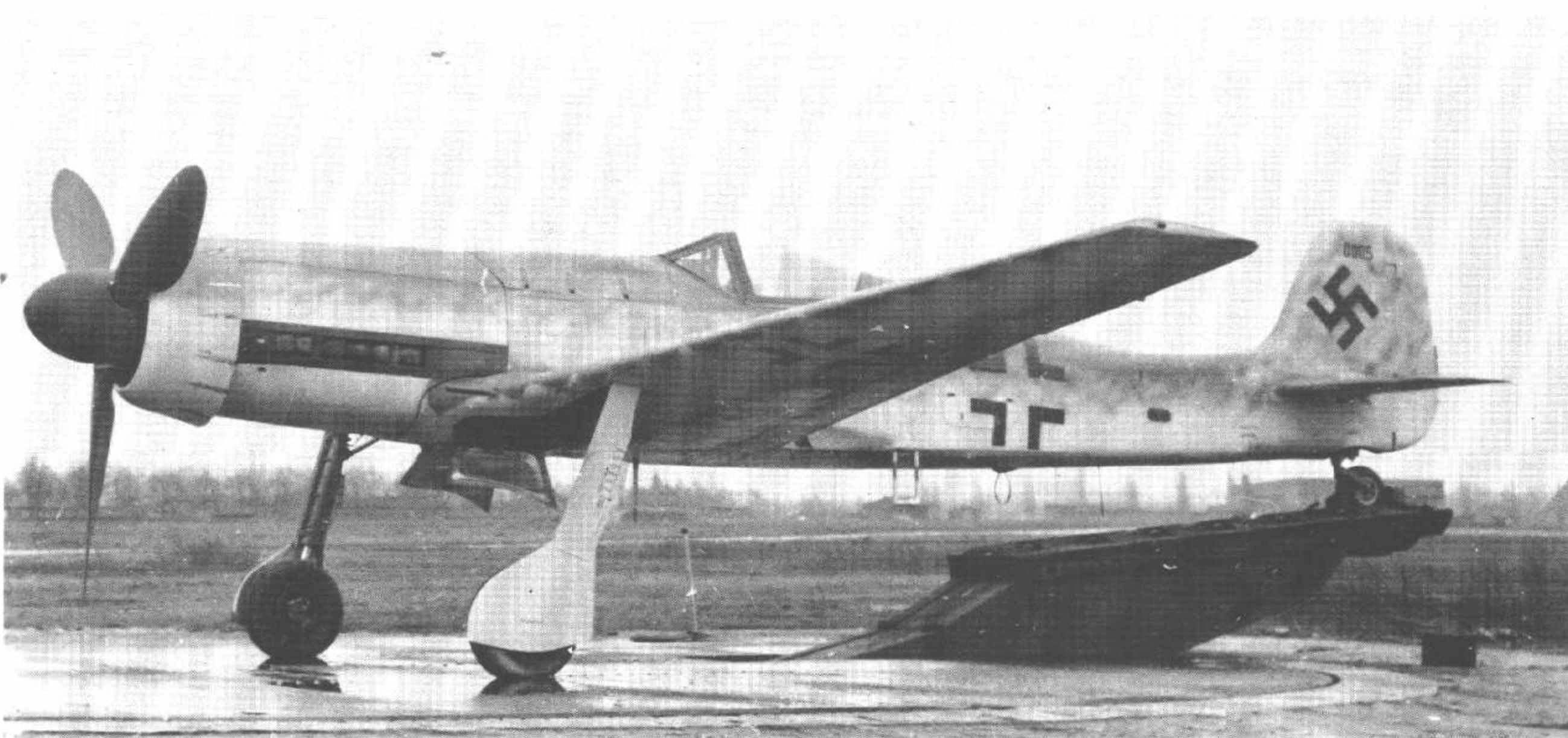
On October 25, 1943, Messerschmitt had completed detail design drawings of the Me 209 A-4 and plans were made to initiate prototype construction. It was to be powered by a DB 628 A. But, if this engine was not available in time, a DB 605 A or AS engine with

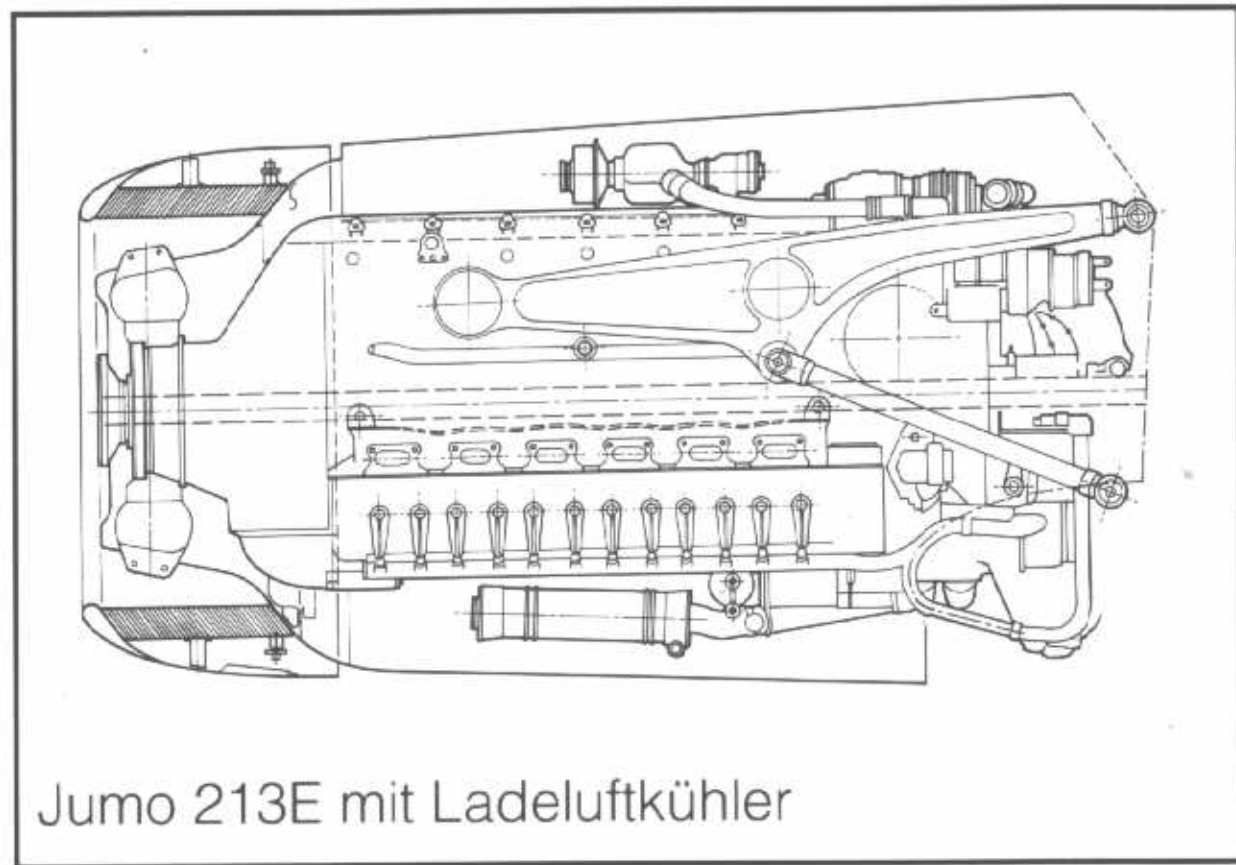
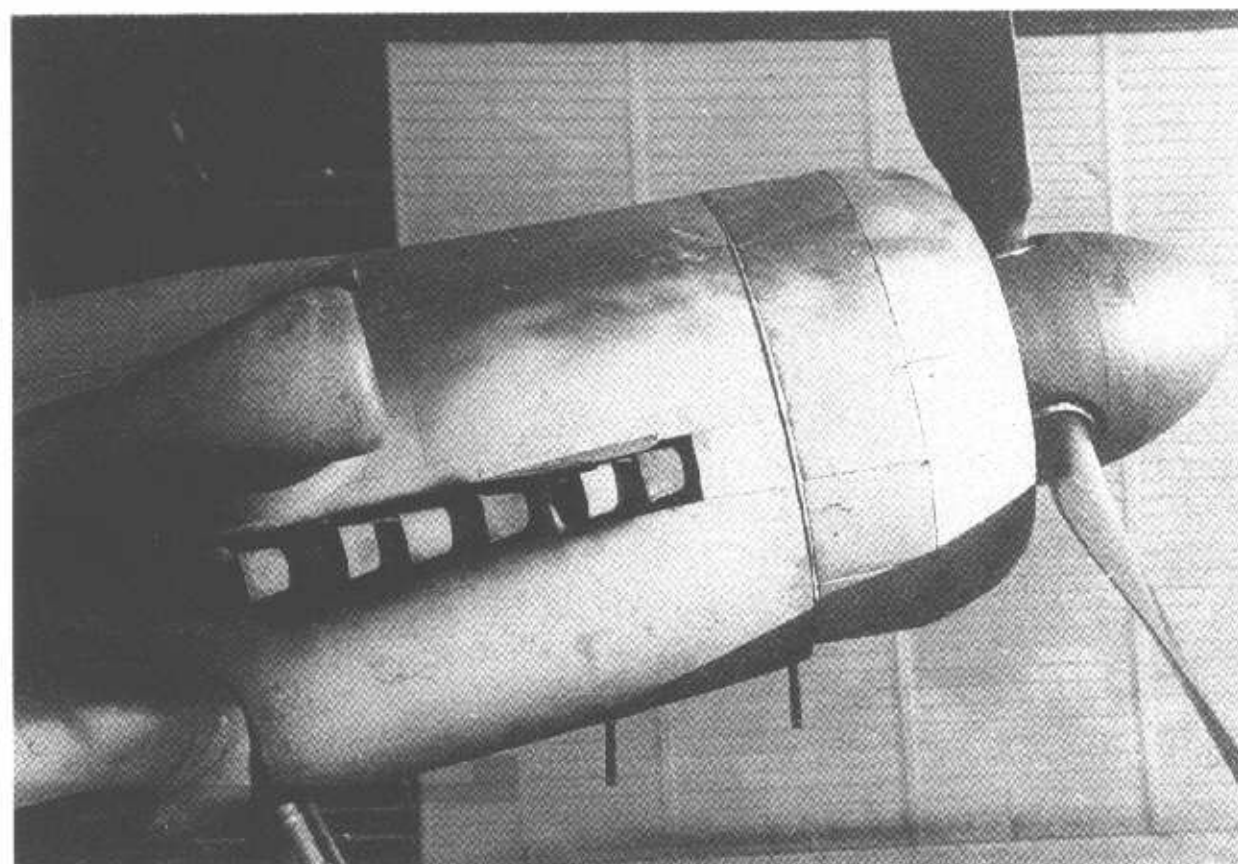
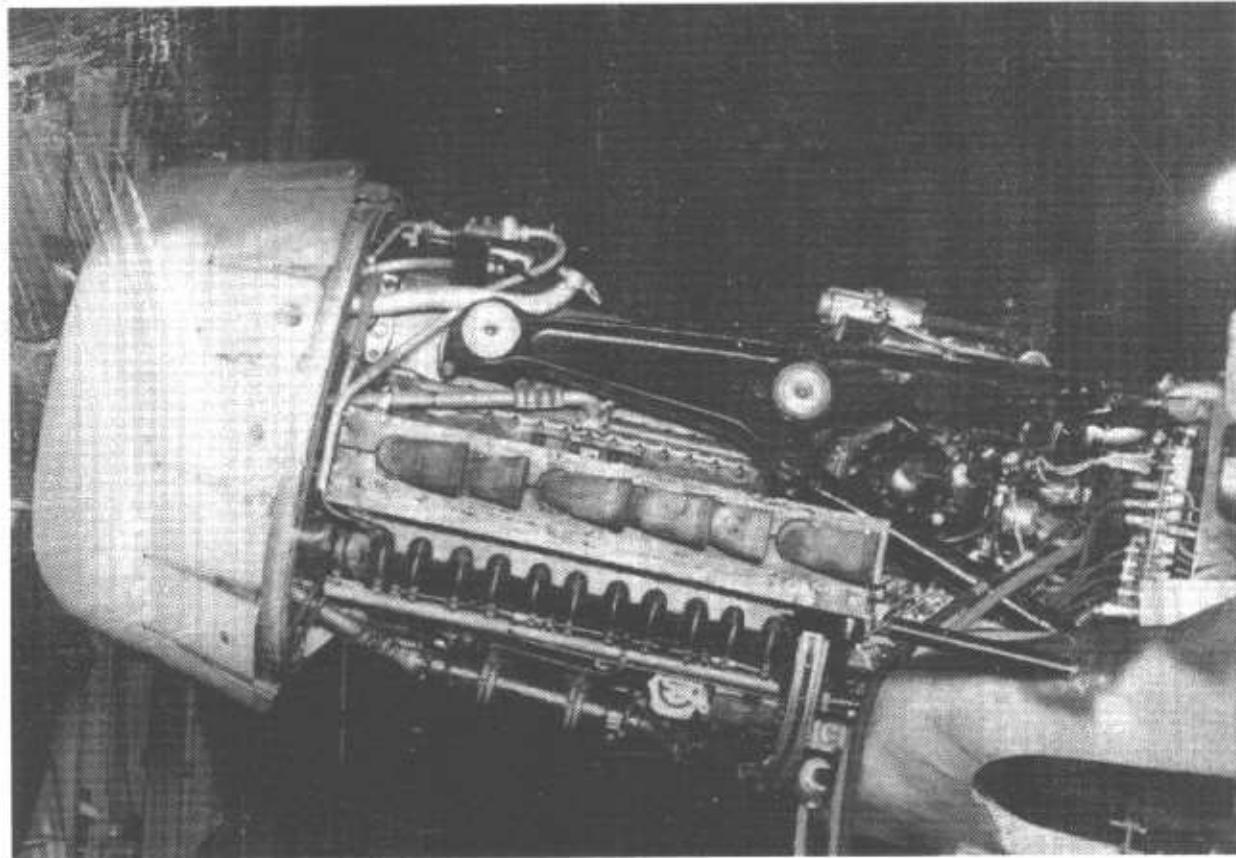
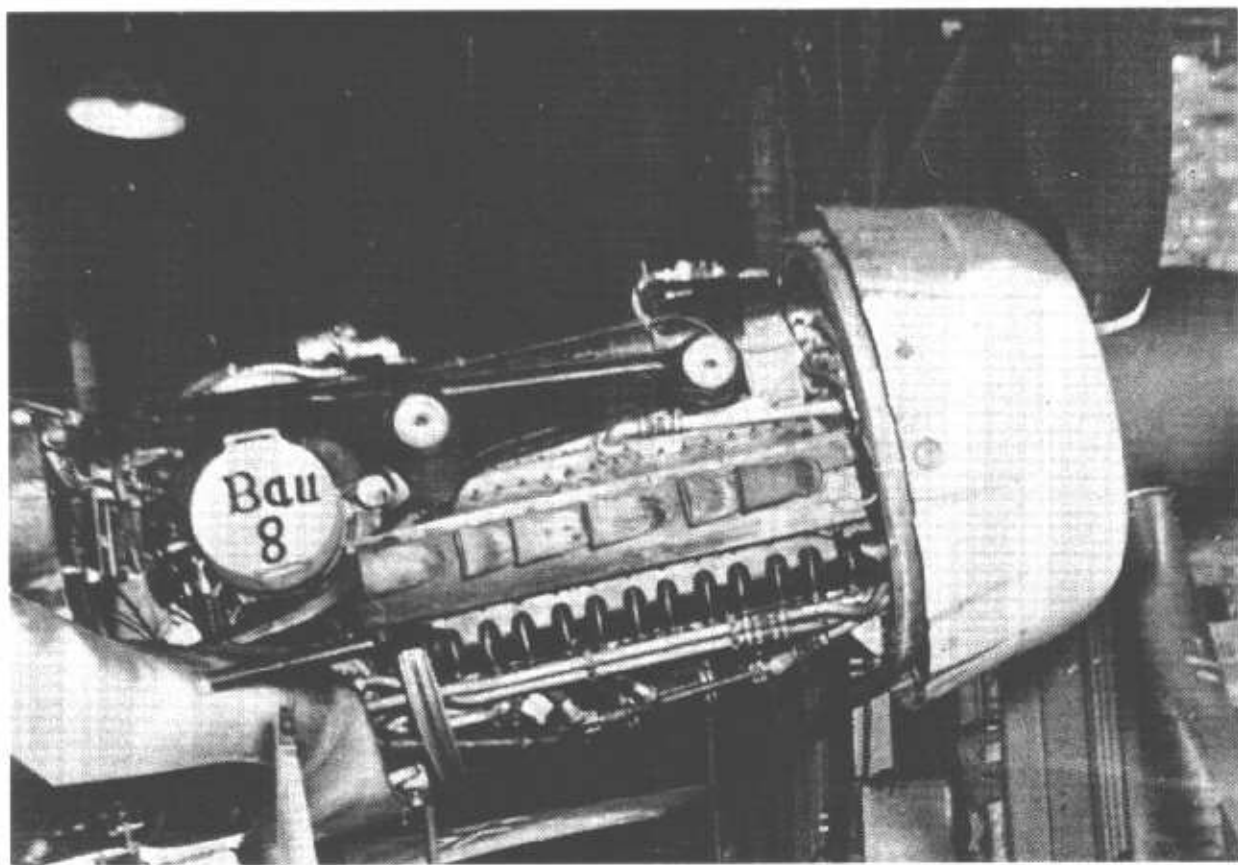
O₂ powerboost would be used. At Focke-Wulf detail design work had also been completed. Prof. Tank had considered three possible engines in conjunction with the Ta 152 Ra-2 design study which included the DB 603 G, the DB 632 and the new Jumo 213 E. But it was the latter of the three with which he decided to proceed with the Ta 152 H-1.

Meanwhile, the former Me 209/Ta 153 program had been reinstated on Hitler's order and, on November 3, 1943, Messerschmitt test pilot Fritz Wendel flew their Me 209 V5, W.Nr. ?, SP+LJ, for the first time powered by the DB 603 A with satisfactory, but uninspir-

ing, results. The following month, Focke-Wulf flew their "short-cut Ta 153" prototype, the Fw 190 V32/U1, W.Nr. 0057, GH+KV, powered by a DB 603 G, with modest results. It will be remembered the Fw 190 V32 had been one of the original *Höhenjäger 2* development aircraft which in the meantime had been much modified with as many Ta 153 features as possible in order to speed flight trials. In any event, no true Ta 153 was ever built for, on January 13, 1944, the entire Ta 153/Me 209 A program was canceled for the second and final time without satisfying the *Begleitjäger* requirement.

Messerschmitt had hoped to get his new Me





Jumo 213E mit Ladeluftkühler

209 A-4 into the air by February 1944, but an Allied bombing attack caused damage to vital components. Faced with this serious setback and realizing the urgency attached to the project, Messerschmitt decided to modify the previously rejected Me 209 V5 to meet the special high altitude fighter requirement. Now known as the Me 209 H-1, the plan called for the DB 603A with its annular radiator to be replaced with a new 2,000 hp DB 627B. However, Daimler-Benz was having its share of problems with both the 1,685 hp DB 628 (which was to have powered the Me 209 A-4) and the 2,000 hp DB 627. The DB 628 was a special high altitude engine based on the DB 605A but fitted with a two-stage mechanical supercharger. The larger DB 627 was based on the DB 603G but equipped with a two-stage mechanical supercharger plus aftercooler. By March 1944, after considerable time and energy had been spent to eradicate the many problems associated with both high altitude engines, Daimler-Benz decided to halt further work on both powerplants. This last-minute decision forced Messerschmitt to change the designated engine once more, this time to the DB 603G.

In addition to a new engine, cowling and

propeller, a more efficient cooling system was designed with radiators fitted to the leading edge of the wing center section. Because the standard Me 209 wing was not amenable to long-span modification, Messerschmitt adapted the 43 ft 6 in (13,260 mm) Bf 109 H wing to fit the first prototype, the Me 209 HV1.

Even though the Air Ministry had canceled the Ta 153, official interest in the new Ta 152 remained high, especially in the Ta 152H. Recognizing that the Ta 152 H could win the *Spezial Höhenjäger* contract, Prof. Tank assigned the highest priority to its development. In order to speed matters along, it was decided to take four of the five remaining "Höhenjäger 2" prototypes,⁴ appropriately known as "Känguruh" (Kangaroo) aircraft because of their underslung ventral "pouch" intakes, and further modify each to Ta 152 H standards. This involved swapping engines and modifying the airframe. The DB 603A then fitted to the Fw 190 V29, V30 and V33 was exchanged for a new Jumo 213E driving a VS9 propeller. This resulted in their designations being changed to the Fw 190 V29/U1, V30/U1 and V33/U1. The Fw 190 V32/U1 (which had been a development machine for the stillborn Ta 153) exchanged

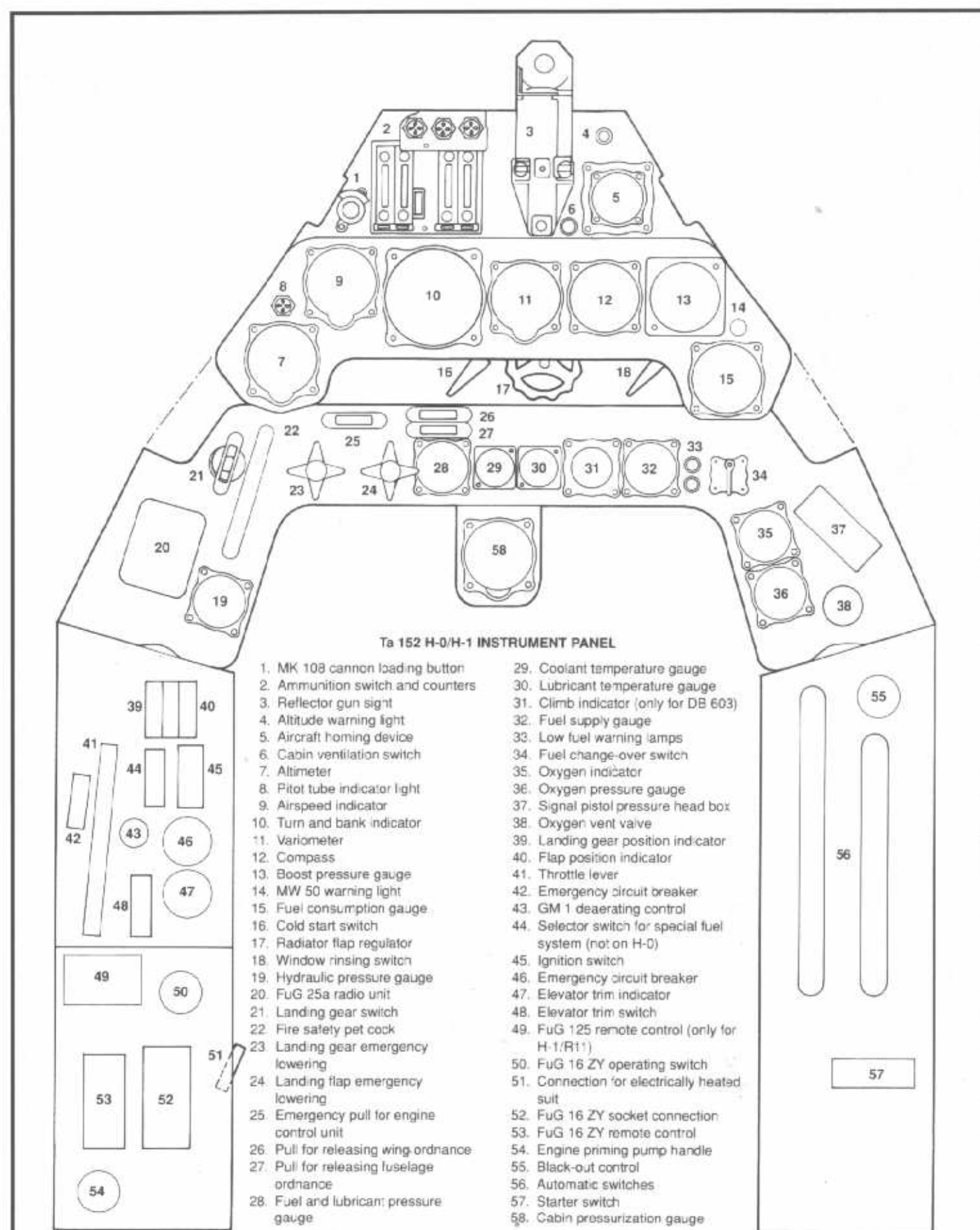
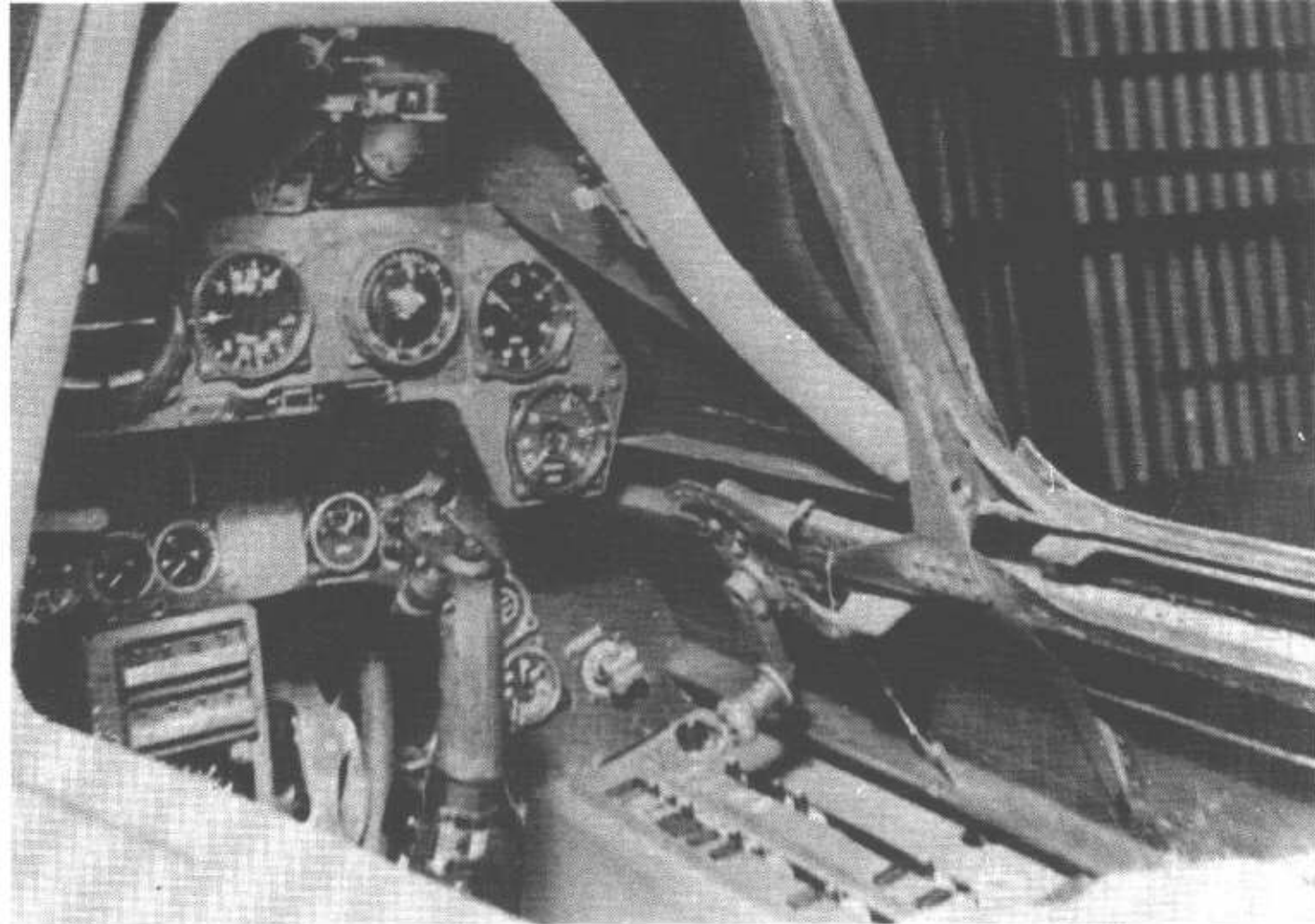
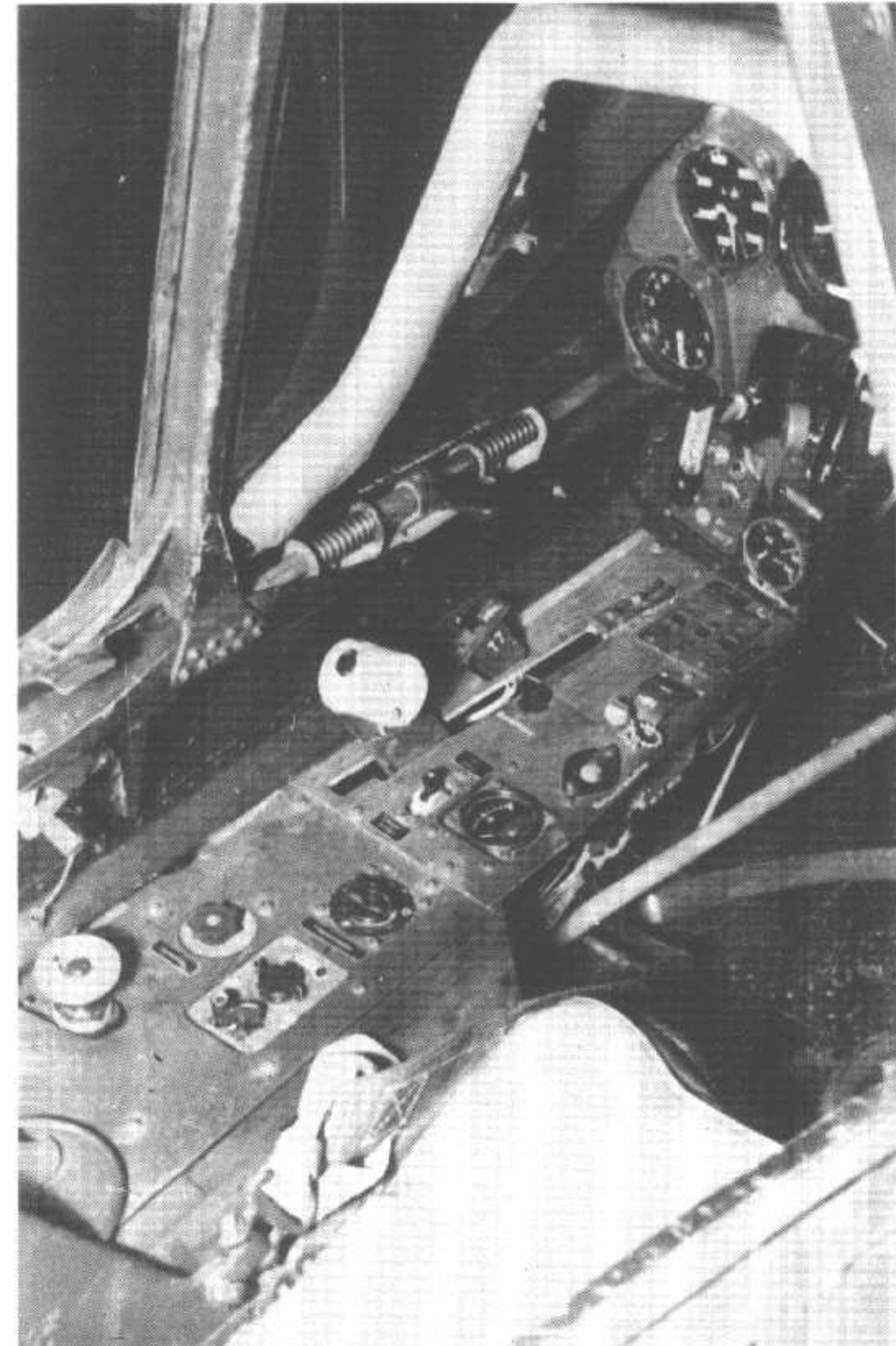
Above: Various views of the engine, cowling and accessories associated with the Jumo 213 E powerplant of the Ta 152 H-0, H-1, H-2, H-10, H-11 and H-12 series.

its DB 603G for the Jumo 213E, thus becoming the Fw 190 V32/U2. The last of the original six *Höhenjäger 2* prototypes, the Fw 190 V18/U1, was at first set aside to swap its DB 603A for the DB 603L (which was still within the H-series framework) but, during the Spring of 1944, this plan was amended to bring the V18/U1 into line with the other four Jumo 213E-powered prototypes (with the designation Fw 190 V18/U2). Contrary to popular belief, none of the *Höhenjäger 2* aircraft were ever linked to the Fw 190C as they were officially *test vehicles only* and therefore not assigned to a particular series.

It was anticipated that all five prototypes would be modified and flight cleared between June and September 1944 for participation in the Ta 152 H program.

Concurrent with plans to rush the TA 152 H into reality as quickly as possible, work proceeded with the Ta 152 B, C and E series with the latter model of the three enjoying the

⁴The Fw 190 V31 had crashed on May 29, 1943 and was completely written off.



Above: Two views of the Ta 152 H-series cockpit interior. In the photo to the left may be seen the throttle in the center of the photograph while the light colored round knob farther back was the primer fuel pump handle. The small control with the beaded chain near the front of the console is the ignition switch. The photograph above right shows the flight and engine instruments which are listed in the chart below. Though seemingly well laid out, pilots complained about instrument visibility and accessibility.

greatest priority in keeping with the original *Spezial Höhenjäger* requirement. The Ta 152 B was afforded the lowest priority with no development prototypes allocated to its program. The Ta 152 C on the other hand was assigned the Fw 190 V20 and V21 as development aircraft inasmuch as Prof. Tank was given assurance this series would be a strong contender for the still outstanding *Begleitjäger* requirement (vacant since the cancellation of the Me 209/Ta 153). In addition to the V20 and V21 mentioned above, some fifteen additional prototypes were assigned directly from Ta 152C production. However, the DB 603L engine assigned to the Ta 152 C-series was farther behind in development than the Jumo 213E. This variant of the DB 603 was similar to the DB 603 E (which itself was similar to the 603A but with a supercharger of increased diameter and automatic propeller pitch control) but fitted with a two-stage supercharger and after-cooler.

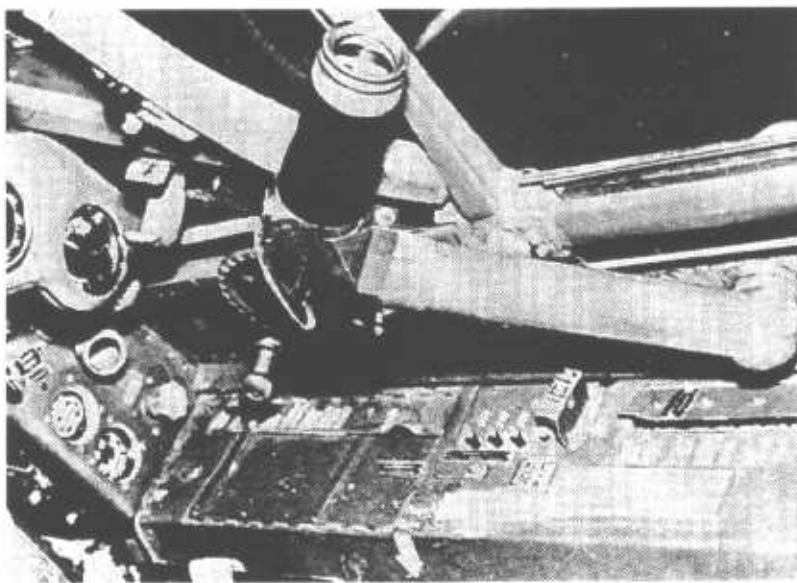
In March, the RLM authorized release of twelve DB 603 engines for use in the Ta 152 and 154 programs. Only one engine was given to the 152 effort, but due to compli-

cations in redesign of the fairings, the engine was assigned for further testing.

Also in March 1944, comparisons were made with the Dornier Do 335, an extremely fast twin-engined single-seat fighter then in the prototype stage.⁵ Using calculations from both companies, it was found the Do 335 would be 18.5 to 54.38 mph (30 to 87 km/h) faster at all altitudes with the same armament of a single 30 mm and two 20 mm cannons.

One of the early considerations on the 152 series was use of non-strategic materials to replace aluminum on the production lines. Steel had long been planned for use on Fw 190 and Ta 152 wing spars and skin, incurring a 15 to 25 percent weight penalty. By March 1944, steel was slated for the Ta 152C only, while a wooden empennage and rear fuselage were intended for some 190s, the 152C and H.

By April 1944, a great deal of static testing had been completed on Ta 152 components. The pressurized cockpit in the Ta 152H was found to be inadequate due to a low pressure of 2.34 lb/ft² (.23/cm²). As a result, the pressure relief valve was eliminated, a cure that would later be worse than the disease. Hans Sander recalled that the "Fw 190 and Ta 152 were not really designed for being 'air-tight.' They leaked like a sieve and the Rooh compressor did not deliver much



Above: Close-up of the periscopic sight installed in a Ta 152 E-2 by the Klemm aircraft firm at Böblingen. Flying at great height, the pilot used this instrument to position his aircraft for photo reconnaissance.

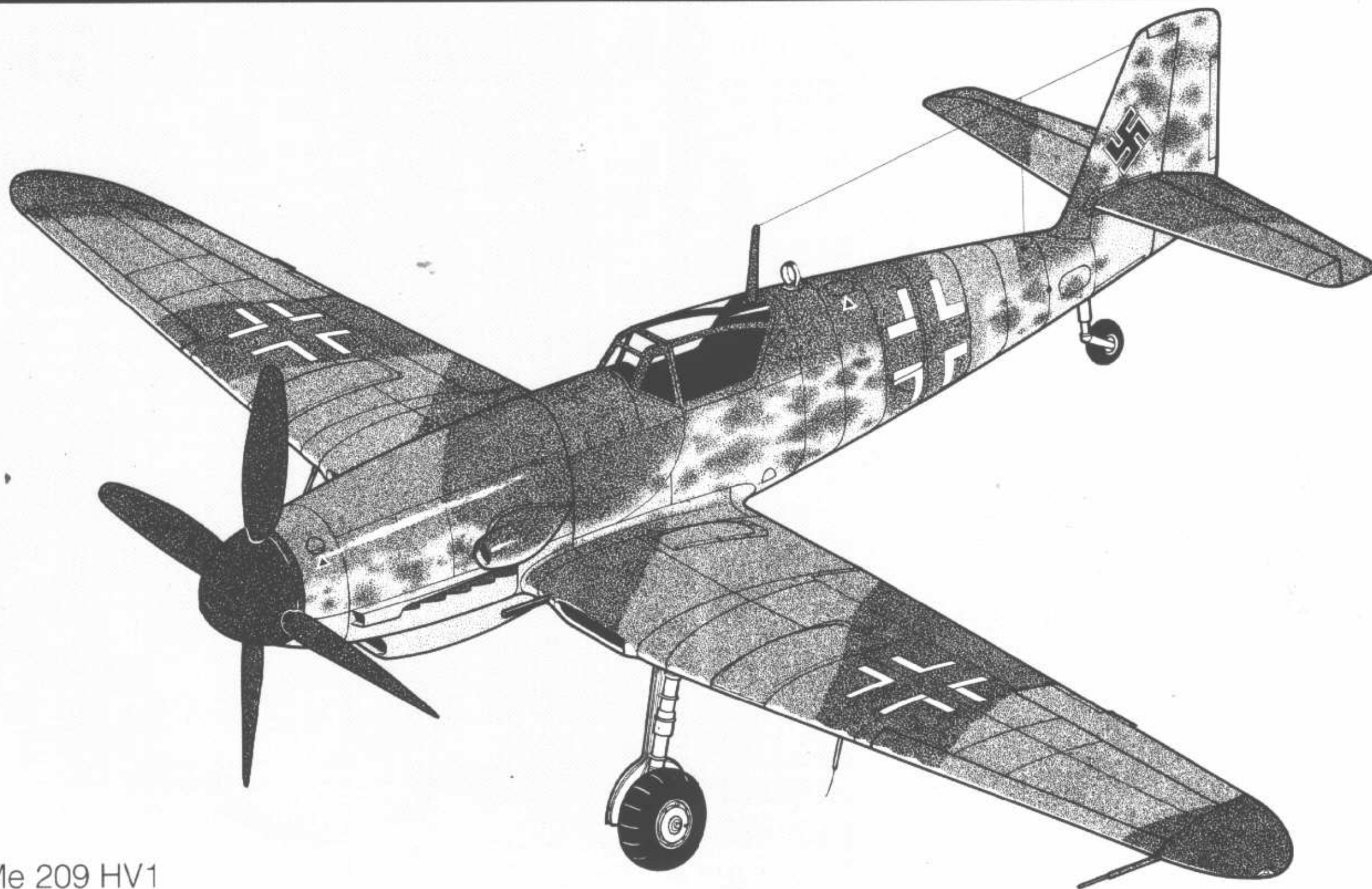
air." Focke-Wulf had already undertaken considerable work with pressurized cockpits installed in three Fw 190 B-0 test aircraft (Werk Nummern 0046, 0047 and 0048). In addition, one of Prof. Tank's design studies, the Fw 190 Ra-3, was to have a pressurized cockpit, a BMW 801D without the complex turbosupercharger and a new wing of 20.3 m² (218.5 ft²) area but with standard production electric undercarriage.⁶ The same month the Ta 152 E *Aufklärer* (reconnaissance) fighter mockup was fitted with its telescope by Klemm *Flugzeugbau* at Böblingen to comply with the reconnaissance clause of the original requirement.

Finally, in June 1944, Messerschmitt completed construction of the first of two prototypes for the special high altitude fighter, the Me 209 HV1. After being beset by numerous airframe and engine problems compounded by Allied bombing raids, Messerschmitt's entry for the requirement was finally ready for flight trials.

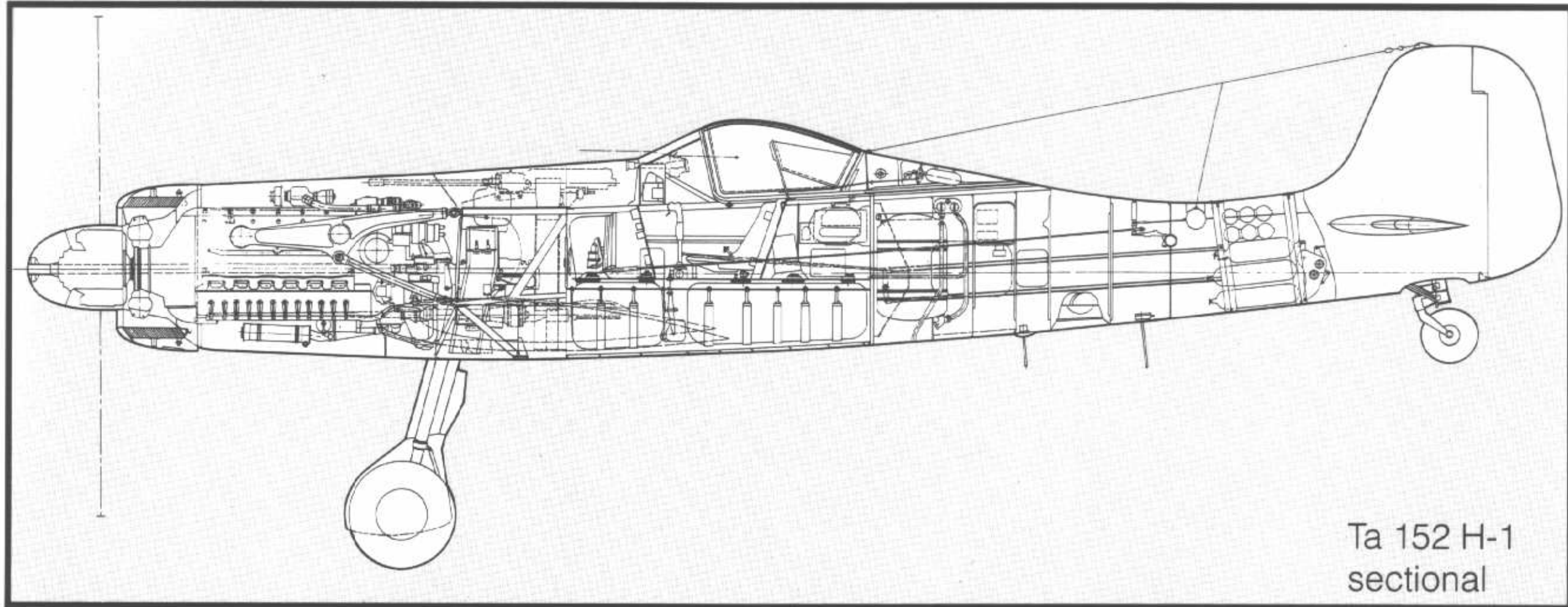
Concurrently in June 1944, the first Ta 152 H prototype, the Ta 152 V1, W.Nr. 150001, CW+CA, was completed. This prototype, built to H-1 specification, was sent to Langenhagen for flight testing. Thus, in just over two years after the RLM first presented their request for a *Spezial Höhenjäger*, two prototypes had finally been produced to meet the requirement. Regrettably, it is not known if the Me 209 HV1 was ever flown and, if so, what results were obtained. But, by this time, it was clear to the RLM that the Focke-Wulf entry was the better of the two, standing a far better chance of entering full production with minimal delay. The haste with which the Ta 152 V1 was completed is illustrated by the fact it emerged before all five of its intended development aircraft!

⁵See Dornier 335, Close-Up 21, Monogram, 1983 by Smith & Creek.

⁶In point of fact, it was impossible to fit the turbosupercharged BMW 801 to the Fw 190 without radical modification.



Me 209 HV1



Ta 152 H-1
sectional

Meanwhile, the first of five reconstructed *Höhenjäger 2* development aircraft, the Fw 190 V33/U1, W.Nr. 0058, GH+KW, had been hurriedly rebuilt with a Jumo 213 E-1 engine as close to H standards as possible — pressurized cockpit, fuselage extensions (775 mm front, 500 mm rear), bulged access panel in front of the windscreen for possible future installation of two MG 151s⁷ and ZFR telescopic gun sight combined with an H wing. GM 1 nitrous oxide engine boost was omitted as well as wing armament. The wing itself was unusual in two respects. First, the all-steel front spar extended only just outboard of the landing gear attachment points. The rear spar ran the full span with additional stiffness coming from close-set ribs and numerous lateral stringers to reinforce the stressed skin. Second, since the aircraft was a high performance and highly maneuverable fighter, the wing was designed to ensure that airflow separation at high angles of attack did not occur at once over the entire wing. To achieve this, Focke-Wulf aerodynamicists created a wing with a $2\frac{1}{2}$ –3 degree negative twist from the wing root trailing edge outboard to the flap-aileron junction. Since the aileron's angle was less, airflow separation was delayed thereby enabling prolonged control during combat conditions.

Werk Nummer 0058 in its new form was flown for the first time on July 12, 1944. Tragically, it was lost the next day during its second flight. This prompted *Oberst* (Col.) Edgar Petersen, Commander of *Erprobungsstelle* (Test Center) Rechlin to write a letter on July 18 expressing strong doubts about the dangerously low quality level that had resulted from efforts to rush the Ta 152 into full production. He noted that the 152 had a dangerous aft center of gravity which

would not be corrected for the production machines unless a longer testing period was planned. He recommended H-series production be delayed for safety reasons and that the first twelve aircraft off the line be used for further testing. He foresaw even greater problems with the Ta 152C since the DB 603L engines were not scheduled for delivery until January 1945.

Sander well-remembered the difficulty of test flying at this point in the war. "It was impossible in those times to get more flying hours for testing the Ta 152, taking into account the situation in Germany — people hungry, cold and without enough sleep — the strafing by Thunderbolts, Lightnings and Mustangs, the bombing attacks on Berlin (flying over Langenhagen) and on Langenhagen itself, resulting in *Fliegeralarm* warnings. There were commercial difficulties — spares and equipment had to be transported by railway, bicycles and walking. For two months we lived on the water from the fire extinguishing reservoir. The *Jägerstab* demanded the promised number of aircraft to be delivered — in consequence they were delivered but without full equipment and *only one* acceptance flight due to lack of fuel."

The second Fw 190 prototype assigned to the 152H program, Fw 190 V30/U1, W.Nr. 0055, GH+KT, was flown on August 6, 1944 — it lasted only until the 23rd, when it crashed. The third prototype, the Fw 190 V29/U1, W.Nr. 0054, GH+KS, was flight tested on September 20, 1944, with some slight modifications — a smooth access panel in front of the windscreen and the telescopic sight opening covered. The fourth test machine, the Fw 190 V32/U2, W.Nr. 0057, GH+KV, had been flown from Delmenhorst, where it had been in the shop for modifications, to Langenhagen by Hans Sander on August 15, 1944. The fifth prototype, Fw 190 V18/U2, W.Nr. 0040, CF+OY, flew on November 10th.

A sixth prototype was built to replace 0058, the first H-configured aircraft, which was lost on July 13, 1944. However, this fighter, Ta 152 V25 (W.Nr. 110025), was dismantled and its wings were installed on the Fw 190 V32/U2 in November. It flew for the first time on December 15, 1944.

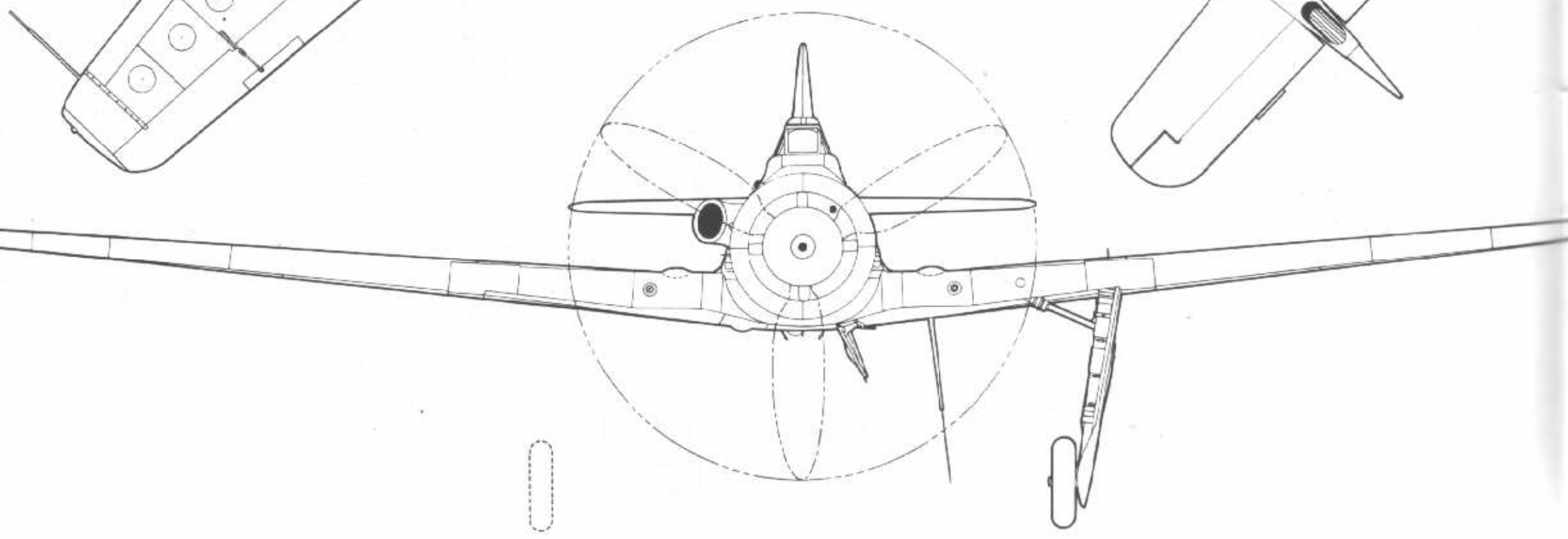
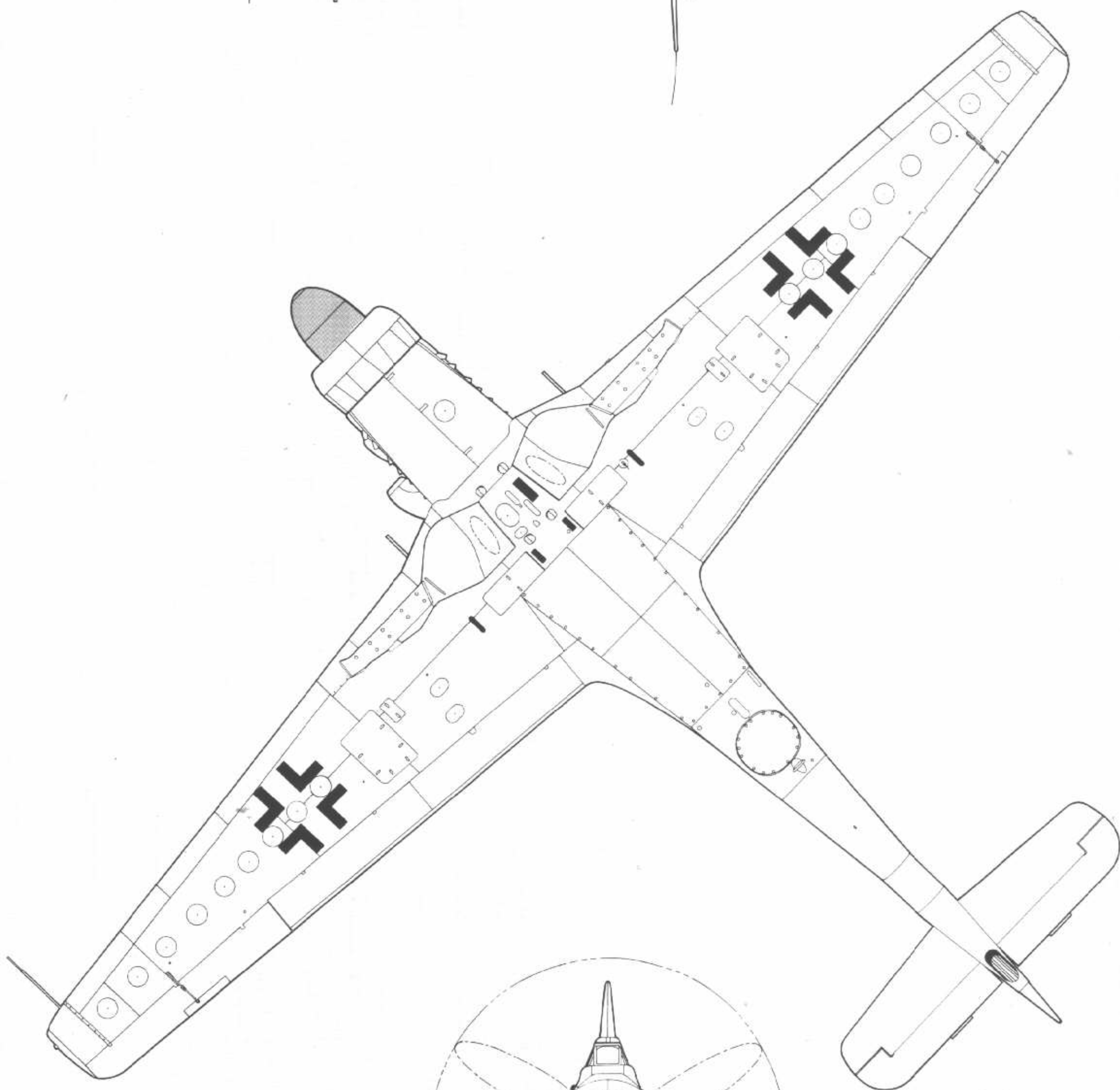
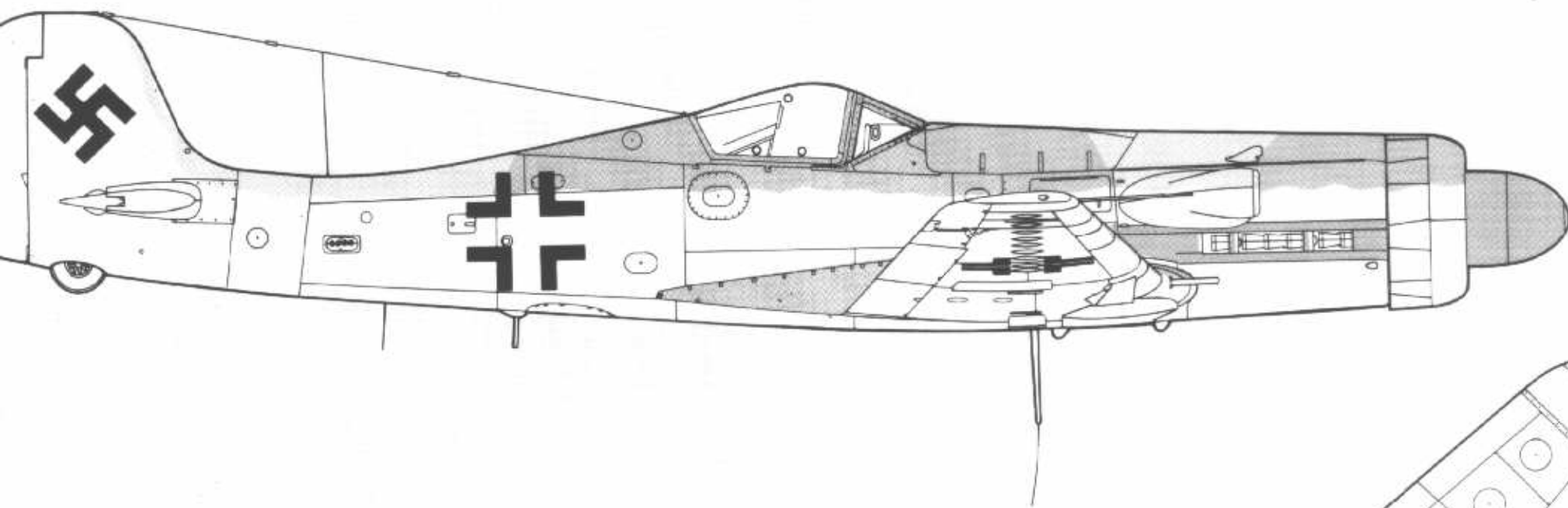
In the meantime, beginning in August, the Ta 152 V2 (W.Nr. 150002, CW+CB), V3, V4, V5, all in H-1 configuration, had been delivered for flight testing scheduled for the end of September. Typical of things in the crumbling Third *Reich* at the time, just as the Tank fighters were entering final configuration the *Luftwaffe* High Command ordered priority given to production of the Ta 152E due to the urgent need for reconnaissance aircraft. All Ta 152 H types built or on the lines so far were ordered modified. Focke-Wulf, having weathered these storms of frantic change before, wisely delayed the order and worked on a few prototypes until the urgency abated.

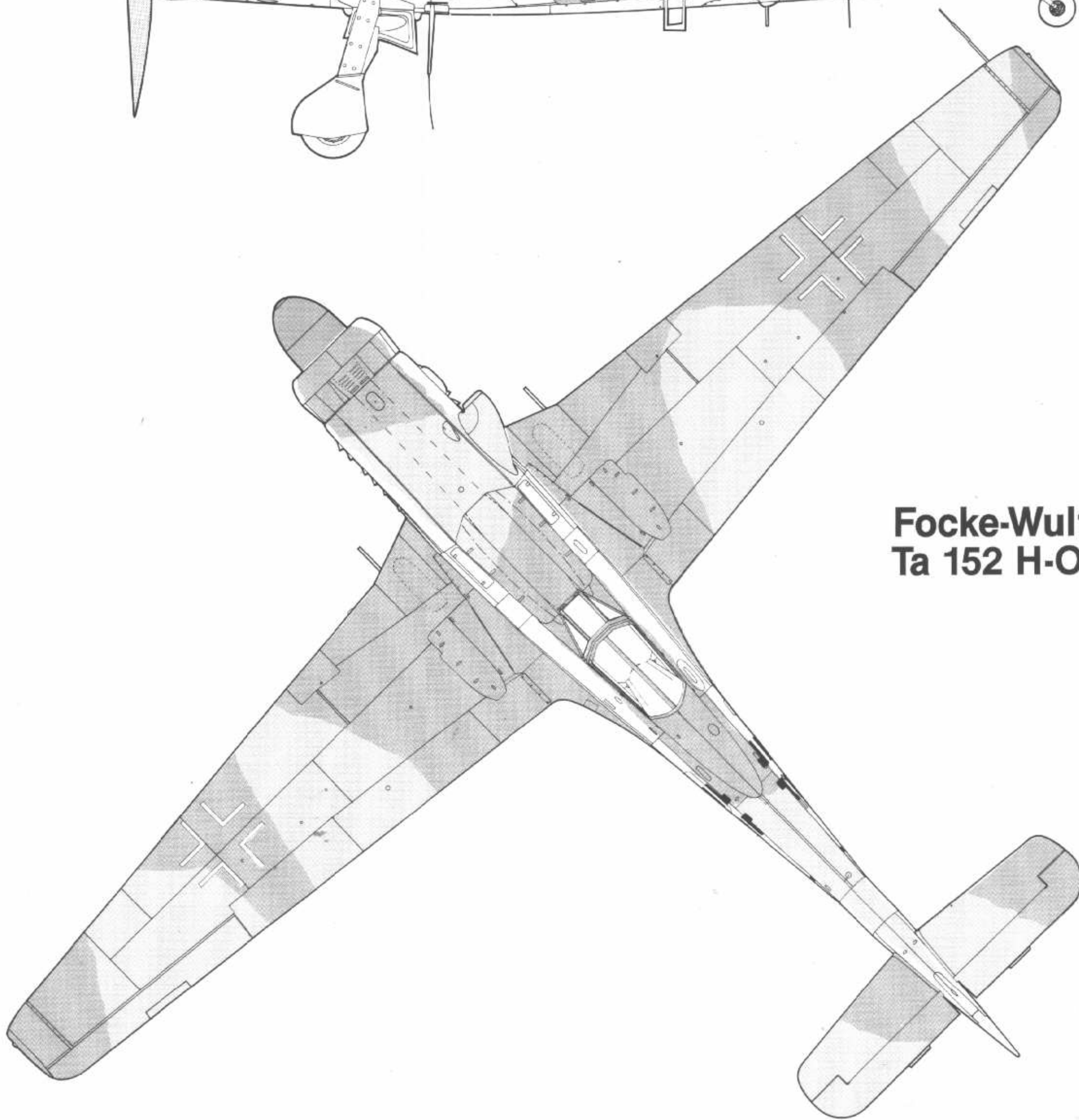
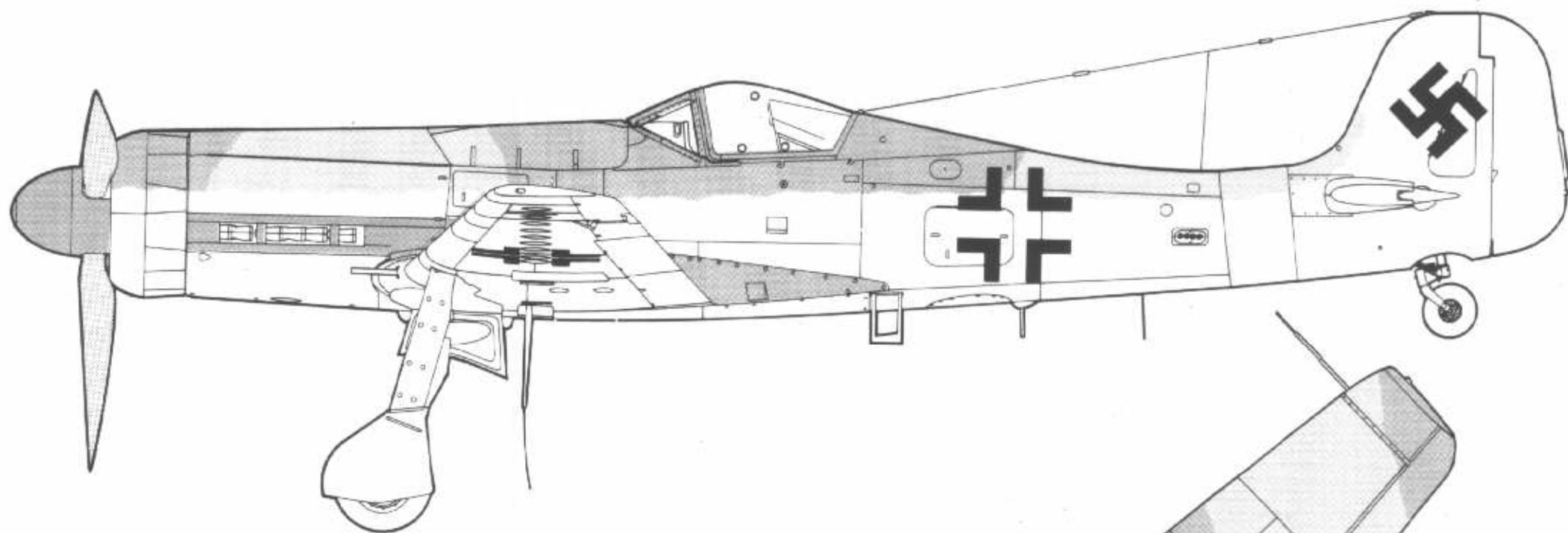
The first twenty pre-production **Ta 152 H-0s** were delivered from Cottbus between October and November direct to Rechlin and *Erprobungskommando Ta 152* for service testing under *Hauptmann* (Hptm — Capt.) Bruno Stolle. All the H-0s arrived with GM 1 powerboost which was installed from the first aircraft.

Stolle and his pilots found their Ta 152 H-0s fine performers, although, due to the increased wingspan, they did not seem to roll as fast as the standard Fw 190s. At an altitude of 1,550 ft (500 m) and an indicated airspeed of 292 mph (470 km/h), full aileron deflection produced a complete roll in 4.9 seconds. Stolle attempted to discover the limits of the aircraft's performance, once reaching an altitude of 39,400 (12,000 m) over Rechlin — he could not climb higher due to lack of oxygen.

Contracts were placed with Focke-Wulf for pre-production Ta 152 H-0s to be built at

⁷Although originally planned, due to weight considerations, cowl weapons were never fitted to the Ta 152 H.





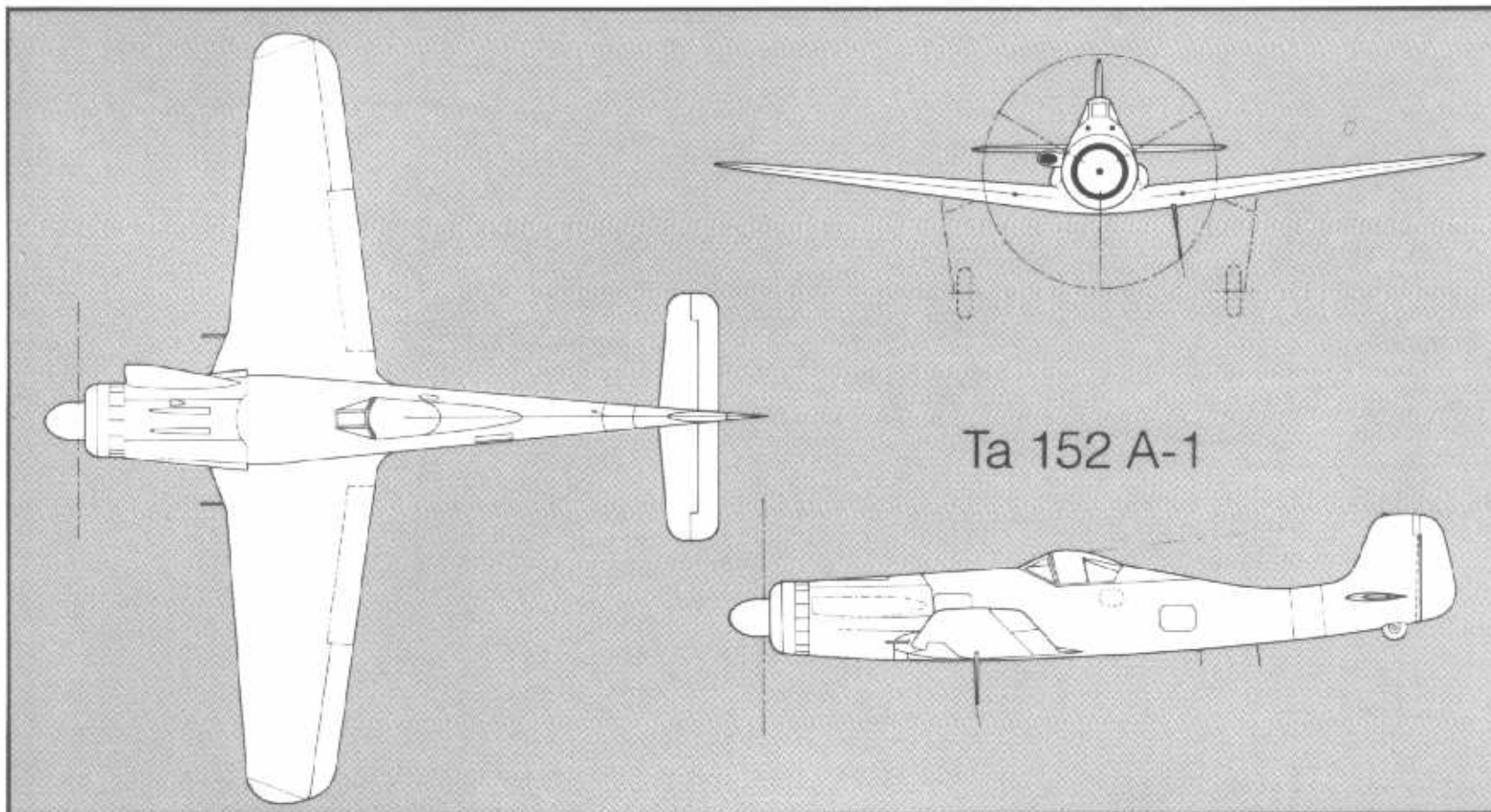
Focke-Wulf Ta 152 H-O

	Color 82 Bright Green
	Color 83 Dark Green
	Color 76 Light Blue

	Color 70 Black-Green
	Color 21 White
	Color 22 Black

The camouflage pattern shown above is representative for prototypes and preproduction machines of the Ta 152 H-O series. It differed only slightly from that employed by the Ta 152 H-1. The official November 1944 camouflage directive for the Ta 152 specified that all upper surfaces were to be painted in Colors 81 and 82 without defining the nature of these two colors. On the basis of current known evidence, it is the publisher's view that Color 81, commonly accepted as Brown-Violet, was not applied to the Ta 152 as a solid camouflage color. However, it is known that both Bright Green and Dark Green were used. Pending conclusive evidence, it is the publisher's opinion that Color 82 was Bright Green and Color 83 was Dark Green. It is worth noting that Color 83 has never been identified in any surviving document, at from the fact that it was a dark shade. All undersurfaces were painted in Color 76 Light Blue. Spinners were either left in their factory color of 70 Black-Green or painted at the local level in the familiar black and white spiral motif. Wooden propeller blades were always painted in Color 71 Dark Green. Frequently, the area around the exhaust was painted black. Motting along the fuselage and vertical tailplane usually consisted of two colors: 81 Brown-Violet and 83 Dark Green. National insignia consisted of a white upper wing cross (B6 style)* measuring 1000 mm, a simplified under wing black cross (B4 style) of 1000 mm, and a black fuselage cross (B4 style) of 800 mm. Across the fin was a black 600 mm swastika (H3 style).

*See THE OFFICIAL MONOGRAM PAINTING GUIDE TO GERMAN AIRCRAFT 1935-1945. Monogram, 1980, page Addendum 2.



Sorau. Production Ta 152 H-1s were slated for production at Cottbus. The Sorau-built aircraft were to receive W.Nr. 110001 through 110026, with *Versuchs* (experimental) numbers Ta 152 V1 through V26. The production aircraft from Cottbus were numbered 150001 to 150037 and 150160 to 150168. Before much could be done in building the first *V-muster* aircraft, 110001 through 110005 were cancelled and never assembled. The first five V numbers were subsequently transferred to the first five H-0 aircraft, 150001 through 150005, which became the Ta 152 V1 to V5. This elimination of the first five *Versuchs* aircraft explains why 72 *Werk Nummern* were assigned but only 67 aircraft built.

By December 1944, flight testing at Cottbus had uncovered a number of problems, several of major concern, with the eighteen Ta 152Hs on the line. The right landing gear leg on most of the aircraft would not retract without a firm push on the stick and negative G to get the leg to lock up. The engine coolant cowl flaps lever was very difficult to see and

operate in the cockpit, leading to inadvertent overheating. Later the cowl flaps were made automatic after being hooked up to a VDM thermostat.

Though the ailerons had Flettner boost tabs to lower stick forces, there was a slight delay in effectiveness due to looseness of the controls. Adjustment was required on all aircraft in order to obtain acceptable stick forces in flight — they were simply too heavy for combat conditions. The temperature gauges were found to be inadequate since their range was too small. In flight, permissible oil temperatures could not be read since the needle was pegged at the upper limit. The radios malfunctioned much too often and the windscreen washers failed to dissolve the condensed glycol engine coolant — as a matter of fact, the washers spread the glycol, reducing visibility further.

Extension of the landing flaps took far too long. On days with poor visibility (17 days out of December 1944) approaches had to be missed due to the wide pattern flown while getting the flaps down. If a pilot flew a

straight-in approach, by the time he was at the threshold the flaps were still coming down. The air pressure valves for emergency extension of the landing gear and flaps were leaking on all aircraft as well. Focke-Wulf was having a hard time converting the Fw 190 from electric gear and flaps even though they worked fairly well on the first few *Versuch* aircraft.

Sander was engaged in a debate with Junkers over getting idling rpm on the Jumo 213s in production aircraft to 1,700 rpm. Junkers refused this setting since they found the life expectancy of the engine to be adversely affected at this rpm. The previous August it had become quite clear there were defects in the 213's oil circulation and bearings as delivered in the Ta 152H and Fw 190 test aircraft.

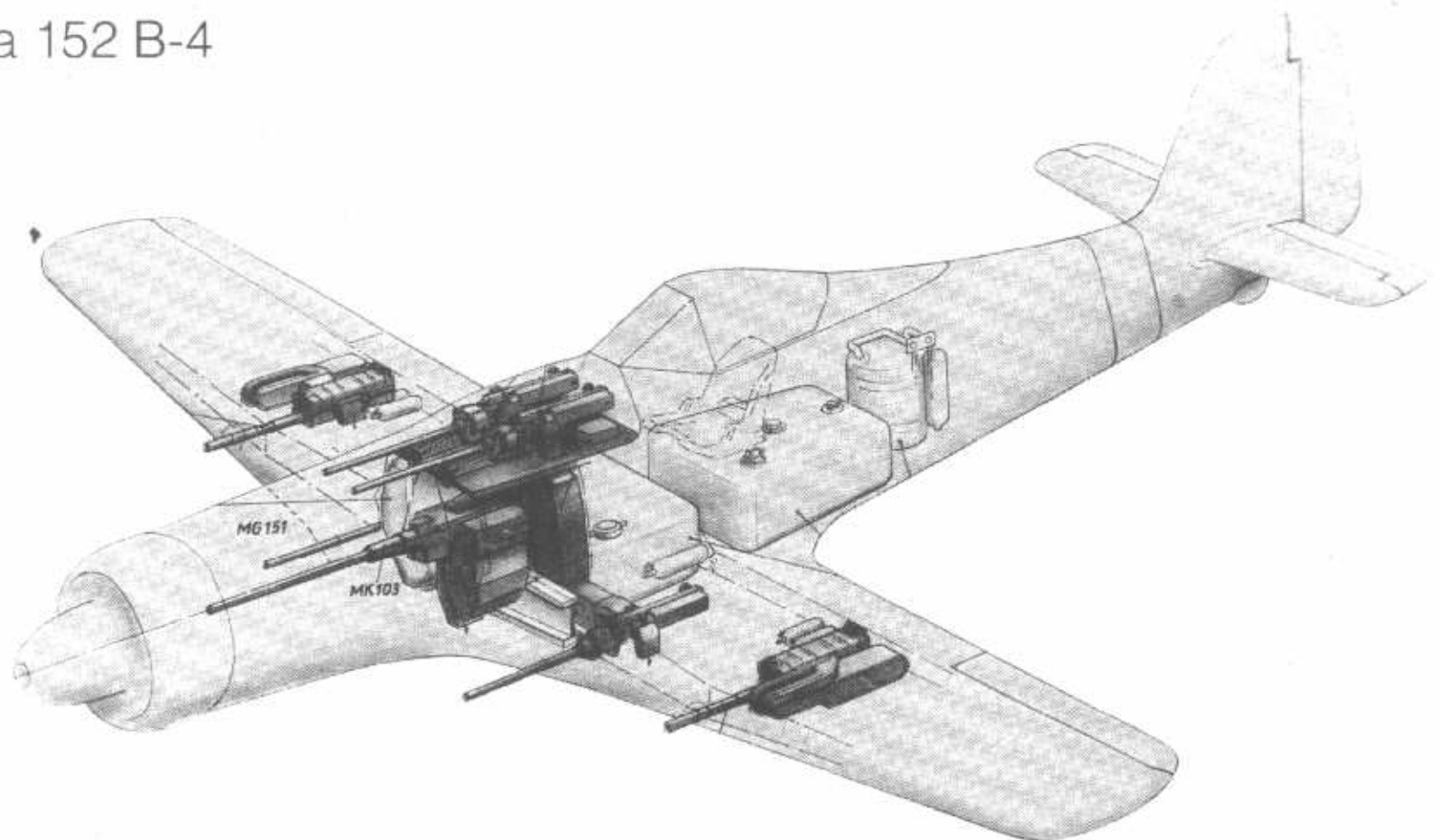
Materials received for production were a constant disappointment. Ta 152 H-0, W.Nr. 150025, had its landing gear collapse upon landing due to failure of the actuating cylinder control rod bolts on both sides.

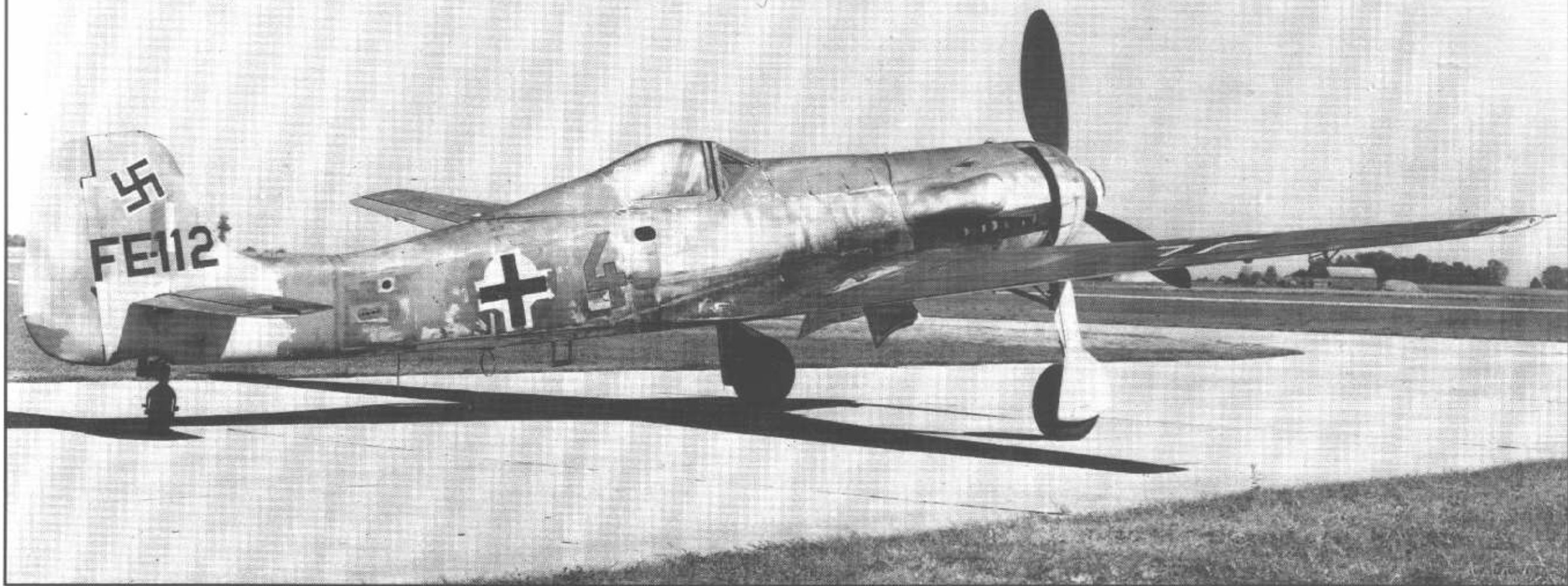
More frustration was encountered with the pressurized cockpit, which would not seal for its rated .36 atü in spite of putty on the inside, tape, rubber sealing tubes and strips. The windshield was found to be poorly manufactured as well since it leaked. Consideration was given to halting production of the feature altogether but research went on. By February 1945, the cockpit had been sealed by blocking off every possible exit for the air, but the cure was worse than the problem since the compressor caused considerable overheating of the air at high altitude. At 45,000 ft (14,500 m) the temperature was calculated to be 180° F (82° C)! The only alternatives were to start exhausting the air they had been trying to save to the outside again or fitting of a heat exchanger. In the end the pressurization was inactivated on most service aircraft.

In October 1944, a Ta 152 H-0 had reached a speed of 447.4 mph (720 k/hh) at 3,525 ft (1,075 m). The same month an ejection seat was suggested, using a propellant rather than compressed air, but installation is doubtful. In November 1944, the decision was made to install the improved Askania *Adler* (eagle) EZ 42 gyro gun sight in the Ta 152.

The **Ta 152 H-1** was similar to the H-0 but had provision for additional fuel tanks in the wings. Five tanks carried B4 aviation fuel plus one (left, inboard) for MW 50 powerboost. Another tank in the aft fuselage carried 22.5 US gal (85 liters) of GM 1 powerboost. Production of the H-1 was to commence in January 1945 at Focke-Wulf followed by Erla and Gotha in March 1945. As Ta 152 H-1s started to roll off the production lines, the **Ta 152 H-2** was on the drawing boards with the improved FuG 15 radio replacing the trouble ridden FuG 16ZY. Although the Ta 152 V25 was to be an H-2 prototype, production plans for the H-2 were cancelled in December 1944. The **Ta 152 H-3** through **H-9** were progressive develop-

Ta 152 B-4





Above: Taken at Wright Field late in 1945, this view of Ta 152 H-0, green 4, possibly W.Nr. 150010, is now on storage at the National Air and Space Museum's Silver Hill Maryland facility. This aircraft is also shown on pages 16 and 17 carrying Foreign Equipment number 112.

ments employing different engines, armament and equipment which were never built.

A laminar flow airfoil and the 24-cylinder Jumo 222E/F engine with four bladed prop were to be incorporated into a modified Ta 152H, but the long wings were not sufficiently stressed to carry the increased weight without total redesign.⁸ It would have been a high-performance fighter/fighter-bomber with pull-out loads of six Gs, and armament of four MG 151s, or two MG 151s plus two MK 103s — even a pressurized cockpit was called for, unusual for a low altitude aircraft. Takeoff weight would have been a staggering 12,793 lb (5,815 kg), far above what the standard landing gear was stressed for. It was decided that unless the Jumo 222 could produce 3,000 hp the project should be dropped. Though Junkers tried, the required power was elusive. Sander recalled, "I flew the 222 with 2,000 hp in the Fw 191, but we never did get much more out of it."

In keeping with the original *Spezial Höhenjäger* requirement calling for a reconnaissance version, Focke-Wulf advanced the Ta 152 E-series. Powered by the Jumo 213 E the **Ta 152 E-0** and **E-1** each had the short wing of the C-series (19.5 m²) while the **Ta 152 E-2** would have the long span H-series wing (23.5 m²). All models were to

carry the large Rb 75/30 aerial reconnaissance camera in the aft fuselage. Two test prototypes, the Ta 152 V9 and V14, were allocated to the E-1 program with flight tests underway by Christmas 1944. One additional prototype, the Ta 152 V26, was set aside for the E-2 series. The Ta 152 V9 flew for the first time on January 14, 1945 while the V14 flew eleven days later. However, by mid-February 1945, it was decided to cancel the E-series altogether and concentrate instead on new reconnaissance versions of the C and H-series. Correspondingly, the Ta 152 C-11, **Ta 152 H-10**, **H-11** and **H-12** were respectively reconnaissance versions of the C-1, H-0, H-1 and H-2. With cancellation of the E-series, the Ta 152 V26 was to fly as an H-10 prototype in March 1945, but no additional machines were completed.

One Ta 152 H-0 and most of the Ta 152 H-1s were fitted for bad weather flying with *Rüstsatz R11* (auxiliary apparatus 11) as used on previous models of the Fw 190. Added were defrosters for the windscreen, PKS 12 directional heading auto pilot, improved artificial horizon, LGW K 23 automatic pilot and an FuG 125 radio.

As recounted earlier, the Ta 152 C was scheduled to take advantage of the DB 603 engine. Two Focke-Wulf 190 prototypes, the Fw 190 V20 and V21 were assigned for conversion in August 1944 to the DB 603L becoming the V20/U1 and V21/U1. However, the V20/U1 was destroyed in an air raid August 5th but the V21/U1 was pushed out on November 3, 1944, flew on the 10th with a DB 603E and was then assigned to Daimler-Benz for engine testing where it was joined by the Fw 190 V76 and V77, prototypes for the new Fw 190 D-14 and D-15 (which were fitted with the DB 603LA and E engines respectively). Production of

the Ta 152 C was to start in March 1945 at the ATG (Allgemein Transportanlagen GmbH) plant at Leipzig and at Siebel works at Halle.

A total of 17 development prototypes were to be assembled yet only one would be entirely new. The rest would be created by modifying existing airframes. The Ta 152 V6, V7 and V8 were **Ta 152 C-0** machines, but configured to C-1 standards with the DB 603L, without supercharger intercooler but with MW 50 and cowlings designed specifically for the new engine. From December 10, 1944 the Ta 152 V6 (W.Nr. 110006) was under flight test at Adelheide/Delmenhorst with the DB 603E/ V19, without revised engine cowling and 30 mm MK 108 cannon. Four 20 mm MG 151s were installed, two in the upper fuselage and two in the wing roots. Gross takeoff weight was 9,614 lb (4,370 kg). Later the Ta 152 V6 and the Fw 190 V21/U1 were reengined with the DB 603 LA (the V21/U1 becoming the V21/U2). With this definitive engine and the addition of an engine-mounted MK 108, plus attachment points under the wings for WGr 21 air-to-air rockets, the prototypes represented the **Ta 152 C-1** production model.

A variety of aircraft armament was planned and evaluated for the Ta 152 including the MG 213A, a 20 mm revolver cannon produced by *Waffenfabrik* Mauser. In the Ta 152, it was planned to install two MG 213As in the fuselage (cowl) and two in the wing root position. This advanced weapon loaded and unloaded automatically and was capable of firing 1,200 rounds per minute. Tests with the Ta 152 showed the installation caused no deficiencies except in the ejection of the cartridge case. However, fewer than a dozen of these advanced cannon were completed before the war's end.

⁸A short span version to be powered by a Jumo 222 E/F was also planned.



Left: Artist rendering of the unit insignia for III./JG 301. Although it has not been ascertained if it was ever applied to aircraft, the badge is still considered official by all former pilots of the unit.

Another weapon under test for the Ta 152 was the 30 mm MK 103 manufactured by Rheinmetall which had a rate of fire of 420 rounds per minute.

During mid-1944, the Fw 190 V53, W.Nr. 170003, DU+JC, was selected to test the MK 103 in November 1944 as a synchronized wing root weapon for the Ta 152 C-3. Redesignated Fw 190 V68, this prototype was completely destroyed in an air raid on August 5, 1944, before it could be converted.

One of the significant problems encountered with the Ta 152 concerned the engine mounts. Daimler-Benz had wanted to make them from steel but the RLM forced a mixed alloy construction to save weight. Due to the flexible nature of the alloy, poor aiming accuracy in air firing tests resulted. Consequently, Daimler-Benz was either determined to go back to steel or use the new mounts Dornier developed for the DB 603.

The previous October the RLM had introduced one of its numerous puzzling edicts that seemed to make no sense to Germany's aeronautical engineers. All aircraft then under production across the *Reich* were to be redesigned under the "50 km schneller" order for extra speed. By January Focke-Wulf had written an overview of the 190 and 152 to discover how they might squeeze more speed out of the fighters through deviations in construction. It seemed more an exercise in complying with orders since every effort was already being made to gain maximum speed. The 152 was even being evaluated for conversion to Heinkel-Hirth 011 jet engines with wing sweep angles of up to 46.5 degrees. Speeds as high as 597 mph (960 km/h) were predicted, but nothing ever came of these project designs. A proposal, first initiated in September 1943, for a

Ta 152 night fighter using either the 213 or 603 engine never went further than the drawing board either.

After 18 flights with the Ta 152 V6, totaling 7 hr 41 min through February 1, 1945, pilots were generally pleased with the DB 603. Compared to the Jumo 213, supercharger controls were much better. After a run-in time of two hours, the engine was run at war emergency power (2700 rpm and 1.96 atü boost) using MW 50 at 17,220 ft (5,250 m) to get a commendable speed of 426.9 mph (687 km/h).

In spite of some supercharger problems which reduced expected rated altitude to 34,110 ft (10,400 m), climb rate at gross weight and combat power (2,500 rpm at 1.45 atü boost) was very good. However, with fully-opened coolant flaps, oil and coolant temperatures were too high — considerable difficulty was expected once the 603L and LA engines were installed. The center of gravity was found to be out of limits, making the pitch and yaw axes unstable. With the fuselage ETC 503 rack and 300 litre drop tank, pitch axis stability was totally unacceptable.

The Ta 152 V7, W.Nr. 110007, was flown in December 1944, as the Ta 152 C-0/R11 with a DB 603 EM engine and R11 bad weather *Rüstsatz*. The Ta 152 V8 was completed late as a C-0 with the DB 603 L and an EZ 42 gyro gun sight which was also to go into the C-1 series. Tank and his associates were quite happy with the performance of the V7 since it had the new integrated engine fairings, resulting in higher speeds.

With a DB 603 L refitted into the Ta 152 V6, comparisons were made between the E and L engines — the former was better at low altitude, while the latter's performance was

superior at higher altitudes. Since both engines used 96 octane C3 fuel which was fast becoming scarce, the final decision was made to standardize on the DB 603 LA in the Ta 152 C-1 *Normaljäger* since this engine, tested in a C-1 in January 1945, could use C3 or the lower rated and more available 87 octane B4 fuel.

Throughout 1944 Focke-Wulf had been actively seeking to adapt the Fw 190 F and D models to carry airborne torpedoes for use against coastal shipping. After it became clear that the Fw 190 F was unsuited for this task, orders were given to investigate the possibility of modifying the Fw 190 D-series and Ta 152 C-1 to carry an LT 1B airborne torpedo on an ETC 504 bomb rack. Preliminary tests revealed the DB 603 LA high altitude engine would never be suited to such an environment. Instead, a DB 603 E would have been installed but the fighter would simply have been too heavy. The wheels would not have taken the increased weight, therefore payloads would have been marginal. Finally, late in 1944, it was concluded that the Fw 190 D would have been better suited for the torpedo aircraft role and all further work on the Ta 152 C-1/R14 was cancelled.

An R31 kit was recommended for the C-1, which involved installing a GM 1 tank in the rear fuselage with dead weight ballast added in the engine compartment. A few fully operational Ta 152 C-1/R31s were completed and delivered for combat operations to JG 301.

The **Ta 152 C-2** was identical to the C-1 apart from a switch to the improved FuG 15 radio. Three development prototypes were assigned to the C-2, the Ta 152 V16, V17 and V18, but on December 15, 1944 the series was cancelled and the three prototypes were reassigned to the C-3 series. The **Ta 152 C-3** was practically identical to the C-1 except for the engine-mounted cannon which became the MK 103 with 80 rounds rather than the MK 108 with 90 rounds in the C-1. Three prototypes, the Ta 152 V19, V20 and V21, originally were assigned to the C-3 series bringing to six the total number of *Versuch* machines allocated to the C-3. However, with cancellation of this series early in 1945, the V19, V20 and V21 were then reassigned to the Ta 152 B-5/R11 program. The ultimate fate of the V16-V18 is unknown. The **Ta 152 C-4** was to have been similar to the C-3 except for a switch to the FuG 15 radio. Three development prototypes, the Ta 152 V22, V23 and V24, were assigned to this model, but series manufacture was not started. The **Ta 152 C-5** reverted to the FuG 16 ZY radio and carried an armament of five 20 mm MG 151 cannon.



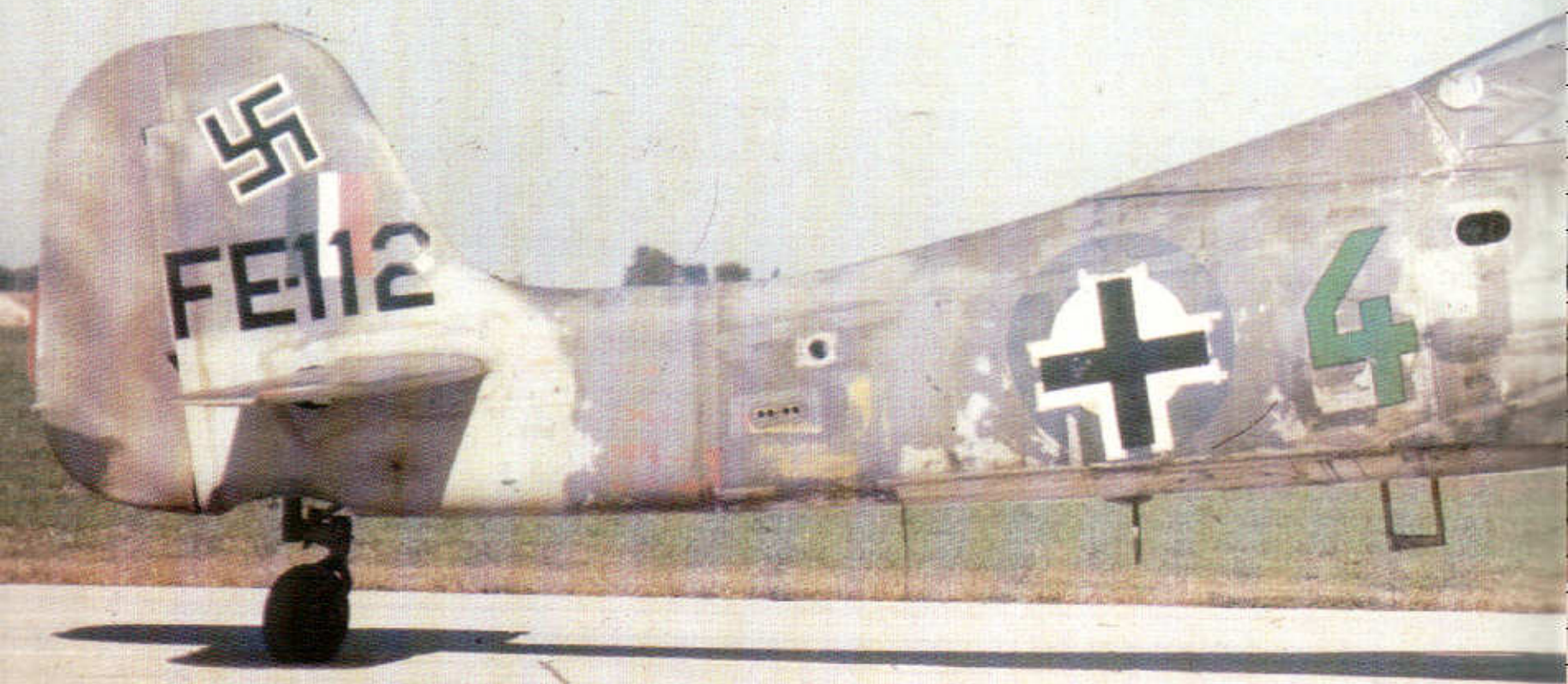
Ta 152 V5, W.Nr. 150005, CW+CE, handed over to Stab/JG301.



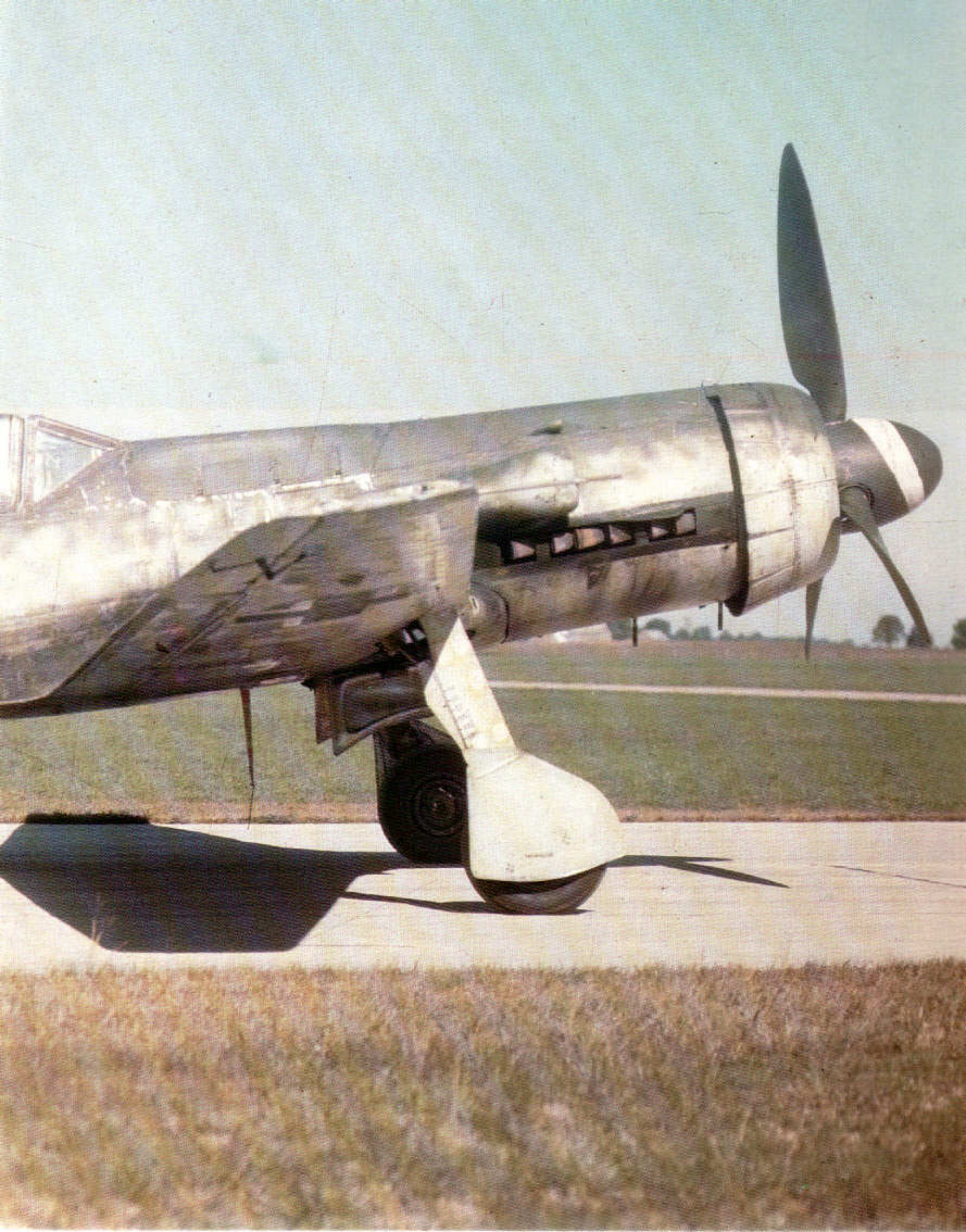
Ta 152 V6, W.Nr. 110006, VH+EY, Prototype for C-1 series.



Ta 152 H-1/R11, W.Nr. 150168, green 9, flown by Stab/JG301.



Ta 152 H-0, possibly W.Nr. 150010, green 4, of
Stab /JG 301 at Wright Field, late 1945.





Continued from p. 14

The proposed **Ta 152 C-6** was identical to the C-5 apart from a switch back to the FuG 15 radio. The **Ta 152 C-7** through **C-9** were progressive developments using new and different engines. The **Ta 152 C-10** was possibly a reconnaissance version of the C-0 while the **Ta 152 C-11** was a reconnaissance equivalent of the C-1 created after cancellation of the Ta 152 E-series.

The **Ta 152 S-1**, two-seat trainer, was to be converted from standard Ta 152 C-1 airframes and based on the Ta 152 C-1/U1 modification. The S-1 was to have had a fully equipped second cockpit but lacking armament. Production of the S-1 was to have commenced at Blohm & Voss in April 1945 and in August 1945 at *Lufthansa* in Prague, but none were delivered before the war's end. The **Ta 152 S-2** was a two-seat trainer based on the H-series. Various Ta 152 C prototypes were tested as the so-called *Normaljäger*, including a C-1 in January 1945 with the DB 630 LA using B4 fuel. The major problem encountered was related to poor stability due to the center of gravity being too far aft. By February 1945, fuel in the rear fuselage main and supplementary tanks was reduced by 36.8 US gal (140 liters) and 88 lbs (40 kg) of ballast was to be added to the engine compartment, possibly as armor. The Ta 152 C-1, C-3 and C-11, each with R11 and the DB 603 LA, were to have the MW 50 tank removed from the fuselage with the methanol/water relocated into one wing tank. The same center of gravity problems were also turning up in the Ta 152 H-1 and, as with the C-series, the same solution was ordered.

Reduced fuel capacity helped, but did not solve the aft center of gravity problem. This in turn gave the aircraft insufficient range for

its mission. Moreover, the tail was still too heavy although the fighter at least was controllable. Tests with the Fw 190 V21/U1 bore this out. The only recourse was to shorten the tail and change the fuselage structure in order to make more room for fuel. This late in the game the prospect of major redesign must have seemed utterly disheartening.

By March 1945, the need for stability at altitude overrode the need for fuel and the rear fuselage tank was eliminated from the Ta 152C altogether while the other tanks were relocated. Fuel lines had to be relocated throughout the aircraft but at least a major redesign was avoided. Rechlin had complained bitterly over the lack of stability around the yaw axis in both the Ta 152 H and C. Operational pilots were not going to put up with directional instability in combat.

In March 1945, takeoff power for the DB 603 EC had been stabilized at 2,400 hp. Tests revealed that the additional thrust relieved pressure on the engine bearings and that the additional torque did not constitute a critical change. One of the prototypes with the DB 603E, using MW 50, reached 447.4 mph (720 km/h).

As promising as the Ta 152 H and C were, the *Luftwaffe* was denied the opportunity to use them in any meaningful numbers. In spite of being released for service use in January 1945, Ta 152 Hs were essentially test aircraft with *Luftwaffe* pilots making the second and subsequent flights on each delivered fighter. As Petersen had accurately predicted the previous July, without a sufficient test program, most of the deficiencies discovered remained on the production line aircraft.

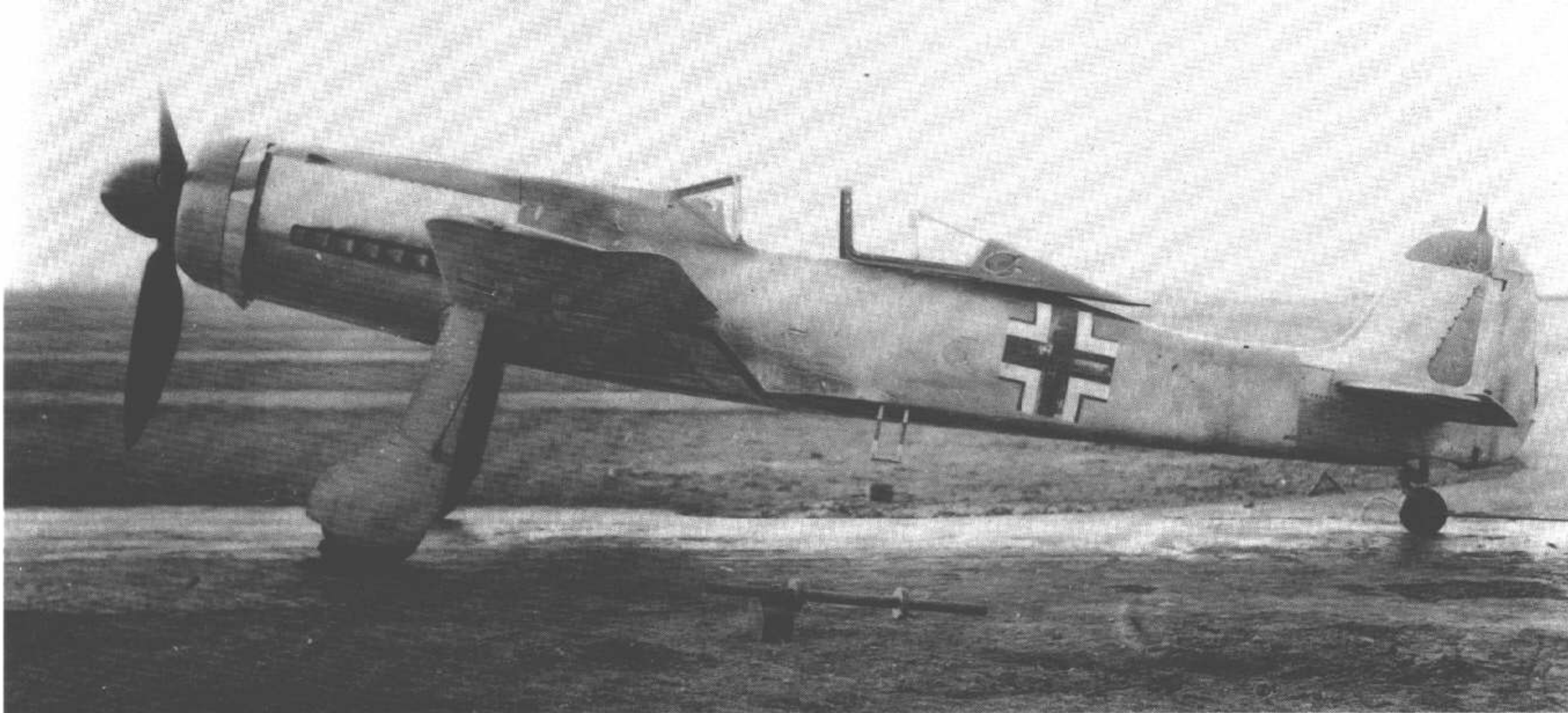
When originally conceived, the Ta 152B series was assigned to the *Schlachtflugzeug* (ground-attack) role. Four versions

Above: Fw 190 V32/U1, W.Nr. 0057, GH+KV, is shown here fitted with a DB 603 G engine and large VDM propeller. In this form the aircraft was a "short cut Ta 153 prototype" but was modified in November 1944 to participate in the Ta 152 H program. Note the particularly large area vertical tailplane.

were planned: the **Ta 152 B-1** and **B-2** series, each powered by the Jumo 213 C enclosed within Jumo 213 E cowls (later standardized on the Jumo 213 EB engine) but differing only in engine cannon. The **Ta 152 B-3** and **B-4** series were respectively similar to the B-1 and B-2 but fitted with the Jumo 213 E. Up to March 1944, no official interest was shown in the Ta 152 B and by mid 1944, the B-series was deferred.

However, early in January 1945, the RLM reversed itself and requested Focke-Wulf to proceed with the Ta 152 B but as a *Zerstörerflugzeug* (heavy fighter). This version resulted in the **Ta 152 B-5** which was based on the Ta 152 C-3, but powered by the Jumo 213 E-2 with MW 50 powerboost. This heavily armed fighter was to have carried an armament of three 30 mm MK 103 cannons (one as a *Motorkanone* plus one in each wing root). Production was to commence in May 1945 at Erla and in July at Gotha. Principal subtype was the Ta 152 B-5/R11 *Schlechtwetterjagd* (bad weather fighter) which was similar to the Ta 152 C-1/R11 apart from weapons, powerplant and the optional utilization of MW 50. In order to speed development, three Ta 152 C-3 prototypes (the V19, V20 and V21) were transferred to the B-5/R11 program. The V19 and V20 were to be completed in March 1945 with the V21 following in April 1945.

However, by April 1945 none of the three prototypes had yet appeared, and it is extremely unlikely any production machines



were completed. Nevertheless, additional variants were planned. A Ta 152B (possibly the **B-7**) was to have been the recipient of the new Jumo 213 J driving a four-bladed VS 19 propeller. The Jumo 213 J had four valves per cylinder instead of the usual three, a three-speed supercharger and increased rpm. This powerful engine was capable of developing 2,240 hp at takeoff.

LUFTWAFFE SERVICE

As incredible as it may sound, a total flying time of only 30 hours and 52 minutes had been logged on Ta 152 H prototypes (V33/U1) 0058, (V30/U1) 0055 and (V29/U1) 0054 before full production of the fighter commenced on November 21, 1944 at Cottbus! The Fw 190 V33/U1, W.Nr. 0058, was 70 percent destroyed on July 13, 1944 at Vechta after but 36 minutes flying time. The Fw 190 V30/U1, W.Nr. 0055, was totally destroyed on August 23, 1944, with Hans Sander at the controls, leaving Fw 190 V29/U1, W.Nr. 0054, to fly the majority of the tests after its first flight on September 24, 1944.

Fw 190 V18/U2, W.Nr. 0040, made its first flight as a Ta 152 H on November 19, 1944 and, with W.Nr. 0054, put the total flying time for the H prototypes up to 49 hr 42 min by January 30, 1945. As could be expected, problems surfaced continually. The right

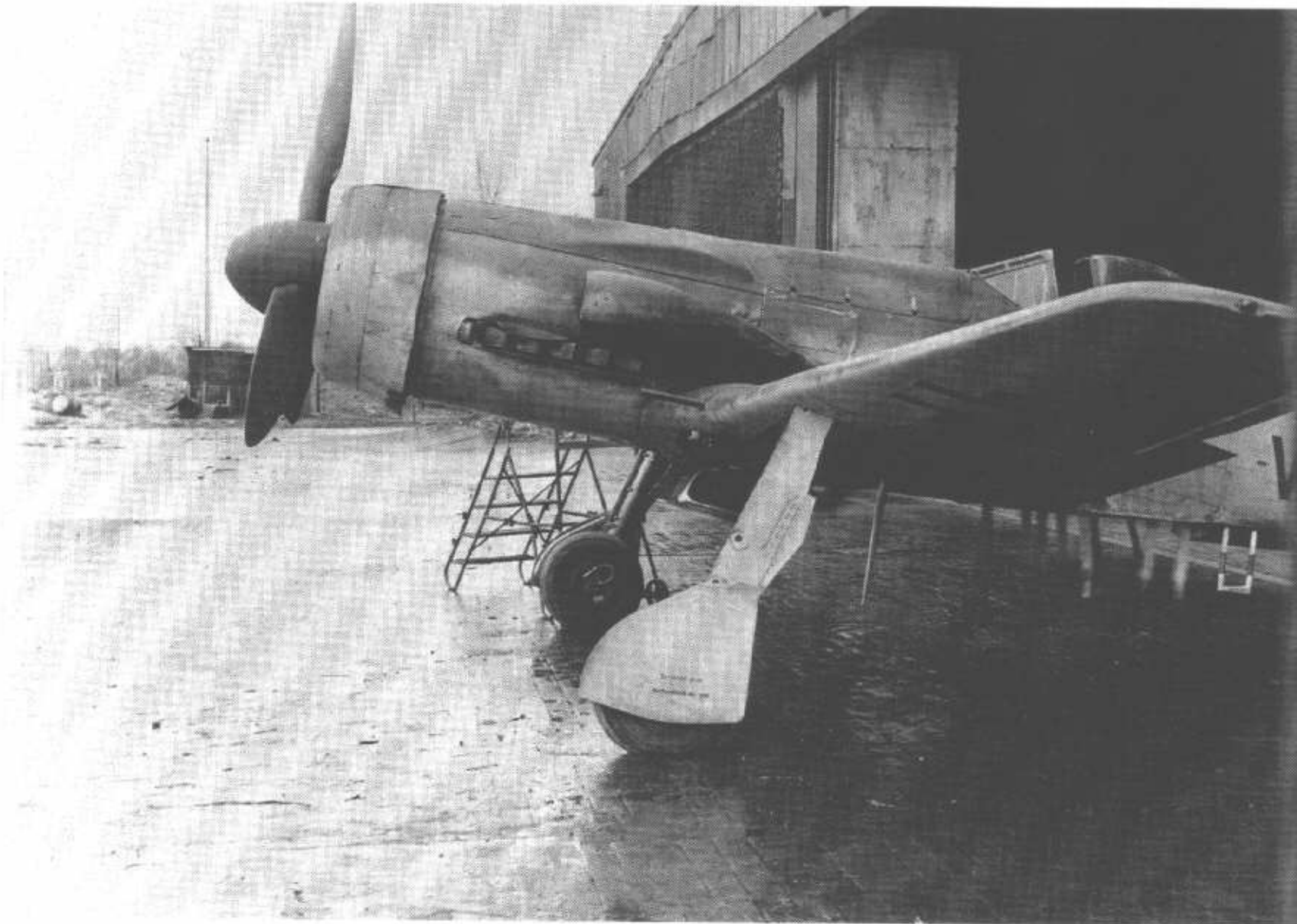
landing gear still often failed to lock up. During taxi and braking the landing gear would often retract since both the down and up hydraulic lines were pressurized. When the high pressure air emergency extension system for the landing gear and flaps was activated, it burst the hydraulic reservoir since the compressed air forced its way past weak valves into the tank. Adjustments to lessen aileron control forces were next to impossible since, every time the ailerons were removed for the adjustment, the reference marks were obliterated.

A total of four attempts were made at high altitude flight and each time the supercharg-

er did not kick in. Depending on the type of engine, the supercharger had two stages with intermediate cooling either by an inter-cooler (E) or by MW injection (F) and three geared speeds. The problem centered around the third gear never engaging. Furthermore, above 29,520 ft (9,000 m) fuel pressure became insufficient due to fuel pumps that would not operate at required speed. During a high altitude test on August 23, 1944, with W.Nr. 0055 the engine caught fire but, fortunately, it did not spread. As Sander banked the aircraft in toward the runway dead stick, he caught a wing and the fighter was destroyed.



Above: Rare view of the Fw 190 V20, W.Nr. 0042, TI+IG, which was scheduled to swap its Jumo 213 for a DB 603 for participation in the Ta 152 C program. But it was completely destroyed in a bombing raid on August 5, 1944. **Right:** Lacking only its spinner, the photo shows the Fw 190 V21/U1, W.Nr. 0043, TI+IH, soon after modification on November 3, 1944. Like the Fw 190 V20, this development prototype swapped its Jumo 213 for a DB 603E, but unlike the V20, it survived to participate in the Ta 152 C program.



inflate the sealing tube of the cockpit canopy, but the result was not satisfactory. Due to leakages the cockpit altitude was not much lower than the atmospheric altitude; however, I can't really remember the exact difference. It was designed to maintain a pressure of 300 gr/sq cm.

"From 36,080 ft (11,000 m) on I got pains and itching in the elbows and the knees and I had the sensation that my movements got stiff. Voice procedure became difficult. At 39,360 ft (12,000 m) I radioed, 'Altimeter blocked (at the limit), will continue to climb with the help of speed and climb indicator.' Slowly I climbed higher, having only a visual indication that I got higher than ever before. My vision narrowed to a projector-sized view. The sky took on a color of midnight blue and then black, going through the horizon in all nuances of blue to blinding white.

"My right arm and hand no longer responded to my mental commands so I continued by flying left handed. The aircraft became sloppier and sloppier, barely responding to rudder movement. After stalling twice in the thin air, and when it became more and more difficult to hold or gain altitude, I gave up. As requested, while descending I made some speed runs at different altitudes, radioing the measured values down to the flight observers.

"After landing almost at night time, I was received heartily by the technicians who had followed my flight by radio. Then the barograph was checked. Everyone was

In spite of these problems, one of the *Luftwaffe* pilots, *Ofw.* Friedrich Schnier, assigned to Focke-Wulf took the Fw 190 V29/U1 (W.Nr. 0054) H-series prototype to 44,785 ft (13,654 m) — cabin pressure altitude was 34,440 ft (10,500 m). This stood as the record altitude for a Ta 152 H, even though others like Tank had noted higher ceilings, because Schnier carried a barograph in the aircraft.

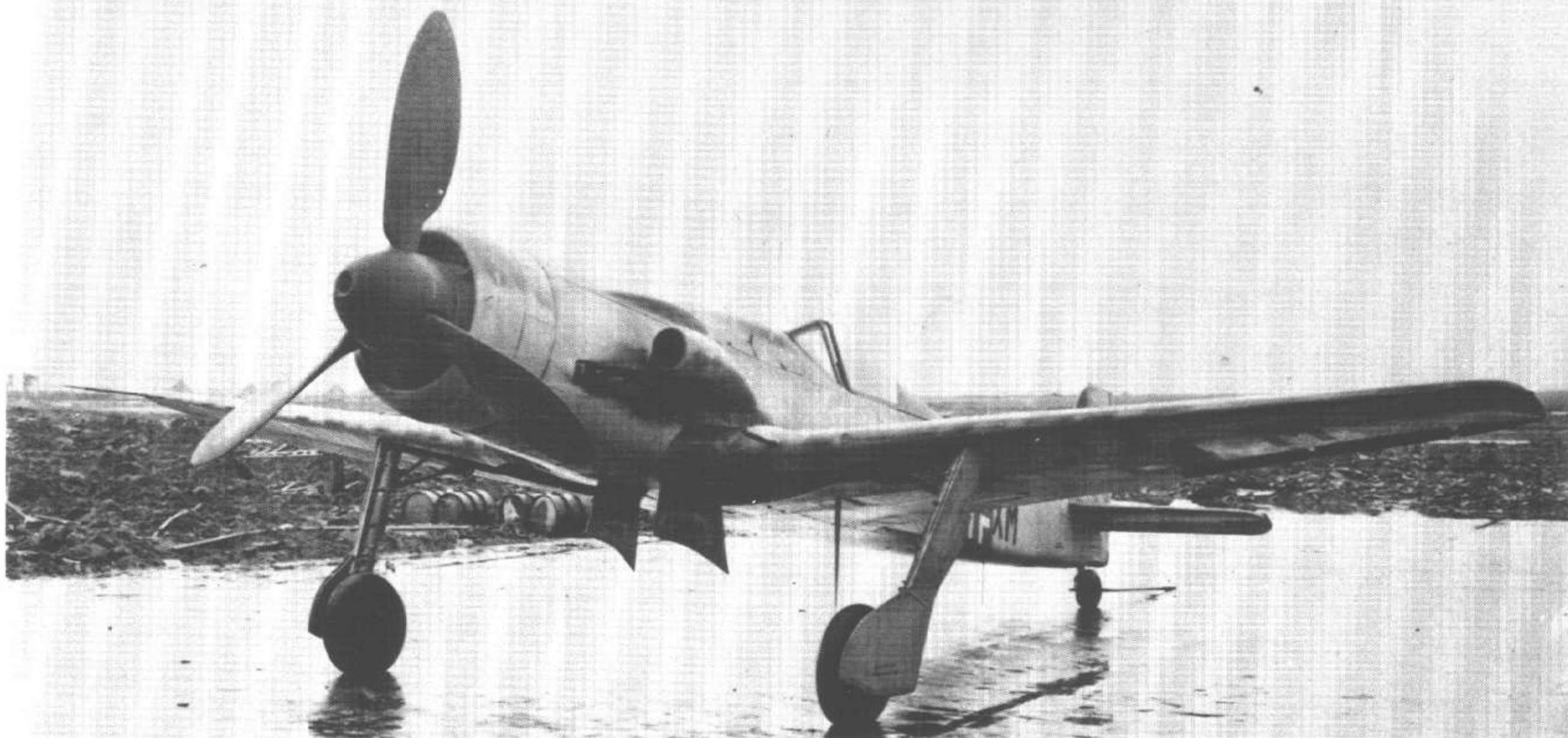
"Before I made this record altitude flight," he recalled to Hans Sander, "I had made several flights with other types of aircraft up to an altitude of about 36,080 ft (11,000 m). But on

this flight I was requested to climb to absolute ceiling altitude. The current altimeter and barographs in German aircraft at that time indicated only 39,360 ft (12,000 m) maximum. Therefore, an Italian barograph with a range of 45,920 ft (14,000 m) was installed in the Fw 190 V29/U1, then checked before and after the flight.

"The initial climb was quite normal. Every 3,280 ft (1,000 m) I radioed in code the requested values — air speed, altitude, manifold pressure, temperatures, etc., and the blower gear (there were three). At 32,800 ft (10,000 m) altitude I was reminded to

Top left: The Ta 152 V6, W.Nr. 110006, VH+EY, after installation of its DB 603L. This was the first C-0 machine but built to C-1 standards. **Below and opposite top and bottom:** The Ta 152 V7, W.Nr. 110007, CI+XM following completion early in January 1945. Focke-Wulf test pilot Hans Sander flew the V6 on December 17, 1944 and the V7 on January 27, 1945.





delighted — it had worked with readings almost to the upper border of the recording strip. Evaluation indicated an absolute altitude of 44,785 ft (13,654 m)."

Schnier also made some full throttle dives with prototype Ta 152 H aircraft from 34,440 ft (10,500 m) to determine what today would be called the aircraft's critical Mach number, or the speed at which control was marginal or lost. He remembers getting the fighter up to 0.96 Mach with violent rocking, but this seems incredibly high.

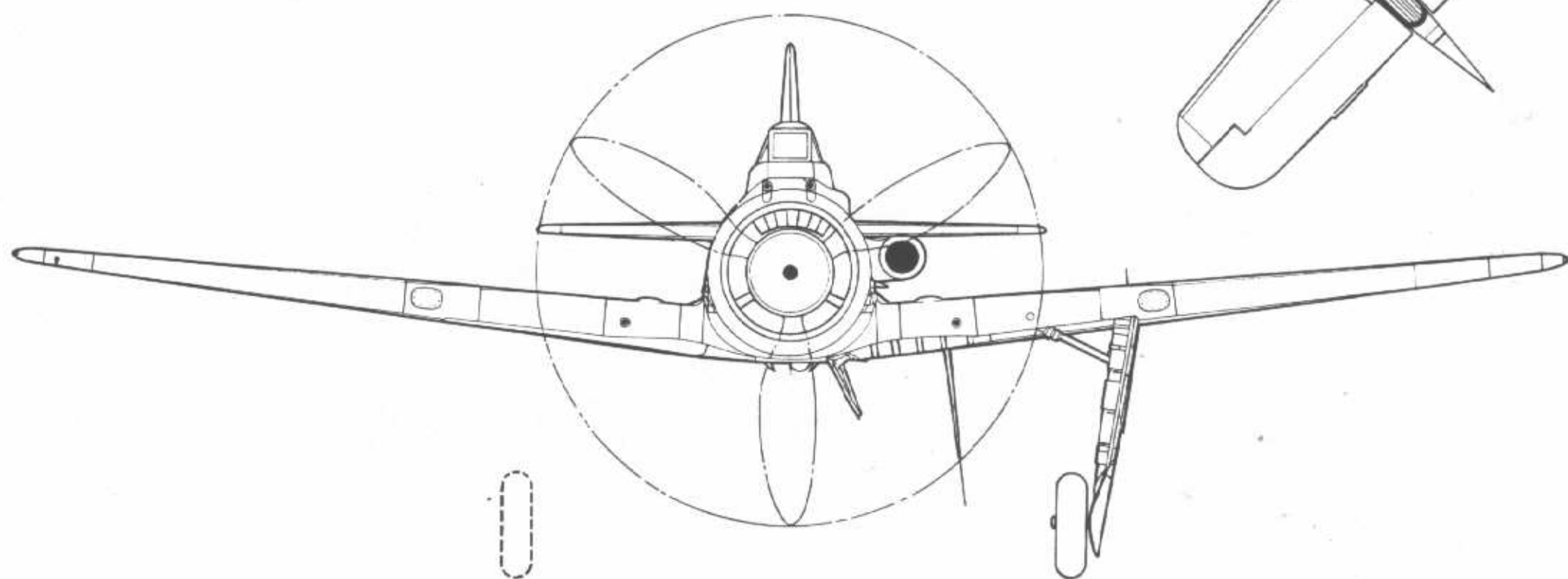
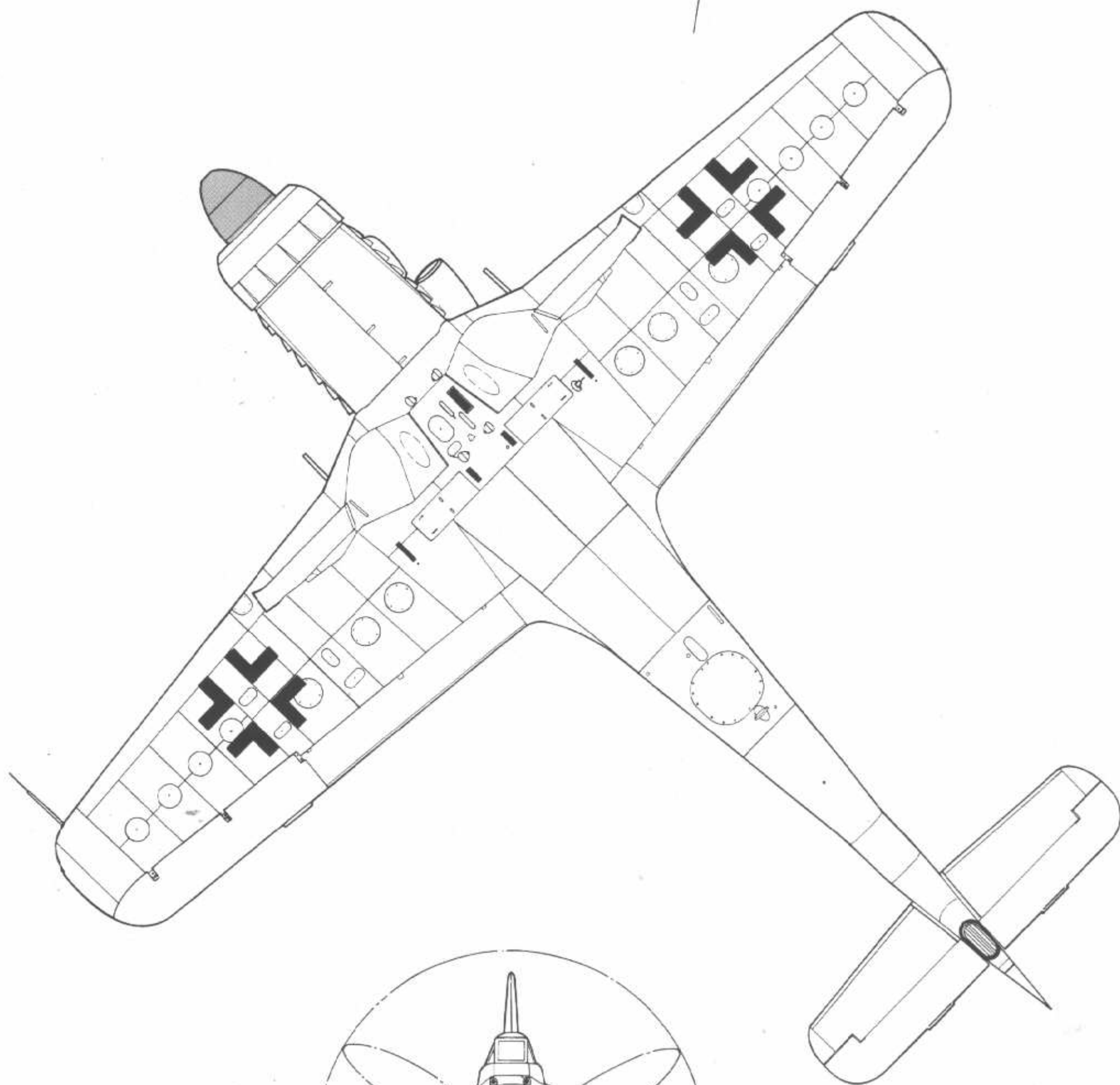
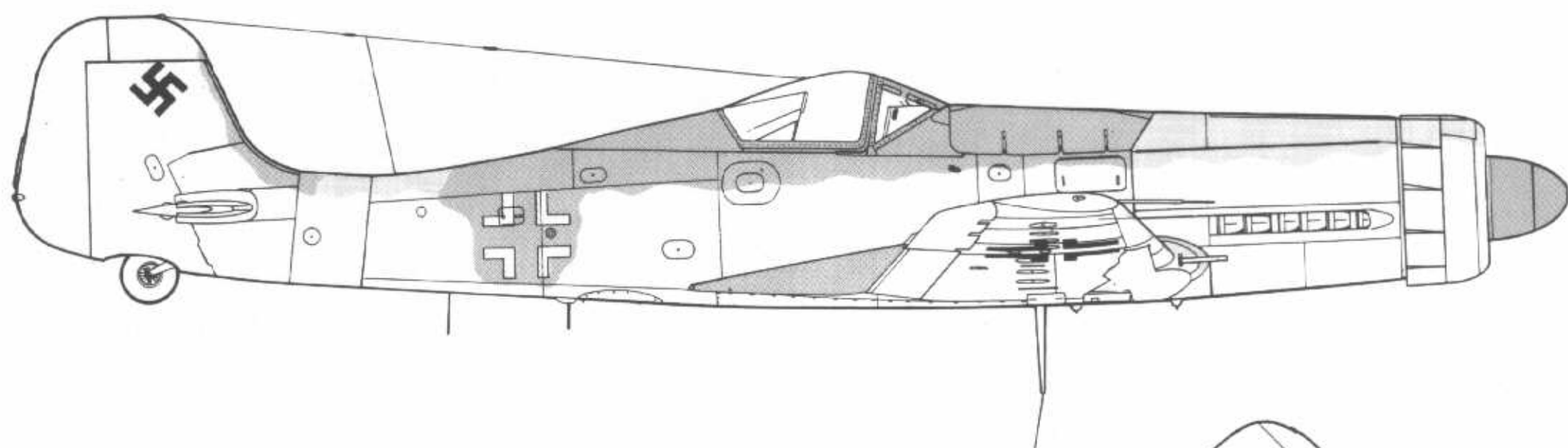
As W.Nr. 0054 went through the test program it suffered asymmetrical flap retraction and the problem of the right gear failing to lock up. The cause of the latter was traced to the small inner fairing door jamming against the well before the wheel was fully retracted. The entire fairing had to be refabricated. Then the right gear failed to lock up due to the hydraulic system cutting off after the left wheel (which came up faster) was in the well. A temporary solution was achieved by upping hydraulic pressure to 140 atü (far too high for production).

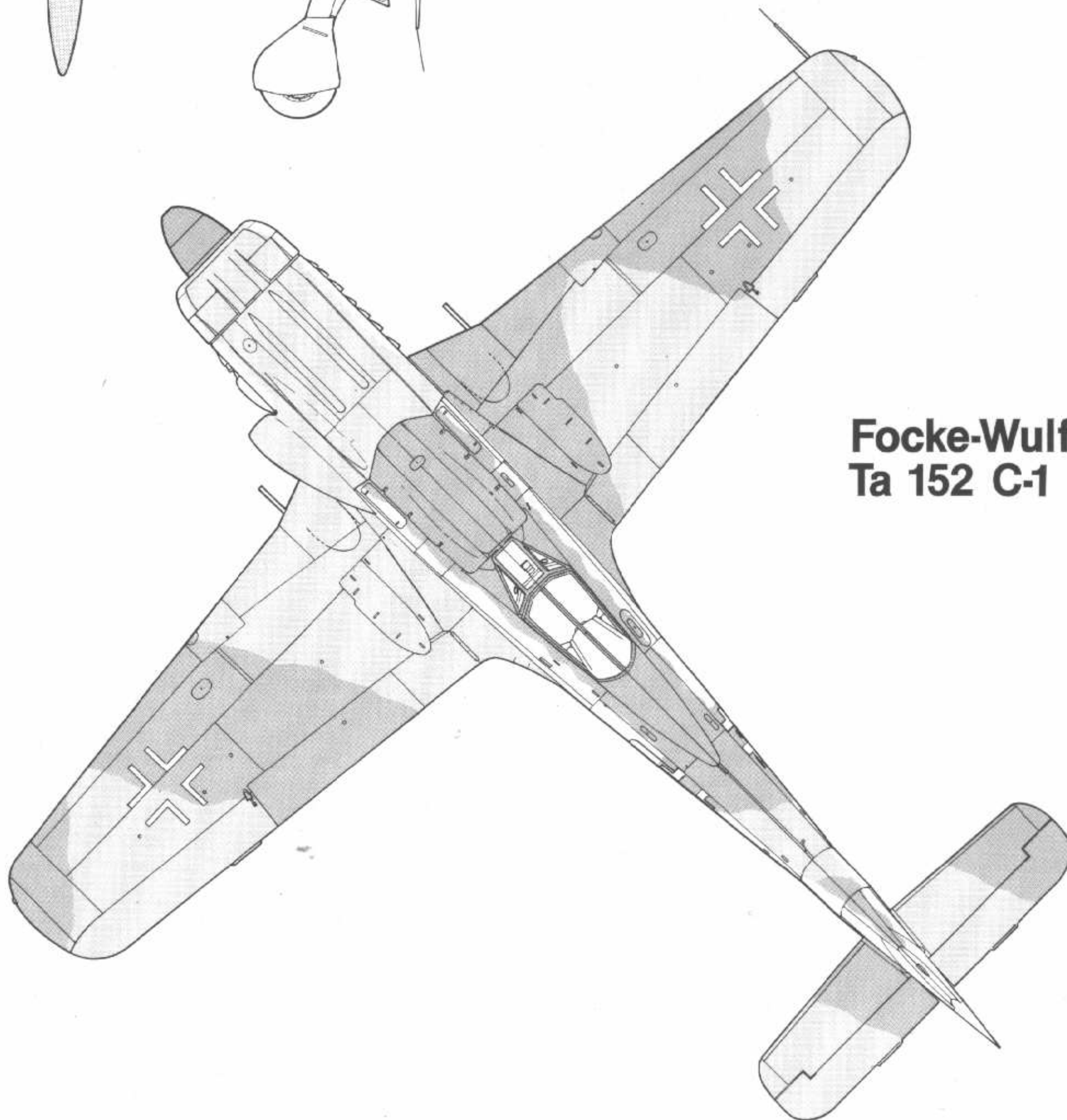
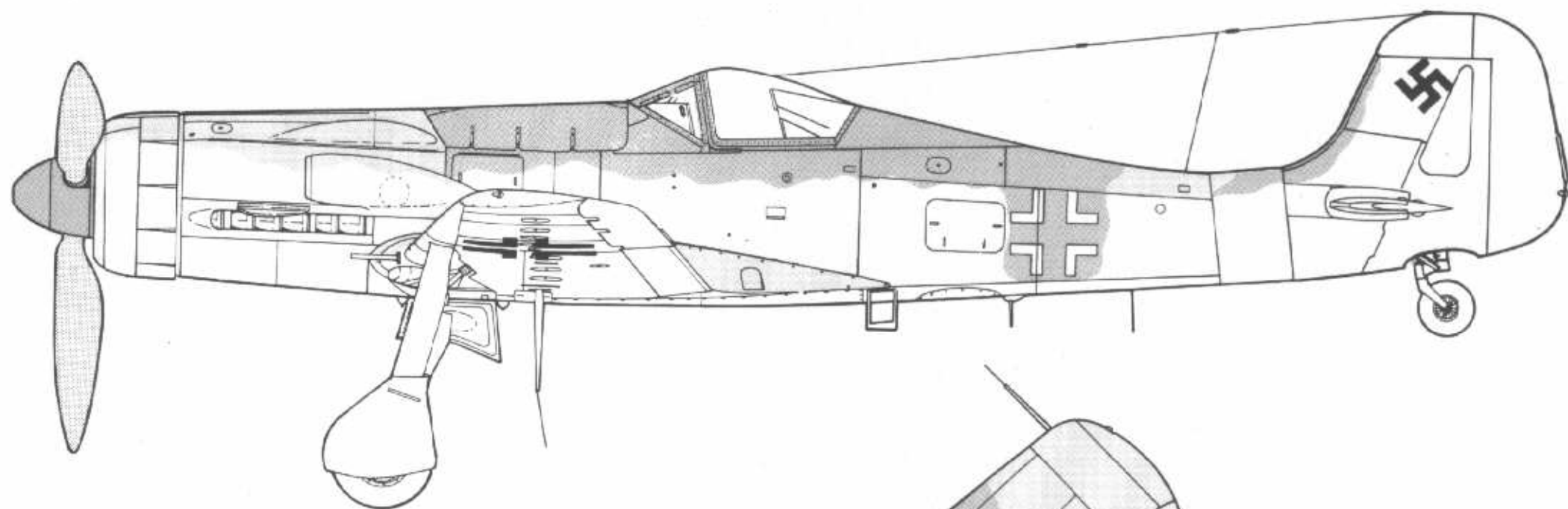
Rechlin summarized W.Nr. 0054's flight characteristics as follows:

1. A change in trim around pitch axis through use of flaps tolerable.
2. Stall behavior not pleasant but judged as permissible.
3. Stability around pitch axis weak; tendency to drift. With cooling flaps open, instability around yaw axis — aircraft pulled to right. Elevators barely sufficient for three point

Continued on p. 24







**Focke-Wulf
Ta 152 C-1**



Color 75
Gray-Violet



Color 83
Dark Green



Color 76
Light Blue



Color 70
Black-Green



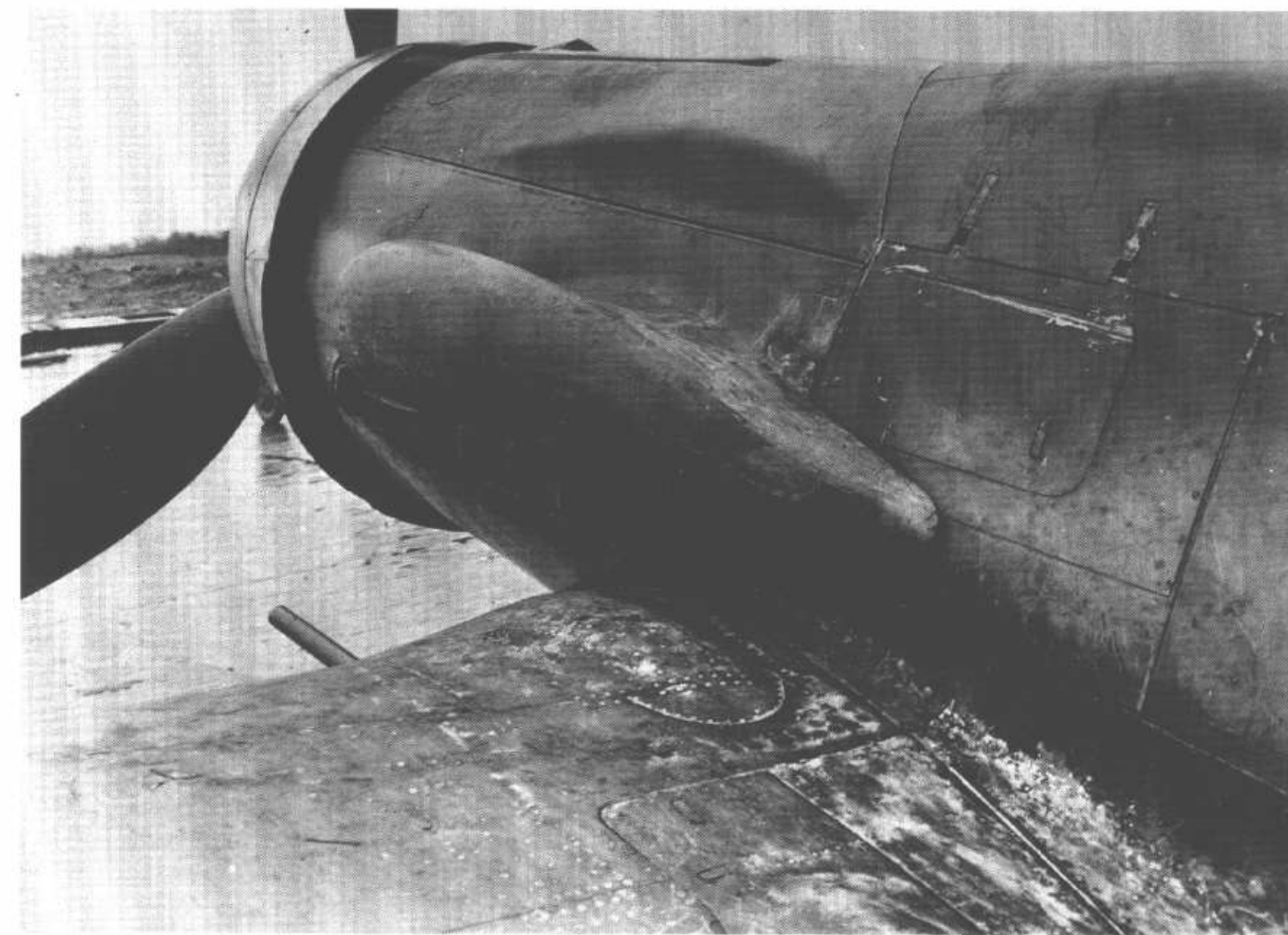
Color 21
White



Color 22
Solid Black

The camouflage pattern shown above is representative for prototypes, preproduction machines and production Ta 152 C-1 aircraft. In spite of the fact that the November 1944 camouflage directive for the Ta 152 listed colors 81 and 82 as the prescribed upper surface colors for the short wing fighter (as opposed to the long wing H-series), photographic evidence does not appear to support their use. Instead, it is the publisher's view that the two upper surface colors were Dark Green (probably Color 83) and Gray-Violet 75. Color 76 Light Blue was to be restricted to fuselage sides including the vertical tailplane. All undersurfaces were to be left unpainted. A mottle of 81 Brown-Violet and 83 Dark Green was lightly sprayed on the vertical tailplane. It is interesting to note that the upper surface camouflage color for the fuselage, at the location for the national cross, was to be extended downward. Spinners and metal propeller blades were to be painted in Color 70 Black-Green with the blades receiving a further coat of 00 Waterbright, which afforded a slight sheen to the surface. National insignia consisted of a white upper wing cross (B6 style)* measuring 700 mm, a simplified under wing black cross (B4 style) of 900 mm, and a white fuselage cross (B5 style) of 600 mm. Across the fin was a black 300 mm swastika (H3 style).

*See THE OFFICIAL MONOGRAM PAINTING GUIDE TO GERMAN AIRCRAFT 1935-1945, Monogram, 1980, page Addendum 2.



Left: Close-up of the special cowl designed for the DB 603 as shown on the Ta 152 V6. The bulge just above the supercharger intake was necessitated by the top engine bearer support, while the more faired bulge to the right covers one of the two cowl MG 151/20 machine guns.

1945 at Alteno near Luckau (Spreewald, near Berlin), and received about 24 to 26 aircraft. Quite a number of these were lost during conversion training due to crash landings and other causes. The remaining Ta 152s were then taken over by the *Stabsschwarm* (staff flight) of the *Geschwader*.

"To my knowledge, only one operation was ever flown by the Ta 152 [during that period] during an air raid on Berlin. The *Geschwader* suffered heavy losses on that day and only the Ta 152s returned safely. If the Ta 152 had seen action a year earlier, things would have looked bad for the P-51.

"For conversion training we first received two aircraft of the Ta 152 H-0 series. Handling in the air was quite OK. However, takeoff was troublesome. When retracting the gear after takeoff, the right leg came down again by about one-third and could be retracted again only by briefly pushing the stick down hard so that the leg locked into the wing by centrifugal force. As a result of this, shortly after lifting off, our aircraft flights would make a brief but vigorous bow. Very often this was not successful on the first attempt, so that handling during this phase of flight was very difficult. This fault had been remedied with the Ta 152 H-1 and there were no further complaints.

"During dogfights the P-51 would turn very sharply and fire its guns almost immediately. Initially, during the first turn, the Ta 152's turn radius would be larger than the P-51's, but would then become smaller. Thus, if one survived the first attack of a Mustang in a dogfight, it was quite possible to line up behind the Mustang during the following turns. During January 1945, some of the comrades from the *Stabsschwarm* did this successfully.

"This small turn radius was due to the wide prop blades and the 2,400 hp of the Jumo 213 engine. It may sound fantastic, but I flew a 'lying eight' over our home base at Stendal within the field's boundaries. This would have been impossible with the Fw 190. During a training flight I dived the Ta 152 from 23,000 ft (7000 m) to about 621.4 mph (1,000 km/h) — more I didn't dare! I recovered from the dive in 1,970 ft (600 m) using the electrical elevator trim and — without touching the throttle — climbed to 7,000 m again. Result: black out from the last third of the dive to nearly 7,000 m. But my Ta 152 flew undisturbed 'like a plank' — it was intoxicating!"

On February 1, 1945, *Unteroffizier* (*Uffz.*—S/Sgt) Hermann Dorr of 12.*Staffel* was killed in the crash of his Ta 152 H-1, W.Nr. 150037, near Alteno on a training flight. A week later, on February 9, *Hptm.*

Continued from p. 21

landing, even with full up trim, something particularly frustrating to pilots like Sander who had so much experience with previous Focke-Wulf fighters. The Fw 190 horizontal stabilizer angle could be adjusted easily with limit stops on top and bottom — the Ta 152 had a fixed stabilizer with adjustable elevator tabs.

4. Flight Performance. Speeds and combat performance not up to theoretical values, especially above 36,080 ft (11,000 m). Climb rate suffered by 3.28 ft (1 m) per second throughout performance envelope but reached expectations on next test.

Due to engine failure, W.Nr. 0054 sat out of commission at Langenhagen from November 2 through November 27, 1944.

After W.Nr. 0040 was flown from Adelheide to Langenhagen on November 19, 1944, it was stationed at the Cottbus factory on the 21st for pilot familiarization, so urgent was the need to get some semblance of a Ta 152 training organization started. By the 25th the aircraft was unserviceable and under repair until December 7, 1944 — test pilot Märchel flew it on the 10th. On December 23rd, while taking off, W.Nr. 0040 suddenly veered to the right after the throttle was released, causing some damage to the right gear retraction cylinder. During repairs, the wooden tail unit called for on production aircraft was installed and a shake test initiated. Seven minutes into the test, the sheathing on the stabilizer fell apart.

In the midst of this chaotic test program *Hptm.* Bruno Stolle, *Kommando führer* of *Erprobungskommando Ta 152*, was trying to make some effort at training his pilots on the Tank fighter. During a visit to the Focke-Wulf plant at Sorau at the beginning of 1945, he

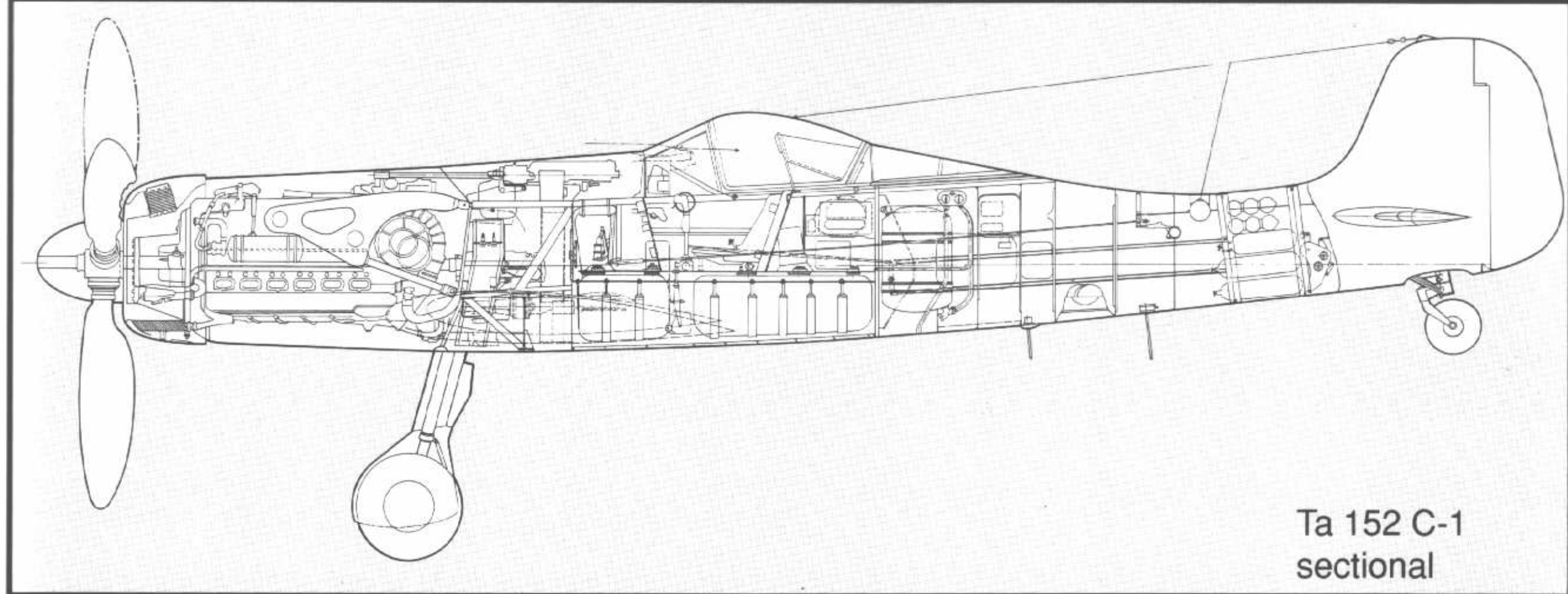
saw a good 20 completed Ta 152 Hs standing in front of the factory. He reported these to Petersen at Rechlin and asked whether these machines could not at once be given to JG 301, which at that time was based primarily at Sachau. Petersen agreed.

On January 10, 1945, an order from the General Quartermaster of the *Luftwaffe* came through I.*Jagdkorps*, III.*Gruppe* of JG 301 was named to carry out preliminary transition training on the Ta 152 H at Rechlin. By January 23rd the *Oberkommando der Luftwaffe* issued the following order, "Instead of the planned expansion of *E-Kommando* Ta 152, III./JG 301 will be equipped with the Ta 152H as an operational test unit. In addition, the *Gruppe* will retain its former aircraft type in combat until further notice."

The majority of JG 301's pilots had been assigned to the unit in September/October 1944, after a rest leave from the "*Wilde Sau*" units, JG 300 and JG 302, which had been disbanded. III./JG 301 was made up primarily of pilots from the old I./JG 302. Those scheduled for Ta 152 conversion traveled to Sorau in a wood-burning LKW, certainly not the way one would think pilots would arrive to fly such an advanced aircraft. Germany in 1945 was a rough place to organize a new fighter unit.

There to meet them was Stolle who would guide them through their initial training and turn over what aircraft he had in EK Ta 152 to JG 301. Upon close inspection of the fighters all of the aileron push rods were found to be easily bent by hand, a trouble Stolle believed was the result of sabotage. The rods were replaced.

Feldwebel (Fw—T/Sgt) Rudi Driebe, a pilot with 10. *Staffel*, III./JG 301 who had been posted on December 22, 1944, recalled the transition. "We were re-equipped in January



Ta 152 C-1
sectional

Herbert Eggers was bringing Ta 152 H-0, W.Nr. 150023, back to Rechlin after weapons tests at Tarnowitz when he crashed and was killed.

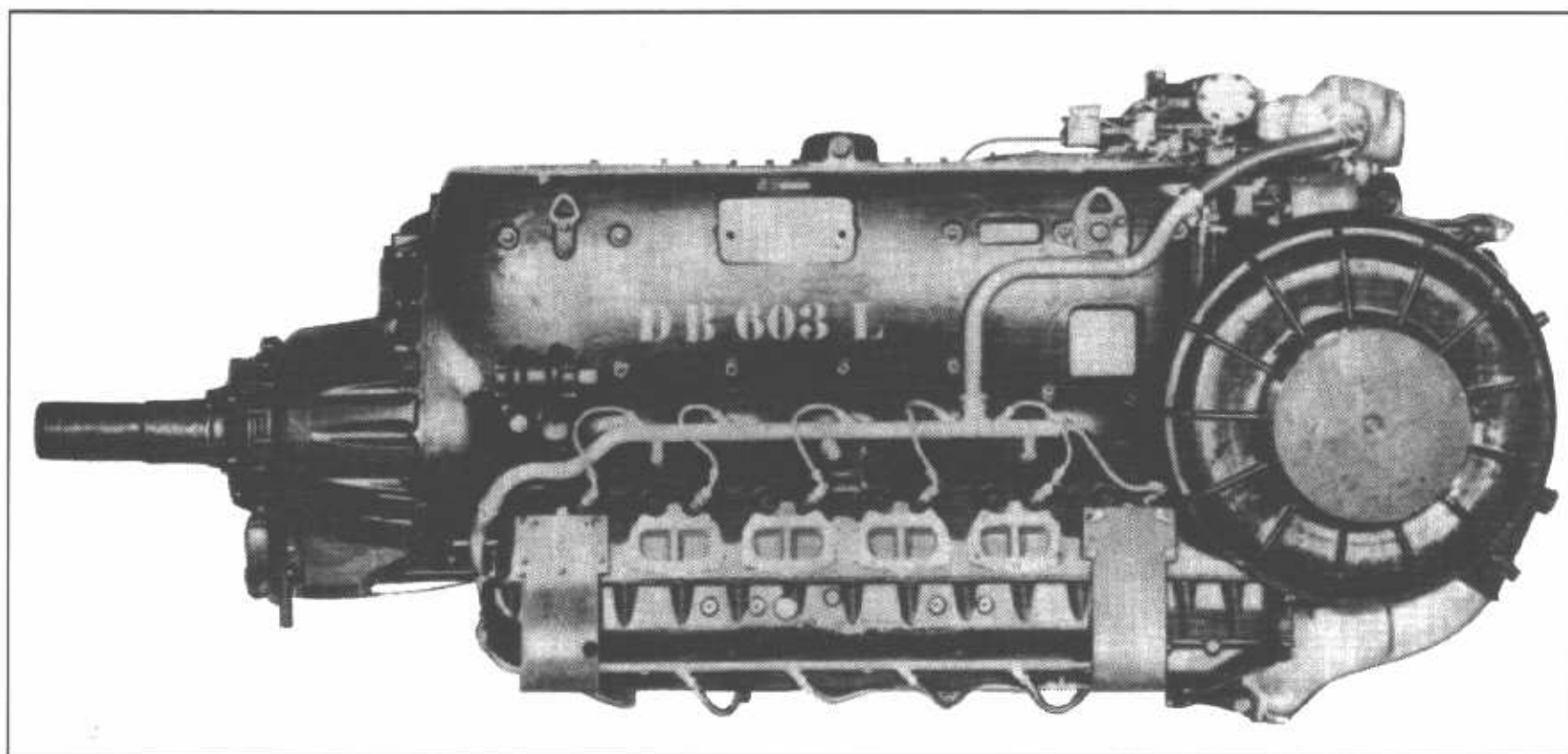
Most pilots got a 20 minute briefing at Cottbus, then made their first flight by ferrying the aircraft the short distance to Alteno, where one or two practice flights were made before taking the Ta 152 into combat. *Oberfeldwebel* (Ofw.—M/Sgt.) Josef "Jupp" Keil managed to get in three training flights (totaling 1 hr 20 min) before his first "Feindflug" or combat flight on February 7, 1945, which lasted 40 minutes.

Uffz. Julius "Jo" Berliner recalled the hectic nature of transition. "We received the first Ta 152Hs at Luckau [Alteno], which we picked up ourselves at Cottbus. We then flew practice missions from Luckau in this machine. Simultaneously, however, we were flying ground support missions against the east with the Dora-9.

"There was a strong difference between the two. The Dora-9 was good-natured, robust. I could really take all-out flying with it, while the Ta 152 was much more sensitive; it let itself be flown, or so it seemed to me, almost like a sailplane. It had an enormous flight performance envelope, which was especially marked at high altitudes. This was something completely new for us.

"We basically had the order to take the Ta 152 H from delivery on into hard operational use with the combat troops, and give reports of our experiences to Rechlin. We had to test the aircraft ourselves and had the order that, for example, we would not dive the plane over 496 mph (800 km/h). We dived the Tank between 620 mph and 744 mph (1000 km/h and 1200 km/h). In any event, the wings were induced to a crazy rocking but they nevertheless withstood these extreme dives.

"The Ta 152 was easier to land than the Fw 190, which was relatively clumsy because of its twin-row radial engine. An advantage on



Above: Powerplant for the Ta 152 C-series, the DB 603 L, which had a two-stage supercharger but without the aftercooler. When coupled with a MW 50 powerboost system, the designation became DB 603 LA. The engine produced 2,100 hp for takeoff.

takeoff was the more slender inline engine of the Ta 152 when compared to the Fw 190's radial, which placed much greater restrictions on the view forward.

"I had the impression that at altitudes around 39,360 ft (12,000 km/h) the Ta 152 H was still very maneuverable. A distinct advantage! The Tank had excellent climb performance at altitude and was really superior to every opponent. Earlier, when flying the Me 109 or Fw 190, one tried to lure the enemy down since dogfight performance was much better with both these fighters at low altitude. That became superfluous with the Ta. It turned 'on a dime.'"

All of those in JG 301 who got to fly the Ta 152 agreed it had a superb turn radius, but as *Uffz.* R. Dieke remembered, "one's inclination was never to pull it through too quickly since we'd black out faster than with our other Fw 190s due to the much lower wing loading." There was also a problem with

aileron snatch in high speed turns, causing the aircraft to roll in the opposite direction.

Uffz. R. Michaelis thought "the Ta 152 was substantially more maneuverable than the Fw 190. What was more significant, and what surprised me in particular, was the incredible full manifold pressure height that the supercharger had, which was substantially higher than with the Fw 190. The full pressure height of the Fw 190 was 18,696 ft (5,700 m) with supercharger at 1.42 atü (42.5" Hg) and 2,700 rpm, which was War Emergency power. At 29,520 ft (9,000 m) the Fw 190 was very lame — if you tried a sharp turn you went into a spin. In the Ta 152 I couldn't find a trace of this characteristic. I climbed to 34,440 ft (10,500 m) without any difficulty but an oil line broke and the windscreen was covered over completely — I was forced to head back immediately."

Though each aircraft was supposed to have pressurization, the problems encountered in

FOCKE-WULF TA 152 Prototypes					
SERIES	V.Nr.	W.Nr.	CODE ENGINE		REMARKS
Ta 152C	V21/U1	0043	TI + IH	603L	Completed November 3, 1944 with DB 603E as Fw 190 V21/U1 for Ta 152 C-0.
	V6	110006	VH + EY		First flown December 17, 1944, flight cleared February 28, 1945 for Ta 152 C-1.
	V7	110007	CI + XM		First flown January 5, 1945, flight cleared March 10, 1945 for Ta 152 C-1.
	V8	110008	GN + CA		Flight cleared January 14, 1945 for Ta 152 C-1.
	V13	110013			For Ta 152 C-1 but probably not completed. ¹
	V15	110015			For Ta 152 C-1 but probably not completed. ¹
	V16	110016			For Ta 152 C-2 but cancelled in December 1944.
	V17	110017			For Ta 152 C-2 but cancelled in December 1944.
	V18	110018			For Ta 152 C-2 but probably not completed. ¹
	V19	110019			For Ta 152 C-3 but changed to Ta 152 B-5/R11 and was to be completed in March 1945.
	V20	110020			For Ta 152 C-3 but changed to Ta 152 B-5/R11 and was to be completed in March 1945.
	V21	110021			For Ta 152 C-3 but changed to Ta 152 B-5/R11 and was to be completed in April 1945.
	V22	110022			For Ta 152 C-4 with FuG 15 replacing FuG 16. Probably not completed. ¹
	V23	110023			For Ta 152 C-4 but probably not completed. ¹
	V24	110024			For Ta 152 C-4 but probably not completed. ¹
Ta 152H	V33/U1	0058	GH + KW	213E	Jump 213 E-1, flight cleared July 12, 1944 but crashed on July 13, 1944. For H-0
	V30/U1	0055	GH + KT		Flight cleared August 6, 1944 but crashed August 13, 1944. For H-0
	V29/U1	0054	GH + KS		Completed September 23, 1944 and flight cleared November 3, 1944. For H-0
	V32/U2	0057	GH + KV		Completed November 1944 fitted with wings from Ta 152 V25. For H-0
	V25	110025			To have had GM ¹ with additional fuel tanks (4) but wings went to Fw 190 V32/U2.1
	V18/U2	0040	CF + OY		Flight cleared October 18, 1944 but crash landed on November 11, 1944.
MK 103 in wing roots	V68	170003	DU + JC	213A	Modification of the Fw 190 V53 which was to be completed in November 1944 for Ta 152 C-3. But V53 was completely destroyed in an Allied air raid on August 5, 1944.
Ta 152H	V1	150001	CW + CA	213 E	First flown by Hans Sander from Cottbus on November 21, 1944 and possibly later used for stress tests.
	V2	150002	CW + CB		Flown by Hans Sander to Cottbus on November 29, 1944 and posed for stress tests.
	V3	150003	CW + CC		Ta 152 H-1 with steel wing. Flown by Hans Sander on December 3, 1944. Built at Langenhagen.
	V4	150004	CW + CD		Ta 152 H-0/R11 flown by Hans Sander on December 17, 1944. Later modification intended. Built at Langenhagen.
	V5	150005	CW + CE		Ta 152 H-1 built at Cottbus. Intended as development aircraft.
	V27	150030 ²			Ta 152 H-1 development aircraft to have been flight cleared in March 1945. Aircraft lost following a crash at Langenhagen on February 2, 1945.
	V28	150031 ³			Ta 152 H-1 development aircraft to have been flight cleared in March 1945.
	V10	110010 ⁴			Unknown
	V11	110011			Unknown
	V12	110012			Unknown
Ta 152E	V9	110009		213E	Reconnaissance version for E-1 series with cameras, MW 50, 300 ltr. drop tank, FuG 15 and FuG 25a plus 1 x MK 108 and 2 x MG 151. Prototype later cancelled.
	V14	110014			Similar to the V9 and this prototype too was cancelled.
	V26	150021	CW + CU ⁵		Reconnaissance version for E-2 series which was later cancelled in favor of the Ta 152 H-10. It is unclear if this aircraft was completed but it is possible it was in March 1945.

¹To have been made available after October 18, 1944 for strength tests.
²The V27 was originally W.Nr. 150027, but with the cancellation of the V16 (C-2), this aircraft was selected for conversion as a C-3 prototype with a DB 603 E plus 2 x MG 151s (cowl) and 3 x MK 103s (engine + wing roots).
³The V28 was originally W.Nr. 150028, but with the cancellation of the V17 (C-2), this aircraft was selected for conversion as a C-3 prototype with a DB 603 E plus 2 x MG 151s (cowl) and 3 x MK 103s (engine + wing roots).
⁴Serial numbers are not verified for the V10 - V12.
⁵Factory code unverified, but likely correct.

testing led Focke-Wulf to leave it inactivated. *Oberstleutnant* (*Obstlt*—Lt Col) Fritz Aufhammer, *Kommodore* of JG 301, recalled that only one of the *Geschwader's* 152 Hs had a functioning pressurized cockpit. As with so many other pilots who realized the performance potential of the fighter, Aufhammer flew it as high as it would go, reaching 41,010 ft (12,500 m) without pressurization. He was also shot down in a Ta 152 H during combat near Neustrelitz.

Leutnant Hagedorn, a pilot with 9.*Staffel*, picked up Ta 152 H, yellow 2, at Cottbus on February 2, 1945, and flew it to Alteno in the same *Schwarm* with Bubi Blum and *Hptm.* Benno R  he. "We reached the remarkable altitude of 43,290 ft (13,200 m). Our ground speed, which we worked out afterward with Focke-Wulf test pilot Kneemeier, was somewhere around a good 508 or 515 mph (820 or 830 km/h). I'd never had such a fast airplane under my behind in my life.

"Up to 9,840 ft (3000 m) we had a rate of climb on the variometer of about 3,936 ft/min (20 m/sec), and above 3,000 m it began to drop off. In any event, for me this was a phenomenal development, with us hanging on the stick like ripe plums and the airplane pulling and pulling upwards — and the rudder never got sloppy.

"Takeoff was incredible when you shoved the throttle clear forward. The field at Luckau

[Alteno], where I flew it, was 1,970 ft (600 m) long. The plane took off, and I mean really took off, in 984 to 1,312 ft (300 to 400 m)! I had never before seen such a thing, and above anything I had experienced in any other aircraft was its incredible maneuverability. It was known that even an Fw 190 would buffet very easily on the verge of spinning out in a dogfight if you pulled too hard. But we noticed in the Ta 152 that you could practically twist it around its tail. The thing really went 'round. Though others experienced aileron snatching, I managed this seemingly impossible turning radius without any problem at all in the ailerons."

Like most *Luftwaffe* units during that time period, JG 301 had its *Gruppen* spread out. While III.*Gruppe* trained at Alteno, the *Stabschwarm* and I.*Gruppe* stayed busy at Stendal while II.*Gruppe* flew out of Welzow.

As JG 301 continued operational tests on their 152s during the month, five aircraft were lost within a short time due to engine fires. According to the pilots, the fire usually started on the left side of the engine. Since the pilots bailed out, all aircraft were total losses, but the probable cause was narrowed down to ruptured coolant lines — coolant would hit the exhaust stacks, igniting the glycol. In all, 18 engines became unserviceable due to a number of problems, effectively grounding most of the 152s.

In spite of the problems, "Jupp" Keil got in five more practice flights, then flew his second combat mission in the Ta 152H, this time from Sachau, on February 21, 1945 between 16:13 and 17:00 hours. Over Berlin he claimed one B-17 shot down. In all probability this was the first kill attributed to the Tank fighter.

By the end of February 1945 the Focke-Wulf Technical Field Service Department had summarized JG 301's problems with their Ta 152s — the numerous difficulties pointed toward far too little testing before production was started. The following are the major points from numerous complaints.

The pilot's seat, designed for the Fw 190, required the lowest possible position of adjustment due to the special high altitude parachutes worn — this pinched the hose of the small emergency oxygen bottle attached to the chute.

The right landing gear leg continued to retract with great difficulty even after new fairing doors and higher hydraulic pressures. Finally, Focke-Wulf decided to delete the small wheel doors and forget the few km/h a fully enclosed landing gear would yield.

The compressed air valves for emergency landing gear and flap extension leaked in all aircraft — they were sent back to the manufacturers for testing.

Right: Ta 152 H-1, W.Nr. 150167, photographed at Straubing, Germany immediately after the war.

Bottom: Ta 152 H-1, W.Nr. 150168, ex green 9, of Stab/JG 301 which was captured by the British at Leck airfield in May 1945. It is shown here on display at RAE Farnborough in November 1945.

The guide pulley for tail wheel retraction fitted on the wing spar sprung from its track — all aircraft were to be flown with the tailwheel fixed extended until the problem was rectified.

The ailerons could not be adjusted sufficiently to obtain acceptable control forces and the ball joint of the aileron tab linkage wore out quickly, resulting in aileron flutter.

Upon landing, the wooden landing flaps were severely damaged by water thrown up from the runway. Each time they had to be replaced.

The rudder jammed during landing and in the neutral position in flight — only repeated kicks on the rudder pedals freed the control surface.

After the first few flying hours, loose rivets were found on all aircraft below the leading edge near the former of the wheel well.

On wet and muddy airfields, mud and dirt entered the wing through the two spar cutouts next to the wheel well.

The hand wheel used to open and close the cooling flaps was still too hard to operate in flight since the proper position was not easily found. Pilots suggested replacing the wheel with a gear shift lever as used on DKW automobiles. The windscreen washers were still spreading rather than removing glycol.

On several aircraft, the radiator fairings were torn off, damaging the propeller, due to loose rivets and loose inner assembly bolts.



Jupp Keil was up to for his third combat mission in the Tank on March 1, 1945, taking off from Sachau at 10:25 hours in Ta 152H, number "1" (color unknown). This time he ran into a formation of P-51s and managed to shoot one down — the mission lasted one hour.

Along with the maddening mechanical gremlins, the major problem with both the H and C-series 152 centered around poor stability, which had plagued the aircraft for some time. *General der Jagdflieger* Gordon Gollob summarized his feelings in a letter to Kurt Tank from Berlin on March 17, 1945. Excerpts shed some light on how frustrated everyone must have been to have such a high performance fighter remain, for the most part, out of combat.

"Dear Professor!

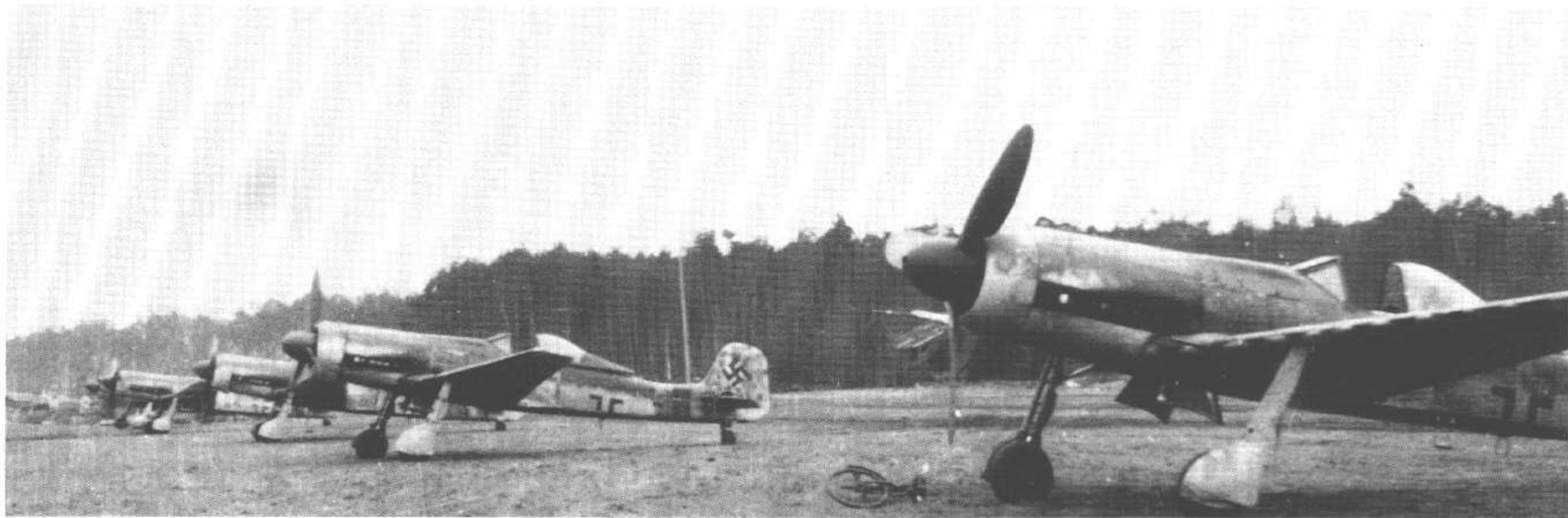
"I have to point out in the strongest way possible that an aircraft with such negative characteristics is totally unacceptable for service duty. Yet the fighter service branch is greatly dependent on this aircraft.

"I was informed . . . that unexpected problems in pitch stability have arisen in the first production models of the series H as well as the test aircraft of type C. The chief of TLR has proposed as an emergency measure a reduction in the amount of fuel stored in the fuselage by 75-80 liters and a loading of only 70 liters of MW 50 instead of the originally designated 140 liters. . . . Also a ballast of 58 kg should be installed in the engine compartment and that the fuel capacity of the rear fuselage tanks must be reduced from 380 to 280 liters. . . .

"*Erprobungsstelle* Rechlin stated that eight Ta 152 H aircraft exhibit barely acceptable stability around the yaw axis. Gunnery runs are impossible to initiate according to the gunnery school. Use of the K23 autopilot gives a slight improvement. Rechlin proposed to Focke-Wulf that the tail fin be enlarged.

"Stability around the roll axis is also poor in the 8-152H models as well as the C model. Both models do not fulfill the expected minimum stability requirement.





"Basically the instability around the pitch axis could be eliminated through the non-installation of the autopilot, GM 1, the 115 liter fuel tank, FuG 125 and a reduction in fuel load of 135 liters. However, under no circumstances can the reduction of even the most minute amount of fuel be tolerated."

Gollob went on to say he feared this much tampering with the aft center of gravity problem would lead to extreme nose heaviness on landing. On March 29, 1945 Focke-Wulf replied they had been working on the prob-

lem for some time and that in reality, only 7 percent fuel reserve was lost in the fuel reduction measures to improve stability. They also did not understand the non-installation paragraph since autopilot and FuG 125 were included in the empty weight and GM 1 equipment and the 115 liter fuel tank were not carried simultaneously.

The DB 603LA and L engines were also being considered to replace the Jumo 213 in the Ta 152H. They agreed that enlarging the

vertical fin, which had already been done twice, would improve the stability for gunnery. A redesigned fin was under development and would be flight tested soon. They also noted that enlarging the horizontal stabilizers would solve some of the pitch stability problems.

By March 25, 1945, only the *Stabschwarm* of JG 301 was equipped with the Ta 152 due to lack of production aircraft and operational attrition. Though several pilots from III. *Gruppe* continued to fly the fighter, they did so with the *Geschwaderstab* aircraft. On this day several pilots ferried Ta 152s to Langenhagen for operations. *Oberfänrich* Ludwig Bracht flew cover, along with *Oblt.* Heinz von Alven and *Obfn.* Hans Fay, in Fw 190s.

Bracht remembered "the transfer to Hannover-Langenhagen" vividly. "Continental [tire manufacture] was burning furiously. Smoke clouds up to 4,920 ft (1500 m) high, which I flew through, so thick that everything became dark in the cockpit.

"Langenhagen field had received a carpet bombing just before our landing — holes, freshly filled bomb craters. Several Ta 152s crashed and two pilots were killed. Major Gerhard Posselmann, *Gruppe Kommandeur*, ripped off the landing gear of his Fw 190, white 13. From here we would fly operations on the Western Front, though only the *Stabschwarm* still had Ta 152s."

Bracht, along with several other III. *Gruppe* pilots, discovered new Ta 152Hs at Langenhagen seemingly unattended. Without asking questions, they repainted a few and started to fly them. They noticed several other 152s there without engines, so they stripped them for parts, and a Ta 154.

On April 10, 1945 Jupp Keil was airborne from Sachau, this time in Ta 152 H, "3," at



Above: No less than six Ta 152 H-1s may be seen in this view of *Stab/JG 301* aircraft awaiting the next sortie. It is noteworthy that none of the aircraft appear to have the white spiral motif painted on their spinners which was so common during the last phase of the war. **Left:** Two Canadians pose next to another Ta 152 H-1 captured by the Allies somewhere in Germany.

Right: Another view of W.Nr. 150167 shown on page 27 before it was disassembled and placed in a scrapyard by American troops. **Below:** The American Ta 152 H-0, Green 4, of Stab/JG 301 shown at Newark Army Air Base en route to Wright Field still wearing its former RAF insignia which, in turn, were applied over the original Luftwaffe markings. Close examination of this and other photographs suggest the aircraft may possibly be W.Nr. 150010 with a factory code of CW+CJ.

19:13 hours. North of Braunschweig he got into a dogfight with 15 Thunderbolts, claiming one victory. Three days later he flew a mission from Stendal in Ta 152, "15," encountering four Mustangs near Wittenberg. Neither side scored and Keil landed at Neustadt at 10:00 hours after 40 minutes in the air.

As of April 12, 1945, the operational status of the Ta 152 was listed as follows by the Luftwaffe's I.Jagd-Division:

Stabsstaffel JG 301 — 16 aircraft authorized; 7 on hand; 3 operationally ready. 6 crew authorized; 6 on hand. 4 combat crew available; 3 ready for combat.

III. *Gruppe*, JG 301 — 52 aircraft authorized; 6 on hand; 3 operationally ready. 36 crew authorized; 32 on hand. 19 combat crew available; 3 ready for combat.

Hptm. Roderich Cescotti, *Kommandeur* of II. *Gruppe*, operated his Fw 190 D-9s and Bf 109 G-14s out of Welzow, Neustadt-Glewe, often along side the *Stab's* Ta 152s. He watched a dogfight between four Ta 152 H-1s and four P-47s which took place from altitudes of 8,200 ft (2,500 m) down to 164 ft (50 m). A Ta 152 suddenly dived out of the sun on a P-47 and set it on fire but the Tank continued to dive straight down, crashing at high speed. Cescotti thought at the time that compressibility problems could have prevented the pilot from pulling out. The pilot,

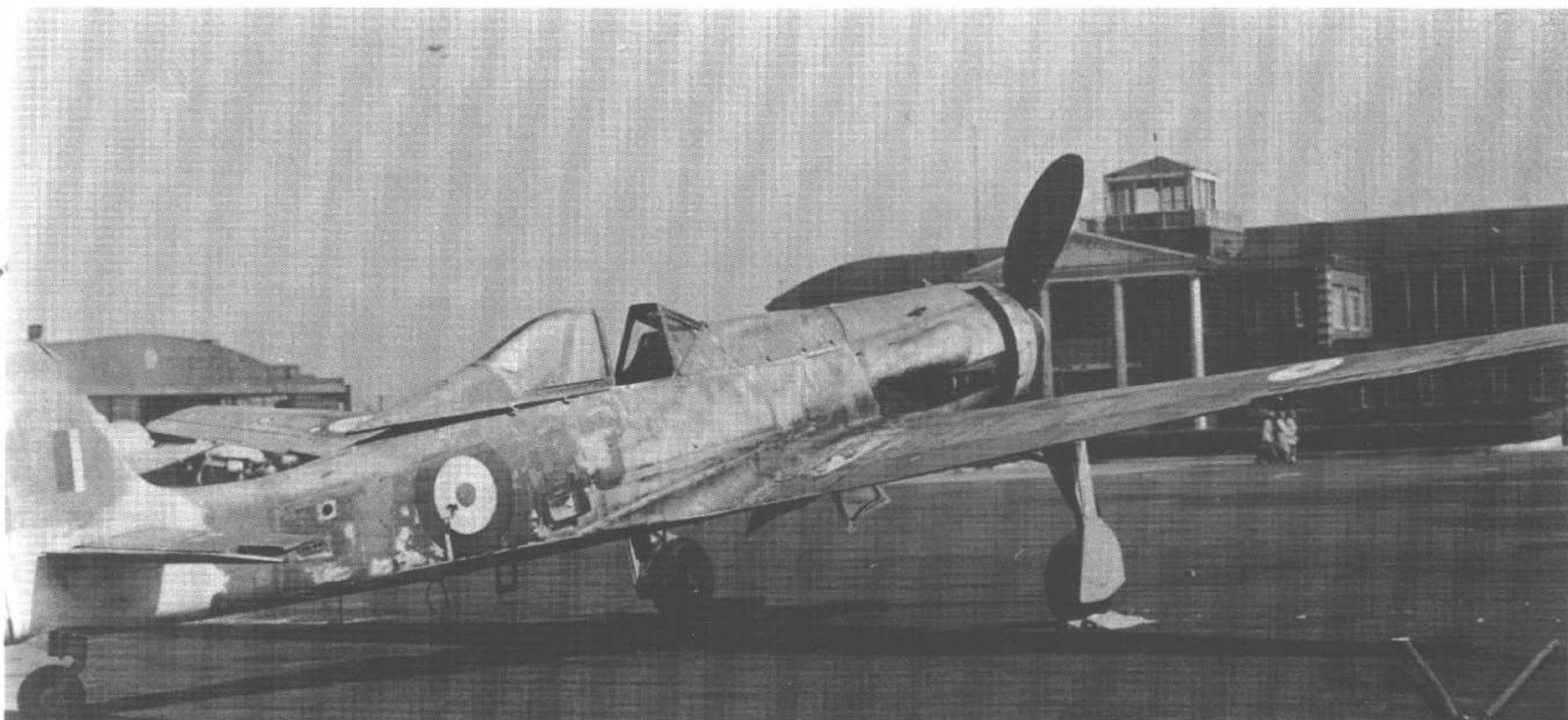


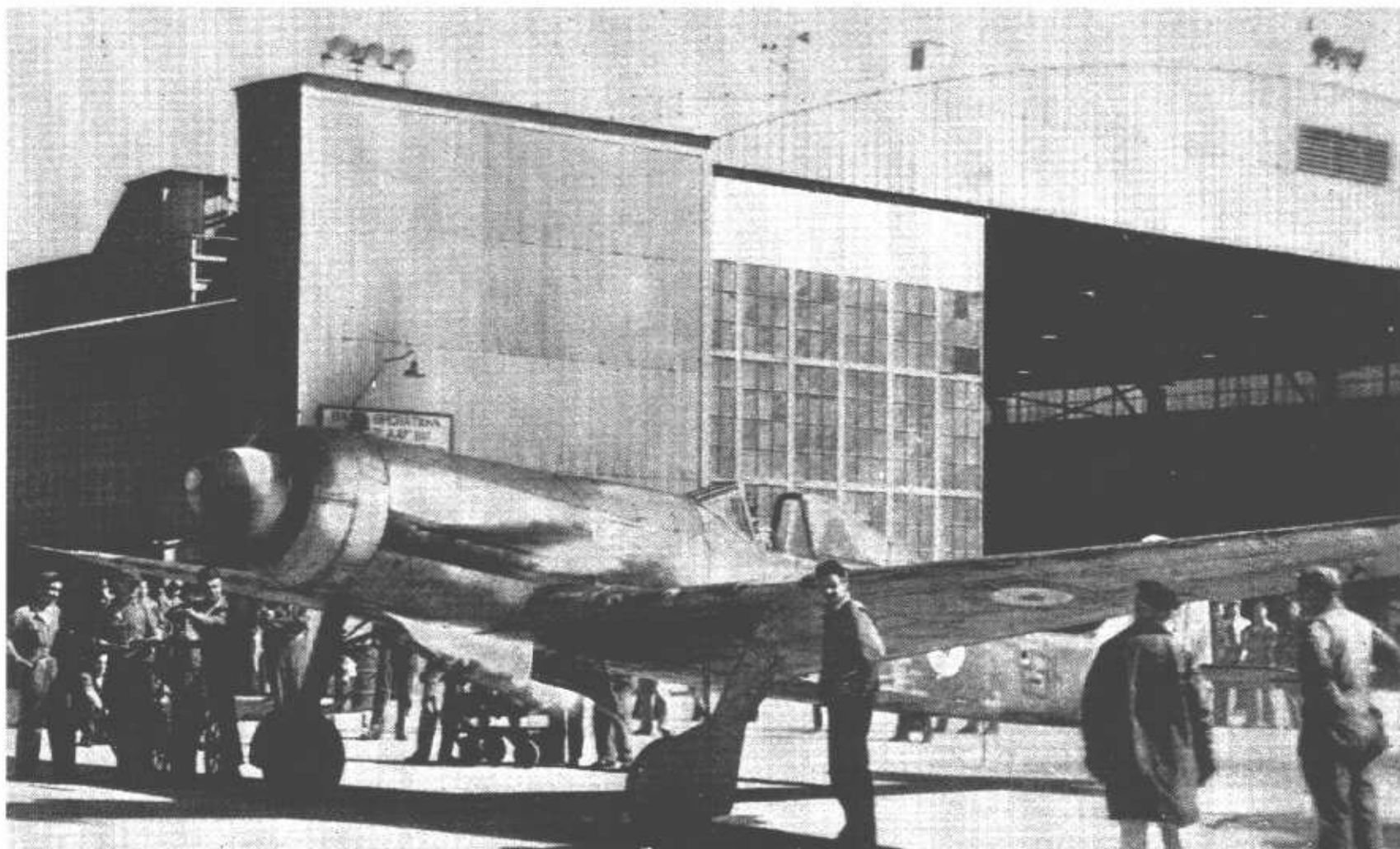
Ofw. Satler, was killed and the Thunderbolt crashed nearby.

Shortly thereafter another P-47 was destroyed by *Fw.* Reschke, although he was not credited with a victory. Reschke was turning with the P-47 about 164 ft (50 m) above the ground when the Ta 152's guns suddenly jammed. No novice, with 25 combat missions and 20 four engine bombers (B-17s) to his credit, Reschke used the outstanding turn capability of his fighter to make the American pull too tight a turn. The P-47 snap rolled and hit the ground with an enormous explosion. *Obstlt.* Aufhammer, who had led the *Stab's* 152s that day, land-

ed and climbed out of his fighter soaked in sweat — his supercharger had failed to shift and he never did get rated power when it was desperately needed during the bout with the Americans.

Since JG 301 was based so close to Berlin during the final month of the war, the *Geschwader* encountered Allied aircraft from both the Western and Russian sides quite often. *Ofw.* Heinz Gassow's first combat mission with the Ta 152 was flown over Berlin. The *Geschwaderstab* flew the Ta 152 along with the three *Gruppen* flying a mixed bag of 190s and 109s. Gassow felt the "Ta 152 was so surprisingly good (after the Bf





109) that it surpassed the Mustang in every regard. Speed, climb and ceiling, as well as in general all-around performance."

Lt. Hagedorn recalled what it was like to operate a fighter unit during that hectic month. "The Ta 152 was flown by a small group of us. Some Ta 152s were grounded anyway. Some of us tried to obtain replacement parts from the manufacturer but that was extremely difficult considering the very small area we had under German control. Many Ta 152s were grounded by little details which could have been repaired easily through simple replacement if the supply system had been working.

"We often said among ourselves, 'Why didn't we get the things (Ta 152s) earlier?' Among the 'old hares' in our outfit, it was always

said, 'When we have the thing, we won't be leery of the Spitfire anymore.'"

Flying from Neustadt-Glewe, the few JG 301 pilots who could get a Ta 152 in the air never doubted their mount's capabilities. Ofw. Walter Loos, after a brief stint as a flight instructor flying Ar 96s, was transferred in March 1945, to the *Geschwaderstab* JG 301. A veteran pilot who ended the war with only 66 missions but 38 confirmed victories (22 four-engined bombers, 8 Soviet types) plus another 8 unconfirmed victories, Loos flew his first combat mission in a Ta 152 H over the Soltau-Hannover area after only a single familiarization flight. On April 24, 1945, Loos was airborne in Ta 152 H-0, "4" (undoubtedly "green 4" which is the aircraft now in storage at the National Air and Space

Museum's restoration facility at Silver Hill, Maryland.),⁹ at 05:50 hours. Once over Berlin it was not long before he encountered what he identified as a formation of LaGG-9s, but which in reality were almost certainly Yak-9s.¹⁰ Ofw. Loos promptly downed two of the Russian fighters and safely landed at 07:05 hours.

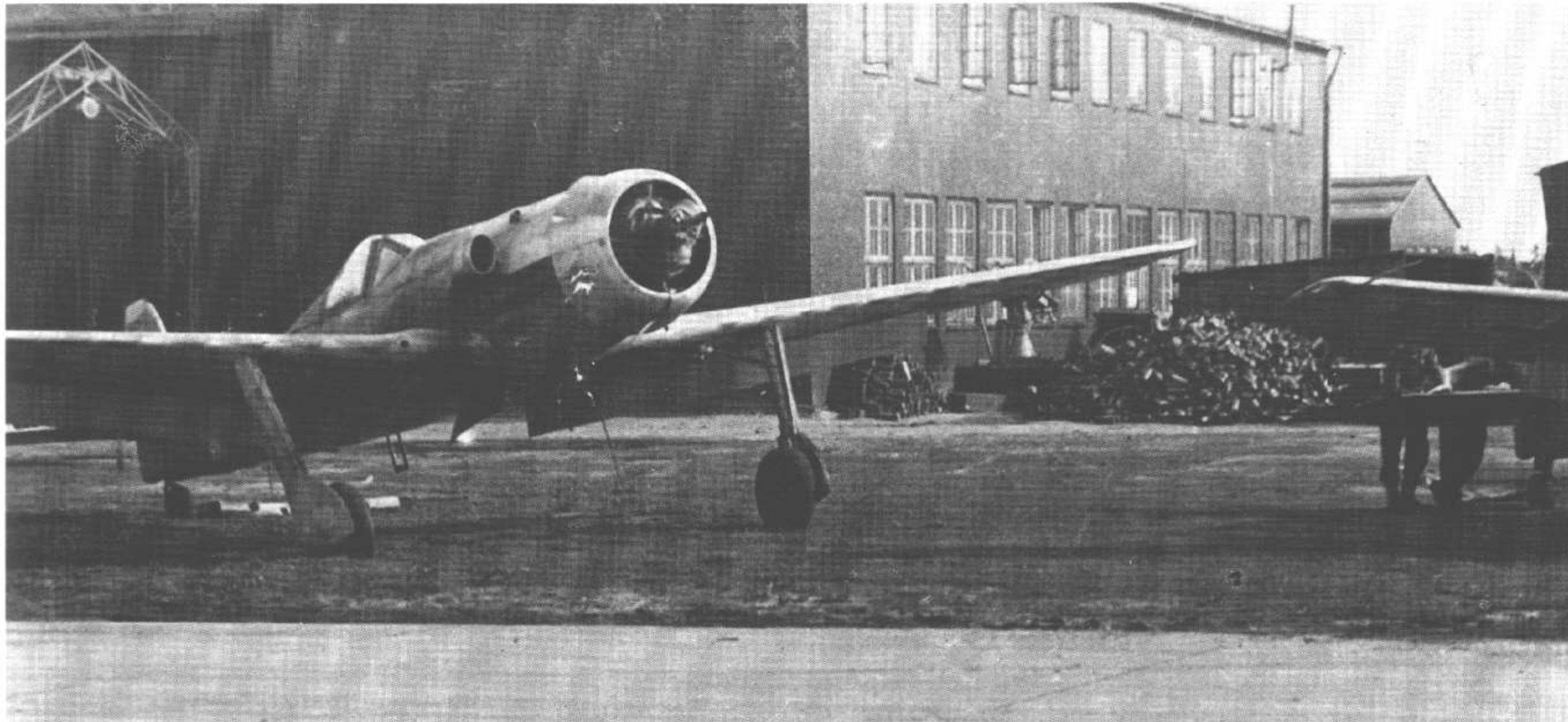
Loos flew two more combat missions in the Ta 152, both in number "4," one on April 25, 1945, lasting 1 hr 15 min, and the last on April 30, 1945, from 15:50 hrs to 16:55 hrs, again over Berlin. This tenacious fighter pilot downed another "LaGG-9" to finish the war as possibly the most successful Ta 152 pilot of the war.

⁹See centerspread, pages 16-17. It has been suggested that this aircraft is W.Nr. 150003, the Ta 152 V3, but there is no compelling evidence to support this conclusion.

¹⁰There was no "LaGG-9" but there did exist a La-9. However, this Russian fighter did not appear until after the war.

Above left: American army personnel watch as the Jumo 213E is fired up outside one of the Wright Field hangars. **Below:** The remains of the Fw 190 V18/U2, W.Nr. 0040, CF+OY, as found by Canadian forces. This development prototype had survived extensive modification, emergency landings only to be destroyed by German troops prior to the airfield falling into British hands. **Opposite top:** Another derelict Ta 152 H somewhere in Germany. It is quite possible that this aircraft is Ta 152 H-0, W.Nr. 150004, green 6, which was also the fourth Ta 152 H prototype, the Ta 152 V4, pressed into service with II./JG 301. It surrendered at Leck and was initially designated for transfer to England as AM11. However, this Air Ministry number was apparently reassigned to W.Nr. 150168 (see p 27) before it could be shipped from Germany. Instead, after being transported by road to Schleswig in January 1946, W.Nr. 150004 was apparently scrapped.





By April 30, 1945 JG 301's strength was listed as follows:¹¹

Stab JG 301 — 2 Ta 152 C-1/R31 at Welzow;
I./JG 301 — 36 Fw 190 D-9 at Finsterwalde;
II./JG 301 — 36 Fw 190 D-9 + Bf 109 G-14 at Welzow;
III./JG 301 — 36 Fw 190 G-3 at Alteno (disbanded).

Contrary to popular belief, the Ta 152 C was posted to an operational *Luftwaffe* unit. The question of whether it saw any action remains inconclusive. It is obvious the numerous attendant mechanical problems with the Ta 152 H accounted for its nominal combat career. In addition, there were not enough flowing off the assembly lines to make up for possible attrition this late in the war since by the end of February 1945 all Ta 152 production had ceased.

The total production figures break down as follows:

October 1944	3 Ta 152 produced
November 1944	12 Ta 152 produced
December 1944	19 Ta 152 produced
January 1945	23 Ta 152 produced
February 1945	10 Ta 152 produced
March 1945	0 Ta 152 produced
April 1945	0 Ta 152 produced
TOTAL	67 Ta 152s produced

By the first few days of May 1945 JG 301 had relocated from Neustadt-Glewe and Hagenow to Leck. Ludwig Bracht remem-

bered, "Whoever could still fly and had an airplane flew to Leck. Whoever didn't fly traveled in a pair of remaining LKWs and VW *Kübel*s. The column of land vehicles had been turned over to me by Posselmann. I crossed over the Elbe by ferry near Leuzen and brought the column into Leck safe and sound through the middle between the Russians and the Americans, high up on the Elbe, via Lauenburg-Rabzenburg-Kiel.

"At Leck we met again at the RAD¹² depot. Ta 152 H-1, 'green 6,'¹³ stood on the field without a propeller as our last machine. The others we had already blown up at the perimeter of the field, in order not to give these planes up to the Tommies."

Before the surrender JG 301 flew its last combat out of Leck against what pilots identified as "Spitfire MK 22s," but most likely another of the late model Griffon-engined versions since the Mark 22 did not see action in World War II.

By May 7, 1945, all of JG 301's personnel had been interned by the British Army, whose officers wanted to lock them up in short order. By May 20th an RAF Spitfire unit had flown into Leck, commanded by a Canadian. Bracht recorded in his diary, "The Canadian commander sees in us an honorable and clever former foe of the RAF. This he tells us together with our commander, *Hptm.* Posselmann, before the entire assembled unit in the RAD depot. No barbed wire around us — Posselmann gave the Canadian his word of honor that none of us would flee." Posselmann and his men kept his word and he was the last to be released on August 2, 1945 after laboring for the English work units.

In spite of its numerous problems, most of which had nothing to do with the quality of its design, Kurt Tank's Ta 152 was universally

enjoyed by its pilots. At all altitudes it was a formidable fighter which could outrun and outmaneuver the best the Allies had to offer.

After the war Allied pilots had a chance to fly the Ta 152 H-0 and, in the words of Harold E. Watson, the USAAF Colonel responsible for collecting examples of Germany's aeronautical genius, "It was beautiful to fly. A first class airplane." Of Watson's team, former 56th Fighter Group P-47 pilot Fred McIntosh was assigned to an operational Ta 152 H-0, green 4, of Stab/JG 301, found at Aalborg, Denmark. After formalities with the British, he then flew it to Melun, France, where it was loaded aboard the loaned British aircraft carrier HMS Reaper. McIntosh found it to be everything it was cracked up to be, subsequently flying the fighter from Newark, New Jersey to Freeman Field, Indiana where it was assigned Foreign Equipment number FE-112. Later it was flown to Wright Field for thorough testing. Still later it was repainted and assigned the new USAF number T2-112 before being placed in an inactive status. Now in storage for the National Air and Space Museum, it is the last surviving Ta 152.

Capt. Eric Brown, RN, flew a Ta 152 H-1/R11 (W.Nr. 150168, green 9) in England on August 18, 1945, and found that above 30,000 ft (9,145 m) the fighter had a better rate of climb than the Spitfire XIX and could outmaneuver it above 35,000 ft (10,670 m). Below those altitudes the Tank fighter generally was not as maneuverable. He found it to have a poorer rate of roll and heavier stick forces than the BMW powered Fw 190s but quite a bit more stability, particularly at high altitude.

So ended the career of the finest German single-engine piston-powered fighter of World War II, stillborn amidst the rubble of the Third Reich.

¹¹ Ta 152 Hs were off strength due to unserviceability and are, therefore, not included.

¹² RAD — Reichsarbeitsdienst/Reichs Work Service.

¹³ Quite possibly this aircraft was Ta 152 V4, W.Nr. 150004.

WEIGHTS AND PERFORMANCE STATISTICS RECORDED BY FOCKE-WULF FLUGZEUGBAU GmbH — JANUARY 12, 1945

Aircraft type Role Seating		Ta 152 B-1 Close-support fighter 1	Ta 152 C-1 Fighter 1	Ta 152 H-1 High altitude fighter 1
Wing span	mm (ft - in)	11,000 (36 - 6 1/4)	11,000 (36 - 6 1/4)	14,440 ¹ (57 - 6 3/8)
Wing area	m ² (ft ²)	19.5 (209.9)	19.5 (209.9)	23.5 (252.9)
Length	mm (ft - in)	10,820 (35 - 6)	10,820 (35 - 6)	10,820 ² (35 - 6)
Height (with tail elevated)	mm (ft - in)	3,360 (11 - 2 3/8)	3,360 (11 - 2 3/8)	3,360 (11 - 2 3/8)
Stabilizer span	mm (ft - in)	3,650 (11 - 11 3/4)	3,650 (11 - 11 3/4)	3,650 (11 - 11 3/4)
Stabilizer area	m ² (ft ²)	1.77 (19.0)	1.77 (19.0)	1.77 (19.0)
Wheel track	mm (ft - in)	3,954 (12 - 11 3/4)	3,954 (12 - 11 3/4)	3,954 (12 - 11 3/4)
Main wheel size	mm	740 × 210	740 × 210	740 × 210
Tail wheel size	mm	380 × 150	380 × 150	380 × 150
Engine type		Jumo 213 EB	DB 603 LA	Jumo 213 E-1
Takeoff Power	hp/rpm	2,000 at 3,300 rpm	2,100 at 2,700 rpm	1,750 at 3,200 rpm
Climb & combat to 13 km (42,651 ft)	hp/rpm	1,580 at 3,000 rpm	1,675 at 2,500 rpm	1,580 at 3,000 rpm
Maximum continuous 0 km (sea level)	hp/rpm	1,320 at 2,700 rpm	1,500 at 2,300 rpm	1,580 at 3,000 rpm
Maximum continuous at 16 km (52,493 ft)	hp/rpm	1,160 at 2,700 rpm	1,230 at 2,300 rpm	1,260 at 3,000 rpm
Propeller type		VS 9	VDM - VP	VS 9
Diameter/blade number/material	mm (ft - in)	3,600 (11 - 9 3/4) 3 blade wooden	3,600 (11 - 9 3/4) 3 blade metal	3,600 (11 - 9 3/4) 3 blade wooden
Fuel supply		B4	C3	B4
Electronics		FuG 16ZS, FuG 25a, FuG 125 Revi 16b gunsight BSK 16 gun camera	FuG 16ZY, FuG 25a, FuG 125, Autopilot LGW K 23 Revi 16b gunsight, but eventually the EZ 42 sight BSK 16 gun camera	FuG 16ZY, FuG 25a, FuG 125 Revi 16b gunsight, but eventually the EZ 42 sight BSK 16 gun camera
Empty weight	kg (lb)	4,010 (8,840)	4,010 (8,840)	4,031 (8,887)
Equipped weight	kg (lb)	4,154 (9,157)	4,160 (9,171)	4,625 (10,196)
Crew weight	kg (lb)	100 (221)	100 (221)	100 (221)
Fuel weight	kg (lb)	368 (811)	368 (811)	368 (811)
MW fuel	kg (lb)	127 (280)	127 (280)	64 (141)
GM1 fuel	kg (lb)	—	—	104 (229)
Lubricants weight	kg (lb)	55 (121)	55 (121)	55 (121)
Ammunition	kg (lb)	193 (426)	193 (426)	127 (280)
Takeoff weight	kg (lb)	5,320 (11,728)	5,322 (11,733)	5,217 (11,501)
Maximum combat speed at sea level	km/h - km (mph - ft)	635-0 (395 - 0)	560 - 0 (347 - 0)	563 - 0 (350 - 0)
Maximum combat speed at altitude	km/h - km (mph - ft)	712 - 4.4 (442 - 14,436)	730 - 10.4 (454 - 34,119)	752 - 12.4 (467 - 40,682) ⁴
Maximum combat speed at max. altitude	km/h - km (mph - ft)	640 - 10.0 (398 - 32,809)	663 - 12.3 (412 - 40,355)	737 - 13.8 (457 - 45,276) ⁴
Service ceiling	m (ft)	11.2 (36,743)	12.2 (40,022)	13.5 (44,289)
Climb to 8 km (26,247 ft) altitude	min	9.8	10.2	12.6
Rate of climb	m/s (ft-sec)	16.1 (3,188)	16.0 (3,149)	17.5 (3,345) ³
Normal cruising range	km-km (miles - ft)	705	1,100 - 675 (684 - 382)	1,140 - 585 (708 - 364)
Landing speed	km/h (mph)		170 (106)	155 (96)
Takeoff distance	m (ft)	635 (2,083)	605 (1,985)	500 (1,640)
Armament (standard)	Engine position Cowl position Inner wing position Outer wing position	1 × MK 108 with 85 - 100 rds 2 × MG 151/20 with 175 rds 2 × MG 151/20 with 175 rds Rüstsätze	1 × MK 108 with 90 rds 2 × MG 151/20 with 150 rds 2 × MG 151/20 with 175 rds none	1 × MK 108 with 85 - 100 rds none 2 × MG 151/20 with 175 rds none
Modification construction sets (Umrüst-bausätze)	U1		Two-seat trainer conversion which was to serve as pilot model for Ta 152 S-1 and S-2 series. None converted or completed.	
Auxiliary apparatus (Rüstsätze)	R1 R2 R3	2 × MG 151/20 outer wing cannon - 40 rds 2 × MK 108 outer wing cannon - 50 rds 2 × MK 103 outer gondolas — 40 rds		
	R11		Bad weather fighter fitted with LGW K23 fighter directional control; FuG 125, Hermine, VHF radio beacon signal receiver; heated windows; PKS 12 autopilot. Delivery of entire C-1 and H-1 series to be equipped with R11 from first aircraft. Production of C-1/R11 to begin in March 1945 with ATG and Siebel. In May 1945 with GFW and Roland. Production of H-1/R11 to begin in January 1945 with Fw, in March 1945 with Erla and Gotha. (Also applicable for Ta 152 B-4, C-0, C-2, C-5, C-11, H-0, H-2 series.)	
	R14		Torpedo fighter with an ETC 504 bomb rack intended to carry an LT 1B or LT F5 airborne torpedo. Planned for February 1945, but development discontinued in favor of Fw 190 D-12/R14 because of inferior torpedo suspension.	
	R21			Special version with high pressure MW 50 in the left inboard wing tank, PKS 12, FuG 125 and the Jumo 213E, E-1 or EB engines. GM 1 not installed. Production planned in March, April, May 1945.
	R31		Modification to address center of gravity concerns. For the Ta 152 C-1/R31 the fuselage tank containing MW 50 was deleted. Instead, MW 50 was relocated to the left wing inner and middle tanks. The remaining four wing tanks were for B4 or C3 fuel. The fuselage fuel tank was unchanged. For the Ta 152 H-1/R31 the designated engine was the Jumo 213 E-1 with high pressure MW injection or the Jumo 213 EB. The pressurized bottles for GM1 were removed from the engine area. In their place, ballast of steel plates were added while 85 ltr. of GM1 was contained in a fuselage tank mounted behind seam 8. Fuel capacity of the fuselage tank was only 280 ltrs.	
		1 × SchloB 503 A-1 for 1 × SC 500 under fuselage bomb 2 × 2 × ETC 71 for 4 × SC50 bombs underwing	2 × 2 × ETC 71 for 4 × SC50 bombs underwing	
			- Wing-mounted, vertically firing, SG 500 installed in place of the center wing fuel tank. - Wing-mounted, vertically firing, Rohrblock 108 installed in place of the center wing fuel tank. 2 × X-4 (Ru 344) air-to-air wire-guided rockets mounted on underwing pylons.	
			- R4M air-to-air rockets mounted underwing. 4 × MG 213A cannon in fuselage and wing roots. 2 × WGr 21 wing-mounted air-to-air mortar. - Panzerblitz air-to-ground rockets.	

1 Wing span with rounded tips was 14,820 mm (48 ft - 7 3/8 in).
2 Original length without external tab was 10,810 mm (35 ft - 5 5/8 in).
3 With MW 50 powerboost.
4 With GM 1 powerboost.

In addition to various equipment listed above, the following items were also planned for late production versions: Special performance enhancing cowl with rigid casing; increased pilot armor for windscreen and pilot's head and shoulders; Sturmflugzeug with additional pilot armor three piece windshields, forward bulkhead and pilots full back; Siikatglas for the sliding canopy; Additional aircraft turning displays; Wooden tailplane and Mansfeld landing gearleg.

Genuine Quality From Monogram



THE LUFTWAFFE IN SWEDEN 1939-1945

By Bo Widfeldt \$24.95
This title contains a history of all the German aircraft which landed, crashed or flew over neutral Sweden during the war years. Military aircraft such as the Bf 109, Bf 110s and Fw 190s, plus many others, including civil types, are included in this volume.

128 pages, 257 photos, 15 color drawings, 6 color photos plus 15 charts, tables and maps.

ISBN: 0-914144-28-6

Size: 9 x 12 inch (229 x 305 mm)



THE MESSERSCHMITT 109 IN ITALIAN SERVICE 1943-1945

By Ferdinando D'Amico & Gabriele Valentini \$29.95
Many aircraft of German origin were used operationally by Italy during WW II but, by far the most significant, was the renowned Bf 109. This book is the first which thoroughly documents Italian use of the German Bf 109 during the war.

128 pages, 168 photographs, 15 color drawings

ISBN: 0-914144-30-8

Size: 9 x 12 inch (229 x 305 mm)



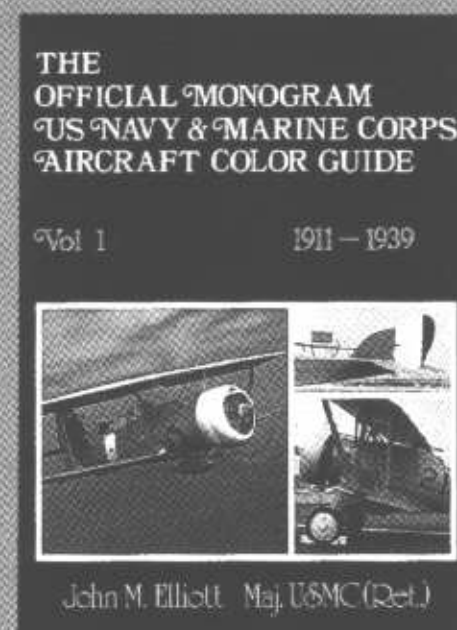
THE VANISHING PAPERCLIPS, AMERICA'S AEROSPACE SECRET, A PERSONAL ACCOUNT

By Hans H. Ammann \$25.95
This is an autobiography of a former German aeronautical engineer who worked for various German aircraft makers during the war, including Junkers, Heinkel and Blohm & Voss. Brought to the USA after the war under Project Paperclip, the author worked for the US aerospace program until his retirement. Many rare photographs and drawings are included in this significant contribution.

128 pages, 173 photographs, 20 drawings and illustrations

ISBN: 0-914144-35-9

Size: 9 x 12 inch (229 x 305 mm)



THE OFFICIAL MONOGRAM US NAVY & MARINE CORPS AIRCRAFT COLOR GUIDE, Vol. 1 1911-1939

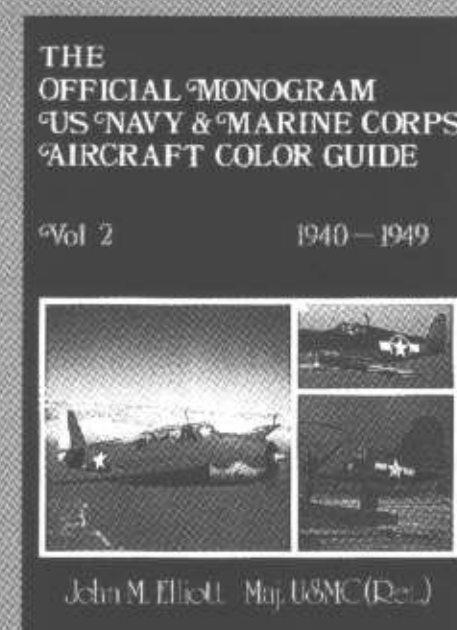
By Maj. John M. Elliott USMC (ret.) \$39.95

First of a unique four-volume set detailing USN and USMC aircraft colors, camouflage, insignia and markings. Sixteen genuine lacquer paint chips are included.

193 pages, 284 photos, 21 color illustrations, 48 color unit insignia, 11 color photos

ISBN: 0-914144-31-6

Size: 9 x 12 inch (229 x 305 mm)



THE OFFICIAL MONOGRAM US NAVY & MARINE CORPS AIRCRAFT COLOR GUIDE, VOL. 2 1940-1949

By Maj. John M. Elliott USMC (ret.) \$42.95

In this second volume of a four-volume set, Mr. Elliott continues his presentation of the US Navy and Marine Corps aircraft colors and markings during the decade of the 1940s. Twenty-nine genuine lacquer paint chips are included.

194 pages, 324 photos, 21 color illustrations, 48 color unit insignia, 57 color photos

ISBN: 0-914144-32-4

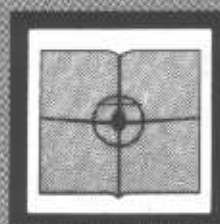
Size: 9 x 12 inch (229 x 305 mm)

MONOGRAM CLOSE-UP SERIES

NOTE: Many issues are no longer available from the publisher. Those issues without prices are no longer in print.

1. JUNKERS 287 by Thomas H. Hitchcock 1975, ISBN 0-914144-01-4		13. AICHI M6A1 by Robert C. Mikesh 1975, ISBN 0-914144-13-8	
2. JUNKERS 288 by Thomas H. Hitchcock 1975, ISBN 0-914144-02-2		14. JAP. COCKPITS pt 1 by Robert C. Mikesh 1975, ISBN 0-914144-13-8	
3. JUNKERS 290 by Thomas H. Hitchcock 1975, ISBN 0-914144-03-0		15. JAP. COCKPITS pt 2 by Robert C. Mikesh 1976, ISBN 0-914144-14-6	
4. BUZZ BOMB by Antony L. Kay 1977, ISBN 0-914144-04-9		16. BF 109 K by Thomas H. Hitchcock 1979, ISBN 0-914144-16-2	
5. TAIFUN by Thomas H. Hitchcock 1979, ISBN 0-914144-05-7	\$6.95	17. ME 262 A-1 by J.R. Smith & E.J. Creek 1983, ISBN 0-914144-17-0	
6. GUSTAV pt 1 by Thomas H. Hitchcock 1976, 1983, ISBN 0-914144-06-5		18. BF 110 G by George G. Hopp 1986, ISBN 0-914144-18-9	
7. GUSTAV pt 2 by Thomas H. Hitchcock 1977, 1983, ISBN 0-914144-07-3		19. KIKKA by Robert C. Mikesh 1979, ISBN 0-914144-19-7	\$6.95
8. FW 190 F by Gebhard Aders 1986, ISBN 0-914144-08-1		20. BLOHM & VOSS 155 by Thomas H. Hitchcock 1990, ISBN 0-914144-20-0	\$7.95
9. BF 109 F by Thomas H. Hitchcock 1990, ISBN 0-914144-09-X	\$7.95	21. DORNIER 355 by J.R. Smith & E.J. Creek 1983, ISBN 0-914144-21-9	
10. FW 190 D by J.R. Smith & E.J. Creek 1986, 1990, ISBN 0-914144-10-3	\$7.95	22. MOSKITO by Jay P. Spenser 1983, 1990, ISBN 0-914144-22-7	\$7.95
11. VOLKSJÄGER by J.R. Smith & E.J. Creek 1986, ISBN 0-914144-11-1		23. ARADO 234 B by J.R. Smith & E.J. Creek 1983, ISBN 0-914144-23-5	
12. HORTEN 229 by David Myhra 1983, 1990, ISBN 0-914144-12-X	\$7.95	24. TA 152 by Jeffrey L. Ethell 1990, ISBN 0-914144-24-3	\$7.95

Write for your free catalog
MONOGRAM AVIATION PUBLICATIONS
P.O. BOX 223 — DEPT. CU
STURBRIDGE, MA 01566, USA



Your
Card
Welcome

EUROCARD

