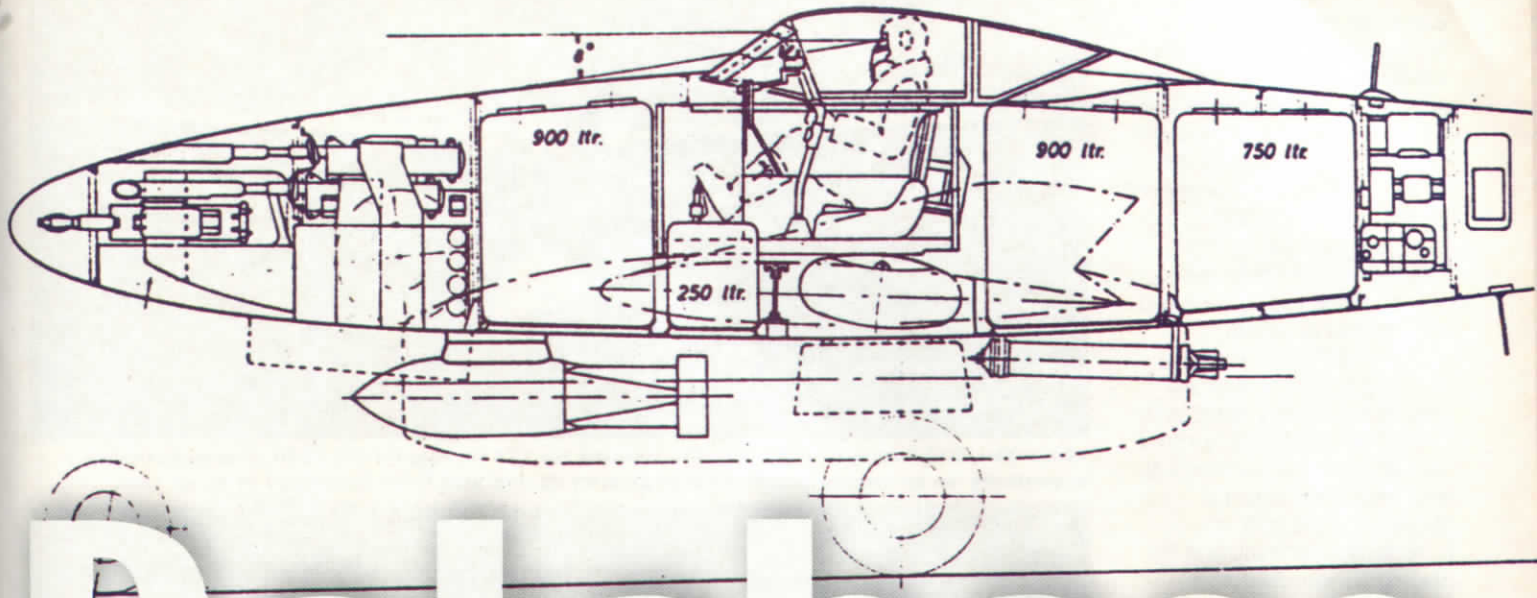

Database

Messerschmitt Me 262

The Messerschmitt Me 262 had the distinction of being Germany's first operational jet aircraft. Had it been correctly used, it might well have changed the course of the Second World War. Dr ALFRED PRICE describes the beginnings of this remarkable aeroplane

This month

Welcome to Aeroplane's *32nd* Database *section, our regular in-depth examination of a specific subject, which this month focuses on Willi Messerschmitt's innovative jet fighter, the Me 262:*

- **Type History**
  The origins of the Stormbird
- **Scale Drawings**
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  The Me 262's construction PLUS cutaway by Mike Badrocke
- **Engine Troubles**
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  The Führer's Blitzbomber decision
- **The Sturmvogel Goes To War**
  The service history of the '262
- **A Sinister Beauty**
  The pilot's perspective
- **Schwalbe Survivors**
  Museum exhibits and replicas

RIGHT **The unmistakable sleek shape of one of the world's first operational jet aircraft, the Messerschmitt Me 262.**

THE MESSERSCHMITT Me 262 began life as Messerschmitt Project 1065, a 1938 design study for a research aircraft powered by two P.3302 gas turbine engines then under development by the BMW company. The P.3302 was expected to produce more than 1,300lb-thrust, and BMW confidently expected to have a pair of the new engines available for flight testing by the end of 1939.

At Messerschmitt, Dr Waldemar Voigt and his team designed a sleek low-wing monoplane with slightly sweptback wings, two wing-mounted jet engines and a conventional tail-wheel undercarriage. From the start, the Messerschmitt team tried to produce a design that would be suitable for development into an interceptor fighter, although the Luftwaffe requirement had not mentioned this. In March 1940 the company received a contract to build four examples of the new aircraft, now designated the Messerschmitt Me 262; three of the airframes were intended for flight testing and the fourth for static testing.

In the event, BMW's timetable for its new engine proved grossly over-optimistic. Not until the end of 1940, more than a year late, were the first examples bench-tested. Moreover, these engines were well down on power, developing only 570lb-thrust.

Because of BMW's problems with the engines, the first Me 262 airframe was completed long before its engines were ready. To allow testing of the aircraft's handling characteristics, therefore, the prototype was fitted with a nose-mounted Junkers Jumo 210 piston engine developing 690 h.p. On April 18, 1941, test pilot Fritz Wendel took the aircraft on its maiden flight from the Messerschmitt airfield at Augsburg in southern Germany. Further flights followed, to assess the aircraft's performance envelope.

Only in November 1941 did the first pair of flight-cleared BMW 003

engines (as the P.3302 was now designated) arrive at Augsburg for installation in the Me 262 prototype. As a safety measure the Jumo 210 was retained, which was just as well. On March 25,1942, Fritz Wendel took off in the unusual three-engined aircraft, and shortly afterwards both jet engines flamed out. Wendel skilfully brought the badly under-powered aircraft back to the airfield and landed on the runway.

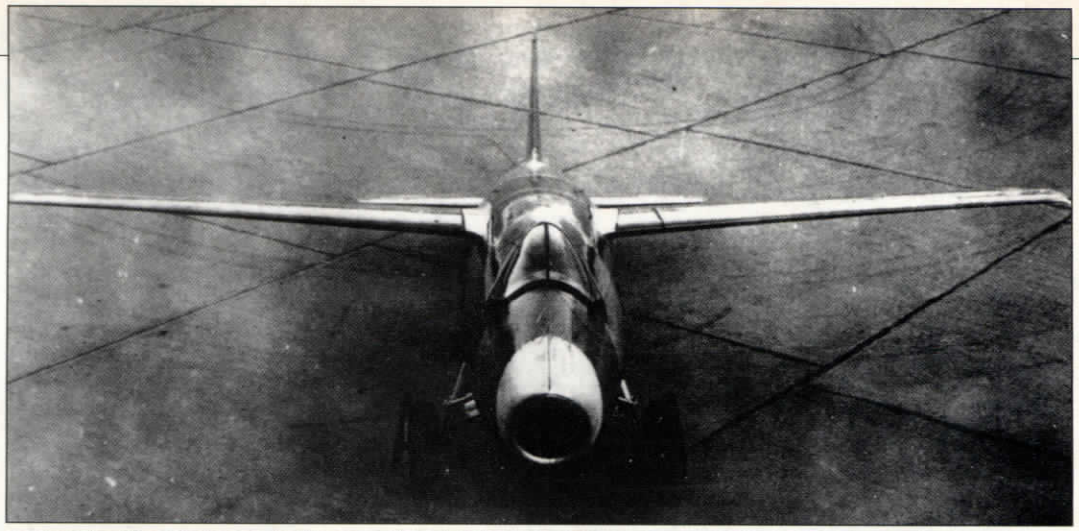
Clearly the BMW 003 engine required a lot more development work. By then Junkers had its Jumo 004 turbojet up and running, and at the end of 1941 this had completed its ten-hour running trial and developed 2,200lb of thrust.
A few months later a couple of the new engines were delivered to Messerschmitt, and installed in the Me 262 V3. On July 18, 1942, Fritz Wendel took the aircraft up for its first flight solely on jet power. The flight was normal, except for the take-off. With the tailwheel on the runway, the wing blanketed the elevators and rendered them ineffective. So, when the aircraft reached flying speed, he touched the brakes briefly to lift the tail off the ground. Then the elevators functioned normally and he was able to get airborne.

An Aircraft Without A Requirement

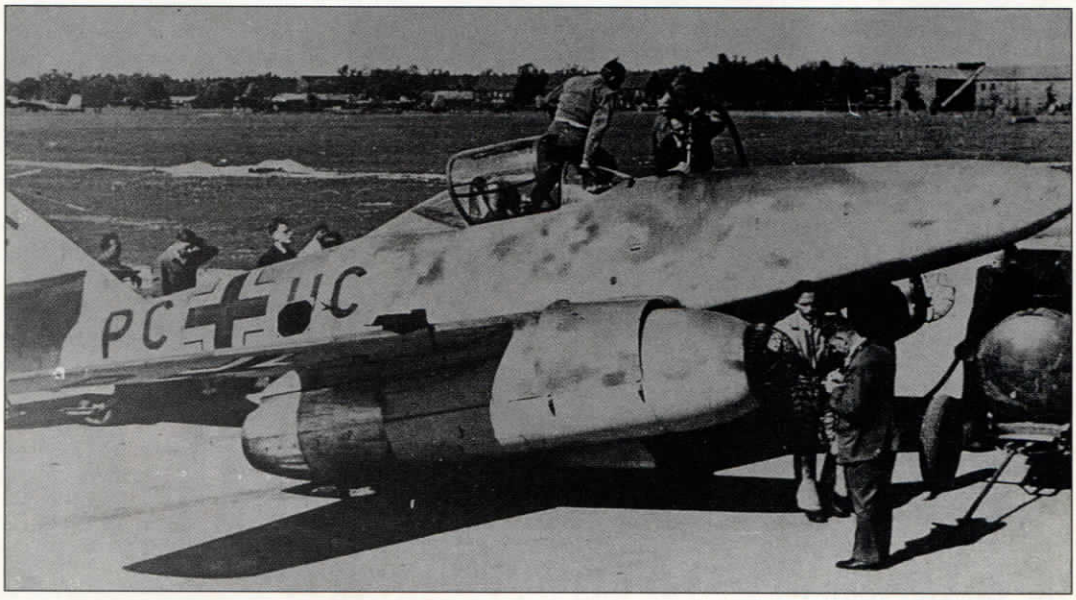
During its early test flights the Me 262 reached maximum speeds of around 500 m.p.h. Yet, at that time, senior Luftwaffe officers could see no worthwhile role for the aircraft. In the summer of 1942 the Focke-Wulf Fw 190A and the Messerschmitt Bf 109G were equal or superior to anything they encountered from the RAF, the USAAF or the V-VS (Soviet Air Force). There was no serious threat to Germany from daylight bombing attacks.

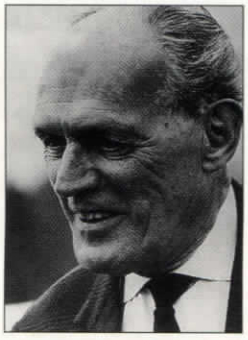
At that time the main battle fronts were deep in the Soviet Union and in North Africa, where fighters needed to operate from primitive forward airfields. The Me 262, powered by unproven and temperamental jet engines and requiring a long hard runway, was of little value in that environment. Also at that time, the German aircraft industry was working almost at full stretch to produce sufficient conventional fighters to keep pace with losses in combat. There was little capacity to spare to produce the radical new type.

Nevertheless the Luftwaffe pushed for the development of the new fighter, so it could be ready for production if required. In May 1942 Messerschmitt received an order for a pre-production batch of 15 Me 262s, increased to 30 in October.



ABOVE The first turbojet to fly was the Heinkel He 178 on August 24, 1939. It was designed essentially as an engine proof-of-concept aircraft and was later destroyed in an air raid.





ABOVE The V3 prototype, PC+UC, was the first Me 262 to fly on jet power alone, on July 18, 1942. The early Me 262 prototypes were fitted with a tailwheel undercarriage arrangement.
LEFT Professor Willi Messerschmitt on his 70th birthday in June 1968. Before the war, Messerschmitt had designed a number of commercial and sports aircraft, all of which displayed innovative thinking.

"Galland thought the minor technical problems would be solved in development; they were more deep-seated than anyone believed at the time"

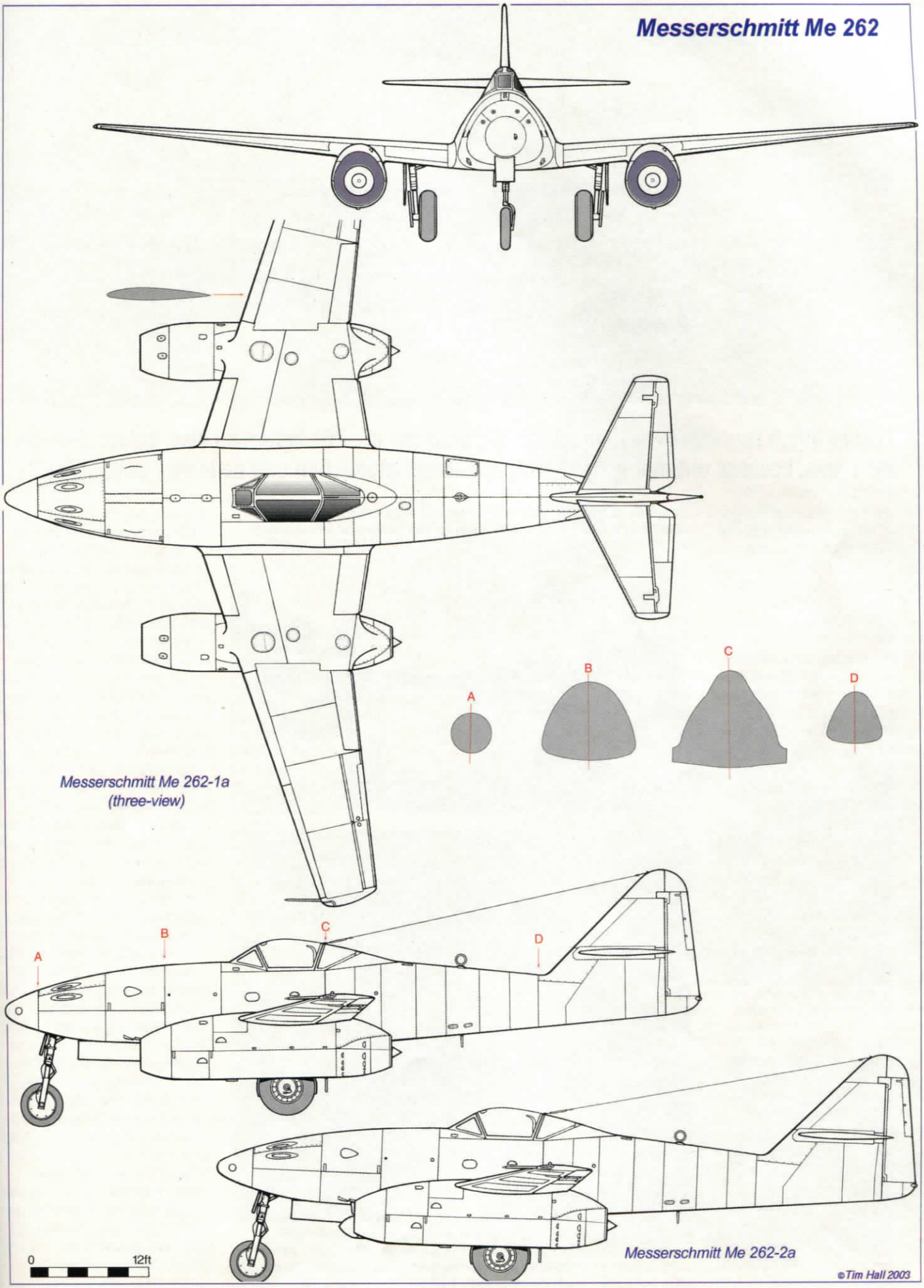
By the spring of 1943 the war situation in Germany had changed considerably since the previous autumn, and for the worse. Following the disasters at Stalingrad in Russia and then El Alamein in Egypt, the German Army was switched to the defensive on the Eastern Front and was about to be ejected from North Africa. The USAAF had commenced daylight shallow-penetration attacks on targets in Germany, though as yet without protection from long-range fighter escorts. Moreover the latest British, American and Soviet fighters were equal to or better than their German equivalents. With no rapid victory in sight, the Luftwaffe had to shape up for a long, hard fight.

In May 1943 *Generalmajor* Adolf Galland, the Inspector of Fighters, visited Lechfeld in Bavaria, where he flew the Me 262 V4. The flight made a deep impression, and afterwards he urged that the jet fighter be placed in full production as soon as possible. Galland believed that only the Me 262 could provide the leap in performance necessary to counter the enemy air forces' numerical superiority. *Generalfeldmarschall* Erhard Milch, in overall charge of aircraft production programmes for the Luftwaffe, accepted that recommendation.

During his flight Galland had been aware of the temperamental nature of the aircraft's Jumo 004 engines. Like many others who flew the Me 262, however, he thought these were relatively minor technical problems that would be solved in the normal course of development. In fact, they were more deep-seated than anyone believed at the time.

On May 25,1943, the Luftwaffe placed an order for 100 production Me 262s, following this three weeks later with a further order for 575. At an aircraft production conference in Berlin on June 29, attended by Willi Messerschmitt, Milch learned of the current plans to produce the Me 262 in quantity:

"Construction of the wings and final assembly will take place at Augsburg and construction of the fuselages and tails will take place at Regensburg. By concentrating our


Messerschmitt Me 262
A
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Messerschmitt Me 262-1a
(three-view)
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Messerschmitt Me 262-2a
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"Erhard Milch expressed the new mood: 'We need the Me 262 before all else, before U-boats and tanks, because without this aircraft, armament production will no longer be possible' "

effort and if certain suppositions are realised, we can have delivery of the first production aircraft by January 1944. Production will then rise in the second month to eight, in the third to 21, in April to 40 and in May to 60 aircraft. By the middle of May we shall reach the requested number of 100 aircraft and production will run at 60 per month until November."

Meanwhile, the test programme of the Me 262 gathered momentum. In July the V5, fitted with a fixed tricycle undercarriage, made its initial flight. Amongst other things this aircraft was employed in tests of booster rockets under the fuselage, to improve take-off performance. The V6 followed it as pre-production prototype, the first to be fitted with a retractable tricycle undercarriage.

On August 17, 1943, the Me 262 programme suffered a major setback, when a large force of Boeing B-17s bombed the Messerschmitt plant at Regensburg. More than four hundred members of the workforce were killed and many production jigs were destroyed. Following that attack, Me 262 assembly was dispersed into a large number of relatively small facilities throughout the country.

At the beginning of 1944 it seemed that the Me 262 might become available just when it was most needed. By then the American escort fighters, and in particular the superb Merlin-engined North American P-51 Mustang, escorted bomber formations deep into German territory. This posed a conundrum for the Luftwaffe fighter force. If its

ABOVE **Fritz Wendel starts the Me 262 V3's take-off run, touching the brakes briefly to drop the nose and lift the tail.**

TOP **The Me 262 V5 was the first prototype equipped with a tricycle undercarriage fixed in the down position, and fitted with a pair of solid-fuel booster rockets under the fuselage.**
ABOVE **An aerial shot of Me 262s on the runway at Lechfeld.**

aircraft carried the firepower necessary to knock down the tough B-17s and Consolidated B-24 Liberators, the defending fighters fell as easy prey to the American escorts. Alternatively, if the German fighters were lightly armed so they could engage the escorts, they lacked the firepower to knock down bombers. The advantage of the Me 262 was that it had the speed to outrun the American escorts, and four 30mm cannon powerful enough to tear apart the USAAF bombers.

German fighter commanders were desperate to get the Me 262 into action as soon as possible. At a conference in Berlin on January 19, Erhard Milch expressed the new mood. He reviewed the developments in the air war he expected to see in 1944. He was then asked which weapon he thought was the more important, the V2 bombardment rocket or the Me 262. Milch replied:

"We need the Me 262 before all else, before U-boats and tanks, because without this aircraft, armament production will no longer be possible."

By the end of January 1944 the ninth prototype Me 262 had flown. Some 23 airframes comprising the pre-production batch had been completed, except for their engines. As described elsewhere in this *Database* (see *Engine Troubles*), Junkers was still having considerable difficulty in getting the Jumo 004 to a state where mass production could begin. The shortage of engines and their unreliability would limit the number of Me 262s completed

during the months to follow.

The first Me 262A-1 production aircraft did not reach the Luftwaffe until April 1944. During that month 16 jet fighters were delivered, followed by seven more in May. The Luftwaffe now possessed sufficient Me 262A-1s to form a service trials unit, designated *Erprobungskommando 262* (Ekdo, or test detachment, 262). The unit assembled at Lechfeld, close to the Messerschmitt plants, under the command of *Hauptmann* Werner Thierfelder.

Oberleutnant Günther Wegmann, one of the first to join Ekdo 262, described his initial impressions when flying the Me 262. He said it was important to advance the throttles extremely slowly, otherwise there was a risk that the early jet engines would overheat and catch fire. Another problem arose when a pilot lined up on the landing approach. Once he throttled back and started to lose speed, he was committed to landing. If he had lost too much speed and reopened the throttles to go round again, the Jumo 004s accelerated so slowly that the aircraft was likely to strike the ground before the aircraft gained sufficient speed for a climb away.

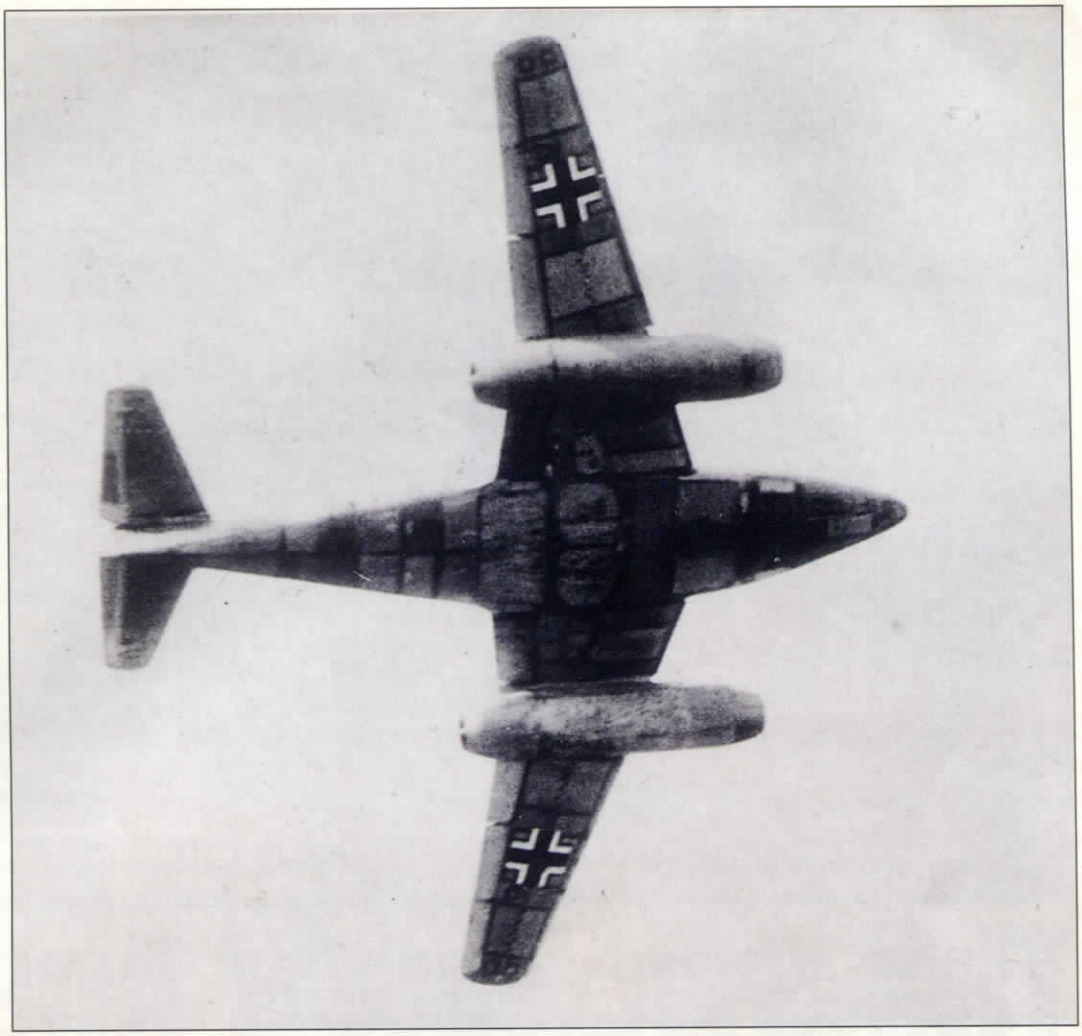
Apart from these problems Wegmann had little difficulty with the Me 262, but it must be pointed out that he had considerable flying experience in twin-engined Messerschmitt Bf 110s before he arrived at the unit. Also, he had received a thorough training in instrument flying — a factor whose significance will become clear later.

Gradually the pilots of Ekdo 262 amassed experience in handling the new fighter and its temperamental engines. They appreciated the advantages of its superb performance; maximum speed 540 m.p.h. at about 20,000ft, initial rate of climb of 3,940ft/min. Moreover, the four 30mm MK108 cannon in the nose gave it excellent firepower.

To assist pilot training, a small batch of early production Me 262s was delivered to the Blohm und Voss plant, for conversion into Me 262B dual-control trainers.

That was the position at the end of May 1944, when Adolf Hitler issued his much-quoted order that initially the Me 262 should be sent into combat only in the high-speed bomber role.

Following Hitler's announcement (see separate chapter), work began in great haste to convert Me 262s into fighter-bombers, and the V10 prototype was immediately modified to carry racks for two 550lb bombs under the forward fuselage.



ABOVE An Me 262 in flight, showing the distinctive wing with its 18° sweepback. The wing fitted to the first prototypes had a tapered mid-section with only the outer panels swept back.

The Me 262A-2a, the production fighter-bomber version, carried only two 30mm cannon. Since the aircraft built up speed too rapidly, it was unsuitable for steep diving attacks. Moreover, because the pilot had no view of the ground immediately below and ahead of the aircraft, horizontal attacks from medium or high altitude were grossly inaccurate. The Me 262A-2a could only be effective when delivering low-altitude horizontal or shallow-dive attacks.

Other problems centred on the 132 Imp gal extra fuel tank fitted in the rear fuselage, to increase the fighter-bomber's radius of action. That tank was well to the rear of the aircraft's centre of gravity, and when full it weighed about as much as the two 550lb bombs under the nose. The fuel from the rear tank had to be burned early in the mission, for if the bombs were released when the tank was full, the aircraft would become dangerously tail-heavy.

Despite these limitations, the Me 262A-2a fulfilled Hitler's requirement for a high speed counter-invasion "Blitzbomber". In June 1944 the first batch of these aircraft was delivered to Lechfeld in Bavaria, where pilots who had been selected to form the world's first jet fighter-bomber unit began to gather.

ABOVE Me 262A-1a "White 10" of Ekdo 262 takes off from Lechfeld. The undercarriage was retracted early to reach the single-engine safety speed of 180 m.p.h. as soon as possible.

ABOVE Ekdo 262 Me262A-1as at Lechfeld in 1944. The unit's first combat was against a Mosquito near Munich on July 26.