Heinkel He 119

L'**Heinkel He 119** Il était un monomoteur monoplan à aile basse développé par allemand Heinkel AG à la fin une trentaine d'années et encore à l'étape de prototype. Conçu à l'initiative personnelle de Ernst Heinkel pour tester les solutions extrêmes proposées par les frères Siegfried et Walter Günter, il était incapable de surmonter la méfiance exprimée par Reichsluftfahrtministerium (RLM), le ministère que, dans la période où il centralise toute la gestion de l'Allemagne 'aviation national; par conséquent, son développement a été interrompu.

Vers le milieu des années trente, les frères Günter, qui à l'époque étaient responsables de certains des projets développés par Heinkel Flugzeugwerke, proposé à Ernst Heinkel une conception technique avancée qui vise à optimiser l'aérodynamique de l'avion à des possibilités technologiques de pointe société. Le projet, identifié par la société Projektbezeichnung P. 1055, était un monomoteur monoplan Il caractérise par une cellule extrêmement profilée constituée par une fuselage dépourvu de parties en saillie combinées par une aile mouette inversée. Cela a été rendu possible grâce à l'installation de 'l'unité d'entraînement derrière la cabine de pilotage formé dans le nez entièrement vitré et relié all 'hélice, placé à l'extrémité avant, à travers un long arbre de transmission les côtés de laquelle sont positionnés les deux sièges pour l'équipage. En outre, le fuselage, monocoque, section elliptique qui rétrécit en direction de la queue dans une section circulaire et de construction entièrement métallique, il a été couvert par des panneaux métalliques « la peau stressée » en réduisant la nécessité de rivets en saillie qui contribue rendre la surface la plus lisse possible.

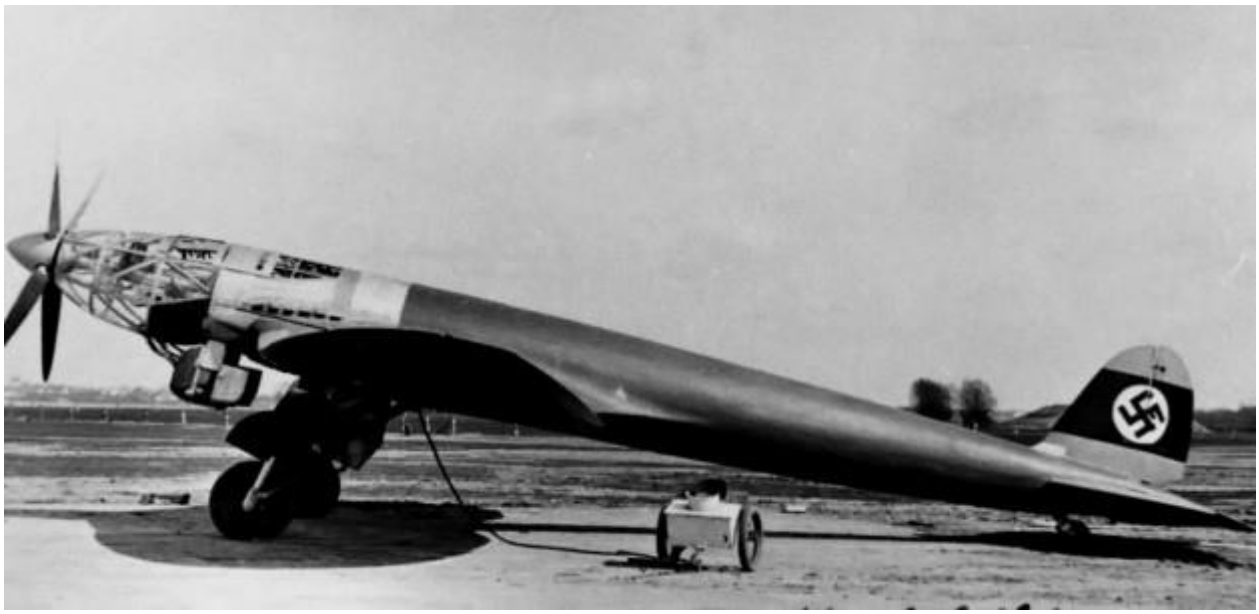
Bien que ceux-ci déjà très grande vitesse maximale permettrait potentiellement caractéristiques a été lancé un accord avec le Daimler-Benz pour le développement d'un hyper-moteur basé sur le couplage de deux Daimler-Benz DB 601 et capable d'exprimer une puissance pour permettre au modèle de viser la vitesse record du monde. De plus dans la recherche aérodynamique extrême dans le domaine, il a été étudié un circuit de refroidissement évaporatif qui consistait à envoyer, à travers les canaux, la vapeur produit aux ailes, refroidi pendant le vol, ils le feraient condenser la vapeur dans le liquide refroidi à envoyer au moteur par l'intermédiaire de pompes.

La construction du premier prototype, qui, selon le système de désignation RLM Il a été répertorié comme 119 V1 (V *Versuch*, expérimental en allemand) A coïncidé avec le nouveau programme de développement du moteur Daimler-Benz DB 606 Il destiné à être couplé à une hélice quadripale d'un grand diamètre. Le He 119 V1 a été volé pour la première fois en été 1937 démontrant la qualité globale du projet tout en exprimant quelques inconvénients; En outre, bien que les avantages offerts par la vitesse maximale ont été largement respectés, le RLM est déclaré non intéressé par un avion dépourvu d'armement. L'implant de la solution de refroidissement par évaporation avait des limitations dans les étapes précédentes, la décollage et toutes les versions suivantes à l'atterrissage avec des températures élevées de fonctionnement du moteur à un niveau inquiétant, problème évité par le second prototype, le He 119 V2, équipant le modèle avec un radiateur semi-retractible, tandis que pour l'appareil a été conçu une solution qui a cherché à préserver l'aérodynamisme du fuselage, une paire de mitrailleuses MG 15 monté sur un support pivotant et coulissant sur les côtés de l'appareil, mais ont été rétractée lorsqu'ils ne sont pas en cours d'utilisation par la fermeture des espaces avec des panneaux coulissants.

Source : https://boowiki.info/art/avions-militaires-1931-1945/heinkel-he-119.html

Version anglaise

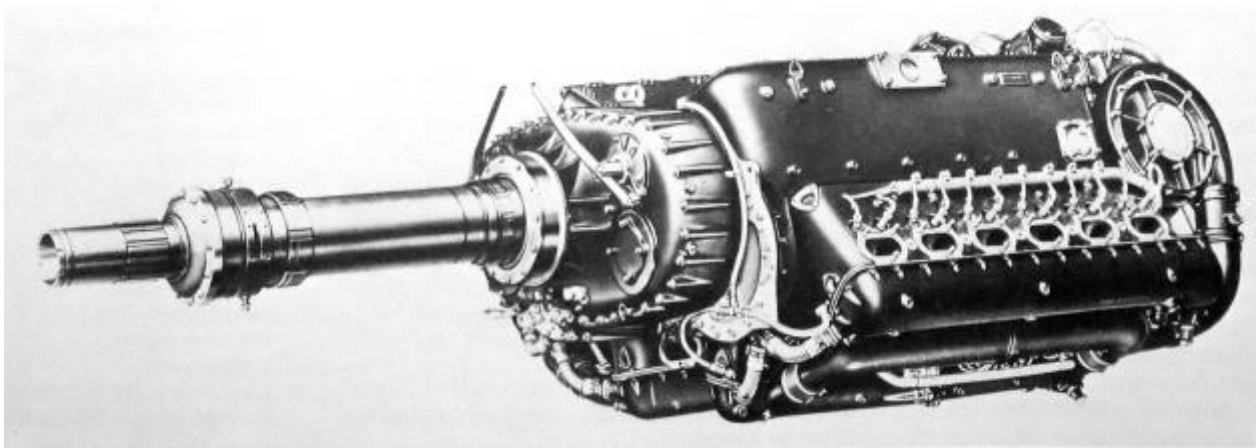
In the 1930s, brothers Siegfried and Walter Günter were pushing the limits of aerodynamics as they designed aircraft for Heinkel Flugzeugwerke in Germany. Perhaps the ultimate expression of their aerodynamic beliefs was the Heinkel He 119. The Günter brothers and Ernest Heinkel envisioned the He 119 as an unarmed, high-speed reconnaissance aircraft or light bomber.



Heinkel He 119 V1 prototype with the hastily installed radiator to augment the evaporate cooling system.

Work on the He 119 began in the summer of 1936 as a private venture funded by Heinkel Flugzeugwerke. The aircraft appeared to have a fairly standard layout as an all metal, low-wing monoplane with retractable gear. However, the very streamlined fuselage hid the He 119's unorthodox power arrangement. To achieve the low-drag necessary for high-speed operations, the engine was buried in the fuselage, just behind the cockpit and above the wings. An enclosed drive shaft extended forward from the engine, through the cockpit, between the pilot and co-pilot, and to the front of the aircraft where it drove a 14 ft 1 in (4.30 m), metal, variable-pitch, four-blade propeller.

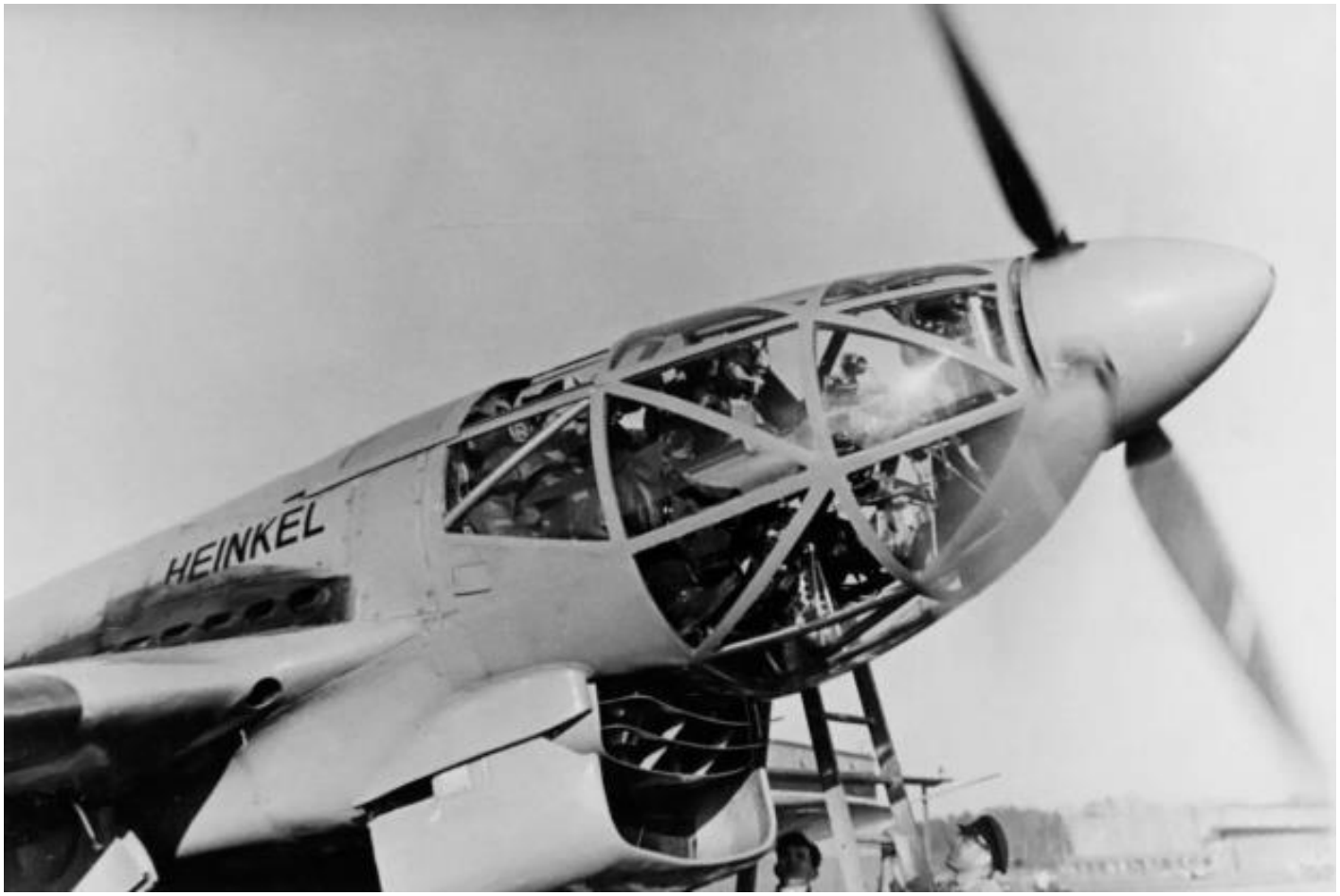
No engine produced the power needed for the He 119, so two Daimler-Benz DB 601 engines were placed side-by-side and coupled together through a common gear reduction. The DB 601 was a liquid-cooled, 12-cylinder, 60 degree, inverted Vee engine with a 5.91 in (150 mm) bore and 6.30 in (160 mm) stroke. When coupled, the 24-cylinder engine was known as the DB 606; it displaced 4,141 cu in (67.8 L) and produced 2,350 hp (1,752 kW). The inner banks of the DB 606 were pointed nearly straight down and exhausted under the aircraft. The side banks' exhaust was expelled just above the He 119's wings.



The Daimler-Benz DB 606 engine was comprised of two DB 601 engines joined to a common gear reduction.

The DB 606 engine in the He 119 was to be cooled exclusively by surface evaporative cooling, where steam from the heated coolant was pumped under the skin of the wing's center section. Here, the steam would cool and condense back into liquid. The liquid was then pumped back to the engine. However, during testing the system proved to be inadequate, and a radiator was added below the fuselage, just before the wings. The first prototype had a fixed radiator that was rather hastily installed. The subsequent prototypes included an improved radiator that was extended during low-speed operations but was semi-retracted into the fuselage as the aircraft's speed increased.

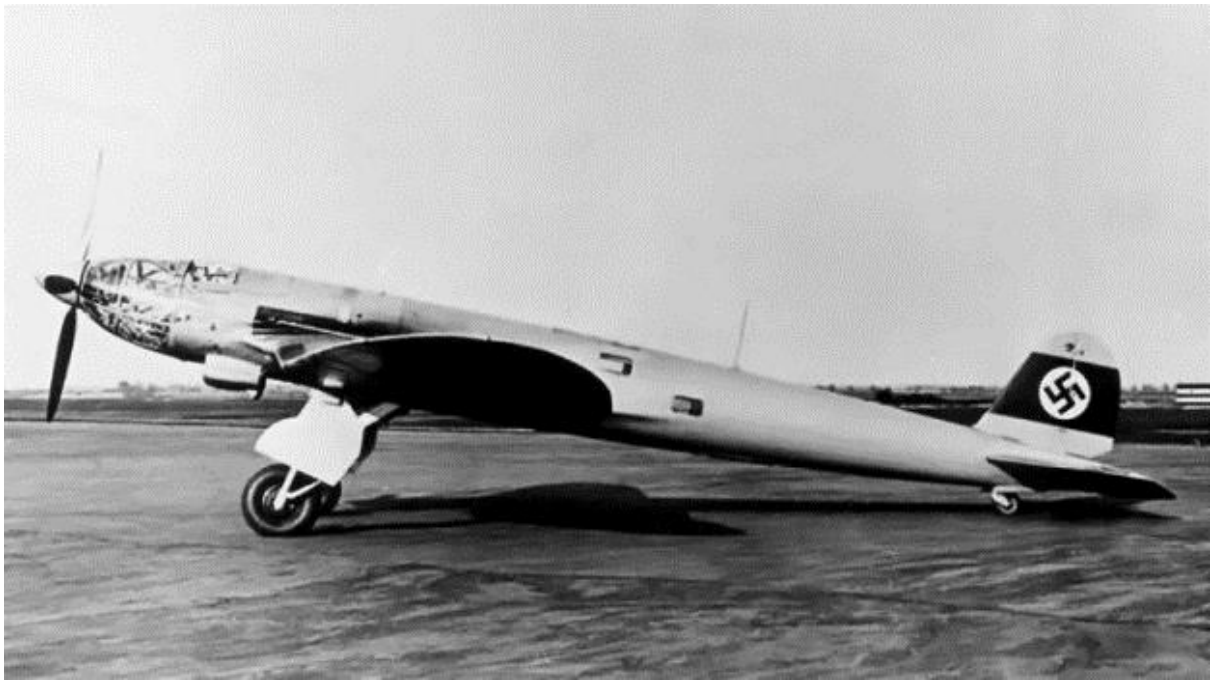
The He 119's cockpit formed the nose of the aircraft. The cockpit was entirely flush with the 48 ft 7 in (14.8 m) fuselage and was extensively glazed with heavily framed windows. The pilot and co-pilot accessed the cockpit by separate sliding roof panels. In the aft fuselage were provisions for a radio operator and a ventral bay for cameras. Another bay for either large cameras or a maximum of 1,200 lb (1,000 kg) of bombs was located in fuselage, just aft of the wing spar.



A good view of the He 119's glazed cockpit is provided in this image. Most sources state this aircraft is V4, but it possesses the exhaust ports of V1. Note the extended radiator.

The He 119 had a wingspan of 52 ft 6 in (16 m). To provide for proper ground clearance, conventional main landing gear would have been too long to fit in the inverted-gull, semi-elliptical wing. A telescoping strut was devised that would collapse as the gear retracted. This allowed the gear to fit within the wing and also extend to provide the needed ground clearance.

Heinkel kept the He 119 a secret during construction, and the first prototype (V1) flew in June 1937 with Gerhard Nitschke at the controls. Even with the bulk of the added radiator, the aircraft achieved 351 mph (565 km/h), which was faster than fighter aircraft of the day. This speed validated Heinkel and the Günter brothers' position that the fast bomber did not need to be armed. However, when the aircraft was revealed to German officials, they insisted the aircraft be armed with upper and lower guns operated by separate gunners. German officials did allow the continued experimentation of the aircraft; at this point, the aircraft was officially designated He 119. The addition of the guns lowered the aircraft's speed, and it appears that only the upper gun was included in other prototypes, housed under a sliding panel.



Heinkel He 119 V2 with windows in the rear fuselage for the radio operator. Reportedly, this is the last He 119 built with the semi-elliptical wing.

It is at this point that sources disagree on the He 119's history. One theory is that the second prototype (V2) first flew in September 1937, followed by the fourth prototype (V4) in October 1937. The He 119 V4 set a speed record on 22 November 1937 and was destroyed in a follow-up attempt on 16 December. A total of eight aircraft were built; the seventh (V7) and eighth (V8) were purchased by and subsequently shipped to Japan.

The other theory, supported by German Heinkel expert Dr. Volker Koos, is that the V1 was prepared (which included the installation of a new radiator as used on the subsequent prototypes) for the record flight. The V1 flew the record flight and crashed during the follow-up attempt. The first flight of V2 was in 1938, and V4 first flew in May 1940. Most likely, only four aircraft were built, and V2 and V4 were shipped to Japan.

Side view of the He 119 V3. The updated wing used on the V3 and all further He 119 aircraft can be seen as well as tail modifications to increase the seaplane's stability.

All sources agree that the He 119 carrying the registration D-AUTE made the record flights. The third prototype (V3) was first flown after V4 because V3 was built as a seaplane. All prototypes from V3 on were built with a new wing that had a straight leading edge and a slightly reduced span of 52 ft 2 in (15.9 m).

After careful examination of various photos, it appears that the He 119 registered at D-AUTE had the semi-elliptical wing as used on the first two prototypes. It also appears that the exhaust ports above the wing on V1 were unique and at an angle, with each port slightly higher (relative to the fuselage) than the port preceding it. All other He 119s had exhaust ports in a straight line relative to the fuselage. D-AUTE appears to have the ports as seen on V1. Based on the information available, it seems more likely that V1 did indeed make the record flights. Sadly, given the secrecy under which the He 119 was built, the propaganda subterfuge surrounding the record flights, and the destruction of German documents during World War II, the exact aircraft identities as well as the number built may never be definitively known.

The Heinkel He 119 V3 seaplane taxiing under its own power. This aircraft was to be used on an attempt to set a new 1000 km (621 mi) seaplane record, but such plans were cancelled after the other He 119's crash.

Regardless of the specific airframe, on 22 November 1937, the He 119 set a world record for flying a payload of 1,000 kg (2,205 lb) over a distance of 1,000 km (621 mi). For propaganda purposes, the He 119 was labeled He 111U and also He 606. Due to weather, the He 119 was forced to fly lower than anticipated which reduced its airspeed. Even though the He 119 set the record at 313.785 mph (504.988 km/h), the speed was seen as a disappointment that did not represent the He 119's true capabilities. Indeed, the record was broken about two weeks later by an Italian Breda Ba 88.

A follow-up flight to reclaim the record occurred on 16 December 1937. With over half the distance flown and the He 119 averaging just under 370 mph (595 km/h), the DB 606 engine quit. The pilots, Nitschke and Hans Dieterle, attempted an emergency landing at Travemünde but hit a drainage ditch. The He 119 was destroyed; Nitschke and Dieterle were injured, but they survived. The engine failure was a result of a faulty fuel transfer switch. After the crash, Heinkel was ordered not to attempt any further record flights with the He 119.

Many sources identify this aircraft (D-ASKR) as the He 119 V2. Interestingly, the wing root intake for the supercharger and lower lip of the radiator do not match those found on other images of V2. The features do match those found on V3.

Other He 119 prototypes took over the test flights. He 119s with the new wing demonstrated a top speed of around 370 mph (595 km/h) and a range of 1,865 mi (3,000 km). Despite the floats, the He 119 V3 seaplane had a top speed of 354 mph (570 km/h) and a range of 1,510 mi (2,430 km). The V3 aircraft also had a ventral fin added to counteract the destabilizing effects of the floats. Unfortunately, the German authorities did not have any interest in producing the He 119 in any form because of its unorthodox features. Reportedly, some of the remaining aircraft served as test-beds for the DB 606 and DB 610 engines. The remaining He 119s in Germany were scrapped during World War II.

Late in 1938, the He 119 was shown to a Japanese Naval delegation that expressed much interest in the aircraft. In 1940 the Japanese purchased a manufacturing license for the He 119 along with two of the prototype aircraft. These aircraft were delivered via ship to Japan in 1941 (some say 1940). The aircraft were reassembled at Kasumigaura Air Field, and flight tests occurred at Yokosuka Naval Base. During an early test flight, one of the He 119s was badly damaged in a landing accident, and it is believed the other He 119 suffered a similar fate. While it was not put into production, the He 119 did provide the Japanese with inspiration for the Yokosuka (Kugisho) R2Y1 *Keiun* high-speed reconnaissance aircraft.

The Heinkel He 119 with the Japanese Naval delegation. The sliding roof panel for the pilot's cockpit access can clearly be seen. Note the differences with the wing root intake and lower lip of the radiator compared to the D-ASKR aircraft.

Sources:
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– *Warplanes of the Third Reich* by William Green (1970/1972)
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