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He 111P



- Medium Bomber
- First flight: 1938
- Heinkel

↓ The next step after replacing the wing was to improve the aerodynamics of the bomber fuselage. Some authors consider this a forced measure, because, having won with the new wing in manufacturability, they lost in flight data, which had to be compensated. In mid-1937, Walter Günther (by that time his brother had died) suggested changing the outline of the bow, abandoning the traditional ledge between the canopy of the pilot's cabin and the navigator's cabin located below.

Now the seats of the pilot and navigator-scorer were side by side. The navigator had a folding seat to the right of the pilot; when firing, he moved on a bed in the very nose of the car. The richly glazed nose of the fuselage had smooth contours and ended in front of the Ika-Riya ball machine gun mount. So that the navigator lying on her does not interfere with the view from the pilot's seat, the installation was shifted to the right. So "Heinkel" acquired its original "crooked" silhouette.

But with the new arrangement, the glass moved away from the pilot's eyes, and had a curvature and a significant slope; this could create problems with visibility in bad weather and at night. They found a very original way out: if necessary, the pilot's seat, together with the hydraulic controls, rose up, and the pilot's head protruded out through a sliding hatch in the glazing. From the oncoming stream, it was covered by a small folding visor. The main instrument panel was located on the cockpit ceiling and was clearly visible to the pilot from both positions. The sliding hatch was supposed to be used for emergency exit of the car.

At the same time, the designer tried to fulfill the requirements of the Luftwaffe command regarding the improvement of the defensive armament of the bomber. In previous modifications, only the bow "installation A" did not cause significant criticism. The upper shooter was covered from the oncoming stream with only a small visor. At high speeds, this caused significant blowing into the fuselage, and the machine gun barrel could only be turned sideways from the axis of the aircraft with great difficulty. The lower retractable "tower C" in the combat position created a huge aerodynamic drag. Often the mechanism jammed and it became impossible to retract it; sometimes the shooter remained outside. On landing, the unretracted tower touched the ground and obviously promised an accident. And just sitting in "tower C" was very uncomfortable - windy, cold. When attacked by fighters, the unprotected shooter in it often became the first victim - this was evidenced by the statistics of the war in Spain.

Therefore, the second innovation proposed by Gunther was a fixed elongated ventral gondola, replacing the retractable turret. She had much less resistance, and the machine gun installation in her was always ready for battle. The shooter was placed in a supine position on a mattress. A hatch was provided on board the gondola through which the crew got into the plane. This option seemed to Gunther the best of all considered.

The upper shooting point has also been changed. Instead of a small wind visor, a sliding semi-closed lantern was introduced. When firing, he manually moved forward, providing a significant field of fire.

All these innovations were separately tested on several aircraft. For the first time, one of the He 111V-0 was equipped with a new nose, which after that became known as He 111V8. He began flight tests in January 1938. On the He 111V23, converted from He 111V-1, they tested the ventral gondola. In the course of refinement, its outlines and glazing have changed slightly. Both of these machines retained the old elliptical wing. On the He 111V7, for which the airframe of the serial He 111 V-1 was also used, a new nose was combined (slightly different from the V8 in terms of the location of the glazing panels), an upper gun mount with a sliding canopy and a wing with straight edges. There was simply no lower gun mount on this plane. The V7 also received a new power plant - two DB 601 Aa engines with direct fuel injection, developing a maximum of 1175 hp each. They turned three-bladed metal VDM propellers. Not 111V7 took to the air in the early summer of 1938.

After factory testing, the V7 was tested by military pilots from the center in Rechlin. While the new cockpit glazing was criticized for glare when the sun was behind the aircraft, the new fuselage nose was considered a significant improvement. The Luftwaffe command approved the mass production of a new modification, which received the designation He 111 R. In the fall of 1938, the first He 111R-0 rolled off the assembly line in Marienakh.

The production of the He 111P-1 series was planned in parallel at three enterprises: the Heinkel plant in Marienakh, NDW in Wismar and Arado in Warnemünde. Acceptance of the R-1 began in the early spring of 1939. The aircraft had a maximum speed of 400 km/h, with a maximum bomb load of 2000 kg it was reduced to 325 km/h. Initially, this modification was intended to switch to a horizontal suspension of bombs, which ensured greater bombing accuracy. But this required significant alterations in the bomb bay. Fearing a slowdown in production, this intention was abandoned, retaining the old scheme with two cassettes at the sides. Bombs with a caliber of up to 250 kg were placed vertically, up to four in a cassette. For smaller ammunition, inserts were mounted inside the cassette cells, which made it possible to hang up to four bombs in one cell.

The defensive armament of the He 111R-1 remained the same as that of all previous modifications - three MG 15 machine guns of 7.9 mm caliber. One of them stood in the Ikaria ball launcher in the glazed nose, the second fired sideways and backwards from the upper rifle launcher, and the third fired backwards from the ventral gondola. The crew consisted of a pilot, navigator-scorer, gunner-radio operator and bottom gunner.

Most of the He 111R-1 was assembled at the Heinkel plant in Marienakh - 75 machines, another 20 were added by NDW.

In May 1939, the He 111R-1 was replaced in production by the He 111R-2, which actually differed only in a radio station - the FuG 10 type instead of the FuG III. Much more of these were built: 471 bombers were made in Marienakh, 288 in Wismar. This number included 20 cars destined for export to Hungary. Some aircraft were completed as commander's ones, differing in equipment, primarily radio engineering.

Type P-3 was a dual control training vehicle. It was not specially produced; already flown bombers of the P-0 and P-1 types were modified into this version.



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Combat Use

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He 111P-4



- Medium Bomber
- First flight: 1940
- Heinkel

Mindful of the shortage of Daimler-Benz engines needed for Messerschmitt fighters, the Heinkel designers from the very beginning were simultaneously preparing a spare version of the bomber with Jumo 211 engines - He 111H. Its prototype was He 111V19, which made its First flight in January 1938. But the priority in the deployment of mass production was then given to modifications R.

After acquiring some combat experience, the Germans were forced to upgrade the armament of the He 111P and install armor protection for the crew. On the new modification, the He 111R-4, another 7.9 mm MG 15 machine gun was mounted in a ball socket in the forward fuselage, it fired up and down with rather limited sectors of fire. However, this to some extent protected from fighter attacks from the front-top, where neither the front nor the top installation could shoot at them.

Two MG 15s were placed in the side windows behind the trailing edge of the wing, providing additional protection against attacks from the side. To service these machine guns, a fifth crew member had to be added. On some bombers, a fixed MG 17 machine gun was installed in the tail fairing, which shot through the area behind the tail of the machine, inaccessible to the upper installation.

The flight range of the He 111 R-4 was increased due to an additional gas tank with a capacity of 835 liters in place of the left bomb cassette; an additional 118 l oil tank was also located there. The wings of the left bomb bay were fixed, and two external ETC 500 bomb racks were attached under them, designed for bombs with a caliber of up to 500 kg. If necessary, the right cassette could also be replaced with an additional tank, completely switching to an external bomb suspension. The ability to carry large-caliber bombs increased the effectiveness of the He 111 against warships and defensive structures, as well as large industrial and transport targets.

But this option was not released for long - the shortage of Daimler-Benz engines, which were necessary, first of all, for Messerschmitt fighters, affected. The production of the P modification was completed in the same 1940 with a small series of He 111R-6. These aircraft had 1175 hp DB 601N engines that ran on 100 octane instead of 87 octane. Otherwise, they differed from the R-4 only in the return to the internal placement of bombs (as on the R-2) and an improved upper firing point, which could be completely covered with a cap. In the back of the sliding lantern there were sections that folded like a "crustacean neck": they turned on an axis and moved towards each other. In the stowed position, the machine gun moved inward, and the sections were extended, completely closing the opening at the back. After that, the cockpit of the shooters became much warmer. Sometimes they indicate that the small arms on the R-6 consisted of only five machine guns, the second machine gun in the nose of the fuselage was absent.

A number of these bombers were later converted into He 111P-6/R2 cargo glider tugs. Their coupling device was mounted in the rear fuselage. Such an aircraft could pull one landing glider of the DFS 230 or Go 242 type.

There are mentions of modifications of the R-5, R-9 and R-10, but these are either single copies or modifications of previously produced machines for some special equipment.

The main reason for the relatively short production of the P series was the constant difficulties with the supply of Daimler-Benz engines. There were no such problems with Junkers engines. In addition, the unification of the engine made it possible to solve a number of problems.

He.111P-4 Specification	
Crew	5
Dimensions	
Wing span, m	22.60
Wing area, m²	87.70
Length, m	16.40
Height, m	4.00
Powerplant	
2 × Daimler-Benz DB-601A-1, power, hp 2 × 1100	
Weights, kg	
Empty weight	6,780
Gross weight	13,300
Performance<th>	
Maximum speed over ground, km/h	360
Maximum speed at altitude, km/h	395
Cruise speed over ground, km/h	310
Cruise speed at altitude, km/h	370
Maximum rate of climb, m/min	150
Service ceiling, m	8,000
Service range, km	1960-2400

Armament. One 7.9 mm MG-15 machine gun in the nose, in the Ikaria mount, one MG-15 fixed forward, one MG-15 each in the side windows, in the upper and lower rifle mounts, one 7.9- mm machine gun MG-17 fixed back in the tail cone;

4 × 250kg bombs in the bomb bay and 1-2 500kg bombs on an external sling.

Photo	Description
	Drawing Heinkel He 111P-5

Bibliography

- "Aviation of Luftwaffe" /Viktor Shunkov/ ↑
- "Encyclopedia of military engineering" /Aerospace Publising/