

PWS-19 LIGHT BOMBER

After finishing licensed production of the Potez XXV, Podlaska Wytwórnia Samolotów (PWS) decided to design a new, modern airplane to replace the Potez. The task of designing this new plane was assigned to engineers Zbigniew Ciołkosz and Andrzej Uszacki. The project was financed by PWS.

First drawings of the reconnaissance-bomber prototype were finished on July 2, 1930. The design had a number of innovative elements: a single wing above the fuselage made the plane more aerodynamic and provided a better view below than contemporary biplanes. The twin tailfins, the first time this solution was used in a Polish design, provided a wider field of fire for the observer (+/-24°). The high-powered engine and aerodynamic design provided better performance.

The first prototype was to be equipped with a Bristol-Jupiter VIF engine, but it was too expensive and difficult to buy. Therefore the design was changed, and on Sept. 5, 1930 the designers finished drawings of a second prototype equipped with a Pratt-Whitney Hornet HT2.

Two prototypes of the aircraft were built. The first was designated for static tests, carried out at PWS on April 30, 1931. The second prototype was used for flight tests. For its first flight, it took off from the factory airfield in Biała Podlaska in September 1931, piloted by F. Rutkowski.

The flight tests were carried out in the spring of 1932 at IBTL (Aviation Technical Research Institute). As some improvements were necessary, the plane returned to the plant in Biała Podlaska.

A third, improved design was finished on Aug. 4, 1932. The tailfins were enlarged, the engine cover was modified and wheel fairings were added. The bomb load was placed in two separate "bomb cells" inside the fuselage.

In March 1933, an improved prototype was tested at IBTL. On March 17, 1933, during a dive test, the wings were deformed and the plane turned upside-down. The pilot, Kazimierz Kazimierczuk, parachuted to safety, but a passenger, who had been taken on as ballast, died. A commission called up to establish the reason for the crash found that the steering cord had got stuck, making the plane impossible to pilot.

Despite good opinions about the PWS-19, further tests were dropped because a prototype of the more modern PZL-23 Karaś was almost finished. The Karaś could carry more bombs and provided better performance than the PWS-19. If Karaś tests had not been satisfactory, tests on the

PWS-19 would have been continued. At the end of 1935, the designers finally gave up the project.

The PWS-19 was shown in German catalogues until the beginning of World War II, and German newspapers wrote that the Polish Air Force was equipped with the aircraft.

In 1934, a smaller version of the PWS-19, called PWS U-6 and equipped with a 400hp G-1620 Mors engine, was entered in a competition for a reconnaissance aircraft.

The PWS-19, designed in 1929, provided similar performance to the RWD-14 Czapla produced in 1938-1939.

Construction – single-engine, two-seat reconnaissance-bomber aircraft, mixed construction with twin vertical stabilizers; wings supported by a pair of struts.

Fuselage – rectangular cross-section; steel framework supporting wooden frames, covered with linen. The front and top part of fuselage covered by duralumin sheets. Two open cabins, with the pilot's cabin shielded by a windscreen. The observer's cabin had a steel cover with a small window. The cover was raised during flight.

Wing – a two-spar design (front and rear), covered with plywood and linen. Attached to the fuselage with a glazed-in "pyramid" of steel pipes, which served as the pilot's windscreen. The wings were supported by two V-shaped struts. Wing profile – PWS-AB No. 6.

Vertical and horizontal stabilizers – made of steel pipes, equipped with trim tabs. Entirely covered with linen. Twin vertical stabilizers. The horizontal stabilizer, supported by struts, was adjustable in flight.

Undercarriage – fixed; wheels covered by fairings. Oil-air shock absorbers; steel tailskid with oil-air shock absorber.

Engine – radial, nine-cylinder, air-cooled Pratt-Whitney Hornet HT2, provided power of 525hp at 1900 rpm, weighing 350kg. There was a firewall behind the engine. Two fuel tanks were located between the firewall and the pilot's cabin inside the fuselage: a 375-liter main tank that could be jettisoned in flight and a 160-liter auxiliary. Townend cowling made of aluminum. Metal propeller – Gnome-Rhone or adjustable HWK. Average fuel consumption – 125 liters per hour.

Colours – the plane was painted olive overall. National markings were painted on the wings and rudders.

Armament and equipment – one Vickers mk. 09/32 7.25 mm machine gun for the pilot, placed on the right side inside the fuselage. Twin Vickers 7.92 mm machine guns for the observer.

The PWS-19 could carry 10 12.5kg bombs placed in front and 12 12.5kg bombs below the pilot's cabin, which gave a total bomb load of 275kg. Behind the observer cabin, on the right side of the fuselage, there were two 14.2kg VM-3 illumination bombs.

The aircraft was also equipped with an RKL/D radio, a Kolberg-Krauss camera, 12 flares, a fire-fighting installation and positional lights.

PWS-19 TECHNICAL SPECIFICATIONS

Wingspan	14.50m
Length	9.175m
Height	3.16m
Wing area	29.00sqm
Empty weight	1340kg
Gross weight	2185kg
Max. speed	234km/h
Cruising speed	190km/h
Min. speed	99km/h
Rate of climb to 3000m	7 min.
Service ceiling	7200m
Range	760m

This is the third model from the "Polish Aircraft – Prototypes" series.

The first, a Bartel BM-6a, is available for free download from the www.modele-kartonowe.com website.

The second, a PZL P-8/I, was published by CardPlane.