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## THE FIRST SCHOOL AIRCRAFT FOR TRAINING SPORT PILOTS AT THE AERO CLUB „NAŠA KRILA“

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**Abstract:** Unlike other sports, in order to engage in aviation sports, one must first undergo long and complex training, regardless of whether they are engaged in parachuting, gliding or flying powered aircraft. After World War I, the majority of sports pilots were former military pilots. It was important for all armies in the world that they remain in training, and since flying is expensive, the sport was subsidized by the state everywhere. In addition, until the end of the 1920s, sports aviation was dominated by former military training aircraft everywhere in the world except in Germany. Only from the end of the 1920s, in richer countries, did specially designed sports aircraft begin to dominate sports aviation (for example, the DH-60 Gypsy Moat). In smaller countries, former military training aircraft will dominate until World War II, especially in pilot schools that are starting to be opened by aero clubs. In the same way, Aero Club Nasha Krila received former training aircraft of the Air Force of the Small and Middle Brandenburg and Anrio 320 for training sport pilots.

**Keywords:** sports aviation, pilot training, aero club, aircraft history, interwar period

### Introduction

Unlike other sports, engaging in aviation sports requires first undergoing long and complex training, regardless of whether it involves parachuting, gliding, or flying powered aircraft. Particularly, the training of sports pilots is a prolonged and expensive process. After World War I, the majority of sports pilots were former military pilots, mostly reserve officers. It was important for all armies that reserve pilots remain in training, and since flying is expensive, aviation sports were subsidized by the state everywhere. In addition, until the end of the 1920s, sports aviation worldwide (except in Germany) was predominantly equipped with former military training aircraft. Only from the late

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1920s onward did specially designed sports aircraft begin to dominate in wealthier countries (for example, the de Havilland DH.60 Gypsy Moth). In smaller countries, former military training aircraft continued to dominate until World War II, especially in pilot schools that aero clubs were beginning to establish. In the same way, the Aero Club "Naša Krila" received 1933 old training aircraft from the Air Force – the Mali Brandenburg and Srednji Brandenburg, as well as later the Hanriot 320 – for the training of sports pilots.

During slightly more than 15 years of active work with airplanes (and gliders), in the period 1925-1941, the civil aviation of the Kingdom of Yugoslavia, with its three segments, club, private and traffic, starting with the first Kodron 27 from Skopje, had a total of 175 (known) airplanes, of which 11 are unfinished. There were 104 club airplanes, 44 private ones and 27 from "Aeroput". Of the 175 known Yugoslav civil airplanes, 60 were foreign and 115 of domestic production. The most numerous type was Anrio (27 examples or 15.42% of the total number of civil airplanes) and Fizir FN (20 or 11.43%).

The action of the Aero Club was helped to the greatest extent by Air Force, which from 1933 to 1938 assigned it 64 airplanes. In addition to the old school planes, the Air Force Command sometimes purchased certain prototypes and then assigned them to the Central Administration.

During 1933, the Air Force Command of the Army handed over 18 training aircraft to the Aero Club for the organization of a pilot school, divided into 4 sections: in Belgrade, Zagreb, Ljubljana, and Skopje. A total of 31 tourist pilots were trained in the Aero Club's civilian pilot schools during 1933. [Sondermajer, 1934, 121]

The following aircraft were received: 6 Hanriot aircraft, 8 smaller Brandenburgs, and 4 medium Brandenburgs. The sections began operations as follows: Belgrade on July 14, Zagreb on August 14, Ljubljana on August 28, and Skopje on September 1, 1933. Prior to delivery, the aircraft were stationed in Novi Sad and Zagreb. They were distributed as follows: 6 Hanriots to Belgrade, three Brandenburgs to Zagreb, two Brandenburgs to Ljubljana, and two Brandenburgs to Skopje. In Skopje, one of the Brandenburgs was involved in a fatal accident; during a pilot examination, the trainee was killed. [Sondermajer, 1934, 121]

During 1933, three aircraft were written off because they were 100% damaged in accidents. [Sondermajer, 1934, 121]

During 1933, the first female pilots completed their training: Mrs. Desanka Tomić (wife of Miodrag Tomić) on August 23, 1933, and Miss Gorišek on September 14, 1933. In Belgrade, 40 students were enrolled for tourist pilot training, of whom 24 graduated, 9 were still in training at the end of the year, and 7 dropped out. In Zagreb, there were 6 students and all 6 graduated. In Ljubljana, there were also 6 students who were still

in training at the end of the year because, due to poor weather conditions, they had not yet taken the examination. [Sondermajer, 1934, 121]

However, as early as 1937, politics began to change. Realizing that the small club schools of individual OO's still cannot train a large number of pilots (who were needed by the Air Force for reserve), the Central Administration withdrew more capable and modern school airplanes from the aero-clubs and transferred them to pilot schools (the first such school was founded in Pančevo in 1937). Thus, almost all club Fizirs were gradually withdrawn from the clubs.

This method of training proved to be very effective, so that hundreds of pilots were trained until the war. With the introduction of new Biker Jungmen to the pilot schools during the 1941 season, the FN planes were freed and returned to the clubs, while at the same time maintaining the existing schools and the pace of training new reserve pilots.

At that time, modeling and gliding were pushed in the Aero Club, so in the last two years before the war, a large number of gliders were built (self-built) (most of them were gliders). Almost every club built two or three, and some larger ones even 12 sailboats in one year.

### **School Aircraft for Initial Pilot Training – Mali Brandenburg**

At the beginning of 1923, several businessmen from Novi Sad decided to establish an aircraft factory. Work began on four school aircraft, built according to domestic plans freely provided by the Ministry of War and Navy, but without any guarantee of state purchase. Production of components (wings and fuselages) started immediately.<sup>4[1]</sup> The beginning of operations was marked by significant difficulties, especially regarding skilled labor. When it became clear that the started work could not be completed without reorganizing the factory, it was decided to engage professional management and relieve the company financially. For this reason, on October 11, 1923, [Illustrovani list No. 16 of April 20, 1924.] a new company was founded under the name "Ikarus," the first Serbian industry of airplanes, automobiles, and engines, Kovačević and partners. The factory was located on Šumadijska Street in Novi Sad. Just two days later, the decision was made to continue building the 4 Mali Brandenburgs, still without any guarantee of purchase by the state. [Jadranska straža No. 8/1927, p. 250]

Under the new management, the primary goal was to complete the already started aircraft first. Unfortunately, a large portion of the already processed material had to

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<sup>4</sup> It is not entirely clear from the preserved material whether these four aircraft were started as new in Ikarus itself or whether work on them began in the Aircraft Workshop in Novi Sad and then handed over to Ikarus as only partially started.

be discarded, due to poor quality as well as faulty workmanship. It can freely be said that work practically had to start over. Completing the plans and drawings, procuring materials, hiring skilled workers, etc., lasted until the beginning of 1924, when systematic work finally began, although it was still far from organized serial production. As a result of this reorganization, actual work on the mentioned four aircraft started in January 1924, and the first one was completed on March 3, 1924, after which it was immediately transferred to the airfield of the 1st Aviation Command for final assembly. After successful test flights (conducted from March 20 to 27), the official handover of the aircraft took place on March 28, 1924, as the Ministry of War and Navy was satisfied with the workmanship. This first "Ikarus" aircraft was the first serially produced aircraft built in the country. The second aircraft was completed in April, and the third in May of the same type. During June, test flights and handover to the Aviation Command were carried out for both of these aircraft. The fourth aircraft was completed in July and delivered on August 28 of the same year.[Illustrovani list No. 16 of April 20, 1924; Jadranska straža No. 8/1927, 250; D. Ćirović, History of Yugoslav Aviation 1918-1930, Book III; Žutić, 1998, 54 – 73]

While these works were still in progress, the factory succeeded in concluding the first contract with the state for the construction of additional aircraft. This contract concerned the production of school-type seaplanes, which were most needed for the training of student pilots of the Naval Aviation Command. The plans for this type were the property of the Ministry of War and Navy, which had previously purchased them from the later technical director of "Ikarus." The joint-stock company was established on August 1, 1924 (with a capital of 2,000,000 dinars),<sup>5</sup> after which a new reorganization took place to achieve the most rational production possible. This gave a stronger impetus to the construction of seaplanes, so the first one was completed by the end of October 1924. The test flights were carried out between November 10 and 24, 1924, with complete success. [Jadranska straža No. 8/1927, 250]

The "Ikarus" factory produced 18 Mali Brandenburgs under the factory designation Ikarus Type ŠB (School Brandenburg).<sup>6</sup>[7] The "Ikarus" examples were equipped with engines of two types with 100 hp power: Mercedes and Blesk (licensed Mercedes), and accordingly, the aircraft were called Brandenburg-Mercedes 100 hp or Brandenburg-Blesk 100 hp.

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<sup>5</sup> The company's capital was increased in 1925 to 5,000,000 dinars.

<sup>6</sup> There is no written source for the exact number of produced Mali and Srednji Brandenburg aircraft, only annual summary production data. Based on preserved photographs, flight logs, and other documents from units, it was possible to reconstruct the exact number of aircraft produced by type. Only the exact number of Srednji Brandenburgs produced in the Aircraft Workshop in Novi Sad could not be determined.

The carpentry workshop of Ž. Rogožarski, registered on April 21, 1924, as the "First Serbian Aircraft Factory Živojin Rogožarski" (P.S.F.A.Ž.R.), began its first job with the production of Mali Brandenburgs under the designation Rogožarski ŠB (School Brandenburg). The same Mercedes 100 hp engine was used for propulsion. The first example, completed at the end of April 1925, was solemnly delivered on May 10, and by the end of the year the first 10 aircraft of this type had been completed. At "Rogožarski" a total of 22 aircraft of this type were built, also called Brandenburg-Mercedes 100 hp. [Naša krila No. 11, May 1925]

Both domestic versions of the Mali Brandenburg served as standard school aircraft in the Air Force of the Kingdom of SHS until 1926, when they began to be gradually replaced by the new Hanriots, [Popović, 1938, 58] although some examples continued to be used for secondary tasks in the second half of the 1920s. A certain number of aircraft occasionally received skis for winter flying. Repairs and overhauls of the Mali Brandenburgs were most often carried out at the Aircraft Workshop of the 1st Aviation Regiment in Novi Sad, which manufactured a large number of spare parts, so that some examples were almost completely renewed.

As part of the action of handing over old military school aircraft to the Royal Yugoslav Aero Club, the eight remaining old Mali Brandenburgs received civilian registration in the summer of 1933 (YU-PBS, 'V, 'X, 'Y, YU-PCA, 'B, 'D, 'E). Their service continued for several more years, after which they were withdrawn from use due to wear and tear.

### **Transition Training School Aircraft Srednji Brandenburg**

Five countries (Hungary, Poland, Romania, Czechoslovakia, and the Kingdom of SCS) produced their own derivatives based on the Hansa Brandenburg C.I type after the war. The Hungarian "UFAG" continued production of the series 169 (Ba.169), while the Poles manufactured around 30 aircraft of their KW-2 version between 1920 and 1923. The Romanian Arsenal delivered as many as 120 examples of the C.I Ba.269 type in 1922-1923, and Czechoslovakia produced three smaller series at the same time (Aero A-14, A-15, and A-26).

The Aviation Workshops of the 1st Aviation Command in Novi Sad, which initially dealt only with the repair of damaged aircraft, began in the winter of 1923/24 to design new two-seat school biplanes with dual controls, powered by a 185 hp Daimler engine. In terms of construction, these aircraft were very similar to those known in the Air Force as "Srednji Brandenburg," which were already being used in pilot schools as second-stage aircraft (i.e., for transition training – in modern terminology). [Bulletin No. 33/1924, 8-9] The first aircraft of this series, 02-01, was completed at the beginning of August 1924. According to the report of the commission's control member, Aviation

Lieutenant "graduate pilot" A. Kervine, during test flights this aircraft achieved good results. [Bulletin No. 33/1924, 9] After that, a small series was built in the mentioned workshops, but there are no reliable data on the exact number of produced examples. Indirectly, based on photographs, pilot logbooks, and similar sources, it can be concluded that there were at least 5 and at most 9.

As in the case of the Mali Brandenburg, the domestic factories "Ikarus" and "Rogožarski" produced Srednji Brandenburgs according to domestic plans owned by the Ministry of War and Navy. "Ikarus" built a total of 6 aircraft during 1925 and 1926 under the factory designation Sb.1 (Srednji Brandenburg). These aircraft were equipped with Daimler 185 hp engines and were therefore called Srednji Brandenburg-Daimler 185 hp. The "Rogožarski" factory produced a similar type over three years, from 1926 to 1928, with the same factory designation Sb.1 (although on the aircraft itself it was marked as Sr. Brand.). The "Rogožarski" aircraft were fitted with Daimler engines of 160 and 185 hp, and accordingly received the usual alternative names based on the engines. These two sub-variants did not differ externally, since both Daimler engines had the same dimensions. At "Rogožarski," 24 examples were built. [Bjelajac, 1994, 40; Mikić, 1933, 648; Popović, 1938, 57 - 60]

On some aircraft, engines were changed during overhauls, so it is not excluded that the same example appears with Daimler engines of different power. Besides the most common name, the designation Srednji Brandenburg-Mercedes 185 hp is also frequently found in pilot logbooks. However, this still referred to the Daimler engine (incorrectly written as Mercedes due to the later name of the German company "Daimler," although the engines were produced by "Austro-Daimler"). Some examples received skis for winter flying. The Srednji Brandenburg aircraft regularly participated in competitions for the King's Cup from 1927 until the early 1930s, and at that time their operational use in the Air Force ended. Their last use in the Kingdom of Yugoslavia was with the Aero Club, where 4 civilian-registered aircraft flew in the period 1933–1934 (YU-PBT, 'U, 'Z, YU-PCF).

### ***Small Brandenburg***

Two-seat school biplane. The aircraft was of wooden construction. One Mercedes 100 hp engine. Maximum horizontal speed: 90 km/h. Time to climb to 3,000 m: 40 minutes. Service ceiling: 3,500 m. Flight endurance: 3½ hours. [Simović, 1928, 61]

### ***Middle Brandenburg***

Two-seat school biplane. The aircraft was of wooden construction. One Daimler 185 hp engine. Maximum horizontal speed: 145 km/h. Time to climb to 3,000 m: 45 minutes. Service ceiling: 5,000 m. Flight endurance: 5½ hours. [Simović, 1928, 61]

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