

Boris Loutzky – the founder of Ukrainian aircraft engine-building

Oleksandr Firsov

Department of Humanities and Social Studies,
European University (Cherkasy Branch), UKRAINE,
Cherkasy, 83 Smilyanska St., E-mail: firsov2010@gmail.com

Abstract – This paper analyses a great contribution of Boris Loutzky to the development of Ukrainian aircraft engine-building. It was proved that Loutzky was at the origins of domestic aircraft engine-building. He was both a teacher and a mentor for many domestic engine and aircraft designers.

Key words – Boris Loutzky, designer, inventor, founder, aircraft engine-building, Boris Vorobyov.

I. Introduction

Ukrainian aircraft engine-building owes its development to many scientists, designers and inventors. Today we constantly mention the names of O. Mikulin, A. Lyul'ka, S. Grizodubov, S. Tumansky, V. Chelomey, O. Ivchenko, V. Lotarev, V. Glushko and other prominent figures of science and technology who made a great contribution to the development of aircraft engine-building. Unfortunately we hardly ever mention the name of Boris Loutzky (1865–1943), our compatriot, a native of Berdyansk, who was at the origins of domestic aircraft engine-building. From the late XIX to the first half of XX century Boris Loutzky was one of the most famous designers and inventors in Europe [1, 2, 3]. He lived almost all his life in Germany, but never forgot his native land. First of all he proposed to implement all his designs and inventions in his homeland, however, tsarist officials refused to build or subsidize his projects because they preferred to get the finished product from Germany. Without a hope of breaking in Tsarist red tape to realize his plans he knew that on the technical level Russian empire did not have sufficient means to implement his ideas. That's why Boris Loutzky continued his work in Germany but never left the idea to use his achievements for the benefit of his homeland. Unfortunately Boris Loutzky did not leave behind descendants inherited, memoirs or archives and therefore his name was forgotten in Ukraine.

II. The contribution of Boris Loutzky to the development of Ukrainian aircraft engine-building

Boris Loutzky was both a teacher and a mentor for many domestic engine and aircraft designers. In particular we should mention that I. Sikorsky was the creator of multiple-motor airplane «Ilya Muromets» and MRB-6 engines; B. Vorobyov and V. Kireev were the developers of the first aircraft engines at DEKA factory in 1916 in the town of Alexandrovsk (Zaporizhia since 1921). In 1995 the enterprise was converted into Motor Sich Joint Stock Company. Before the First World War all mentioned designers went to Germany for consultations for improving design of aircraft-engines and aircrafts

issues, as well as for assistance in acquiring aircraft engines “Argus”, “Mercedes” of his design [4, P. 66]. Boris Loutzky was one of the directors in various German companies where these engines were manufactured. He was able to assist his compatriots in acquisition. Engines of Loutzky design were also used by aircraft designers as M. Rebikov, Y. Gakkel, G. Chechet, I. Stehlau, M. Sorokin [5].

In autumn 1913 Loutzky realized the importance of domestic aircraft engine-building came to his homeland and together with his apprentice and friend engineer Boris Vorobiev started looking for sponsors who could agree to finance the construction of a plant for manufacturing aircraft engines of his design. They developed the plant design and aircraft engine production technology from domestic materials. In order to accelerate the process of production, it was desirable to have both samples of finished engines and the drawings. Therefore, in spring 1914 Loutzky found sponsors and returned to Germany to make his most advanced aircraft engines of 100 and 150 horsepower at “Daimler” company, where he served as one of its directors. These engines were simpler in comparison with “Mercedes” aircraft engines and had a smaller specific weight and dimensions. In particular, his 150-hp engine had the same length as “Mercedes” 100-hp engine [6, P. 93]. Loutzky had intention to mount his new engines onto finished aircrafts and airlift them to homeland. In June 1914 the engines were made and mounted onto new Doppeldecker aircrafts designed by Loutzky, but the flight to his homeland from Germany never took place. As early as July Loutzky was arrested on a charge of alleged espionage and sentenced to be shot. Former Personal Representative of Tsar Nicholas II under Kaiser of Germany Major General Tatischev, who knew and valued Loutzky, managed to achieve mitigation of punishment with the help of Spanish government and the death sentence was replaced by imprisonment for life. Throughout the war Loutzky spent in Spandau prison and only after the revolutionary revolt in Germany, when the Weimar Republic was formed, he was released and all his rights were returned.

Incidentally, in 1915 while Loutzky was imprisoned in a German jail “Daimler”, the company produced a detailed promotional prospectus, in which Loutzky's designs and patents of aircraft engines were presented, but his name wasn't mentioned in it [6, P. 95]. After being released from prison Loutzky returned to his homeland to Andriyivka and lived there almost a year and a half. However, due to the civil war and the possibility being executed by “white” or “red” or “Makhno” (at that time the authority was changed several times in Andreevka), he was forced to return to Germany. In Germany, he founded his own company, which was called “Loutzkoy Werk”. Based on Loutzky's patents various equipment for engines and vehicles were produced by this company.

After the end of the Civil War Loutzky started looking for ways to return to his homeland. Loutzky's friend Vorobyov tried to assist him with getting entry permit to the Soviet Union but, unfortunately, failed [6, P. 96-97]. Significant bureaucratic forces came into effect and for all

that it was so powerful that since 1930 Vorobyov had been even compelled to interrupt correspondence with Loutzky. After that Boris Loutzky addressed a request to the Soviet Embassy in Berlin to allow him to return home, but was denied. Loutzky was a patriot of his homeland and never became a citizen of another country.

However, his efforts to organize the production of aircraft engines in his homeland were not in vain. While he was in Spandau prison, engineer Vorobyov continued his work [6, P. 93-94]. Under his leadership in 1916, in Alexandrovsk (native land of Loutzky) aircraft engine-building plant was built and engines made of domestic materials were manufactured. The first engine built on the basis of Loutzky's engine design was called DEKA M-100 (Fig. 1, 2), it was tested and produced in August, 1916. This date is considered to be the foundation date of JSC "Motor Sich". Incidentally, the plant created in Zaporizhia was the first specialized aircraft engine-building plant in Ukraine and the Russian Empire. After the revolution in 1918-1920 the Main Department of the Air Force sent engineer Vorobyov to equip aircraft factories in Simferopol, Kherson and Odesa.

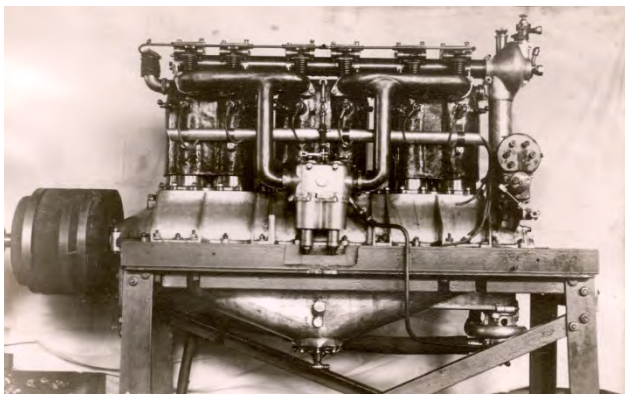


Fig. 1. Aircraft engine DEKA M-100, 1916

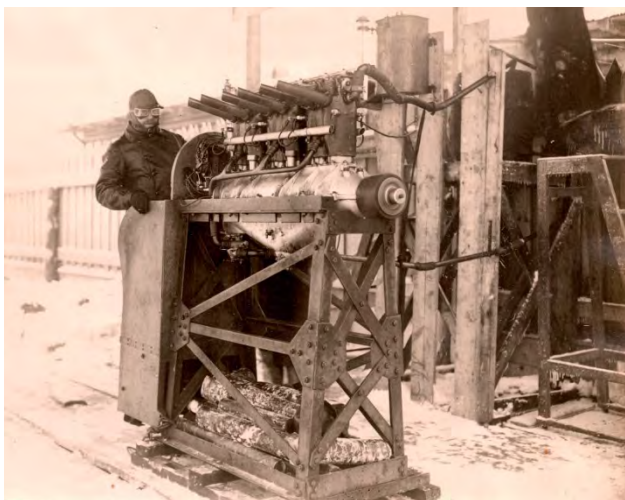


Fig. 2. Aircraft engine DEKA M-100 trials, 1916

From 1922 till 1930 while living in Germany, Boris Loutzky and his friend Vorobyov influenced the development of domestic engine- and aircraft-building. At that time Vorobyov held management positions in the

Aviation Trust of Supreme Council of the National Economy of the USSR and he often went on business to Germany for equipment purchases for aircraft factories and study foreign aircraft production. Each time during his visits he met Loutzky, who gave him a good piece of advice concerning engine-building issues and assisted him with the best equipment purchases for USSR aircraft factories.

During World War II a prominent designer of aircraft engines Academician Oleksandr Mikulin used ideas and inventions of Loutzky in the field of aircraft engine-building. Creating aircraft engines AM-38 and AM-42 (for the high-flying bombers) he used the supercharge method that was invented by Loutzky in 1901, for aircraft engine AM-43 he used the method of direct injection of fuel into the cylinder. It was a new step in the aircraft engine-building. This method was also invented by Loutzky in 1892.

Today Ukrainian scientists and engineers continue to use Loutzky's ideas and inventions creating new designs of aircraft engines and their improvement. In particular, the scientists of Kharkiv Polytechnical Institute are engaged in research in the field of improvement of engines with hemispherical chambers which were invented for the first time in the world by Boris Loutzky in 1895. Ukrainian designers implement a supercharge in all modern powerful aircraft engines.

Conclusion

Summing up we can state that our compatriot Boris Loutzky and his apprentice an engineer Boris Vorobyov are the founders of Ukrainian aircraft engine-building. Besides living in Germany Loutzky never forgot about his native land. He constantly via Vorobyov offered his inventions and designs for the use in his own country.

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