

# THE LITTLE AVIATION MUSEUM

## *Workbench notes*

### **BEREZNYAK-ISAEV BI IN 1/72 BY EASTERN EXPRESS**

(April 2002)

If anything, the Russians were more advanced in rocket design and development than the Germans by the beginning of World War Two. Experiments into using rockets for many purposes including air-to-air and air-to-surface missiles were conducted by an official development bureau, the RN11, that was formally established in 1934 to coordinate research previously conducted by a variety of other bodies.

Among the project the RN11 undertook was development of relatively large liquid fuel rocket engines, the RDK-1 rocket motor on which Aleksei Isaev was a team member (later he was primarily responsible for the design of the power plants of the Vostok, Voshkod and Soyuz space launching vehicles). In 1937 development began on the RP-318, a glider converted to accommodate that motor and, as usual in the development of rocket powered aeroplanes, the main delay came in developing a reliable motor. So, although work on the RP 318 began in 1937 it did not make its first powered test flight until 28 February 1940.

Alexander Yakovlevich Bereznyak, an aerodynamicist, witnessed two of the trail flights and, with Isaev, he conceived the idea of a small target-defence interceptor around the rocket motor. By the end of 1940 all the necessary approvals had been gained and design of what became known simply as the BI began. Construction of several prototypes began in a factory on the outskirts of



Moscow but the German invasion forced the entire project to be moved to the other side of the Urals where the first BI airframe was ready for gliding trials in the first weeks of 1942.

While the first prototype flew the gliding trials the second and third were prepared for tests with the rocket motor. However there were several serious delays and the first taxiing trials under power did not begin until the first week of May 1942 with the first powered flight occurring on 15 May. The three minute flight was successful but the undercarriage collapsed during the landing and the BI was slightly damaged. It was the world's first flight of a rocket propelled interceptor.

The test program continued slowly, gradually extending the flight envelope until 27 March 1943 when, as the BI was flying at about 500 mph, it pitched nose down and began to break up before hitting the ground. The pilot was killed. Pending the results of the investigation work on an initial batch of 50 BIs was suspended. Wind tunnel tests showed that the BI had a tendency to pitch nose-down at high speeds and that there was no obvious means of overcoming the problem. Seven prototypes were completed and although more test flights were made, the final one demonstrating a climb rate of no less than 83 metres a second, the entire project was abandoned in March 1945.

*Eastern Express* are a Russian company that seems mainly to re-release kits previously released by other companies including *Frog* and *Toko*. In this case I don't know if the kit began life somewhere else or whether it is *Eastern Express's* own work. In any case, this is a welcome kit that rounds out my collection of all the rocket fighters developed around World War II. It is, in its own way, quite a good kit.

The first thing you can't help but notice is that even in the relatively small box the kit still rattles around because the BI was such a tiny aeroplane. To counter that the kit offers almost all the pieces needed to make at least three of the prototypes and the decal sheet offers options for the second, third and sixth prototypes. In general terms the second prototype had a wheeled undercarriage, the third had ski undercarriage and the sixth was tested with wing mounted ramjet boosters (some sources say it was the seventh prototype). All you need to make any of these three is included but you need to be a genius who can read Russian to work out all the details of what is in the instruction sheet. As usual for this kind of kit, I had to rely on photographs and drawings to



get all the options more or less right. I chose the third prototype because it had skis but not the sixth (which apparently also flew with skis at one stage) because I didn't like the look of the wing mounted ram jets.

This isn't a hard kit to put together because there really isn't much to it. None of the parts really fit perfectly but, by studying the instruction sheet carefully, you should be able to work out which kit parts go to make up the different prototypes; the second prototype would be the easiest, perhaps, and the third with the skis, tail bracing and guns mounted in the nose is perhaps the most difficult. The instruction sheet gives you measurements for the little bits of stretched sprue you need to make for the bracing and so on. The locations for the tail bracing are moulded on the kit but I'm fairly sure they should be longer, as in shown in the article in *Air Enthusiast* for December 1973, and so I ignored the little lumps on the tail planes that had almost been sanded smooth anyhow. The only part that really fitted badly was the tail plane that needed a fair amount of filling and filing to merge it into the fuselage well.

The colours are standard Russian earth, green and underside grey/blue but the instruction sheet does not make the upper side pattern from the third prototype very clear. The sheet also suggests that there were red stars on the tail plane endplates but that doesn't seem likely according to other sources. Whatever... the resulting model still looks petit and interesting.



## THE LITTLE AVIATION MUSEUM

W030