

AIRFRAME BUILT BY CHRIS STRACHAN
MODIFIED POWER SYSTEM BY PAUL BURLING

FIESELER FI 103R
REICHENBERG FZG-76



HISTORY AND DEVELOPMENT

The V-1 operated with a simple guidance system and was supplied with enough fuel to reach a major target in England or Allied territory on the Continent. Once above the target, the V-1 would have expended all its fuel and begun a random descent to the ground, its warhead detonating on impact.

The bombs sometimes missed a target as large as Greater London, which covers hundreds of square miles, by either flying beyond the entire city or, usually, crashing far short of it. Certainly, the sheer randomness of the attacks contributed to extreme fear of the enemy populace, but greater accuracy would have been beneficial from a military standpoint. One way to solve this problem would be to develop a manned V-1: to put a pilot in the unmanned flying bomb. A piloted version of the FZG-76 already existed, although it had been designed strictly for testing. The V-1 was unstable and to solve this problem, Hanna Reitsch was asked to resolve this by piloting the FZG-76. The safest way was to air-launch from a Heinkel He-111 twin-engine bomber. Hanna being an excellent pilot lived up to her reputation and suggested

changes to the aircraft's trim. It is believed that Hanna struggled to keep the aircraft in a straight line as it constantly pulled to the right. She managed a controlled descent and landed after a harrowing flight. Her suggested changes were implemented by Fieseler and were instrumental in the success of the V-1 campaign.



The model airframe

This second model beautifully modified by Chris Strachan using the vintage Model Co 12.5inc Crossley V-1 Flying bomb (Doodlebug) was changed by adding a cockpit, Pilot, rear fairing and extended pulse jet tube as per the FZG-76 but added considerable weight over the V1 /JB-2 Loon model that he made. The weight is split between the mods and the weight in the nose to make sure the C of G is correct. The weight of some 10g over the standard model did not help with the wing loading, but using additional thrust using electric cordless motors helped it to fly.

The kit dimensions:

- Wingspan: 12.5" (31.8 cm)
- Modified Power system: RC differential thrust using a 3.7v 150mAh Lipo
- Manufacturer: Richard Crossley
- Difficulty: Intermediate including flying

The Power System

The free flight version of the FZG- 76 was tested and flown by Chris Strachen using a Rapier rocket motor manufactured in the Czech republic. Unlike the JB-2 Loon model, there were no trim tabs or rudder adjustment so I concluded that Chris must have left well alone and allowed the model to turn to the right. Ironically this model would fly as Hanna Reitsch had documented when flying the real thing. So I decided to push ahead with my modification using the same set up as the RC converted JB-2 Loon. Flying with just two motors that control both speed/climbing and yaw through differential thrust using a 1s Lipo. Keeping cost down, exploring yet again my parts bin I found just what I needed, differential thrust, gyro stabilised electronics. Cost of such technology

now can be purchased for £14.00 all in including battery and transmitter. This is a gift and I should have bought another five!! The circuit board was cut from a RC Foam Jet as before and screwed to a lightweight plastic box that holds the battery. The printed circuit board can easily be removed from the plastic box by unscrewing two screws to save additional weight if needed. The C of G is critical for this airframe therefore the placement of the circuit board and battery must be placed accurately, this was trial and error to get the FZG-76 aircraft to fly correctly.



Glowes well in the dark! don't touch, bloody hot!



What no catapult! It will Never take off

Time had come to ignite the pulse jet, get a decent blue paraffin glow and set up on the ramp ready for take off (only kidding). The blue glow is a wired in LED weaved through a small hole in the fairing and fixed with a small amount of UHU Por adhesive. But the LED does change colour when increasing the speed of the motors to represent the combustion cycle. No added noise as I did not want to be anti social on this occasion. Forgot to tell you that the model was not launched from the ramp, hand launching was straight forward and the model flew first time but not without its problems, call in Hanna Reitsch.

Hanna could not be found so the next best thing call in the A Team, Nicola my wife. Ready with her iPhone taking many picture to get a good shot to try to help resolve the problem of turning right. Left stick to the stop, would cause the aircraft to fly in a straight line with no problem so right turn only was the only way to get it to turn around. The Alternative would be a long walk.



Mind your head Nicola Landing!

The above picture was on max zoom (she has a new iPhone) but taken very close to her head as it was coming in fast and low landing in the long grass in a field at Babraham. Unfortunately the picture told me nothing apart from the motors were spinning. So went up again full left stick and gradually releasing to the right or the aircraft would to go out of sight and possibly lost.



The FZG-76 looks fantastic in the air, thanks to the build quality by Chris, but because of the extra weight and high wing loading the motors were flat out screaming their little heads off. The landing speed is much higher than the JB-2 Loon, so even in long grass, the airframe could easily be damaged, as noted after inspection when I got home.

A small tear in the tissue paper on the underside probably caused by a branch from a tree. Easily repairable!

After some time flying around, I still could not resolve the turning right issue without modifying the aircraft frame something I did not want to do. This was not a problem as I could fly in a circle but I did want to do figure of eights like the JB-2 Loon. The aircraft also felt heavy on the controls, probably this was OK for free flight, but struggled as a RC aircraft.

Being respectful of the time Chris had spent building the Aircraft and his excellent eye for detail I decided to decommission the FZG-76 before any major catastrophic failure was to be encountered. I love the workmanship that Chris uses on his models so this one will be retired on my shelf in my office along with others I have of his design and build. I did not want to see this end up in a pile of matchwood. What I can say that this aircraft flew for a long distance around in circles and going up many times using a number of batteries and probably covered more distance than using a Rapier rocket motor.

When you have mastered the system you should have many hours of fun and flight. Typically you can expect to fly on one charge for 10 minutes but I have seen longer times in still windless conditions. When taking off I use 100% of the throttle to get a good climb and then stooge around to 85% throttle.

Remember this system is not for aerobatics it lends itself to flying around at semi scaled speed in a clean and efficient way. Thanks to Chris Strachen again for building these historic aircraft a difficult subject to model and to get to fly well.

There are many unusual aircraft that history has shown, even future aircraft concepts that many doubted would take to the air, but using our modelling skills and knowledge of power systems it is amazing what you can get to fly.

Go and experiment with your own ideas and when they do fly, you will be rewarded.

Thanks

Paul Burling