CIAM FLYER

Public Letter 5-09

www.fai.org/aeromodelling/ciamflyer
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Combining Nature and High-Tech

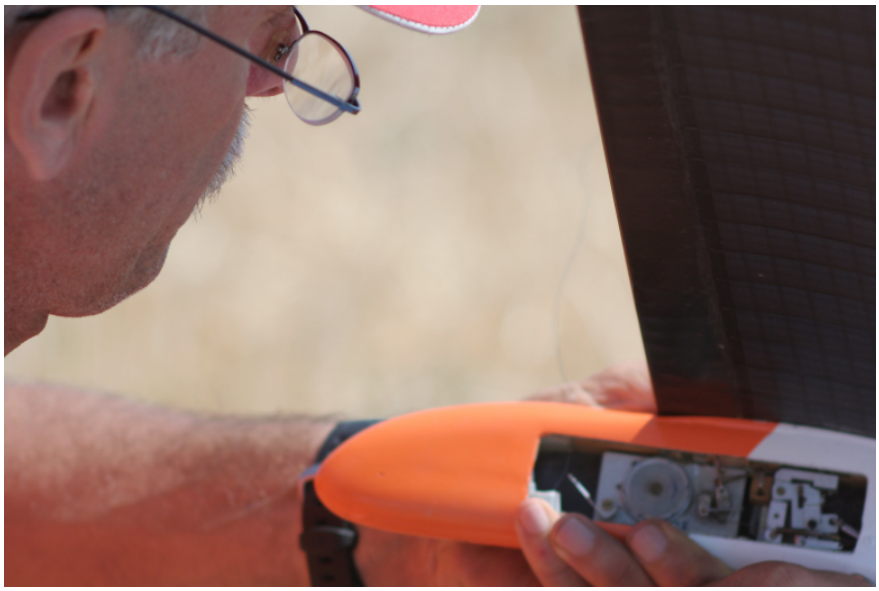
Once launched, free flight model gliders are left to the whims of the air and sun, relying on the control adjustments programmed before launch.

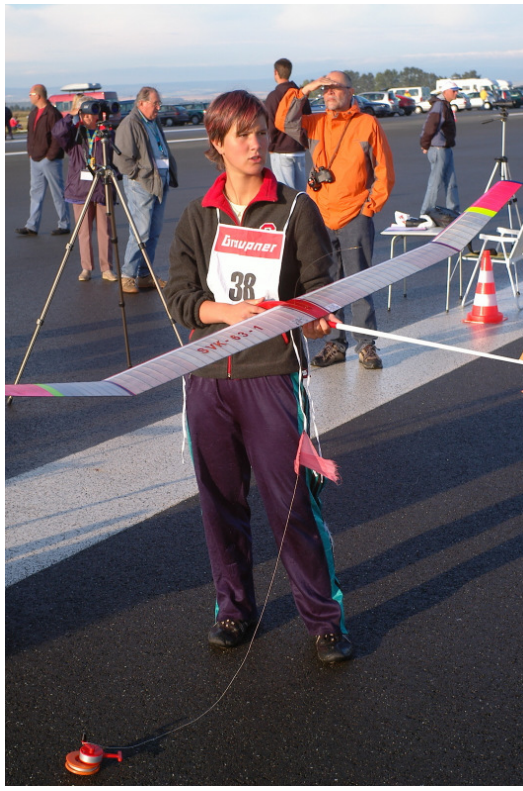
Gliders were most likely among the first model aeroplanes. Wonderful model gliders were being built as long ago as one hundred years or even more. They were launched from slopes, using a line – similar to a kite – or the energy of rubber bands powering propellers. Once launched, these models fly freely. The pilot has no way of directly controlling his model.

Versatile Free Flight
The best-known documented model glider with a rubber band motor was Alphons Pénaud's "Planophore" (1871). The first competition is said to have taken place as early as 1911, when Lord Wakefield of Hythe donated a trophy for a competition for rubber powered models.

International free flight competitions have been held since 1928 and now we have the very popular FAI World Championships. Free Flight World Championships are held in a variety of categories: gliders, rubber powered models, models with internal combustion engines as well as gliders with automatic control and indoor models.

The Challenge of Gliding
As indicated by the term "Free Flight", there is no connection between man and aeroplane once a free flight model has been launched – in the case of model gliders, after it has been released from the 50m long towing line. They fly freely. The requirement is for a flight duration of 3 minutes. This requires not only an aeroplane



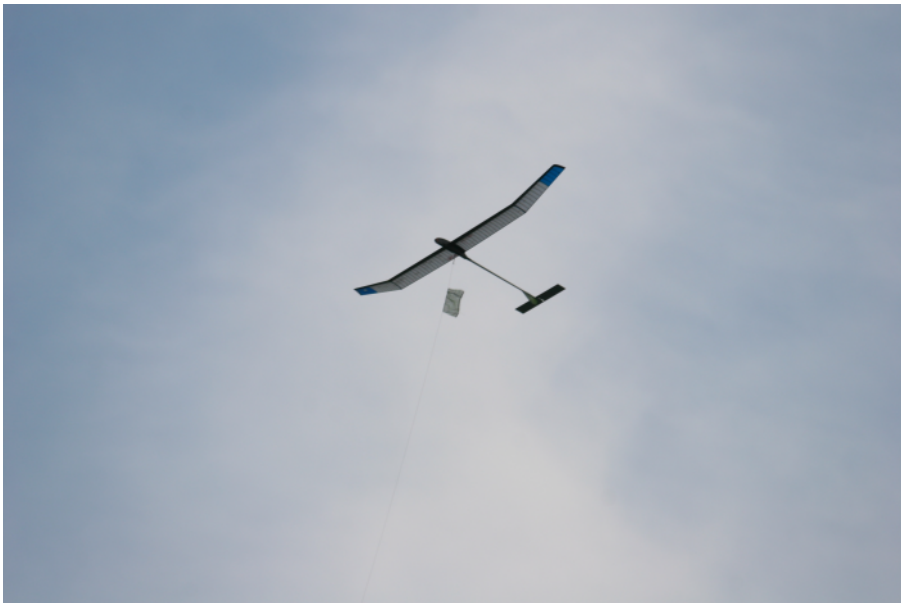


that stays in the air as long as possible, i.e. sinks as little as possible per unit of time, but is also very demanding for the competitor. He has to release his model at the right time at the right location. To achieve this, he tows his glider on a line until he finds an updraft zone. Air above the ground that is warmed by the sun separates from time to time like large soap bubbles and rises away quickly. When the model glider enters one of these bubbles, the pilot will feel a slight to strong pull on the towing line. He tensions the line further by running fast and the speed of the glider causes it to shoot further upwards after being released.

⇐ Pre-set changes of control positions and brakes to initiate landing

From Plywood Gliders to High Tech Aeroplanes

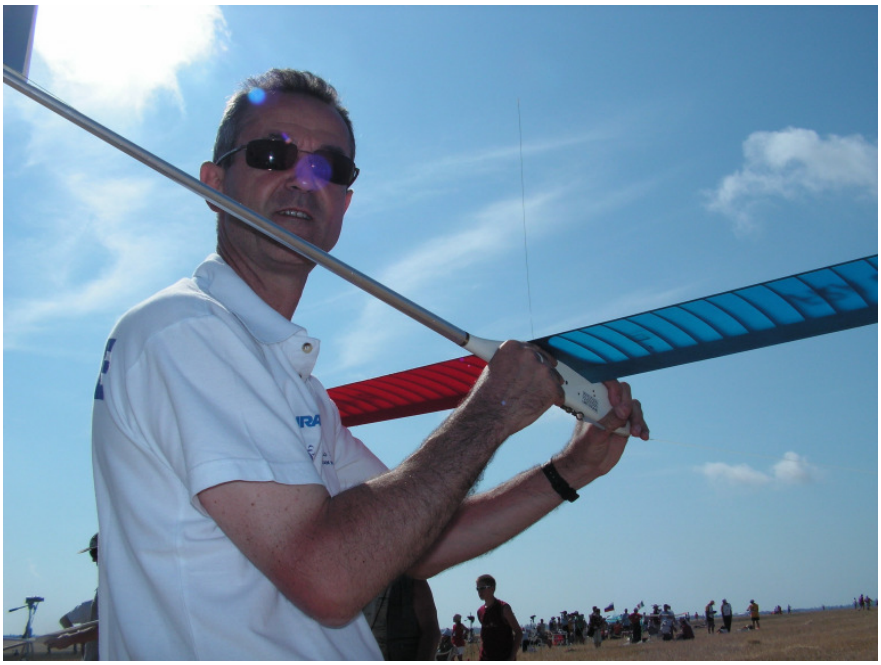
Like all aeronautical disciplines, model gliding has developed enormously in the last 100 years. While in the 1930s and 1940s models were being built from meticulously cut-out plywood frames and ribs, twenty years later they were made almost completely from lightweight balsawood which in turn has now beenlargely replaced by cutting-edge composites. Models do not only have to be lightweight and capable of stable flight due to the required continuous flight performance, but because of the launching method described previously they must also be able to withstand high loads. Pre-set changes of control positions and brakes to initiate landing after completing the flight require skilled craftsmanship and an understanding of mechanics. Knowledge and experience of aerodynamics are very important to achieve the flight requirements in varying weather conditions. No coincidence then, that former free flight champions have been university professors of aerodynamics.



Nothing is Possible without an Understanding of Weather and Physics

As is easily seen from the requirements for successful competition flights in the free flight categories, even the most refined technology cannot be solely responsible for success. This also requires an understanding of the dynamics of the air above the competition site – carefully observing and locating thermal updrafts combined with required flight tactics, specifically time and location of releasing the model. But no expert was created overnight. Simpler balsawood models are still suitable for first attempts and increasing experience will then lead to the use of more advanced models. More information can be found on www.fai.org/aeromodelling. Good luck

The pilot will feel a slight to strong pull on the towing line.



Note: Images: All photographs were taken at the Free Flight World Championships 2006 for Juniors in Germany and 2007 for Seniors in Ukraine. With thanks.