FAI AEROMODELLING COMMISSION
CIAM FLYER
The Introduction to the Model Aircraft World

A Close Relationship with Nature

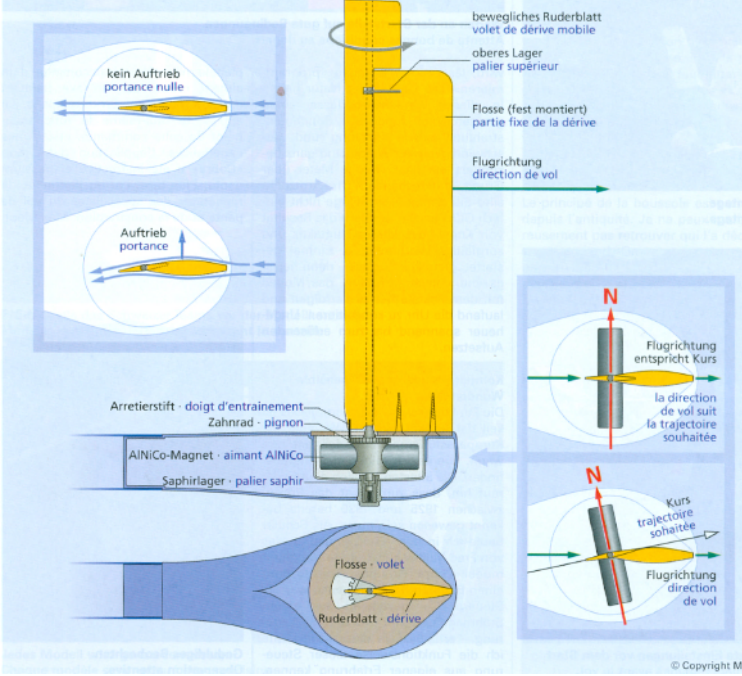
Once they have taken off, free-flight models with compass steering can no longer be controlled. They are launched from a slope and, after leaving the pilot's hands, are at the mercy of nature and the elements.

How does compass steering work?

Contrary to free-flight models of other classes, slope gliders (FAI Class F1E) are equipped with compass steering.

Mechanical compass control is housed in the tip of the fuselage.

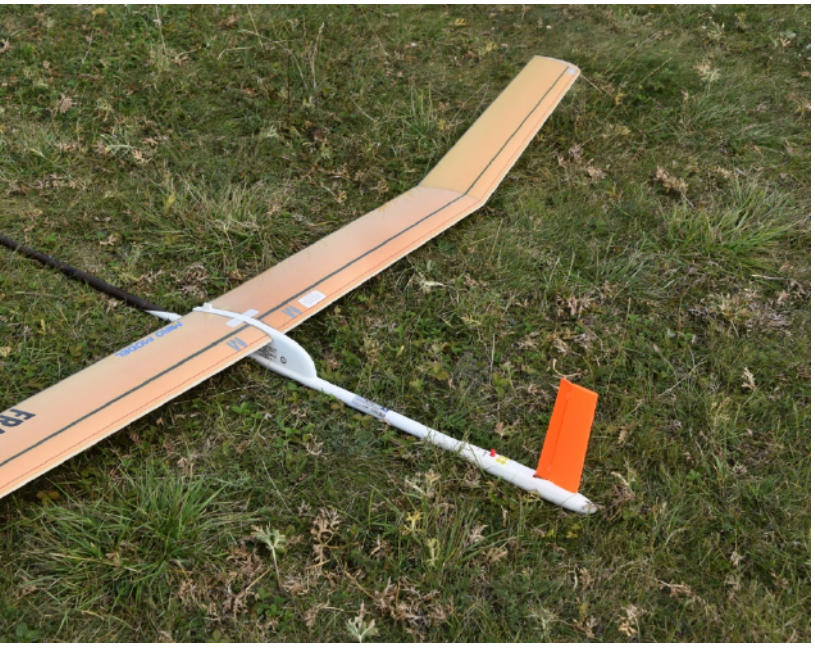
This system has been around for at least 100 years and consists of a "compass needle" – a strong magnetic rod which is supported to move freely and delicately adjusts the rudder. The rudder is set to the required direction of flight while the compass always points north. If the model deviates from the set course during flight, the compass will compensate. Electronic devices which move the rudder via a small servo actuator can be used instead of a mechanical compass.



Schematic diagram of a compass control.

Additional functions can be programmed

The free-flight slope soaring model is not only capable of keeping to a straight course but can also be made to perform circular or other courses via an electronic or mechanical timer. Timers can also activate the so-called thermal brake to abort a flight by raising the elevator. It is, however, not possible to directly influence the model's behaviour during flight. Everything must be programmed prior to launching, including any addition of weights.



This F1E model is equipped with an electronic compass.

...a lottery? – not quite

Once the model has been launched by the pilot and can no longer be controlled – neither flight path, ascent or descent – the pilot anxiously keeps his eye on it. Will it remain airborne for the required time, e. g. 4 minutes? Or will it land prematurely? Flying times are prescribed by the competition director and, in fly-off, can be up to 7 or 8 minutes. After take-off, all the pilot can do is track their plane and hope for the best. It will soon become clear whether adjustments and launch time were selected correctly. Should the model land prematurely, the pilot will make new adjustments and observe the weather situation even more closely before attempting the next flight. It could be that they were just unlucky with the combination of wind and sun but as a free-flight enthusiast, they will have become familiar with this at an early stage.

Waiting and observing

CIAM Flyer - 4/2024

Editor Emil Giezendanner, ECH F1E Rana CZE

See https://www.fai.org/news/