CIAMFlyer
The Introduction to the Modelaircraft World
FAI AEROMODELLING COMMISSION
No. 4-2012

Quiet Flights over Land

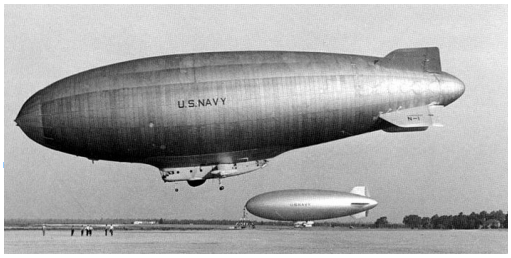
All about RC Airships

AEROSTATS are lighter than air models. We have two main types of aerostats: Hot air balloons and Airships. Airships obtain their sustentation from gas (or from hot air), have propulsion units and can be directed.

Next, we have three types of airships:
1. Blimps have an inflatable envelope and their shape is obtain by the pressure of the gas inside the envelope. Blimps are the most common airship models and the easiest to build
2. Hot air airships obtain their lift from hot air produced in an inflatable envelope
3. Rigid airships have a covered rigid structure and contain inflatable gas balloons.

A short history

On September 1852, near PARIS (France), Henri GIFFARD was the first to build and fly a navigable airship (44 m long, 2500 m3, 3 hp). On July 1900, the first rigid airship performed an 18 minutes flight over the lake of CONSTANZ (Germany). It was the first ZEPPELIN. On 1901, SANTOS DUMONT performed a flight to the Tour EIFFEL in PARIS. Many rigid airships were built during the first World War and some went over LONDON for bombing. The first blimps were flown in 1915 by the Royal Navy in UK. This also explains why airships were part of the navy forces in several countries. Who knows that the first transatlantic flight was performed in 1919 (8 years before LINDBERG) from Scotland to New York. The HINDENBURG disaster (LAKEHURST, USA, May 1937) ended the commercial use of airships and the use of hydrogen. Since many years, USA used Helium, a non flammable gas but it was classified as strategic and therefore not provided to Germany.



***Many blimps were produced in USA for military or commercial purposes (Goodyear blimps as an example*).**

Building RC model airships is not easy

While several years ago building radio controlled airship models was a real challenge, technological evolution opened a wide field of possibilities, even to aero-modeling new comers.
The first RC airships were built for commercial purposes (aerial photography, advertising) and were costly. But you know how modelers are inventive.
Nevertheless, building an airship is not so easy: the envelope must keep the helium inside for a long time as this gas is really costly.

Scale USS Macon by J. Clemens (rigid RC airship)

RC scale gas airship (blimp)

So, specific material must be used (mylar®, neoprene, nylon®...), cut in gores and pieces to then be fitted and obtain the nice "cigar" shape you know. Modelers are not fluent with laser or ultrasound gluing and use more simple processes.
Add a specific unit to fill the airship with helium, a gondola which contains the batteries, the reception and the propulsion units, rear control surfaces.
Optionally add a rear propulsion unit and you are ready to go.
Oups! I forgot the photo/video equipment!
Not able to build your airship? Many commercial sites will answer your need either sole envelopes or full equipments. Just search "RC airships" on the net. You will get hundreds of proposals... fitting all budgets.

Don't be afraid of the size

One cubic meter of helium provides only one kilogram buoyancy (envelope plus inboard equipments). Indoor airships are small (1 - 2 m^3 = 2 - 3 m long and 1 m diameter) where as outdoor airships can be much larger (20 m^3 and over). As helium is an expensive gas, you will look at buying a large specific trailer to transport your large airship from one site to another. This explains why most of the RC airships are indoor sized.
You can imagine the impact of your airship with a so slow flyingmodel which goes over people silently and with no risk at all for the public. But take care not to lose control and to let the airship escape high, too high, in the sky.
You can also imagine the wonderful pictures or videos you can get back after a quiet flight over land.

RC indoor airship and equipment

But as soon as you meet other modelers, you want to compare the quality of your airship and your skills too. Meetings and competitions are the next step.

RC airship regatta

The first meetings were implemented in 2000. RC Airship Regatta are now conducted in several countries: Germany, USA are leading the activity but meetings are also implemented in most of the continents: Europe, Asia, South America.

The number of commercial companies who sell RC airships and the huge number of websites/forums are clear signs of the popularity of this activity.

Just as an example are the Germany activities where RC Airship Regatta are conducted since 2004, in scope of the annually DGLR "Aircraft Lighter Than Air" Symposia. The basic idea was to facilitate the evaluation of concept design ideas in a competitive but low cost and fun environment. Soon, Berlin Aeronautical Students adopted the idea, carrying out such regatta in scope of the annual "Berlin Long Nights of Sciences".

After RC Hot Air Balloons (F7A) which was earlier officially recognized, RC Airships is now a recognized class (F7B) in the "AEROSTATS" (F7) category within the CIAM.
International competition rules were approved in 2010. On 2013, world records recognition will be implemented. Look at the CIAM site or contact Marcel to get more details on the specific rules.
Competition tasks are simple to imagine: pylon racings, precision flights... World records are also simple to imagine: distance, speed, altitude... Don't hesitate. Get your own airship and join us.

Marcel PREVOTAT
F7 SC Chairman,
pvt-asso@orange.fr

Editor of CIAM Flyer
E. Giezendanner