

ATG / HAV - Condor high-altitude surveillance airship

Peter Lobner, 24 August 2021

1. Introduction

The UK firm Advanced Technologies Group (ATG) is best known for two advanced airship projects:

- A hybrid, heavy lift airship known as the Sky Catamaran, or “SkyCat” for short, started in about 1999.
- A stratospheric High Altitude Platform (HAP) named “StratSat,” for delivering communications and surveillance services from geo-stationary positions in the stratosphere, started in 2001.

Both advanced projects led to the development and flight testing of sub-scale prototype airships and advanced designs for full-scale airships. ATG also developed the designs for a range of conventional, nonrigid blimps and the Condor ultra-long endurance, high-altitude, optionally-manned, surveillance airship derived from the SkyCat.

ATG began work on the Condor concept in 2004. However, development was interrupted when ATG went into receivership in 2005. ATG’s hybrid airship and blimp businesses were acquired first by SkyCat Group in 2006 and then by Hybrid Air Vehicles (HAV), which was founded by Roger Munk in 2007. Development of the Condor hybrid surveillance airship continued at HAV after their acquisition of ATG’s assets and intellectual property.

2. Description of the Condor surveillance airships

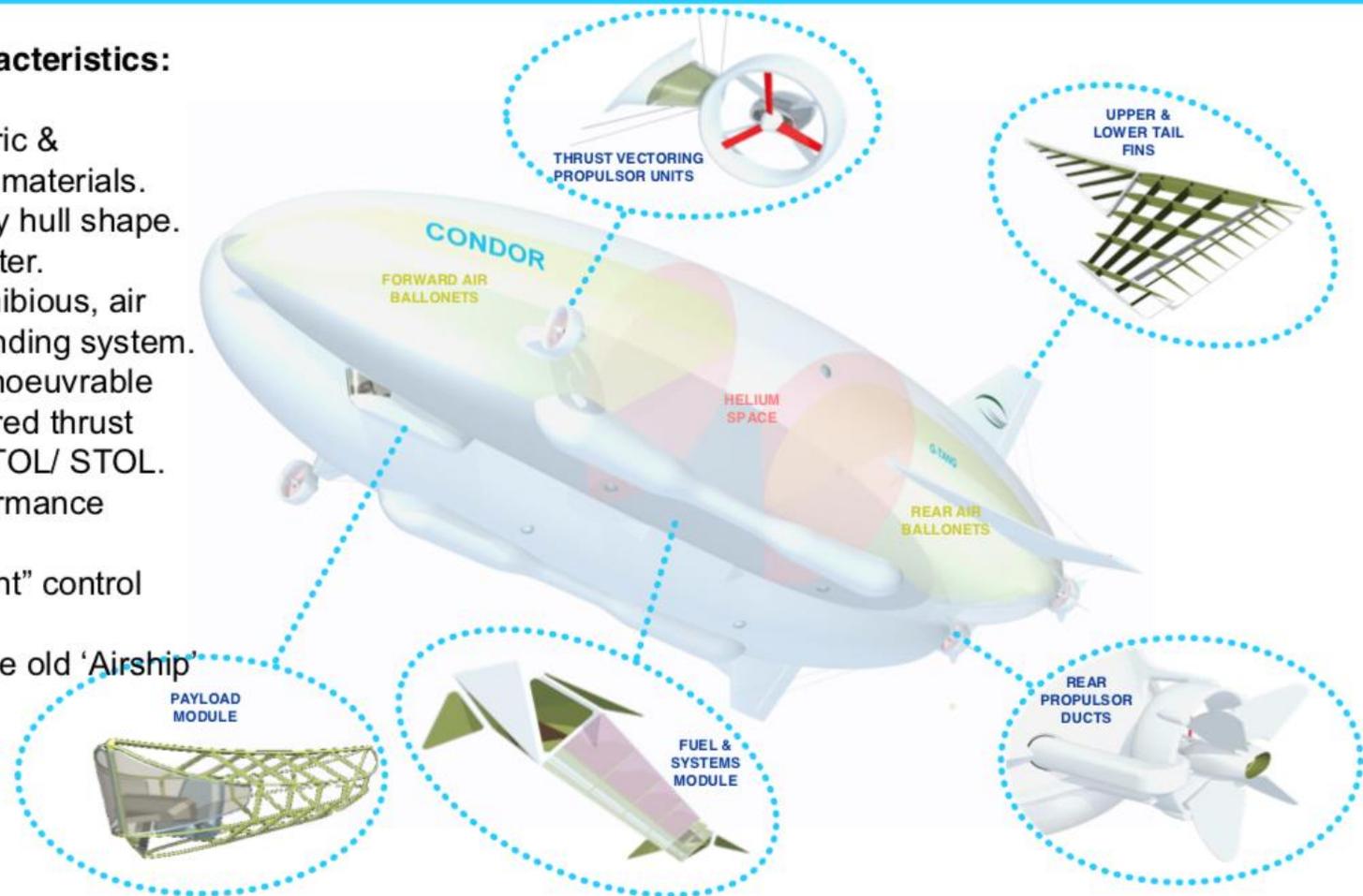
The optionally-manned ATG Condor shared its general layout with the manned SkyCat hybrid airship and incorporated many SkyCat technologies and design features as shown in the following HAV graphic.



HAV LTA Vehicle Family – Patented Technology, Common to *Condor* & *SkyCat*

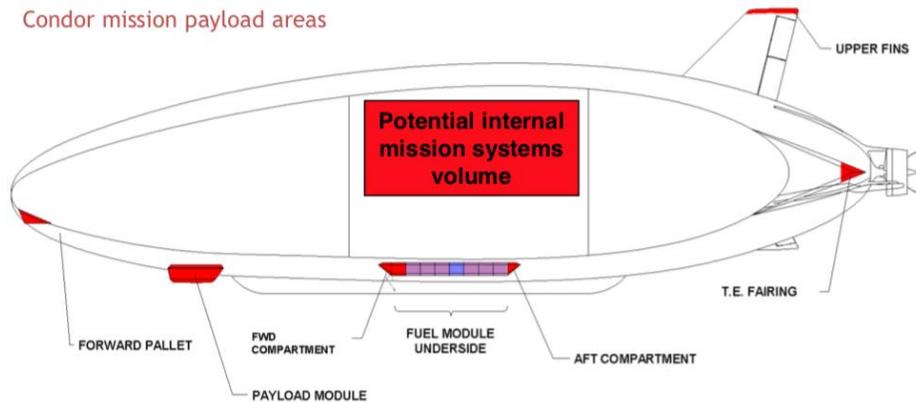
Unique Characteristics:

- Hi-tec fabric & composite materials.
- Lifting body hull shape.
- Bow Thruster.
- Fully amphibious, air cushion landing system.
- Highly manoeuvrable via - vectored thrust system. VTOL/ STOL.
- High performance diesels.
- “Fly by Light” control system.
- Fixes all the old ‘Airship’ issues.



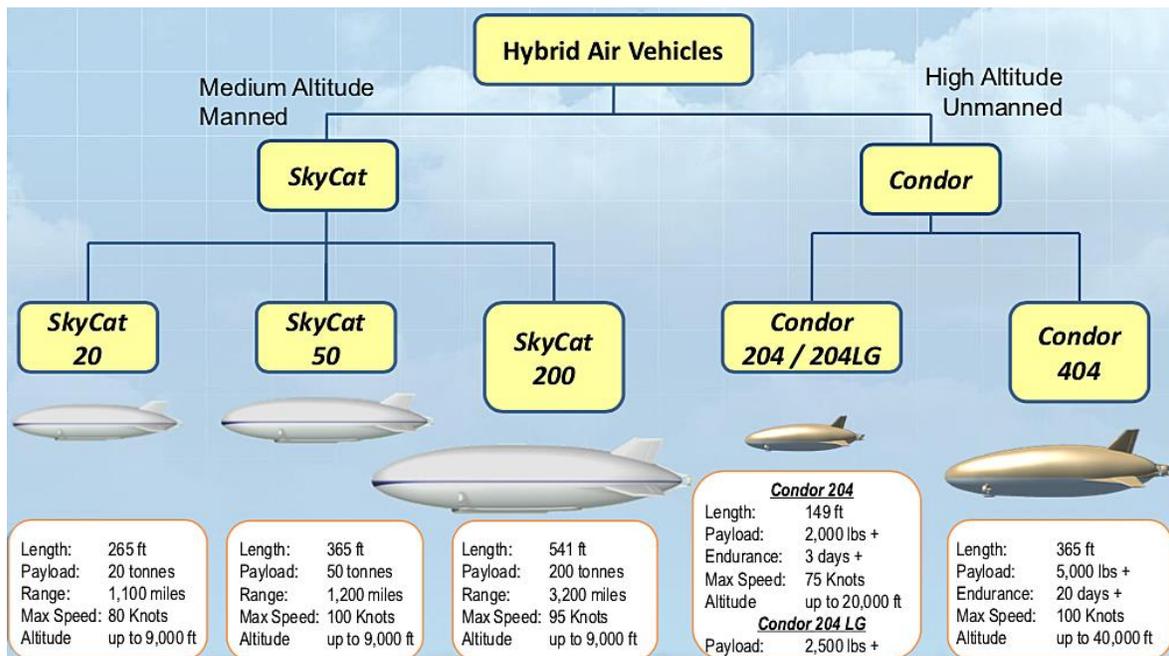
Source: HAV Gordon Taylor presentation (Mar 2009)

For the surveillance mission, the hybrid airship is a stable platform capable of carrying a wide range of sensors and other equipment and could carry greater payloads than comparable conventional airships. Candidate payload locations on the Condor are shown in the following HAV graphic.



Source: HAV Gordon Taylor presentation (Oct 2009)

By 2009, two basic models of the Condor existed, the small Condor 204 (smaller than a SkyCat 20) and the larger, higher altitude Condor 404 (similar in size to the SkyCat 200).



Source: HAV, Gordon Taylor presentation (Oct 2009)

While the SkyCat and Condor hybrid airships are generally similar in design, the operating altitudes for their respective missions results in dramatically different payload capacities. You can see this difference in the following comparison table.

Parameter	SkyCat 50	Condor 404
Length	365 ft (111.3 m)	365 ft (111.3 m)
Payload	55 tons (50,000 kg)	2.5 tons (2,268 kg)
Speed, max	100 kts	100 kts
Altitude, max	9,000 ft (2,743 m)	40,000 ft (12,192 m)
Atmospheric pressure at max altitude	10.5 psi (72.4 kPa)	2.72 psi (18.7 kPa)



Source: HAV, Gordon Taylor presentation (Oct 2009)

In June 2010, the team of HAV and Northrop Grumman competed against Lockheed Martin and won a \$517 million US Army contract to develop and operationally demonstrate a Long Endurance Multi-Intelligence Vehicle (LEMV), which was a medium altitude airship designed to provide persistent intelligence, surveillance and reconnaissance (ISR) services for 21 day while operating at 20,000 ft.

The winning airship platform was the hybrid HAV Condor 304, or simply the HAV-304, which is the subject of a separate article. Roger Munk died in February 2010.

For more information

- Gordon Taylor, “Hybrid Air Vehicles – Now and the Future,” Presentation to The Society of Naval Architects and Marine Engineers – Arctic Section, 4 March 2009: https://higherlogicdownload.s3.amazonaws.com/SNAME/3383113f-3070-4ddd-acd4-504418eb35a9/UploadedImages/Files/2009/March%2009_Taylor_Presentation.pdf
- Gordon Taylor, “A Green Solution to Canada’s Transport Challenge,” ATG, presented at Airships to the Arctic V” Symposium, Calgary, Canada, October 2009: <https://isopolar.com/wp-content/uploads/2013/03/Gordon-Taylor-presentation-Hybrid-Airships-A-Green-Solution-to-Canadas-Transport-Challenge.pdf>
- Chris Pocock, “Roger Munk, R.I.P.,” Aviation International News, 15 July 2014: <https://www.ainonline.com/aviation-news/defense/2014-07-15/roger-munk-rip>

Related *Modern Airship* articles

- Advanced Technologies Group (ATG) – SkyCat & SkyKitten
- Hybrid Air Vehicles (HAV) / Northrop Grumman HAV-3 and HAV-304 (LEMV)
- Hybrid Air Vehicles (HAV) - Airlander 10 & 50 airships