THE HUREL-DUBOIS STORY

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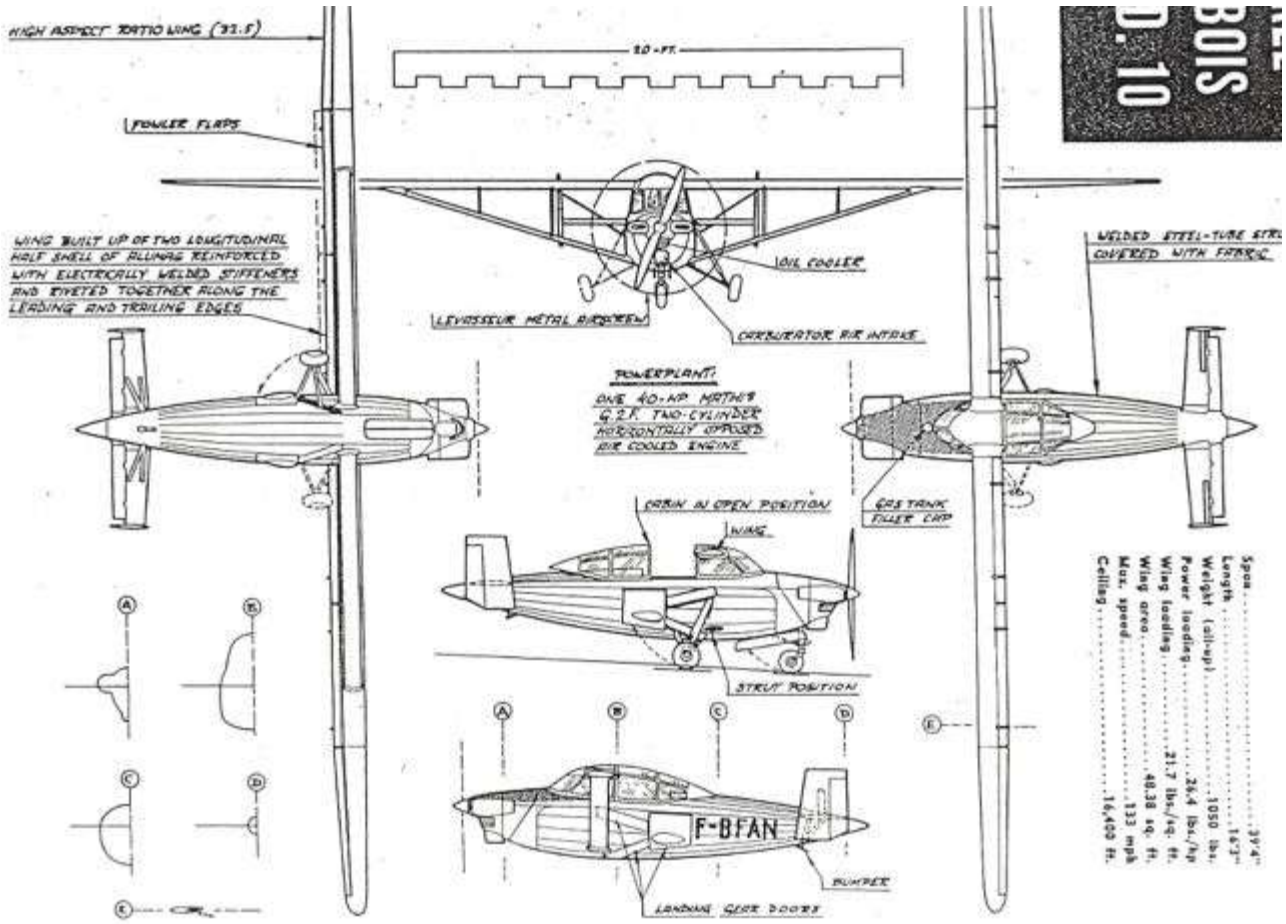
As an obsessive Scale modeler I am always looking for an'unusual' or seldom modeled aircraft that might be worth modeling and I found a candidate for what might be the ultimate challenge for an unusual model. It's the Frenchman-designed Hurel Dubois HD-10 with absurdly difficult building challenges both as a full-scale and a model. The HD-10 had a wingspan of 39 feet 4 inches, but the wing chord width was a scant **15 inches!** This resulted in a 31.3 to 1 aspect ratio and higher than many current high-performance soaring gliders. The engine was a whopping 40 HP. Weight was 1050 pounds including the retractable landing gear. Fowler design flaps were fitted.

To put these figures into context for modeling, a **one-quarter scaled** model would have a **118 inch span** and a **3.5 inch chord width** with a mere **0.333 inch wing thickness**. This results in **336 square inches of wing area**. A reasonable 25 Oz/sq ft weight would be around 4.5 pounds or a little more.

I have always been taught that high aspect ratio wings are used on very slow and high altitude aircraft. High-speed aircraft have very low aspect ratios needed for strength and low drag. The HD-10 had a max airspeed of 133 MPH and a max altitude of 16,000 ft.



The HD-10 Proof of Concept aircraft was first flown in 1948. The performance of the unconventional Strut-Braced-Wing (SBW) or Truss-Braced-Wing (TBW) showed exceptional performance and very long range and resulted in a contract for two twin-engine cargo planes. The HD-31 first flew in 1953.

An article in Aviation History magazine by Walter J. Boyne, a well known aviation writer, indicates another version, the HD-32 was flown about a year later with more powerful 1000 HP Wasp engines. Maurice Hurel was the designer/inventor of the aircraft and Leo Dubois was his financier and partner.

Hurel also designed turbo-prop and jet versions of high wing cargo aircraft/airliners using his strut-braced-wing. Twenty of a slightly larger version of the HD-32, the HD-34 with 1,525 HP Wright Cyclone engines, were built and one of those is believed to the only one still be extant.

Googling Hurel shows that many modern aircraft have taken advantage of Hurel'e strut brace wing theory. The Catalina flying boat, the Short Skyvan, and Fokker F-27 'Friendship' airliner are pointed out as a few of many examples. Both Boeing and NASA have looked into designs using the SBW concept for high economy airliners.

Building a Hurel–Dubois flying model in any scale still ranks as a major challenge to me!

Ron Peterka 01/11/2013