

Current developments

THE future of the Antares electric motorglider looks promising after secret test flights on its electric motor in a modified DG800b, dubbed the LF 20E.

The aircraft is shown (right) powered by a DC/DC brushless engine developed by Profs Jeanneret and Vezzini of Switzerland's HTL Biel. It is said to deliver 42kW at 1500rpm during take-off. Using a purpose-designed propeller, it is claimed to have a climb rate of up to 4-5m/s with little noise or vibration and good reliability. A 1,000-hour TBO time and maximum cruise speed of around 170km/h are quoted.

Power is stored in rechargeable Ni-Mh batteries in the wings which allow a calm-air climb to around 1700m, with enough left to reach an airfield for an aerotow retrieve should soaring stop.

Engine retraction and deployment are controlled by a single throttle lever patented by the project's designer, Axel Lange, who worked at the Glaser-Dirks factory in the days before it became

Electric engines, solar power and slatted wingtips are among the developments showcased recently in Germany. Jochen Ewald reports

DG-Flugzeugbau. He has since started his own factory – Lange Flugzeugbau – to develop Antares.

The prototype itself is scheduled to fly in mid-2000, with serial production from 2001. The design, by Prof Loek M Bormans, includes 18- and 20-metre tips and an ellipse wing geometry said to be new and with good stall characteristics. Best glide is cited as 54:1 for the

20-metre version. In the cockpit, the manufacturers claim to have built on safety knowledge gathered in Formula One motor racing. The batteries in the wings make them heavier than normal, so rigging aids have been developed.

The price of the Antares is not expected to be significantly higher than that of conventional motorgliders of comparable performance.



THE Icaré 2 solar glider (above) flew during the Idaflieg summer meeting at Aalen-Elchingen airfield, near Stuttgart.

This 25-metre self-launching motorglider is being used in research by the German Federal Ministry of Traffic to collect data for future certification bases for the use of solar cells and electric drives on composite construction aircraft.

This research could, for example, help a coming generation of electrically-driven motorgliders to be equipped with solar cells for

in-flight "refuelling" – so widening their useful range, which is still limited to self-launching.

Built by Stuttgart University, the Icaré 2 has the battery capacity to launch to 350m. With 50 per cent of the mid-day solar energy of a clear summer's day (a solar input of 500W/m²), it can stay airborne in calm air.

After these tests end, though, the problem of finding sponsors for future research projects will again emerge.



Slatted wing tips on test

USING the Swiss jet-powered motorglider Prometheus 2 as a free flight test platform, these revolutionary new slatted wingtips (right) were performance-tested at last summer's Idaflieg meeting.

The "wing-grid" tips were developed by Dr Ulrich La Roche from the Swiss ETH Zurich, and are designed to reduce drag by optimising the vortex structure behind the tips.

They are a fascinating feature in aircraft development, and the designers hope to "replace" a wing section about double the tips' span.

The Prometheus, which usually flies with Stemme S-10 wings, tested the tips attached just to the standard spar connection of Stemme wing centre sections.



All photos Jochen Ewald