As with the FS8, the Hoverwing HW20 is not capable of free flight and will be classified as a marine vessel. The design utilises a simple system of retractable flexible skirts to retain an air cushion between the catamaran sponsos of the main hull configuration (SpeefatSea, June 1998). The mechanically-generated air cushion is only used during take off. This enables the craft to accelerate with the minimum of power before making a seamless transition to true ground-effect mode.

The work of Fischer Flugmechanik/AFD Hoverwing HW20 is characterised by the Lippisch reverse delta wing configuration. Fundamental to the design concept of the HW20 was the need to retain simplicity throughout, which will translate into low capital and operating costs. Constructed from composite materials, the HW20 has an overall length of 22.44m, with a beam of 17.34m - or 6.3m with the wings folded. Installed power will generate 340kW (465hp) to afford a cruising speed of 90 knots and a range of 500km. Maximum wave height for take-off is 0.75m and the maximum wave height for in-flight operation is 2.5m. S@S

WIG project responds to remote survey transport needs

The construction of a prototype WIG in Indonesia is nearing completion in readiness for an extensive trials programme. Designed to carry a crew of two plus six passengers and equipment, the development of the craft is the result of an operational requirement that conventional vessels have failed to service.

The WIG has been developed by Paul Anderson, an engineer specialising in electronic data acquisition for geophysical exploration projects. With much of his work conducted in remote coastal areas there is a need to convey personnel and data acquisition equipment to the exploration site as quickly as possible. Waterjet-powered craft have experienced difficulties due to ingesting water-borne debris which is prevalent. This has negatively impacted contracts due to mechanical downtime and other delays, causing serious financial losses.

There was a clear requirement for a transport solution that overcame the shortcomings of surface vessels yet avoided the cost and complexity of fixed wing or rotor aircraft. Initially the solution was seen to be a direct-drive fan-powered airboat, but the development of this concept soon evolved into the design of a WIG. Another advantage of the WIG concept is the inherent high speed relative to surface vessels. Weather conditions in the coastal regions that are at the centre of these geophysical surveys are apt to change with short notice; the ability to leave the exploration site rapidly and run before the weather can be key to successful contract management.

The 6.2m-long craft is named Blue Diamond and has a beam of 5.2m. The hull and wing assemblies are constructed from fibre-reinforced plastic with polyurethane foam filling in key areas to provide rigidity and buoyancy. Dry weight of the prototype is 1.2 tonnes although the hull is designed so that weight can be reduced as trials progress. The interior space is divided into the cockpit seating the two crew and housing all navigation and communication equipment, and a central compartment housing 12 passenger accommodation. Additional load storage space is provided in the wing cabin roots.

A 2m-long bay houses an air-cooled petrol unit producing 75kW (100hp) to drive a shrouded eight-blade fixed-pitch propeller of 0.8m diameter. Alternative propeller units are being developed to ascertain the optimum performance. Following initial sea trials which will concentrate on control systems, a more powerful diesel engine will be fitted. A larger, higher performance, 11m-long craft is planned.

The prototype WIG is for sale after completion of sea trials and performance analysis: the price quoted in the www.speedatsea.com website's 'classifieds' section has recently been corrected.

The originators of the FS8 WIG design, joint German companies Fischer Flugmechanik and AFD Airfoil Development GmbH, have recently announced proposals to produce a new craft that combines pure WIG technology and a mechanically generated air cushion. The craft is the Hoverwing HW20, which is a sea-skimming WIG-effect machine with a loaded cruising speed of 90 knots.

The design utilises a simple system of retractable flexible skirts to retain an air cushion between the catamaran sponsos of the main hull configuration (SpeefatSea, June 1998). The mechanically-generated air cushion is only used during take off. This enables the craft to accelerate with the minimum of power before making a seamless transition to true ground-effect mode.

The commercial variant Hoverwing HW20 is being targeted at short-range applications such as inter-island routes, coastal or delta transport where the sea state is favourable. Geographically, the company includes markets in the Caribbean, the Mediterranean and East Asia.

Because the craft is not in contact with the water surface during normal flight, passengers will not experience seasickness. Similarly, there is a positive environmental impact due to the lack of wash and the craft's inherent fuel efficiency.

Graham Taylor of Hypercraft Associates, UK-based representing consultants for Fischer Flugmechanik/AFD, says that: "The HW20 WIG offers a high-speed short-range transport solution that combines simplicity, comfort and economy," and reports that the design is attracting the interest of civilian and military sectors.

The work of Fischer Flugmechanik/AFD was originated by Dr Alexander Lippisch in the USA during the 1960s, and later in Germany. The design of the Fischer Flugmechanik/AFD Hoverwing HW20 is characterised by the Lippisch reverse delta wing configuration. Fundamental to the design concept of the HW20 was the need to retain simplicity throughout, which will translate into low capital and operating costs. Constructed from composite materials, the HW20 has an overall length of 22.44m, with a beam of 17.34m - or 6.3m with the wings folded. Installed power will generate 340kW (465hp) to afford a cruising speed of 90 knots and a range of 500km. Maximum wave height for take-off is 0.75m and the maximum wave height for in-flight operation is 2.5m. S@S

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