

Chariot of fire

Beriev is aiming its first international project, the Betair Be-200, at the international amphibian market.

By DOROTHY DAWSON/IRKUTSK

Having already designed efficient utility aircraft such as the A-40 Albatros and its Be-42 Mermaid sister, Beriev is now moving towards the production stage of its Betair Be-200, which the Russian manufacturer hopes will capture a sizeable chunk of the amphibian-aircraft market worldwide.

It is Beriev's first major international project — the name Betair being an amalgamation of Beriev, Irkutsk (its manufacturing base in central Russia) and ILTA Trade Finance of Geneva, Switzerland, which is responsible for financing the programme. The aircraft is designed to meet US Federal Aviation Administration certification standards, but will also undergo Russian production certification at the Irkutsk Aviation Production Association. This process will include certification for use in the West of the Russian-produced materials involved in its manufacture — materials which were researched by the Russian materials institutes VILS and VIAM.



Firefighting is the main envisaged role for Be-200

Beriev is dividing the potential market into two segments: firefighting and other. The firefighting Be-200 was designed in close consultation with Russian and US forest-firefighting authorities, in association with the continuing information exchange in this area between the two countries, which started in 1991. This liaison resulted in Russia's first amphibious water-bombers, two converted Be-12s, undergoing trials in 1993 at the Irkutsk factory airfield, using water scooped from Lake Baikal. On the basis of these experiments, Beriev is now keen to promote the firefighting version of the Be-200.

FAMILY LIKENESS

A close relation of the Albatros/Mermaid family, the Be-200 has inherited many of its predecessor's aerodynamics, hydrodynamics and construction features. The aerodynamics features include a swept wing — endowed with leading-edge slats, two-segment flaps, winglets, engines attached to the top of the fuselage — and a swept T-tail, while the main

landing gear retracts into fairings tucked into the angle between the fuselage and wing.

The hydrodynamics of the semi-monocoque all-metal hull are derived from the Albatros. At the front of the Be-200's specially shaped underside is a pronounced keel, which tapers towards a single step.

Although the hull is designed for minimal g-loading at take-off and landing, the fact that the Be-200 in firefighting configuration must transport 12t of water means that the airframe and wing, and especially the wing root, has to be strengthened. Associated weight penalties are dealt with by using high-strength aluminium/lithium alloys for the hull, ferric alloys of aluminium for the tanks, and composites for the interior. The 8 x 12m³ water tanks can be fitted or dismantled instantly, say the designers, for cargo transport.

Claimed by the manufacturer to have identical proportions to those of the Albatros, the Be-200 is considerably smaller overall, with a wingspan of 32.7m, tailplane span of 10.11m, length of 32.05m and overall height of 8.9m.

Salient design features include engines mounted above and aft of the wing to avoid water ingestion; availability of ski-landing gear; smoketight cockpit and cargo bay with sealed bulkhead; provision of ten watertight compartments under the floor, to aid buoyancy; and special water scoops — two forward of the step and two aft, which are deployed only during scooping. The aircraft is powered by two 73kN (16,500lb) Lotarev D-436 turbofans and, in this respect, it is further advanced than the Albatros, giving the aircraft a 25km (13nm) range between the water source and fire.

The Be-200 can also be equipped with an avionics suite supplied by ARIA, the joint venture between Russian avionics research institute NIIAO and AlliedSignal Aerospace. Known as the ARIA-2000, the system incorporates many features of immense help to firefighters, such as automatic glidescope, water-source/drop-zone-

