

GENERAL AVIATION

at fixed dates over four years, but only one in the first year, the company expects to know by the end of 1994 when and where to deliver the first ST-50s. Isravation expects to deliver "no more than 50" aircraft in the first year of production, not all of which will be for the timeshare operation.

According to Euravation, any person spending more than \$150,000 a year on travel within Europe will save money using the TSC. Based on extensive simulations, the company believes that, for 80% of the time, there will be no conflict between owners for access to an aircraft. "Complete conflict" will occur on two days a year, but owners are not paying for 100% availability, Juffa points out.

TSC requirements resulted in the design of a pressurised, five-seat aircraft with a 280kt (520km/h) cruise speed and 2,000km

ments, in September.

Development of the ST-50 is being supported by the Israeli Government, which has provided two-thirds of the investment required in the form of non-refundable grants and re-imbursable state-guaranteed loans. While Euravation has invested \$17 million, the Government has provided \$9.5 million in grants and up to \$20 million in the form of loans.

Duluth, Minnesota-based Cirrus' is a major subcontractor to Tel-Hai-based Isravation. The US company was responsible for preliminary design of the ST-50, which is a scaled-up version of the VK-30, and built the proof-of-concept aircraft, which will be flown in the USA and then shipped to Israel. Isravation will be responsible for certification and production.

PROVING THE CONCEPT

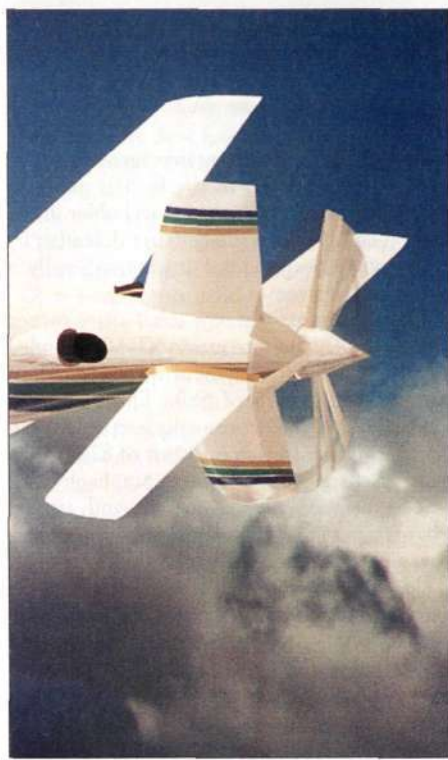
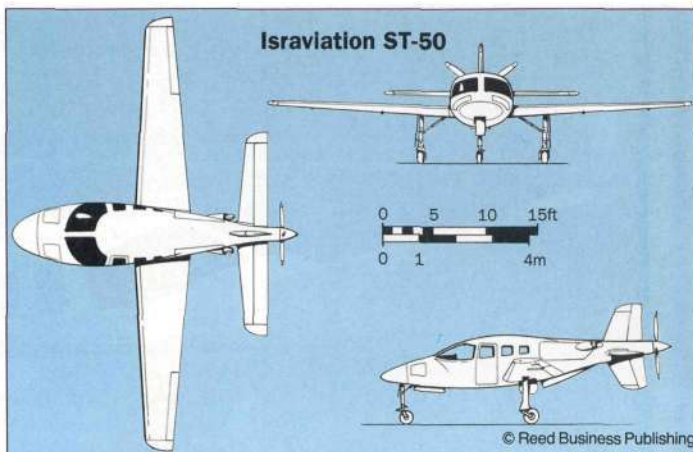
The proof-of-concept ST-50 has a production-configuration propulsion system and will be used to demonstrate the aircraft's performance and stability before the design is frozen. Ground runs began at the end of August. Isravation plans to begin manufacture of two certification-test ST-50s by early November. The first aircraft is scheduled to be flown in May 1995. Simultaneous Israeli and US certification is planned for 1996.

The ST-50 is powered by an 610kW (815shp) P&WC PT6A-135/7 turboprop driving a 2.2m-diameter, three-blade MT propeller via a driveshaft with Kamatics K-FLEX flexible couplings at either end. These allow the metal shaft to be installed with angular and axial misalignments of up to 2.5° and 13mm, respectively, easing production and maintenance tolerances, according to Kleiman.

The constant-speed, fully reversible, propeller is supported by a bearing housing in the tail which transmits thrust loads to the airframe, so that the driveshaft experiences only torque loads. This increases reliability, he says. The engine is supported so that it "grows" forward with thermal expansion, avoiding compression loads on the driveshaft.

Four-point mounting provides crashworthy engine-retention and the engine compartment, immediately behind the cabin aft pressure-bulk-

Isravation ST-50



Pusher design provides efficiency

(1,100nm) range, sufficient to fly between almost any city-pair in Western Europe. The all-composite, pusher-propeller ST-50 is derived from the VK-30 kitplane produced by Cirrus Design, and a proof-of-concept aircraft is scheduled to be flown at Cirrus' US plant at the end of October.

"The vehicle design resulted from the system concept," says Isravation vice-president and chief engineer Dany Kleiman. Producing an aircraft able to meet ambitious design-to-cost goals was the only way to maintain a low fixed cost for the timeshare operation, he says. "The resulting price is very competitive." The \$1 million ST-50 offers comparable performance to that of Aerospatiale's \$2 million TBM.700, Kleiman claims. Euravation began accepting orders for ST-50s, both direct sales and timeshare commit-

ment, is fireproofed to maintain structural integrity in the event of a fire.

The engine is mounted as far forward as possible, but the aircraft still has a relatively aft centre of gravity, Kleiman admits. As a result, the wing is set well aft and the tailplane is large. The airframe is glassfibre-reinforced plastic with carbonfibre used in high-stiffness areas. To gain composites-manufacturing experience, Isravation built two turboprop-powered VK-30 kitplanes, dubbed ST-40s.

Arnav is supplying a low-cost integrated-avionics suite for the ST-50. The ICDF-2000 suite includes four large colour liquid-crystal displays - two primary-flight displays, a multi-function display and an engine-indication and crew-alerting system. AlliedSignal Bendix/King radios will be fitted and a fibre-optic-gyro attitude- and heading-reference system will be an option.

Although the ST-50 is available for outright purchase, its success will depend on acceptance of the timeshare concept. Juffa says that 67% of European companies approached were interested in the concept, although 23% said that they would never use a single-engined aircraft. Euravation plans to introduce the ST-50-based timeshare concept in the USA (with a different name, prices and contract language, he says) about six months after operations began in Europe. □



Ground runs prepare for proof-of-concept flights