

SCHWEIZER 330

The first official flight of a new single-turbine-engine helicopter would be an auspicious occasion for any manufacturer, but it was particularly so on June 14 for the Schweizer Aircraft Corporation, the robust little aerospace company of Elmira, New York. The word "little" should be used advisedly in referring to a company that expects to gross \$30 million this year, but in comparison to the other U.S. turbine-engine helicopter manufacturers (Bell Helicopter Textron, Boeing Helicopters, McDonnell Douglas [nee Hughes] Helicopters, and Sikorsky Aircraft [a division of United Technologies Corporation]), Schweizer is indeed a "little guy" in a field of giants.

This family-owned and -operated company has embarked on an ambitious

FIRST FLIGHT

project: to design, build, and market the U.S. Army's next-generation primary and instrument training helicopter. Schweizer's development plan provides that, even should the Army decide not to buy it, the machine could still find a healthy market (mainly abroad) for a military, training, law enforcement, aerial observation, and light utility turbine helicopter. The company is not ruling out the helicopter's possible appeal as an executive transport, either.

Schweizer's new Model 330 Turbine Helicopter uses the dynamic system—main and tail rotor blades, transmissions, and drive shafts—of the ubiqui-

tous Model 300C piston-engine helicopter that the company acquired from Hughes in 1983. Though the 330 resembles the 300C in many details (tail boom, cabin doors) and will profit from a high degree of parts interchangeability, the most obvious external difference is the entirely redesigned cabin that will accommodate three pilots in a training configuration or a pilot and three passengers in its utility version.

The soul of this new machine is a newly certified powerplant manufactured by the Allison Gas Turbine Division of General Motors Corporation. The Model 225-C10A turboshaft is the first in Allison's new 225 line of turbine engines for small aircraft, a line based on the very successful 250 series. The



SETH B. GOLBEY

-C10A is rated at 350 shaft horsepower for takeoff and 285 shp for normal cruise. For its Schweizer 330 installation, however, the engine is derated to 200 shp, which will allow full-rated power to be maintained to 18,000 feet on a standard day or to 16,000 feet on a 95°F day. Other advantages will be high times between overhauls, low overhaul costs, and rapid throttle response (from flight idle to full power in 1.2 seconds), according to Schweizer.

In Schweizer's pursuit of the Army's 200- to 250-aircraft SCAT (Single Contractor Aviator Training) Program contract, it has teamed with Allison, FlightSafety International, and Honeywell's Defense Avionics Systems Division to provide a complete turnkey service that would include aircraft, training, and maintenance, thereby significantly reducing the Army's (and the taxpayer's) training expenses.

Honeywell has designed an integrated avionics suite for the TH-330 (as the proposed Army trainer is currently known). The instrument panel will contain two multifunction cathode-ray tube displays as well as a full complement of conventional instruments. (Civil derivatives of the 330 are planned to have conventional instrumentation only.) The systems software can be expanded to include a variety of training features, including simulation of instrument procedures, systems fault management, weapons management, and threat/electronic warfare management. In other words, if flying is for some reason precluded, the aircraft can still function as a ground-based simulator.

At the first-flight ceremony, members of the press and local dignitaries were treated to a brief flight demonstration. The 330 prototype had actually already accumulated 30 flight hours at the time, and company officials said all goals of the initial testing program had been achieved. The flight test program was to continue with further analysis of stabil-



SETH B. GOLBEY

ity and control, aerodynamic performance, and vibration characteristics. By the end of August, Schweizer expects to have established production scheduling and pricing (target price: \$300,000) and to begin taking orders. Certification is expected in about a year, with full production to begin shortly thereafter.

As currently configured, the 330 stands 8.65 feet high, is 30.83 feet long, and boasts a cabin width of more than five and a half feet. Empty weight is 1,050 lb, and gross weight is 2,050 lb (2,150 lb with an external load). The three main rotor blades have a diameter of 26.83 feet, while the two tail rotor blades have a 4.25-foot diameter. Fuel capacity is 60 gallons. Target performance figures: maximum cruise speed, 115 mph (100 kt); normal cruise, 105 mph (91 kt). Maximum range, 252 nm; maximum endurance (no reserves), 3.5 hours at gross weight. Fuel consumption, 21.7 gallons per hour at cruise and 18 gph at a maximum endurance power setting at gross weight. On a standard day at gross weight, the helicopter will hover in ground effect to 18,000 feet and out of ground effect to 14,000 feet. On a 95°F day, HIGE is 14,000 feet and HOGF is 10,000 feet. (Hovering performance is substantially improved at lower weights.) The 330 will also meet military specifications for crashworthi-

ness that only the McDonnell Douglas AH-64 Apache attack helicopter can currently satisfy.

Schweizer anticipates a market for 75 to 100 Model 330s a year, and that would greatly expand the company's bottom line. At present, about 57 percent of the business is in Model 300C helicopters (half new sales, half spare parts support). Schweizer has built about 200 of these since acquiring the program and is currently producing six a month. The 300C currently sells for \$149,900, and production is sold out through 1989. Another 25 percent of the company's income is from subcontracting work performed for clients like Boeing, Bell, and Sikorsky, for example. The Schweizer (formerly Grumman) Ag-Cat agricultural application aircraft accounts for about 11 percent of the business, and is growing. Finally, sailplanes—for which the company is best known—and specialized surveillance aircraft account for about six percent.

In its most recent forecast, Allison predicted a demand for 3,080 light, single-turbine-engine helicopters through 1997. Given the dearth of economical, affordable turbine helicopter trainers, Schweizer may lose its "little guy" image and Elmira may find itself the home of one of the industry's giants.

—Seth B. Golbey