Schweizer markets civil SA 2-37A

LEESBURG

Schweizer Aircraft has given a public airing to a special-purpose aircraft previously sold only for secret military applications, reports **Julian Moxon.**

Schweizer is now marketing the SA 2-37A for "law enforcement, border surveillance, and specialised military applications" and has begun a comprehensive tour of potential US civil and military customers. It is promoting the SA 2-37A fitted with the Hughes AN/AAQ-16 forward-looking infrared (Flir) night vision system.

For *Flight's* demonstration the SA 2-37A was flown out of Leesburg Airport, about 40 miles from Washington D.C., by Les Schweizer, one of three brothers who annually rotate the Schweizer presidency. The flight lasted about 40min, and provided an opportunity to examine this unusual aircraft/sensor combination.

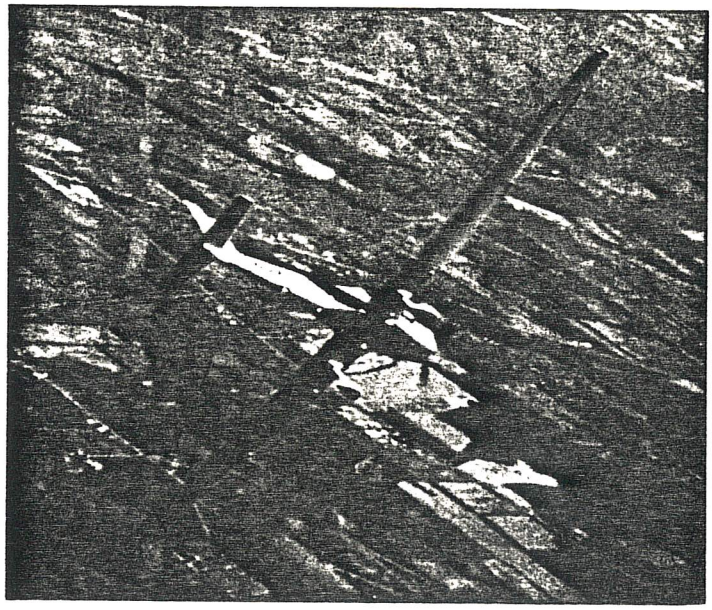
The AN/AAQ-16 is a sophisticated sensor system small enough to fit into an aircraft like the SA 2-37A. It already has several military applications (including the Bell/Boeing V-22 tilt-rotor), and is now available commercially.

The Flir sensor is mounted in a turret below the fuselage, and can be rotated through 210° in azimuth and from 85°-180° in elevation. It is operated using a hand-held control unit, which requires some skill before full use can be made of the Flir's capabilities. Simple tracking tasks can be carried out by the uninitiated almost immediately, however.

After a short warm-up, the Flir image appears on the mission operator's multifunction display (MFD) on the left-hand side of the panel. Navigation symbology from a Litton inertial navigation system is presented around the edge of the MFD.

As the SA 2-37A needs only 52 h.p. to maintain altitude, its six-cylinder 235 h.p. Lycoming IO-540 engine felt relaxed throughout. At 70kt, in "quiet mission mode", the three-bladed McCauley propeller rotates at only 1,200 r.p.m., resulting in a low noise signature. After *Flight's* demonstration the SA 2-37A was flown over Leesburg field at 1,300ft. In the presence of ordinary background noise, and with the navigation lights switched off, it was virtually impossible to locate the aircraft from the ground.

Left *Schweizer Aircraft is promoting its 2-37A light surveillance aircraft fitted with the Hughes AN/AAQ-16 forward-looking infrared night vision system.* **Below** *The system's sensor is mounted in a turret below the fuselage on the centreline just forward of the wing trailing edge*



The secret lies in the use of a very-high-aspect-ratio wing, coupled with advanced leading-edge technology to provide a lift-to-drag ratio double that of an ordinary light aircraft. The leading edges are extended at mid- and three-quarter span by two "cuffs", each measuring around a foot in length, which are essentially small, fixed-position leading edge slats. These interact with the ailerons to provide very good low-speed performance without an associated drag penalty. An interesting feature is a pair of dive brakes on each wing, providing a safe 14,000ft/min descent.

The long, thin wings yield more response in pitch than in roll and yaw, but without any detriment to overall controllability. Les Schweizer demonstrated the SA 2-37A's low-speed handling qualities by stalling the aircraft power-on, and maintaining control in all three axes while the aircraft was "mushing". Eventually, the right wing dropped, but was recovered immediately and without difficulty.

Our flight took place at between 1,000ft and 3,000ft, in gathering dusk. Flir images could be enhanced using a six-times magnification capability built into the hand-held control unit. Sheep and cows were easily picked out, and warm spots where cars had been parked could be distinguished. With skill, the system can be made to track moving targets automatically, images being returned to base by a microwave data link.

Schweizer will provide special night cockpit lighting compatible with night vision goggles for the pilot if required, along with a flat black anti-glare interior if the mission dictates.

Standard equipment on the SA 2-37A includes a 100A alternator, which was enough to run the equipment on the demonstrator aircraft. Schweizer quotes a 300A generator as one of the options, including air conditioning.

The basic SA 2-37A comes equipped with a King avionics package that includes ADF and Nav/Com with VOR/ILS. There is plenty of spare room on the console for installing additional systems, such as Loran. Besides the Litton INS, the demonstrator aircraft was fitted with a King KNS 80 RNav system and King KRA 10A radar altimeter.

Price of the basic aircraft is between $350,000-$400,000, depending on options. Addition of the Hughes Flir almost doubles the price (Hughes will not disclose the exact figure). Low light TV, or more powerful Flir, are easily accommodated in the SA 2-37A's payload bay, according to Schweizer.