

GENERAL AVIATION AND UAVS

Banking on kitplanes

BRENDAN SOBIE / SINGAPORE

South Korea has identified general aviation aircraft and unmanned air vehicles as potential expansion avenues for its growing aerospace industry.

Korea Aerospace Research Institute (KARI) is test flying a four-seat kitplane, developing another four-seater and studying vertical take-off and landing (VTOL) UAVs.

KARI, a government agency, first flew the Firefly kitplane last year after developing it with local and US-made parts. KARI and the project's US partner, Velocity Aircraft, are trying to recruit another company to produce the kits. Principal researcher Seokmin Ahn expects a deal with a US or Korean company will be forged by year-end.

The first Firefly is now being used as a demonstrator at Velocity's plant in Florida. A second prototype is in Korea, where it is being used as a testbed for Korean-developed avionics and other aviation equipment.

KARI is developing with Korean ultralight manufacturer Sung Jun Motoravia another four-seater called Bora, which should be ready to fly next spring. "We hope to get someone to make it a certified aircraft," Ahn says.

Motoravia is seeking a US partner to help certify and build the aircraft in the USA. Korean companies cannot apply for US certification because there is no airworthiness bilateral between the two countries, but KARI is lobbying for one to be negotiated.

The Bora will be 100% indigenous, compared with the Firefly, which has a fuselage borrowed from the Velocity XL. The Bora and Firefly are similarly sized and both cruise at 180kt (335km/h), but the Bora features a forward swept wing.

KARI began studying VTOL UAVs at the beginning of this year and plans to select a design concept, most likely a tiltrotor, by year-end. The UAV will be 1-

3m (3-10ft) in length, weigh 300kg (660lb) and fly at 215kt (400km/h). Flight tests of a demonstration vehicle are scheduled to begin in 2005.

KARI earlier developed a small long-endurance UAV with a 3m wingspan and payload of less than 1kg. This UAV has flown, but the project has been on hold. "We had problems with the automatic flight system, so we are still studying," says UAV project manager Cheol-Ho Lim.

Korea Aerospace Industries (KAI) has also developed a UAV, the Night Intruder 300, and is considering expanding its new UAV business to include several types. KAI has begun delivering Night Intruders – designed for surveillance, reconnaissance and search and rescue missions – to the Korean army, but details of the programme are classified.

KARI also just completed building a 50m unmanned airship and is now embarking on a project to build a 200m airship capable of flying to the stratosphere.

In the mid-1990s South Korea studied co-developing with China a 100-seat indigenous aircraft. After that effort failed, KAI and KARI were tasked with studying a 35- to 50-seat indigenous jet. But this study has been put on hold indefinitely. South Korea is not expected to resume any consideration of manufacturing commercial passenger aircraft because the government now believes an indigenous helicopter project has more promise.

KARI, which has 600 employees, expects to help design the new helicopter. The Agency for Defence Development, another government organisation with a high concentration of highly educated aerospace engineers, will participate in this project.

KARI historically has played a big role in Korean aircraft projects because its facilities can accommodate windtunnel, structural and engine tests.

Industry observers believe KAL will make workforce reductions after it takes the reins from KAI, which has prompted stiff resistance and strike threats from KAI unions. Observers say KAI – or KAL if the merger goes through – will have to decide to either lay off up to 50% of their combined 4,800 employees or keep more employees than required to avoid labour animosity and the need to rehire workers in a few years when more work is expected to arrive.

"If all the new programmes go as forecasted then they are not really overmanned," says an industry source. "But the thing is, nothing in Korea goes as scheduled. That's why the outlook looks so bad."

Oh expects new business to be generated over the next few years from the procurement of maritime patrol aircraft (MPA) and an indigenous helicopter project known as the Korean Multi-role Helicopter (KMH). "We are preparing for many big programmes, such as KMH and MPA. Those are the major expansion streams of our business," he says.

But South Korea has not yet signed a contract for the MPA programme, which involves the refurbishment of eight ex-US Navy Lockheed Martin P-3B Orions. KAI and KAL have each bid for the work.

High hopes for KMH

For South Korea's aerospace industry, the KMH promises to be the T-50 of the next decade, with an expected procurement of up to 500 helicopters domestically and up to 500 exports (see P49). But the first helicopter will not be delivered until at least 2010 and the estimated \$1.7 billion in development costs will have to be shared by several South Korean companies and government agencies. "During the development years revenues from KMH will be limited," Oh acknowledges.

KAI and its legacy companies have previously tried to expand into the helicopter sector, largely unsuccessfully. In 1996 Daewoo partnered with Poland's PZL-Swidnik on sales of its W-3A Sokol in Asia. But Daewoo/KAI sold only nine Sokols, including six to Daewoo, before the licensing agreement expired in April and an option to build Sokols in Korea was never exercised.

Further clouding their relationship, one of the KAI-sold Sokols crashed in January. KAI and PZL then decided to postpone any discussion on extending their partnership.

"We are looking for a way to resolve the accident amicably," Oh says. "After we resolve the accident issue, we'll talk about further sales."

In 1997, Samsung forged a joint venture with Bell Helicopters to develop and build the SB427 light twin. But Samsung/KAI to date has only been able to sell three 427s, including two to Bell, and only two of

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