

Russian industry, but the form of such integration has yet to be defined.

Kamov is gaining experience on the international market with operations of its medium type, the Ka-32, in Albania, Canada, Morocco and Switzerland. The Ka-32A has won Russian certification, but the company understands the commercial necessity of internationally accepted certification. Intensive efforts have been made during the past 18 months to gain certification from the Canadian Ministry of Transport (MoT). According to an MoT delegation to production sites in Russia and Ukraine, which conducted eight test flights from the Kamov test base near Moscow, a list of requirements to be met for certification was accepted by the manufacturer, which responded with a plan of action.

Two more types in development are the Ka-126 and the Ka-226 single- and twin-turboshaft derivatives of the Ka-26 piston-engine multipurpose utility helicopter, of which 850 were produced in 1968-77 and many were exported to 15 countries. Both programmes are suffering from lack of funding and Mikheyev says that \$20 million is needed to complete Ka-226 flight tests and start series production. The Kamov general designer is bitter about the recent purchase by Russia's Ministry of Emergency Situations of Eurocopter Bo.105s for its central aviation-rescue team. The major reason for the decision was the absence of light-to-medium-class Russian helicopters. "A Bo.105 costs as much as a Ka-32, and they could fly on a 10t machine, rather than a 3t one," says Mikheyev.

Campaigns by Kamov and Mil urging the Russian Government to buy indigenous, rather than imported, helicopters have produced some results. After a year of operational-evaluation flights of the Bell 206 by Moscow municipal police, the city authorities decided to buy several Mil Mi-34F light helicopters to perform police-patrol duties and two Kamov Ka-32A1s (a firefighting version of the basic model).

On the military side, the design bureaux are involved in the seemingly endless competition to produce a new-generation combat helicopter for the Russian army. The Mi-28 Havoc and the Kamov Ka-50 Hokum were developed in the early 1980s and competitive flight tests appeared to favour the Kamov single-seat design. Mil has continued the development of its Mi-28, however.

Mil assembled and exhibited the first prototype of its Mi-28M at MosAero '95. Its general designer admits that the helicopter does not yet have some systems vital for 24h all-weather capability, but he expects those to be installed by the end of the year. The Ramenskoye Instrument Design Bureau is integrating weapons-control system and avionics in the Mi-28M.

Vainberg says that the Mi-28M has a redesigned main-rotor gearbox, produced by the Rostvertol series-production plant, which would eliminate problems encountered in development and evaluation. The helicopter also has new, swept, rotor-blade wingtips,

improving aerodynamics.

Vainberg says that Sweden, which evaluated the Mi-28 this year, is interested in the helicopter. Mil is due to visit Sweden in October to take part in a combat-helicopter competition.

Kamov has exhibited a mock-up of a side-by-side twin-seat variant (the Ka-52) of the Ka-50, saying that the introduction of a second crewmember does not mean that the design bureau has abandoned its concept of a single-seat combat helicopter with a high level of automation of weapons delivery, but rather that the concept provides better opportunities for special missions. Some Russian army aviation experts believe that a mix of Ka-50s/Ka-52s would provide an ideal solution.

The side-by-side cockpit does not increase airframe cross-section and provides advantages in arranging the integrated instrument panel for both pilots, as well as better interaction between them in combat environment, says Kamov. Both seats have identical controls, so that either pilot can fly the helicopter, giving the Ka-52 an additional role as a combat trainer. The two-seat Hokum retains the unique ejection capability for both pilots, in which the rotor blades are first jettisoned.

MASS PRODUCTION

So far, the first batch of 12 Ka-50s has been produced by Arsenyev, but Mikheyev says that further orders "...are counted in units, not hundreds". Although the plant is ready for mass production, Russian army aviation does not have sufficient funds to procure more Ka-50s.

India may become the first foreign customer for the Ka-50 and Mikheyev says that negotiations continue on possible deliveries. Kamov would need an export licence, together with its series-production plants, but Mikheyev is not confident that that would be granted by the Russian Government.

Another significant new Kamov design revealed at MosAero '95 was the Ka-31 shipborne early-warning helicopter, which underwent state-acceptance tests recently. The Ka-31 has a retractable 6 x 1m radar antenna. Mikheyev says that this engineering solution, unique to this class of helicopter, provides the Ka-31 with good aerodynamics and high cruise speed to the patrol zone. The Ka-31 may be based on any ship which accepts the Ka-27 search-and-rescue helicopter.

However ambitious the plans and designs of the two Russian helicopter-design bureaux may be, a difficult economic situation keeps many of them firmly on the ground. Vainberg acknowledges that commercial realities forced Mil to place more emphasis on the modernisation of current types, rather than on developing new ones and, even to offer qualified overhaul services at the bureau's prototype plant for helicopter operators. "The general situation in our company, as probably with everybody else in the industry, is hard, but there are grounds for optimism in the near future," concludes Mil. □

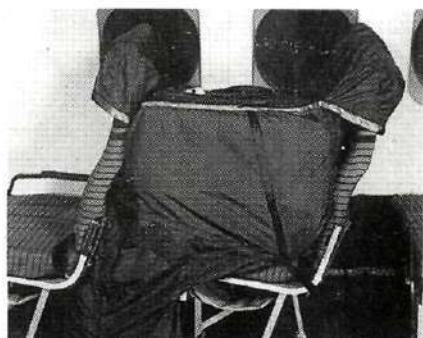
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