

Mil discusses Hind upgrade with army

DOUGLAS BARRIE/LONDON

THE RUSSIAN army is in negotiation with helicopter manufacturer Mil over an upgrade package for the Mil Mi-24 Hind, based around systems developed for the Mi-28 Havoc attack helicopter.

Replacements for the Mi-24 Hind in the attack and combat support roles have been delayed by drastic cuts in the Russian defence budget — effectively stretching the Hind's service life.

Oleg Bakhov, a senior manager at Mil, says that an upgrade based on the Mi-28 "...is under study with the Russian army. This would reduce the aircraft's empty weight, while providing it with a greater combat load and improved performance. New avionics would also be included along with missiles and the gun."

Two variants of the Hind which might receive an upgrade would be the late-model Mi-24V Hind E and Mi-24VP.

The Hind would be fitted with the main-rotor head and blades and tail rotor from the Mi-28.

The Mi-24's Klimov TV3-117 turboshafts would be replaced by a more powerful model.

As part of the upgrade package, the Mi-24 would be fitted with the Havoc's NPPU-28 30mm turret-mounted gun. It is unclear whether the Hind's Shturm (AT-6 Spiral) anti-tank missile would be replaced by the Vikhr (AT-9), or possibly even a millimetre-wave-guided missile now thought to be in development.

Bakhov says that Mil is also looking to offer Hind upgrade packages to export customers for the helicopter to extend its service life and improve its combat capability.

Besides examining a Hind upgrade, Bakhov says that Mil is continuing to work on what it sees as the Mi-24's successor, the Mi-28. According to Bakhov, the first prototype of the night/all-weather attack Mi-28N will be flown in the first half of 1995.

A troop-carrying variant of the Mi-28 is also in development according to Bakhov, although he did not associate this with the Mi-40 designation previously given to a Mil infantry-combat helicopter. □



Marines conclude TIALD Harrier trials

THE UNITED STATES MARINE CORPS has completed trials of the GEC-Marconi Thermal Imaging Airborne Laser Designator (TIALD) pod on a McDonnell Douglas AV-8B Harrier II. The tests, concluded in September, were carried out at the Naval Air Warfare Centre at China Lake in California. The tests were part of the Foreign Comparative Test flight trial programme and included live drops of laser-guided weapons.

Popeye interests S Korea

SOUTH KOREA is considering purchasing the Rafael Popeye II medium-range stand-off missile to equip its Lockheed F-16C/D fighters.

Israel's Rafael is developing a lightweight version of the AGM-142 Popeye for carriage on aircraft such as the F-16, or even the Northrop F-5. This is despite a funding delay from the US Air Force, which has been backing development of the "Have Lite" Popeye for its F-16s.

The Popeye is 15% lighter than the AGM-142, which weighs 1,360kg, although it is claimed to have the same range of 100km (55nm). Rafael has already carried out drop trials of the Popeye 2 from an Israeli F-16 (pictured).

Alongside South Korea, several other F-16 users have expressed an interest in the Popeye for the provision of a stand-off engagement capability for their fleets.

Rafael is also working in con-



S Korea may muscle in on Popeye

junction with the USAF on providing the AGM-142 with a simultaneous multiple-engagement capability.

This would allow the launch aircraft to engage up to three targets at the same time. This requires improvement to both the missile's central computer and to the guidance datalink. □

Eurocopter freezes Tiger design

EUROCOPTER HAS frozen the external design of the Tiger attack helicopter following implementation of design changes to cure handling problems.

The main area where configuration changes were tried focused on the horizontal stabiliser, to correct problems caused by interaction with the downwash from the main rotor.

Tiger chief test-pilot Andrew Warner says that, in transition to forward flight, the airframe was struck by the downwash, causing excessive bending movement on the mast. "Moving the tailplane forward was considered, but rejected, and today it is located back to its original place, but is only half its original size," he adds.

The company is happy with the avionic system and vehicle and now wants to concentrate on the development and testing of the weapon system.

Earlier in development, Eurocopter also discovered high mast bending moments and had to strengthen the main-rotor mast.

The high collective sensitivity of the helicopter's duplex automatic flight-control system was

also found to be causing some pilot-induced oscillation (PIO), and the gain needed to be reduced. "We found some people were getting into PIO when entering the hover," says Warner.

Tail shake was also experienced by the helicopter and a lateral vibration occurred in the pilot's cockpit. This was traced to vortex interaction between the main-gearbox housing and the main rotor.

The gearbox cowling was "...changed to a surf-board shape" with a distinctive "lip" along its edges. This generates vortices to stabilise the flow and has helped eliminate the tail shake.

Premature switching of the two MTU/Turboméca/Rolls-Royce MTR390 turboshafts to back-up modes was traced to "over-sensitive" software in the full-authority digital engine-control unit. Warner says that some problems were caused by overcritical engine-software watchdogs.

"Thresholds are now reduced, but originally minor hot-gas ingestion during backwards flight sometimes caused the engines to revert unnecessarily to a back-up mode," he adds. □