Light Combat Helicopter

CLAWS RESEARCH TEAM

The urgent need for modern-day rotor-wing gunships, which could be operated at high altitudes, was first felt during the Kargil conflict. While the upgrade of the present fleet of attack helicopters has addressed major issues regarding avionics and weaponry, the limitation in respect of high altitude operations remains. Also, a need has been felt to increase the numbers beyond the present two squadron strength to cater for the current employment philosophy in support of the Cold Start Doctrine.

The HAL Light Combat Helicopter (LCH) is a multirole combat helicopter being developed by Hindustan Aeronautics Limited (HAL) for use by the Indian Army

and the Indian Air Force. The LCH is a derivative of the ALH, Dhruv. Using a proven helicopter as the base platform has considerably conserved the project costs and timeline for the LCH. The LCH has been provided with features comparable to the contemporary attack helicopters of the world.

All aspects of cockpit ergonomics, sighting and targeting systems, weaponry and survivability have been well designed and developed making it a potent, modern fighting machine. The LCH will have a maximum take-off weight of 5700 kgs. Future prototypes are expected to have a higher percentage of composite material in the structure. It is intended for use in air defence against slow moving aerial targets (helicopters and UAVs), destruction of enemy air defence operations, escort to special heliborne operations (SHBO), and support of combat search and rescue (CSAR) operations.

The helicopter is powered by two 'Shakti' turboshaft engines which the HAL has developed along with Turbomeca Company of France. Designed for anti-tank, anti-infantry and scouting roles with a maximum speed of 275 kmph, it will also be capable of high-altitude warfare since its operational ceiling will be 16,000 to 18,000 feet (5,490m).

The LCH has a glass cockpit with multifunction displays. The sensor suite for target acquisition and designation system, developed with the help of Israel, consists of CCD Camera (digital imaging), Forward looking infrared imaging (FLIR) technology and Laser range finder and laser designator. It facilitates target acquisition in all weather conditions and at night. Mission systems include a helmet-mounted sight for aiming the weapons, improving targeting and reducing work load of the pilot.

Armament would include a chin mounted twin barrel 20 mm cannon, rockets and cluster bombs. According to HAL, the helicopter will be able to carry missiles for a variety of missions, including air-to-air, air-to-surface, and anti-radiation. The helicopter is to be fitted with a data link for network-centric operations facilitating the transfer of mission data to the other airborne platforms and ground stations operating in the network, facilitating force multiplication.

The machine is a Low Observable (LO) design with reduced visual, aural, radar and infra red signatures. The redesigned fuselage incorporates tandem seating (the two pilots in the LCH sit one behind the other), compared to side-by-side in the Dhruv. The design provides lower radar cross section and the Infra Red (IR) signature due to hot exhaust gases is lowered by providing IR suppressors for the engines. The LCH will incorporate crash-worthy landing gear and armour protection for better survivability.

Survivability will also be ensured in the dense modern battlefield through an electronic warfare (EW) suite procured from SAAB, South Africa. The radar warning receiver (RWR) would warn against detection by enemy radars. The laser warning receiver would warn the crew in case the helicopter is being targeted by a laser designator.

A warning would also be given, in case a missile is approaching the helicopter, through the missile approach warning system (MAWS). Later versions are also expected to have a Laser missile jammer, which works by detecting and tracking the incoming missile and directing a modulated laser beam at its infrared seeker to confuse the guidance system, causing the missile to veer off course.

According to estimates the LCH should receive its Final operational clearance by 2013/2014 after which it will enter service. HAL will supply the Indian Army with 114 and IAF with 65 LCHs. These would initially augment and subsequently replace the current machines.

The plan for expansion of Army Aviation envisages embedding attack and tactical assault helicopters in the three Strike Corps of Indian Army, by integrating an Aviation Bde each. They would also include reconnaissance and surveillance helicopters for tactical battlefield employment and casualty evacuation. The Army is contemplating acquiring 133 Light Utility Helicopters to replace the ageing Chetak/ Cheetah fleet, for which the Eurocopter AS 550-C3 Fennea and Kamov Ka-226 are in competition.