

HAL's LCH



A Tiger in the Sky

Designed and developed for operations in support of ground troops at high altitudes and holding the distinction of the first attack helicopter to land on Siachen, maiden flight of Hindustan Aeronautics Limited (HAL) Light Combat Helicopter (LCH) took place on 29 March 2010 marking successful culmination of three years of design and development efforts by Rotary Wing Research & Design Centre (RWRDC) of the Helicopter Complex and appropriately named 'Tiger Bird' perhaps inspired from its exceptional high agility—and a design painted on the prototype.

Projected to meet requirements of the Indian Air Force and the Indian Army (they are likely to order 65 and 114 units respectively) plus significant export potential, the LCH is being developed as a dedicated attack helicopter derived from the Advanced Light Helicopter (ALH) Dhruv and to be fitted with weapons and special mission systems and having a crashworthy wheel landing gear. In addition to the primary anti-armour role, the rotary-wing platform will play critical roles of escort to special heliborne operations (SHBO),

support of Combat Search & Rescue (CSAR) operations, and armed aerial scouting duties.

The LCH began production in February 2020 with a LCH Production Hangar established at HAL's Helicopter Division in Bengaluru. The new hanger to "augment capacity to reach the peak production of 30 helicopters per year", stated HAL Chairman and Managing Director R. Madhavan in a recent statement.

The LCH inherits many technical features of the Dhruv including its rotor system transmission, power plant, hydraulics, IADS and avionics. The features that are unique to LCH are its sleek and narrow fuselage, exterior covered by canted flat panels to minimise Radar Cross Section (RCS), an integrated dynamic system, including a hinge less main rotor and bearing less tail rotor, which works in conjunction with an anti-resonance isolation system to dampen vibrations, tri-cycle crashworthy landing gear, tandem cockpit, self-sealing fuel tanks, and aerofoil shaped stub wings for weapons, armour protection, Nuclear, Biological, Chemical (NBC) protection and low visibility features

which make the LCH "lethal, agile and survivable."

Notably the flight controls and hydraulics of Dhruv have been redesigned for the LCH. An indigenous Automatic Flight Control System (AFCS) designed by HAL. The helicopter is powered by two HAL/Turbomeca Shakti-1H1 turboshaft engines fitted with Infra-Red (IR) suppressors, each of which can generate up to 871-kW and can operate up to 3,000-hours without maintenance. It features a Full Authority Digital Electronic Control (FADEC) system, which decreases work of the pilot by automatically counting engine cycles. The LCH has a cruise speed of 260 km/h, a maximum speed of 275 km/h and a climb rate of 12 m/s to a service ceiling of 6,500 m. LCH has an operational range of 550 km and a ferry range of 700 km.

Fitted with a chin-mounted, twin-barrel M621 20 mm cannon on a Nexter THL-20 turret integrated to a Helmet Mounted Sight (HMS), LCH armament will include Belgian 70-mm rockets and air-to-air/air-to-ground missiles and Laser Guided Bombs (LGB) on the weapon stations. MBDA's PARS3 and indigenous Helina