Light Combat Helicopter

LT GEN (RETD) BS PAWAR, PVSM, AVSM

Light Combat Helicopter during its maiden flight at Bangalore

The first flight of the Indigenous Light Combat Helicopter (LCH) took place at the Hindustan Aeronautics Ltd (HAL) complex in Bangalore on 29 March 2010. Though an year behind schedule and facing criticism for having gone several hundred kilograms over its stated weight of 2.5 tons, the maiden flight was a landmark achievement, specially so when the Indian Air Force (IAF) and Indian Army are currently looking for the replacement of their present fleet of Mi-24 attack helicopters. These helicopters, though refurbished for night operations, are vintage compared to the present family of attack helicopters in the world.

A frared predator in the modern battle field, the attack helicopter is a key weapon system with any Army. It involves the most complex aeronautical, stealth, senor and weapons technologies. The LCH aims to gatecrash an exclusive club of state-of-the-art light attack helicopters, which includes Eurocopter's Tiger, Bell AH-IZ Super Cobra and China ultra secret Zhisheng 10 (Z-10). The LCH is a derivative of the advance light helicopter (ALH) and the weaponried ALH. The concept is good and similar to the one adopted by Denel Aviation of South Africa in the early Nineties, wherein, the Rooivalk attack helicopter was basically derived from the Super Puma. The LCH utilizes the dynamic components of the ALH in terms of gearboxes, the main and tail rotors and most importantly, the engine used is the more powerful Shakti engine, which is fitted in the latest version of the ALH, duly tested in high altitudes. The state-of-art-the-art glass cockpit would be a feather

in the cap for the LCH. The mission computer is likely to be developed in house, as was done for the light combat aircraft (LCA)for the IAF. A major change has been made to the fuselage, wherein the standard attack helicopter configuration of tandem seats for the pilot and weapon system operator has been adopted. The critical system are duplicated and protected. The LCH will have stealth features and crashworthy landing rear for better survivability. Lessons learnt from the ALH design, including maintainability have incorporated.

The above approach has an inherent advantage as most of the critical systems, including weapon and associated systems would have been proved on the weaponised ALH. The major share of testing required will be for performance and stability , both with and without armament. With the experience of weapon integration on the ALH the weapon integration on armament package for the LCH is lethal. It includes a 20 mm turret mounted cannon, unguided 70 mm rockets, air-to-air missiles and the anti-tank guided missile (Helina), the helicopter version of the Nag ATGM. Which is being develop indigenously with a range of 7 km.

However, the excess weight is a major cause of concern, notwithstanding the assurance of the HAL to reduce the same. There is no doubt that the heavy amour needed for protection against enemy fire, conflicts with the need for a light, highly mobile helicopter, that can twist and dodge and hover stationary, the LCH is required to operate at high altitudes, where the excess weight will adversely affect its performance in terms of pay load carriage (weapons and ammunition). Presently, it is 580 kg mere then the required empty weight of 2.5 tons. HAL has emphasized that the excessive weight will be reduced to a large extent in the subsequent technology demonstrators. This is a serious issue, which the HAL will have to address urgently.

An indigenous attack helicopter is a step in the right direction as it can be factored to suit the terrain and climatic conditions of our area of operations, whereas an imported attack helicopter would have a lot of limitations and it may not possible to carry out major modifications due to the small numbers involved. Further, most of the key technologies involved in the design of LCH have already been proven in the ALH and the armed AHL currently under evaluation.

The LCH should compare well with the Eurocopters Tiger, Augusta's Mangusta and the Bell AH-1Z Super Cobra, as it is approximately in the same weight class. If the development programme is not delayed and runs as per schedule the LCH should enter service by 2015-2016. The induction of this attack helicopter will certainly enhance our comet potential and be a force multiplier. For the interim period the plan is to import two squadrons worth of state-of-the-art modern attack helicopters. Accordingly, a fresh request for proposal (RFP) has been issued as the one issued

earlier was cancelled by the defence ministry due to technical reasons. This is likely to include all the leading attack helicopter manufacturers like Boeing (Apache Longbow), Bell AH IZ (Super Cobra), Augusta Westland (Mangusta), Eurocopter (Tiger) and Russian Kamov (Ka-50) and Mil (Mi-28).

LCH Specifications

- Crew — 2
- Length — 15.5m
- Height — 4.7m (15 ft 4 in)
- Empty weight — 2550kg
- Loaded weight — 4000kg
- Useful load — 2950 kg (6503 ib)
- Max takeoff weight — 5,500kg
- Powerplant — 2xHAL/Turbomeca Shakti Turboshaft, 900kW (1200 hp) each

Performance

- Maximum speed — 275 km/h (148knots,171 mph0
- Cruise speed — 260 km/h (140knots,161 mph)
- Range — 700km (297nm, 342mi)
- Service ceiling — 6400 m (21,300 ft)
- Rate of climb — 12m/s (2362 ft/min)

Armament

- Guns — M62 20 mm cannon on Nexter T turent
- Rockers — Unguided rockets
- Missiles — MBDA air-to-air missiles
  Air-to-surface missiles
  Anti-radiation missiles
  Helina ATGM
- Bombs — Iron bombs
  Cluster bomb units
  Grande launcher

Source: *Indian Military Review*, Volume 1, Number. 5, 2010, IDYB Group

Additional Reading

- War or peace on the Indus? by John Briscoe
  Source: http://www.claws.in/index.php?action=master&task=623&u_id=132
- Rethinking Our Mine Warfare Policy by Dhruv Katoch, CLAWS Website