Detailed feasibility studies and three wind tunnel tests have now been completed. The suggested design for the 14-seater is a twin aft mounted pusher turbo prop, with a maximum payload of 1,300 kgs, a cruise speed of 520 kmph, and a range of 2,800 kms. Pratt and Whitney Canada have offered five PT 6A-66 engines free for the first prototype.

NAL has received an offer from a Russian company, Myasishev Design Bureau (MDB), to acquire an interest in the LTA project. Under this agreement, which is to be signed shortly, MDB would cover Rs. 400 million of the Rs. 800 million project cost for development, design and manufacture of three prototypes (two in Russia and one in India). The Indian Government and a private industrialist will cover Rs. 200 million each. Two prototypes will be built and flown in Russia 15 and 21 months after the conract is signed, and one prototype in India 33 months after the contract signing. NAL projects a market for at least 200 aircraft in India over the next 10 years, while MDB forecasts a market of over 1,000 aircraft in Russia. Production will be undertaken in both countries for their respective domestic markets, and sales by either partner will entail royalty payments to the other partner. For third country orders, production may be shared. NAL requires another Rs. 200 million to take the project to the production stage, and is looking for a private India company to participate. Once again, NAL may find a partner in TAAL.

Light Canard Research Aircraft (LCRA)

NAL had already built and test flown an LCRA in early 1987. Now in collaboration with the DLR of Germany it proposes to develop a variable stability research aircraft. The airframe of LCRA is made entirely of rigid foam and fibreglass composites. The technology is similar to that used by RUTAN aircraft in the USA for the VOYAGER, which created aviation history by flying non-stop around the world. In fact, the Rutan-EZ design has been followed. The control surface is a "canard" in front, instead of the conventional aft-tail.

Software for Fluid and Thermal Sciences Programme

It has made satisfactory progress and has about 1,000 computer codes in its library. It is being extensively used by engineers from the ADE (Aeronautical Development Establishment) and HAL engaged in the LCA programme.

Naltech

NAL has set up a joint venture with the Centre for Technology Development to commercialize and market NAL's research and development projects. NAL has developed a Flight Data Recorder (FDR) decoding system, which it wants to sell on the world market. The decoding system will be one of the first NAL technologies to be marketed by Naltech.

AERONAUTICAL DEVELOPMENT AGENCY (ADA)

The ADA was set up in Bangalore in 1983 under the Defence Research and Development Organisation (DRDO), Ministry of Defence. Its primary function is to fund, manage and monitor the Light Combat Aircraft (LCA) project for the IAF. Of the more than 80 centres working on the LCA project, HAL's Design Complex is the major participant, while NAL, ADE (Aeronautical Development Establishment), GTRE (Gas Turbine Research Establishment) and ERDE (Electronic and Radar Development Establishment) play an important role in their areas of specialisation. The LCA program is by far the longest and the most ambitious project undertaken by HAL's Design Complex.

Feasibility studies commenced in 1983 and were completed by June 1984, with the go-ahead for design and development received in January 1985. Project definition was completed in September 1988, and detailed design commeced shortly thereafter. The project is now a decade behind schedule. The development cost is estimated at Rs. 50 billion. Phase I, up to building of prototypes will cost Rs. 22 billion, with a foreign exchange component of Rs. 9 billion. Foreign vendors have already been identified for imported prototype components (RPG - Honeywell/Litton, composite wings - Alenia). HAL envisages a foreign collaboration with either the UK, the USA, Germany or France for production.

A single-engined, multi-role, all weather fighter, the LCA is optimally designed for an "air superiority" role with offensive close air support and interdiction capabilities. The design of the LCA will be that of a compound delta-wing with negative dihedral, weighing some 8.3 tons and initially powered by a General Electric F 404-F2J3 turbofan engine of 8,450 kg reheat thrust. The Project Definition Phase (PDP)