



Now, “FLY LCA NAVY”

On 6 July 2010, the first LCA (Navy) NP-1 was ‘rolled out’ in presence of the Defence Minister AK Antony, from HAL’s Aircraft Research and Design Centre (ARDC) hangar in Bangalore. The Chief of Naval Staff Admiral Nirmal Verma and other senior officers of the Ministry of Defence including Secretary for Defence Production RK Singh, Scientific Advisor to the Defence Minister and DG of ADA DrVK Saraswat, Chairman HAL Ashok Nayak and Director ADA PS Subramanyam were present on the occasion.

Congratulating all stakeholders in the development of this first indigenously developed carrier-borne naval aircraft, the Defence Minister stated that this was “a defining and memorable occasion” and hoped that first flight of NP-1 would happen by the end of this year. Citing other successful examples of indigenisation such as the MBT Arjun and the LCA (Air Force), he said “I am sure efforts like these will give the indigenisation process a shot in the arm. It will also motivate other agencies to strive for indigenisation and put the armed forces on higher trajectory of growth”. Antony also referred to the Shore Based

Test Facility (SBTF) under construction at the Naval Air Station Goa.

The LCA (Navy) is part of the unique indigenous effort to build a complete air element for the Indian Navy. Its primary role will be air defence and the version with a higher thrust engine would be a suitable replacement for the ageing Sea Harriers after 2015. The lightest carrier borne aircraft in the world, the LCA (N) will be equipped with a wide variety of weaponry

including Beyond Visual Range (BVR) missiles, anti-ship missiles, conventional bombs, cannon, CCMs and drop tanks. The NP-1 will hereafter undergo systems integration tests leading to ground runs, taxi trials before its first flight. The aircraft would be powered by the GE F404 IN20 engine and is specifically designed for ski jump take off and arrested landing, with higher landing loads as compared to its Air Force counterpart.



(L-R) Ashok Nayak, RK Singh, Admiral Nirmal Verma, AK Antony (Cmdre CD Balaji at back), Dr VK Saraswat, Dr Prahalada and Dr PS Subramanyam at the ‘roll out’ of NP-1.



Cmde CD Balaji, the Programme Director highlighted differences with the LCA's Air Force version: "LCA (N) will operate from an aircraft carrier as per the Ski Jump Take Off But Arrested Recovery (STOBAR) concept where the aircraft gets airborne using a ski ramp in about 200 meters and lands within 90 meters using an arrestor hook, engaging wires on the deck."

A distinct external difference between the two is the LCA(N)'s leading edge vortex controller (LEVCON), which aids in reducing approach speed for carrier deck landing. The landing gear has been strengthened to withstand increased landing impact during carrier operations, high strength steel for this being provided by MIDHANI, the design

undertaken by Bharat Forge, Pune and the fabrication done at HAL, Nasik, a collective endeavour indeed!

According to Cmde Balaji, the next major challenge are the Carrier Compatibility Tests (CCT) after which initial flights will be carried out at the Shore Based Test Facility (SBTF) being constructed at Naval Air Station *Hansa* at Dabolim (Goa) with Russian assistance. This facility will be replication of an aircraft carrier with a ski ramp for take offs and arresting gear for landings.

Ashok Nayak, Chairman HAL put the LCA programme into perspective: "NP-1 is the 12th LCA produced" and recommended an early "go ahead" for launching of series production as the lead time is around three years.

The CNS, Admiral Nirmal Verma was "happy that naval aviation has come such a long way since its inception at Cochin on 4 February 1953." He was confident that the LCA Navy would fly from the decks of IAC 1 (Indigenous Aircraft Carrier One) after the ship's commissioning in 2014 and requested *Team LCA Navy* to achieve the planned maiden flight of the LCA (N) in October 2010.

The Defence Minister was visibly delighted at the efforts of the organisations involved, "a shot in the arm for indigenous efforts". He was pleased that the "prophets of doom" had been proved wrong and was of the opinion that efforts like this (LCA-Navy) would motivate other agencies to strive for indigenisation. Alluding to future activity the Secretary (DP) mentioned that work on the Fifth Generation Fighter Aircraft and Multi Role Aircraft would commence by early 2011.

Formal sanction by the Government for the Naval LCA programme was accorded in 2003. The first stage of development includes design and fabrication of one trainer and one fighter, NP-1 and NP-2 respectively, along with a Shore Based Test Facility (SBTF) at Goa, to simulate carrier take off and arrested landing. A complete airframe (Structural Test Specimen) required for structural testing is also being tested as part of the Programme.

Cdr M.Nirmal



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