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HTT-40 PT-1 in flight at HAL Bangalore (photo: Deb Rana)

HAL's HTT-40 Comes Good

Hindustan Aeronautics Limited (HAL) has doggedly pursued development of an indigenous turboprop basic trainer for decades, inspite of indifference and perhaps even some opposition. The lead HTT-40 prototype (PT-1) made its maiden flight in May 2016 and is set to meet its targets as envisaged by its young and dynamic programme managers. Angad Singh reviews the journey!

While the HTT-40 has actually only been in development since 2009, its genesis can be traced back to the 1980s. In 1984, the same year that the piston-engine HPT-32 Deepak trainer entered service with the Indian Air Force, HAL had already modified and flown the type with a 420 shp Allison 250-B17D turboprop in place of the 260 shp Lycoming AEIO-540 reciprocating engine. Despite improved performance characteristics over the basic HPT-32, there was no official interest in this internal project, and it was shelved in the late 1980s with only two prototypes built.

Meanwhile, having realised that the HPT-32 would soon be outmoded,

the Indian Air Force issued an Air Staff Target (AST 203) for a tandem seat Basic Turboprop Trainer (BTT) – also in 1984! This led to development of the stillborn (and not very well known) HTT-35 trainer, the spiritual progenitor of today's HTT-40. A full-scale mock-up of the HTT-35 was unveiled at the first Bangalore air show, Avia India 1993 (see *Vayu II/1994*), at which event HAL officials noted that the turboprop trainer was to replace the HPT-32 and HJT-16 Kiran in the IAF's future flying training plans. The programme was intended to produce a tandem seat, glass cockpit aircraft, powered by either a Pratt & Whitney Canada PT6 or Garrett AiResearch (now Honeywell) TPE331 turboprop engine. The

HTT-35 shared a number of similarities with today's HTT-40, including provision for under-wing hard points to carry a range of munitions and sensors.

At the time, HAL anticipated government clearance for full-scale development by mid-1994, and planned for first flight by 1996. A Preliminary Design Plan (PDP) for the new BTT, calling for a modest commitment of Rs 4.77 crore, had already been submitted in July 1993, and the IAF was expected to order around 150 of the type to replace some 200-odd Deepaks and Kirans in service.

Instead, the HTT-35 project was quietly shelved around 1995 for reasons unknown. An attempted revival of the