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MANUFACTURING OF KA-226T HELICOPTER BY HAL – A MAKE IN INDIA INITIATIVE

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The Agreement

One of the significant announcements during the visit of the Indian Prime Minister Shri Narendra Modi to Russia on December 23, 2015 was the agreement on the joint work in helicopter engineering between the two governments. The agreement also envisages maintenance, repair and technical support for the helicopters which would be manufactured in India¹. It is expected that the agreement would meet the criteria specified in the policy framework specified in the flagship “Make in India” programme. Hindustan Aeronautics Limited (HAL) has been selected to be the Indian partner in the joint manufacturing process.

One of the spokespersons of Russian Helicopters has specified that the negotiations are currently underway in India between Russian Helicopters and HAL. Both the sides are discussing the prospect of involving several

companies in the Ka-226T project to meet the criteria specified under the Make in India programme. In the expected partnership model Russian Helicopters is likely to hold a 49% stake while the HAL led consortium will hold 51%². Around 200 helicopters are likely to be manufactured with the initial few being manufactured in Russia. The announcement however is silent on the details pertaining to the technology transfer and integration of indigenously developed systems. It is however expected that other than the primary partner HAL, a few small and mid-sized Indian entities would also be a part of the manufacturing programme, which ideally should be based on 100% transfer of technology.³

Aircraft Capability

The development of the light multi-purpose Ka-226T was commenced by the Kamov company in 1990 on order from the Russian Ministry of Emergency Situations. Its maiden



flight was on September 4, 1997 with an Allison engine. The aircraft is FAA certified with a parallel certification having been conducted in Russia and US with two operable prototypes.⁴ The current version is powered by two 580 horse power (H.P.), Full Authority Digital Engine Control (FADEC) equipped Arrius 2G1 engines. The engines are manufactured by Turbomeca (Safran) engine manufacturing company of France. The coaxial main rotor system and absence of a tail rotor makes it safe for operation on ground and in restricted areas. With a capability of operating within a temperature range of -50° to + 50° centigrade and humidity of 100%, hangar storage is also not a mandatory requirement. Boasting a modular design, the aircraft can be easily converted for the roles envisaged and has a max speed of 250 kmph and a max flight range of 600 km. It has a Hover Ceiling (Out of Ground Effect) of 4,600 metres and an operational ceiling of 6,100metres. It is also certified for single pilot operations.⁵

Consultations presently being held in India are likely to centre around firming up the requirements and the specifications of the modules to be manufactured, as also on the transfer of technology. It is in this context that the announcement of this joint venture on December 29, 2015 was followed by the Indian Prime Minister unveiling a plaque for the foundation stone of a new helicopter manufacturing unit of Hindustan Aeronautics Limited (HAL) in Tumakuru, Karnataka (about

100 Kilometers from Bangalore) on January 03, 2016. Making his intentions clear, he remarked that India needs to end its dependence on imported weaponry. Setting a target date he stated that the first helicopter built in the new complex should take flight by 2018.⁶ It is almost certain that the production line of the Ka-226T would be set up in this complex.

HAL: A Good Option

HAL in its present form has its origin in the Hindustan Aircraft Company which was established on December 23, 1940 at Bangalore by Shri Walchand Hirachand with the aim of manufacturing aircraft in India. It gradually evolved into a purely government concern under Ministry of Defence since October 01, 1964. HAL's principal business is design, development, manufacture, repair and overhaul of aircraft, helicopter, engines and related systems like avionics, instruments and accessories.⁷

HAL has been manufacturing Alouette III (Chetak) helicopters since 1962 in collaboration with M/s Sud-Aviation (presently M/s Eurocopter). The helicopter division of HAL was established as a separate unit in July 1970 and has over the years produced various variants of the Chetak known as the Cheetah and Cheetal.⁸ The expertise gained over the years in its Research & Development (R&D) centre called the Rotary Wing Research & Design Centre (RWR&DC) played a significant role in

developing the Advanced Light Helicopter (ALH) christened 'Dhruv'.

The Ka-226T is intended to replace the Chetak helicopters and its variants. Significantly, the RWR&DC is likely to get a technological stimulus in terms of the co-axial technology and the modular payload concept available on the Ka-226T. In addition, co-operation between Turbomeca and HAL has been continuing since 1962 when HAL started manufacturing the Artouste III B Engine under license from Turbomeca, which powers both Cheetah and Chetak Helicopters.⁹ HAL has also co-developed the Shakti engine or Turbomeca Arididen I¹⁰ along with the same company. The Arrius 2G1 engines presently installed on the Ka-226T are also manufactured by Turbomeca. This is significant, as it would ease the setting up of the production line of the engines in India and it would be relatively easy to evolve the policy framework and agreements to fast-track the production process.

The Path Ahead

Having finalised the stakeholders in this major Make in India initiative, it would be prudent to involve the end users, especially the Armed Forces, in the entire development and setting up of the production line. With a vast experience in operating and maintaining the helicopters, especially of Russian origin, a vast expertise base available within the Indian Air Force can be readily tapped for this purpose.

This would enable the development of the sub-modules with definite roles. These roles may be as diverse as undertaking Combat Search & Rescue (CSAR) to even fire fighting and casualty evacuation. However, it is even more important to ensure that no impediments are allowed to derail or delay this important Make in India initiative.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

Notes

¹ Rostec, "News : Russia and India are working on the Helicopter exterior design as part of the joint project," <http://rostec.ru/en/news/4517729> accessed on February 26,2016

² P R Sanjai,"Russian Helicopters renews India push," <http://www.livemint.com/Companies/bY08fPrOcuJVkg9flgmH0H/Russian-Helicopters-renews-India-push.html?facet> accessed on February 29, 2016

³ Global Security.org, "Ka 226T for India," <http://www.globalsecurity.org/military/world/india/ka-226.htm> accessed on February 29,2016

⁴ "Ka226 Sergei," <http://www.globalsecurity.org/military/world/russia/ka-226.htm> accessed on February 29,2016

⁵ Ka-226T, Light Utility Multirole Helicopter, <http://www.russianhelicopters.aero> accessed on February 29,2016

⁶ ANI, "Tumkur: PM Modi lay's foundation of HAL's helicopter facility,"<http://www.financialexpress.com/article/india-news/tumkur-pm-modi-lays-foundation-of-hals-helicopter-facility/187239/>

⁷ HAL, "Our History," http://www.hal-india.com/Our%20History/M_111 accessed on March 01,2016

⁸ HAL," Helicopter Division Bangalore," http://www.hal-india.com/Helicopter%20Division%20Bangalore/M_124 accessed on March 01, 2016

⁹ HAL, “Artouste IIB,” http://www.hal-india.com/Product_Details.aspx?Mkey=54&lKey=&CKey=33 accessed on March 01, 2016

¹⁰ Turbomeca (Safran) “Turbomeca and HAL forge support partnership for Indian customers,” http://www.turbomeca.com/media/20150617_turbomeca-and-hal-forge-support-partnership-indian-customers accessed on March 01, 2016

