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Indian Astra Missile Still Needs Russian Tech to Find Targets

New Delhi — In conflict with claims that India's 40-kilometer-range Astra Mark-1 beyond-visual-range air-to-air missile (BVRAAM) is indigenous, the Indian Air Force (IAF) says it will forever be dependent on Russia for the missile's critical technologies. The IAF says the missile's developer, state-owned Defence Research and Development Organization (DRDO), simply cannot produce it fully in-house.

"The missile seeker (main part for guidance) is based on Russian R-77 radar seeker in Astra Mark-1, and the homemade seeker has not been developed," according to a senior IAF official, who spoke on condition of anonymity. The seeker helps in firing the missile from beyond visual range, tracking and then locking onto the target, the IAF official explained. It also provides the capability to follow its target despite complicated maneuvers, the official added. "Astra missile is unlikely to be fully indigenous, as critical components like active sensor and proximity fuses would have to be imported as of now," said Daljit Singh, a retired IAF air marshal and defense analyst.

However, a DRDO scientist said the "radio frequency seeker is a transfer of technology from Russia, but the other subassembly is indigenous." "After the latest tests (Dec.11-13), Astra Mark-1 missile will get into induction stage in another six to eight months," according to the DRDO scientist.

But the IAF official said the service may not induct the Astra Mark-1 missile because it's unsure if it will even be proven in the field. The IAF is currently pushing for a longer-range BVRAAM. "IAF has already told Ministry of Defence that it will mount only an upgraded version of Astra missiles on Light Combat Aircraft-series fighters," the IAF official noted.

DRDO has already begun work on the Mark-2 version of the Astra missile with a range of up to 100 kilometers, similar to the French Meteor BVRAAM, the DRDO scientist said.

"With China having tested a very-long-range air-to-air missile early this year and Astra Mark-2 missile remaining the main requirement of IAF, which is still in initial stages of development, India will need to import advanced BVRAAM soon," another IAF official said.

Astra Mark-1 missile is a single-stage, solid-propellant missile that is 3.57 meters long and flies at more than four times the speed of sound at Mach 4.5.

"The technology used in Astra missile is more sophisticated than indigenous Agni (ballistic medium-range nuclear-able missile), as it works on a terminal active radar seeker and an updated mid-course internal guidance system that helps the missile in locating the target," according to the DRDO scientist.

Indian fighter aircraft are currently armed with Russian, French and Israeli BVR missiles.

"Astra missile, however, is not likely to be cheaper than other fully developed BVR missiles, considering the extent of research and development funding and other development costs," defense analyst Singh added.