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India successfully tests interceptor ballistic missile

By Ajit K Dubey

Moving towards developing an indigenous ballistic missile shield to protect against Chinese and Pakistani threats, India on Thursday successfully test-fired the AAD missile which hit the incoming ballistic missile at an altitude of 15 km from a test range in Odisha. The test is significant for one more reason: it is the first time that a woman scientist, Dr Shashikala Sinha, also known as the ‘new missile woman’, conducted the highly complicated test successfully for the country.

“The test was carried out around 10am on Thursday as the interceptor missile called ‘AAD’ managed to score a direct hit on the incoming ballistic missile at an altitude of 15 kilometres,” a senior government source said. The indigenous missile shield along with the Russian S-400 air defence systems are likely to provide protection from enemy missile attacks. The Ballistic Missile Defence shield would also help the country save on imports from foreign countries. The indigenous BMD is a two-layer missile defence system which can intercept enemy ballistic missile, both in space and in Earth’s atmosphere.

Under Thursday’s test, the missile was intercepted in the endo-atmospheric region — at an altitude of 15 km. Defence sources said the low altitude Advanced Area Defence (AAD) interceptor missile fired from the Abdul Kalam Island off Odisha coast zoomed in on the target, which was launched from the launching complex — III of the Integrated Test Range (ITR) also based in the island. “The radar of the defence system detected the incoming missile, tracked it and provided the command to launch the interceptor missile. The mission was brilliant as the interceptor missile achieved a direct hit, paving the way for its early deployment in the armed forces,” said a defence official. Indigenously developed by DRDO, the AAD interceptor is a singlestage missile powered by solid propellants.

The interceptor is a 7.5- meter long single stage solid rocket propelled guided missile equipped with a navigation system, a hi-tech computer and an electro-mechanical activator, the sources said. The state-of-the-art interceptor missile has its own mobile launcher, secure data link for interception, independent tracking and homing capabilities and sophisticated radars. With the success, the Defence Research and Development Organisation (DRDO) has ended its ‘Mission 2017’ on a happy note.

This was the second successful test of ballistic missile defence, this year. The DRDO has developed both high-altitude and lowaltitude anti-ballistic missiles. While the first phase seeks to destroy the incoming enemy missiles in the exo-atmospheric region (outside the atmosphere), the second phase envisages killing enemy missiles of more than 2,000 km range within the endo-atmospheric (inside the atmosphere) region.

<file:///C:/Users/Guest/Downloads/---Mail-Today-issue-December-29--2017-page-1.pdf>

India's Air Force Initiates Purchase of 83 Tejas Light Combat Aircraft

The Indian Air Force issued a request for proposal (RFP) to aircraft maker HAL for the procurement of 83 fighter jets on December 20.

By Franz-Stefan Gady

The Indian Air Force (IAF) has issued a tender to India's state-owned Hindustan Aeronautics Limited (HAL) on December 20 for the procurement of 83 Tejas Light Combat Aircraft, India's first domestically designed and produced light fighter aircraft.

"HAL has received Request for Proposal (RFP) for 83 LCAs from Indian Air Force," HAL said in a brief December 20 statement.

According to HAL officials who spoke to *IHS Jane's Defense Weekly*, the RFP includes orders for 73 single-engine LCA Mark-IA fighter jets and 10 tandem two-seat LCA trainer aircraft.

The Tejas LCA is a supersonic, single-seat, single-engine multirole light fighter aircraft that has been under development since 1983 by the Aeronautical Development Agency in cooperation with HAL.

The LCA Mark-IA vis an improved version of the original Mark-I variant found to have various technical deficiencies including inadequate electronic warfare capabilities, problems with the onboard radar system, and reduced internal-fuel capacity.

The upgraded Mark-IA LCA will be fitted with an advanced active electronically scanned array (AESA) radar system, a new electronic warfare sensor suite including a self-protection jammer, and a new externally refueling capability.

The newer variant will purportedly also have less maintenance requirements, which have been repeatedly criticized by the IAF. As I reported in November, the IAF issued a report highlighting other deficiencies in comparison to foreign fighter jets:

According to IAF assessments, the Tejas LCA, when compared to Saab's JAS-39 Gripen and Lockheed Martin's F-16, boasts reduced airborne endurance — 59 minutes versus three hours for the Gripen and nearly four hours for the F-16. The Tejas can also only carry a weapons payload of around three tons against nearly six tons by the Gripen and seven tons by the F-16.

Furthermore, maintenance requirements for the Tejas LCA are also higher than with foreign combat aircraft. The Tejas LCA requires 20 hours of serving for every hour of flying against six hours for the Gripen and 3.5 hours for the F-16. In addition, the service life of the Tejas LCA is also half that of the 40 years found in both the Gripen and F-16.

HAL is struggling to keep up with the production of first-generation Tejas LCA of which the IAF has ordered 40, as I noted previously:

HAL has not been able to meet the target of producing eight Tejas aircraft per year. In July 2016, the IAF inducted the first two serially-produced LCAs, followed by two more aircraft in the same year. Twelve more aircraft are currently at the production stage. The Indian government has also been pushing HAL to ramp up production capacity from eight to 16 aircraft per year.

In a December 2017 note to the Indian Parliament cited by *Business Insider*, the Indian Ministry of Defense (MoD) states: "Out of total 20 IOC [initial operational configuration] aircraft (16 fighters and four trainers), five fighters have been delivered by HAL to IAF till date. The production of remaining 15 IOC

[initial operational configuration] aircraft (11 fighters + four trainers) are taken up at HAL. (...) “Production for 20 FOC aircraft, will be taken up after FOC clearance by Aeronautical Development Agency (ADA).”

The Indian Air Force plans to induct a total of 123 Tejas Mark-IA aircraft, next to 40 first-generation Mark-Is. In November 2016, the Indian MoD approved the purchase of 83 Mark-IA Tejas. The first 40 aircraft are scheduled for delivery to the IAF by the end of 2018 — a date that likely will be pushed back. Production of the Tejas Mark-IA aircraft is expected to kick off in 2019. The maiden flight of a Tejas Mark-IA is slated to take place next year.

<https://thediplomat.com/2017/12/indias-air-force-initiates-purchase-of-83-tejas-light-combat-aircraft/>



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N Korea’s sea-based missile technology came from Russia

New Delhi: Newly uncovered documents from Russia have pointed towards designs for missiles that can be launched via submarine from the former Soviet Union ended up in North Korea.

Towards the end of the Cold War, the Soviets had built and perfected many missiles that could reach the American mainland. After the Soviet Union collapsed, these missile designs were quickly snapped up by the Americans. Some missiles offered for sale could be launched from a large boat, a submerged barge, or even a capsule dropped into the ocean,

Now, experts say, some Soviet designs for sophisticated missiles have reappeared in North Korea, The Washington Post reported.

“The question that has long been raised is: Did North Korea get this technology from a (Russian) fire sale?” David Wright, a missiles expert at the Union of Concerned Scientists, was quoted as saying. “Did they get plans years ago and are just now at the point where they can build these things?”

The Post reported that some of the evidence is circumstantial — in 1993, around 60 Russian nuclear scientists were arrested as they attempted to travel to Pyongyang to work as consultants, and they acknowledged to investigators that they had been recruited as a group to assist North Korea in building rockets. Intelligence agencies later concluded that some may have succeeded in their plan.

However, other evidence is more damning. Experts say North Korea’s Hwasong-10, a single-stage missile tested in June 2016, appears to use the same engine and many design features as the Soviet R-27 Zyb.

It is unknown why it has taken the country so long to reproduce these missiles, but experts say North Korea has “long lacked the sophisticated materials, engineering expertise and computer driven machine tools for the kinds of advanced missiles it has recently tested”, the report said.