

## अस्त्र मिसाइल ने पूरा किया विकास चरण

बालेश्वर (ओडिशा) (भाषा): देश में विकसित दृश्य सीमा से परे हवा से हवा में मार करने वाली अस्त्र मिसाइल ने बंगाल की खाड़ी के ऊपर चार दिन तक चले श्रृंखलाबद्ध सफल परीक्षणों के साथ ही अपना विकास चरण पूरा कर लिया है।

रक्षा मंत्रालय ने आज एक बयान में कहा, ओडिशा में चांदीपुर अपतटीय क्षेत्र में बंगाल की खाड़ी के ऊपर 11 से 14 सितंबर तक अस्त्र बी.वी.आर.ए.ए.एम के अंतिम विकास उड़ान परीक्षण सफलतापूर्वक आयोजित किए गए। लक्ष्य के रूप में पायलट रहित विमान को निशाना बनाते हुए सफलतापूर्वक कुल सात परीक्षण किए गए।

दृश्य सीमा से परे हवा से हवा में मार करने वाली मिसाइल (बी.वी.आर.ए.ए.एम) के सफल

परीक्षण ने इसे भारतीय वायुसेना में शामिल किए जाने का मार्ग प्रशस्त कर दिया है।

यह मिसाइल प्रणाली भारतीय वायुसेना के सहयोग से रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) द्वारा विकसित की गई है।

हथियार प्रणाली को विकसित करने में रक्षा सार्वजनिक क्षेत्र के कई उपक्रमों और 50 से अधिक सार्वजनिक एवं निजी उद्यमों ने योगदान दिया है।

रक्षा मंत्री निर्मला सीतारमण ने मिसाइल के सफल परीक्षणों पर डीआरडीओ, वायुसेना, रक्षा सार्वजनिक क्षेत्र के उपक्रमों और उद्यमों को बधाई दी। रक्षा मंत्रालय ने कहा कि सफल परीक्षणों के साथ हथियार प्रणाली का विकास चरण सफलतापूर्वक पूरा हो गया।



## Astra Missile Trials Successful Off Chandipur

The final flight trials of Astra, a Beyond Visual Range Air to Air Missile (BVRAAM), were successfully conducted off Chandipur coast between September 11 and 14. A total of seven trials were conducted against Pilotless Target Aircrafts (PTA).

“The missions included engagement of target at very long range, engagement of high manoeuvring target at medium range and multiple launches of missiles in salvo to engage multiple targets. All the sub-systems performed accurately, meeting all the mission parameters and objectives. Two missiles were also launched in the combat configuration with warhead and the targets were neutralised,” a defence Press release said.

The effort for building a state-of-the-art BVRAAM by the Defence Research and Development Organisation (DRDO), together with the Indian Air Force (IAF) has completed the development phase of the weapon system successfully. The Hindustan Aeronautics Limited (HAL) has played a role in modifying the aircraft for weapon integration. More than 50 public and private industries have contributed in building the Astra weapon system.

Programme Director Dr S Venugopal led the launch operations and flight trials along with the teams from multiple organisations.

Defence Minister Nirmala Sitharaman congratulated the DRDO, the IAF Air Force, the Defence Public Sector Undertaking (DPSU) and the industries for the successful trials of the Astra missile.

DRDO Chairman and Department of Defence (R&D) Secretary Dr S Christopher congratulated the ‘Team Astra’ for developing and flight-testing such a formidable class of weapon system.

Director General, Missiles and Strategic Systems Dr G Satheesh Reddy said the technologies developed under the programme will pave way for development of more variants of air-to-air and surface-to-air missiles.



Sat, 16 Sept, 2017

(Online)

## Scorpene submarines to get Indian AIP modules

*By Dinakar Peri*

*DRDO's development of the indigenous system has been delayed*

Even as the Navy gets ready to induct its first conventional submarine in almost two decades, sources have confirmed that a decision has been reached on an expensive and time consuming process to install Air Independent Propulsion (AIP) modules on the six new Scorpene submarines to be inducted over the next few years.

However, it is contingent on the indigenous AIP module being fully ready by then.

“All six Scorpenes will get an Indian AIP. It will be installed by the Original Equipment Manufacturer, Naval Group,” a Navy source confirmed.

An AIP module is under development by the Defence Research and Development Organisation (DRDO). It was supposed to have been installed on the last two submarines before they rolled out of the production line. However, the module did not materialise due to delays in development.

As reported by *The Hindu* earlier, Naval Group, formerly the DCNS — a defence company based in France — proposed this option after attempts to install the domestic system on the last two submarines failed.

AIP modules give stealth and extended endurance to diesel-electric submarines by allowing them to stay submerged longer.

However, it would be a costly process as the hull of the submarine has to be opened up to integrate the AIP module and then sealed before being put through the entire range of tests and trials to validate its performance.

The first Scorpene submarine *Kulvari* has completed all trials and is ready for induction either by this month-end or early next month. It would go for a normal refit after six years, in 2023.

The DRDO has assured that the system will be fully ready by then for integration, the source added.

The second submarine *Khanderi* has begun trials, and is likely to be inducted early next year.



Sat, 16 Sept, 2017

## India's Home-Grown Land Mine-Plowing Trawl System Passes Blast Trials

Marking a major breakthrough in India's quest to develop local defense technologies, the state-owned Defense Research & Development Organization (DRDO) has successfully designed and developed a land trawl that plows landmines out of the way, creating a safe lane for vehicles such as advancing columns of mechanized forces to drive straight through minefields and into combat zones.

The Defense Ministry has said that the system would soon be available for user evaluation trials by the Indian Army, which has long been awaiting such a system to meet its operational requirements.

"The trawl system recently crossed a major milestone with the successful completion of blast trials in collaboration with HEMRL Pune, which demonstrated the survivability of the equipment, when subjected to successive series of blast directly underneath it. The fieldable prototype of the trawl system is in the final stage of realization and would be shortly ready for the conduct of user evaluation trials by the Army," India's Defense Ministry said in a statement.

The local development of trawls by DRDO is an important step towards achieving self-reliance in the area of critical military equipment under 'Make in India' initiative and would result in foreign currency savings for the country. In 2015, the Indian government had approved the purchase of 120 trawl systems for T-90 & T-72 tanks for approximately \$65 million. Once approved by the Indian Army, the trawl system will be manufactured in bulk by the state-owned company BEL with the technological support of DRDO.



Sat, 16 Sept, 2017

(Online)

## DRDO undertakes trial of Trawl system to locate mines

*The Trawl system, developed to meet the requirements of the Army, is capable of breaching a variety of land mines including passive and active influence mines, DRDO said.*

The Defence Research and Development Organisation (DRDO) has undertaken the trial of a Trawl system that could locate mines in the battle field, the premier research body said on Friday.

The indigenously developed system is used for locating land mines and creating a safe lane for vehicles through a minefield for the advancing columns of mechanised forces in a combat zone.

The equipment consists of Trawl roller, track width mine plough and electro-magnetic device (EMD). The anti-mine system has components that could detect all type of mines usually encountered by the tanks, the DRDO said in a statement.

The Trawl system, developed to meet the requirements of the Army, is capable of breaching a variety of land mines including passive and active influence mines, it said.

It crossed a major milestone recently with the successful completion of blast trials, which demonstrated the survivability of the equipment, when subjected to successive series of blast directly underneath it, the statement said.

The fieldable prototype of the Trawl system is in final stage of realisation and would be shortly ready for conduct of user evaluation trials by the Army, the statement added.



*Sat, 16 Sept, 2017*

*(Online)*

## **DRDO India Testing Trawl System To Locate Mines In Battlefield**

Defence Research and Development Organisation (DRDO) has undertaken trials of the indigenously developed Trawl System that could locate mines in the battlefield for Indian Army.

Trawl System is employed for breaching of land mines and creating a vehicle safe lane, through a minefield for the advancing columns of mechanized forces in combat zone.

The equipment consists of Trawl roller, track width mine plough and electro-magnetic device (EMD). The anti-mine system has components that could detect all type of mines usually encountered by the tanks, the Defence Research Development Organisation (DRDO) said in a statement Friday.

The Trawl system underwent blast trials recently which demonstrated the survivability of the equipment, when subjected to successive series of blast directly underneath it. The fieldable prototype of the Trawl system is in final stage and would be shortly ready for conduct of user evaluation trials by the Army.



*Sat, 16 Sept, 2017*

*(Online)*

## **DRDO unit develops mine detection, deactivation technology**

The Defence Research and Development Organisation (DRDO) has announced the development of a technology for the detection and deactivation of land mines in battle zones, to meet the operational requirements of the Indian Army.

The technology, known as the 'Trawl System', has been designed and developed by R&D Engineers, a premier system engineering laboratory under the Armament and Combat Engineering (ACE) cluster of the DRDO, says a defence ministry release.

The indigenously-developed Trawl System is capable of breaching land mines and creating a vehicle safe lane through a minefield for the advancing columns of mechanised forces in combat zone.

The equipment consists of Trawl roller, track width mine plough and electro- magnetic device (EMD) that caters to the needs of all types of mines usually encountered by the battle tank in such a scenario.

The Trawl System developed by DRDO is capable of breaching a variety of land mines, including passive and active influence mines.

The system recently crossed a major milestone with the successful completion of blast trials in collaboration with HEMRL Pune, which demonstrated the survivability of the equipment, when subjected to successive series of blast directly underneath it.

The deployable prototype of the Trawl System is in final stage of realisation and would be shortly ready for conduct of user evaluation trials by the Army, says a DRDO release.

The indigenous development of Trawls by DRDO is an important step towards achieving self-reliance in area of critical military equipment under 'Make in India' initiative and would result in saving of precious foreign exchange for the country, the release added.



*Sat, 16 Sept, 2017*

*(Online)*

## **Indigenous development of Trawl system by DRDO**

R&DE (Engrs), a premier system engineering laboratory under Armament & Combat Engineering (ACE) cluster of Defence Research and Development Organisation (DRDO) has recently undertaken the design and development of Trawl System for the minefield area in the battle zone to meet the operational requirements of Indian Army.

According to a press release of PIB Defence, the indigenous developed Trawl System is employed for breaching of land mines and creating a vehicle safe lane, through a minefield for the advancing columns of mechanized forces in combat zone.

The equipment consists of Trawl roller, track width mine plough and electro- magnetic device (EMD), which caters to the need of all types of mines usually encountered by the battle tank in such a scenario .

The Trawl System developed by DRDO is capable of breaching a variety of land mines including passive and active influence mines, it said .

The Trawl system recently crossed a major milestone with the successful completion of blast trials in collaboration with HEMRL Pune, which demonstrated the survivability of the equipment, when subjected to successive series of blast directly underneath it.

The fieldable prototype of the Trawl System is in final stage of realization and would be shortly ready for conduct of User Evaluation Trials by the Army .

The indigenous development of Trawls by DRDO is an important step towards achieving self-reliance in area of critical military equipment under 'Make in India' initiative and would result in saving of precious foreign exchange for the country, the release added.