

## **Trials of fire & forget Nag missile begin**

Jaisalmer: Third Generation Fire and Forget Anti Tank Prospina missile (known as Nag)(Gen-3) trials with improved Imaging Infra Red Seekers (which guide the missile to its target after launch) started in Jaisalmer's Pokhran Field firing range on Monday and trials will undergo for more 3-4 days. "Fire and-forget" Missile has been developed by DRDO. On that occasion with DRDO, other army senior officers have also made their presence. There are some corrections done in some parameters in Nag Missile's system. Last year the infra-red seekers had a problem in differentiating the target from the surroundings in hot desert conditions during the day time. Earlier they were target setting of 4 Km's in which there are more corrections needed to be done. Now missile is being tested for a reduced target of 3-3.2 kms in hot temperature.

Reliable source said that these are some technical changes & corrections in Nag Missile as per requirements of Army. The last trails of Nag Missile conducted last year in Mahajan field firing range in Bikaner. In last trials, Imaging Infra Red Seekers were not able to differentiate between the target and surroundings in hot desert temperatures. Now in missile, highly sensitive detectors have been put on in missile for sensing heat or infra red signals.

During the test last year in Mahajan Ranges, the Thermal Target System (TTS) developed by Defence laboratory at Jodhpur was used as target for the missile, which is in the final user configuration. TTS simulated a target similar to an operational tank as thermal mapping from tank to TTS was carried out for generating thermal signature. DRDO officials declined to comment whether TTS is being used in Pokhran ranges at the moment.

Nag Missiles can be mounted and transported in a Mechanised Infantry Combat Vehicle also. With a range of 3-7 kms in its other versions and 3 kms in its terrestrial or land version, once fired, Nag missile seeker (Imaging Infra-Red, IIR) guides the missile to the target even if it is a moving target.

Source said trials of updated Prospina (Nag) Missile started today and launch pad has been made and trials will undergo for 3-4 days and army officers and DRDO officers are present on the occasion.

Source said that "Missile is Developed by the Defence R&D Laboratory (DRDL) in Hyderabad. It has budgeted more than 350 crores in the completion of project "

Source said "The Nag is a third-generation (Gen-3), "fire-and-forget" missile; once it is fired, its seeker automatically guides the missile to even a fast-moving tank. In earlier-generation missiles an operator had to guide it all the way, often exposing himself to enemy fire. The world has just a handful of "fire-and-forget" missiles, such as the American Javelin, and the Israeli Spike. The Javelin and the Spike are lighter missiles that can be carried by a soldier; the Nag is a heavier and more powerful designed to operate from vehicles and helicopters. As per sources, that Nag missile can hit his target in any climate at any time, whether day or night.

The Optical Guidance system of Nag makes it virtually Jam proofed compared to infrared seekers of the Javelin and the Spike. The indigenous development of an imaging seeker, a highly complex and closely guarded technology, is Nag's biggest advantage.

Source said this is how the missile operates, it searches Missile operators search for enemy tanks through thermal imaging telescopes, visibility is same for day & night. Locating a tank, the operator freezes the missile on to target, a digital snapshot of the target is automatically taken, which serves as a reference image. As the Nag streaks towards the target, at 230 metres per second, the seeker takes repeated snapshots of the target; each one is compared with the reference image, and deviations are translated through on-board algorithms into corrections to the Nag's control fins, which steer the missile precisely.

*Tue, 13 June, 2017  
(Online)*

## **DRDO successfully test-fires 'Nag' missile**

JAIPUR: The Defence Research and Development Organisation (DRDO) today successfully test fired anti-tank missile 'Nag' in a desert in the western sector of Rajasthan. "The missile successfully destroyed the target in today's mission," defence sources said.

The "fire and forget" third generation anti-tank guided missile 'Nag' is equipped with the highly advanced Imaging Infrared Radar (IRR) seeker with integrated avionics, technology which is possessed by very few nations, sources said.

The tests, which were witnessed by scientists from the DRDO, Defence Lab, Jodhpur, senior officials from armed forces among others, concluded today.

G Satheesh Reddy, the scientific adviser to the defence minister and DG (missiles and strategic systems), who also witnessed the launch, said the successful flight test has strengthened the country's defence capabilities.

DRDO chairman Dr S Christopher congratulated the team who were a part of the mission.



*Tue, 13 June, 2017  
(Online)*

## **DRDO Successfully Test-fires Anti-tank Missile Nag in Rajasthan**

Jaipur: The Defence Research and Development Organisation (DRDO) on Tuesday successfully test-fired Anti-tank Guided Missile (ATGM) 'Nag' in a desert in the western sector of Rajasthan.

"The missile successfully destroyed the target in today's mission," defence sources said.

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DRDO chairman Dr S Christopher congratulated the team who were a part of the mission.

*Tue, 13 June, 2017  
(Online)*

## **Anti Tank Guided Missile Nag successfully test-fired**

The Anti-Tank Guided Missile Nag was successfully flight tested today in the desert ranges of Rajasthan.

The Fire and Forget 3rd generation ATGM Nag is incorporated with many advanced technologies including the Imaging Infrared Radar (IIR) Seeker with integrated avionics, a capability which is possessed by few nations in the world.

The capabilities of the top attack ATGM Nag is unique in nature and in today's mission it successfully destroyed the target.

The test has been carried out by DRDO Scientists of the Dr. A.P.J. Abdul Kalam Missile Complex at Hyderabad, DL Jodhpur, HEMRL and ARDE at Pune.

Also the ground systems were developed by the Ordnance Factory, BEL and L&T. Senior officials from the Armed Forces participated in the tests.

SA to RM & Director General (Missiles and Strategic Systems) Dr. G. Satheesh Reddy witnessed the launch and said "The successful flight test of 3rd generation ATGM Nag further strengthens the country's defence capabilities."

Secretary, Department of Defence R&D and Chairman, DRDO Dr. S. Christopher congratulated all the team members and armed forces who have been part of the mission.

(This article has not been edited by DNA's editorial team and is auto-generated from an agency feed.)



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(Online)*

## **Third generation 'Nag' missile successfully tested by DRDO**

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Tue, 13 June, 2017  
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## India Rolls Out Defense Research and Development Equipment Worth \$38.6 Bln

*In what could be seen as proof of the Narendra Modi government's approach to boost the country's defense manufacturing capability, the Indian Defense Ministry cleared equipment worth \$38.6 billion developed by state-owned Defence Research and Development Organization (DRDO) since Modi took charge.*

New Delhi (Sputnik) — The products developed by DRDO get the nod of the top decision-making body of the defense ministry on a priority basis which increased the production value of such equipment by 60% in the last three years. DRDO-developed products such as Tejas fighters, airborne early warning and control system (AEW&C), Akash weapon system, Sonar systems and Varunastra torpedo have been inducted into the armed forces over the last three years.

*"The production value of DRDO-developed products, cleared by the Defense Acquisition Council, has grown by 60 percent in the last three years to approximately \$38.6 billion from nearly \$24 billion. The export potential of DRDO-developed systems has also increased manifold and this year export of torpedo stands at \$37.9 million," the defense ministry said in a statement.*

In the last three years, India imported defense products worth \$160 billion — \$50 billion in 2014, \$51.3 billion in 2015 and \$55.9 billion in 2016 — according to the Stockholm International Peace Research Institute.

India, however, successfully inducted a number of DRDO-developed weapon systems, platforms, dual-use equipment in the Indian armed forces and paramilitary forces. "Bharani weapon locating radar, nuclear biological chemical reconnaissance vehicle, Agni-V, long range surface to air missile, medium range surface to air missile, NAG, advanced towed array gun, wheeled armored platform, Rustom-II Male Unmanned Aerial Vehicle, etc.," the DRDO said in a statement.

In the last financial year, India exported the indigenously developed Varunastra heavyweight anti-submarine torpedo to Myanmar and is in an advanced stage to export to Vietnam as well.

The Narendra Modi government had launched 'Make in India' program to boost defense manufacturing, aimed at lessening imported products for the armed forces. It did not succeed in attracting foreign direct investment till now but a sustained approach to give priority to local-made products provides a moral boost to private defense sector firms. The recently announced strategic partnership policy will further boost defense business of private companies in the coming years.

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## Defence Minister Unveils DRDO key achievements 2014-17

The Defence Minister Shri Arun Jaitley unveiled a compilation of the contribution of the Defence Research & Development Organisation (DRDO) to the Indian Armed and Paramilitary Forces here today. The DRDO Chairman and Secretary, Department of Defence R&D Dr. S Christopher, Chief of the Army Staff General Bipin Rawat, Vice Chief of the Naval Staff Vice Admiral Karambir Singh, Vice Chief of the Air Staff Air Marshal S B Deo and other senior officials of the Ministry of Defence & the DRDO were also present on the occasion of the release of the DRDO Key Achievements 2014-17" compilation.

A number of DRDO developed weapon systems, platforms, dual use equipment have been accepted and inducted in the Indian Armed Forces and Paramilitary Forces. Some of the notable successful tests completed and inducted are Tejas fighters, Airborne Early Warning and Control System (AEW&C) System, Akash Weapon System, SONAR systems, Varunastra Torpedo, Bharani Weapon Locating Radar (WLR), Nuclear Biological Chemical (NBC) Recce Vehicle, AGNI-V, Long Range Surface to Air Missile (LRSAM), Medium Range Surface to Air Missile (MRSAM), NAG, Advanced Towed Array Gun (ATAG), Wheeled Armoured platform (WhAP), RUSTOM-II MALE Unmanned Aerial Vehicle, etc.

The production value of DRDO developed products, cleared by the Defence Acquisition Council has grown by 60 per cent in the last three years to approximately Rs. 2,57,000 crore from nearly Rs.1,61,000 crore. The export potential of DRDO developed systems has also increased manifold and this year export of torpedo stands at US\$ 37.9 million. This is a step towards achieving self-reliance in critical defence systems and realisation of the Prime Ministers vision of Make in India.

**Business Standard**

*Tue, 13 June, 2017  
(Online)*

## **Def Minister unveils book on DRDO**

Defence Minister Arun Jaitley today released a booklet on the contribution of the Defence Research and Development Organisation (DRDO) to the Indian Army and paramilitary forces.

A number of DRDO-developed weapon systems, platforms and dual use equipment have been accepted and inducted into the forces.

Among them are Tejas fighter jets, Airborne Early Warning and Control (AEW&C) System, Akash Weapon System, SONAR systems, Varunastra Torpedo, Bharani Weapon Locating Radar (WLR) and RUSTOM-II MALE Unmanned Aerial Vehicle.

The production value of DRDO-developed products, cleared by the Defence Acquisition Council (DAC), has grown by 60 per cent in the last three years to approximately Rs 2,57,000 crore, a statement by the Ministry of Defence said.

The export potential of DRDO-developed systems has also increased manifold, it said, adding that the export of torpedoes stood at USD 37.9 million this year.

The DRDO Chairman and Secretary, Department of Defence Research and Development, S Christopher, the Chief of the Army Staff, General Bipin Rawat, the Vice Chief of the Naval Staff, Vice Admiral Karambir Singh, and the Vice Chief of the Air Staff, Air Marshal S B Deo, were among the senior officials present at the launch of 'DRDO Key Achievements 2014-17'.

*(This story has not been edited by Business Standard staff and is auto-generated from a syndicated feed.)*

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The Largest Circulated Daily of Jammu and Kashmir

*Tue, 13 June, 2017  
(Online)*

## **Defence Minister unveils DRDO's achievements of 2014-17**

New Delhi: Defence Minister Arun Jaitley today unveiled a compilation of the achievements of the Defence Research & Development Organisation (DRDO) here.

Addressing an event to unveil the compilation of the "DRDO Key Achievements 2014-17", Mr Jaitley said a number of DRDO-developed weapon systems, platforms, dual use equipment have been accepted and inducted in the Indian Armed Forces and Paramilitary Forces.

DRDO Chairman and Secretary, Department of Defence R&D, S Christopher, Chief of the Army Staff General Bipin Rawat, Vice Chief of the Naval Staff Vice Admiral Karambir Singh, Vice Chief of the Air Staff Air Marshal SB Deo and other senior officials of the Ministry and the DRDO graced the occasion.

Some of the notable successful tests completed and inducted are Tejas fighters, Airborne Early Warning and Control System (AEW&C) System, Akash Weapon System, SONAR systems, Varunastra Torpedo, Bharani Weapon Locating Radar (WLR), Nuclear Biological Chemical (NBC) Recce Vehicle, AGNI-V, Long Range Surface to Air Missile (LRSAM), Medium Range Surface to Air Missile (MRSAM), NAG, Advanced Towed Array Gun (ATAG), Wheeled Armoured platform (WhAP), RUSTOM-II MALE Unmanned Aerial Vehicle.

The production value of DRDO developed products, cleared by the Defence Acquisition Council has grown by 60 per cent in the last three years to approximately Rs 2,57,000-crore from nearly Rs 1,61,000-crore.

The export potential of DRDO developed systems has also increased manifolds and this year export of torpedo stands at 37.9-million dollars. This is a step towards achieving self-reliance in critical defence systems and realisation of the Prime Minister's vision of 'Make in India'.