



DRDO

CURTAIN RAISER
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DRDO Contingent at the Republic Day Parade-2013

Agni 5, India's state of the art long range ballistic missile termed as "the game changer", will be star attraction in DRDO (Defence R&D Organisation) contingent in the Republic Day Parade this year. Displaying state of the art military systems developed by it, the DRDO contingent is commanded by Lt. Col Jagvir Singh Jaglan and **consists of Agni 5, Armoured Amphibious Dozer (AAD) and two tableaux**, one depicting the **Airborne Early Warning and Control (AEW&C) System** and the other one depicting **advanced Sonars** developed for the Indian Navy. Lt. Col Jaglan, presently posted to a premier DRDO laboratory, VRDE (Vehicle Research and Development laboratory), Ahmednagar, was commissioned from the Officers Training Academy on 11 Mar 1995 and belongs to the Corps of Electronics and Mechanical Engineers (EME).

The **Agni 5 missile** is an advanced long range surface to surface ballistic missile capable of being launched within minutes, from a self-contained road mobile launcher, to deliver payloads to distances in excess of 5000 km. In terms of technologies, it is country's most advanced strategic missile and incorporates many new indigenously developed technologies. Some of these technologies are composite rocket motors, novel conical composite rocket motor, highly accurate Ring Laser Gyro based Inertial Navigation System (RINS) further supported by the most modern Micro Inertial Navigation System (MINS), a high speed on-board computer combined with fault tolerant software, fully digital control system and advanced compact avionics. The new technologies incorporated in the missile system have ensured a very high level of accuracy, high reliability and light weight. The successful flight test of Agni 5 on 19th April, 2012," has brought India at par with the elite group of advanced countries possessing such deterrence capability.

Armoured Amphibious Dozer (AAD) is an indigenously developed versatile Combat Engineer support equipment with excellent earth moving and amphibious capabilities in varied terrain. Based on BMP-II vehicle, It is useful for bund reduction on near and far banks and it can swim across water obstacles. It is designed to provide Combat Engineer support in earth moving and allied tasks in support of the operations of mechanized formations in plains, deserts and riverine terrain.

Airborne Early Warning and Control (AEW&C) System, India's Indigenous system with all weather, all terrain, all environment capable surveillance system is the simplest, most cost effective airborne early warning system in its class. This system is indigenously designed and developed keeping current and future operational requirements of IAF in the view. The system is mounted on an Embraer Aircraft of Brazil which has been extensively modified for installation of DRDO developed Mission System, such as active array Radar system, identification of friend or foe system and several other sensors. A mission computer on board focuses the information from all the sensors and presents it to several operators simultaneously. Multiple line of sight and satellite communications link on board are used to communicate the data to ground command and control antennas. Aircraft has an Air-to-Air Refueling Probe to increase the endurance. AEW&C System will be a major command and control node in the network centric warfare. This is capable of playing a strategic as well as tactical role in the battlefield environment. Apart from surveillance, which is its primary role, AEW&C systems can act as a communication beacon, guide our fighter aircraft for interception. This can play a measure role in both defensive as well as offensive operations.

Naval Sonars Tableau: This tableau highlights the contributions of Naval Laboratories of DRDO towards self-reliance in the field of SONAR and anti-submarine warfare technologies. Sound Navigation & Ranging (SONAR) is the technique for Detection & Ranging of underwater targets. The tableau depicts a New Generation Hull Mounted Ship Sonar (HUMSA-NG) fitted onboard many Naval Frigate Ships, capable of detecting targets in 360⁰ Azimuth. It also depicts the Air-borne Low Frequency Dunking SONAR and the Ship borne Towed Array SONAR which can be operated at variable depths for surveillance through acoustic transmission techniques in the sea. The reflected acoustic signal from targets/submarines is received by towed array SONAR and processed using advanced electronic processors. Positions of targets are displayed for the operators to identify, classify and track them. The weapon systems are deployed to destroy hostile targets by firing torpedoes completing the Naval action. These SONAR systems are indigenously developed by Naval laboratories under DRDO, and productionised through Bharat Electronics Limited (BEL) and other industrial partners within the country.

DRDO is the R&D wing of the Ministry of Defence, with a vision to empower India with cutting-edge defence technologies by achieving self-reliance in critical defence technologies and systems, while equipping the armed forces with state-of-the-art weapon systems and equipment. Dr DS Kothari, the eminent scientist and educationist was the first to head the Organization which has been led over the years by illuminati of the caliber of Dr APJ Abdul Kalam. The current head of the organisation is Dr. Vijay Kumar Saraswat. Fifty two DRDO laboratories, based on their core-competence, are classified into to technology clusters namely, Aeronautics, Armaments, Combat Vehicles and Engineering, Electronics and Computer Sciences, Materials, Missiles and Strategic Systems, Micro Electronics & Devices, Naval Research and Development, and Life Sciences. Devoted to innovation and excellence, the DRDO remains committed to make India strong and self-reliant.

DRDO has led to the design, development and productionization of world class weapon systems, equipment, and complex technologies associated with such systems. ***The production value of systems (excluding the strategic systems) based on technologies developed by DRDO (inducted/accepted/orders placed) during the past one decade is well over Rs 1, 50, 000 crores. Today, over 55% of the requirements for our defence forces are being met indigenously, largely with the technologies developed by DRDO, besides range of spin-offs for societal benefits, contributing greatly to our nation's economy as well as civil society.***

Jai Hind

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