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Tue, 16 Aug 2022

India's First Indigenous Anti-Radiation Missile 'Rudram'; What You Must Know

RUDRAM (meaning “remover of sorrows”) is India’s first anti-radiation missile (ARM) developed by its Defence Research and Development Organization (DRDO) to bolster its air defence and boost the capability of its Air Force. Like any other ARM, Rudram primarily protects India’s air space by detecting, monitoring, and neutralizing (featuring a warhead called a “passive homing head (PHH)”) its adversary’s radar, communication, and other radio frequency source. It depends on a navigation mechanism consisting of a satellite-based GPS and a computerized inertial navigation system (INS). This PHH can detect radio frequency emission as far as 100 km away and has a wide-band receiver system operating with D band to J band frequency of the electromagnetic spectrum.

It’s an air-to-surface ARM that can be launched from a range of altitudes with a significant standoff distance—approximately 250 km, flight altitude of 500 m to 15 km, and a top speed of Mach 2. During its earlier development and testing stages, RUDRAM-1 has primarily tested using Russia’s Sukhoi Su-30MKI platform but is otherwise compatible with aircrafts such as the Dassault Mirage 2000, SEPECAT Jaguar, HAL Tejas, and HAL Tejas Mark 2/MWF. Additionally, it features a millimetre wave seeker (mmW) that could transmit frequencies of at least 30 GHz while capable of lock-on before and after launch modes.

Dubbed as the new generation anti-radiation missile (NGARM), it measures an overall length of 5.5 m and a weight of 600 kg. Its pre-fragmented warhead weighs roughly 60 kg and uses an optical proximity fuse as its detonation mechanism. Rudram features a dual-pulsed rocket motor operating on solid fuel. On the other hand, while both are still under development, RUDRAM-2 and -3 reportedly can reach a max speed of 350 km and 550 km, respectively. Moreover, like its first version, both -2 and -3 will outfit INS-GPS and PHH. Following successful trials, RUDRAM will be forwarded for production in a collaboration effort by Bharat Dynamics Limited (BDL) and Bharat Electronics Limited (BEL).

Updating And Upgrading Military Capabilities

For years, the Indian military has been undergoing a rebranding effort, recently gaining traction under Prime Minster NarendraModi’s leadership, including the conception of the RUDRAM missile family. The arrival of this indigenous NGARM is impeccable considering how India is having challenges with its neighbours China, who’s been so adamant about claiming the northern

Himalayan borders, and the brewing tension with Pakistan in its eastern borders. With RUDRAM, India now has a reliable defence system to protect its air space and strengthen its air dominance tactical capability in case the worst-case scenario happens without having to 100 percent rely on other great nations such as the United States and Russia.

India's defence ministry first introduced RUDRAM to the world in October 2020, following its successful testing using a Sukhoi-30 combat jet conducted on Abdul Kalam Island (formerly Wheeler Island) just off the coast of Odisha. Accordingly, the NGARM struck its radiation target reportedly with "pinpoint accuracy," a promising result for its armed forces. RUDRAM-1 comes with its own challenges, mainly how it should be carried and launched, requiring "complex and sensitive fighter aircraft," the Financial Express reported. The difficulty in integrating this missile with an aircraft is further dragged by the fact that the Indian government's plan to upgrade the Su-30 fighter fleet has been put on hold due to the ongoing Russia-Ukraine war. The project first began pitched in April 2012 and was officially approved for further development in December 2012 with a budget of □317.2 crores (roughly $73.3 million in 2022).

The RUDRAM-1, inspired by other ARMs such as the AGM-88E, AARGM, MAR-1, Kh-31, and others, piqued the interest of the Indian Air Force in 2014, despite initial reservations about the missile's higher weight and shorter range capacity. Despite some testing delays for RUDRAM-1, the DRDO moved on to the conception and development stage for its two advanced versions, RUDRAM-2 and -3, with the former to enter the trial phase later this year. RUDRAM-2 will be allegedly designed as an air-lunched ballistic missile, the Financial Express reported. The government has yet to confirm this rumour, though. Likewise, even details about the RUDRAM-3 remain a mystery despite being first reported in 2017.

In 2017, India almost got into trouble with the US after the former country purchased the S-400 defence system from the latter's arch nemesis, Russia. Wanting to upgrade its armed forces and ensure that it would be capable of defending its sovereignty against its growing hostile neighbours, the Indian government ignored the sanction threats of the US and carried on with the purchase. In its defence, Modi's government justified that acquiring such defence systems was imperative.

http://www.indiandefensenews.in/2022/08/indias-first-indigenous-anti-radiation.html

Mon, 15 Aug 2022

AMCA 5th-Gen Advanced Fighter Jet to Make India a Global Powerhouse, Design Revealed

The Indian Air Force is one of the most advanced defence forces in the world with a fleet that can put any country to shame. IAF has the most advanced fighter jet fleet in the region and also in the world. However, India still lacks a 5th Gen fighter jet, which is considered the most advanced fighter jet in the world and only a few countries in the world has this type of aircraft. To give an insight, the United States has Lockheed Martin's F-22 Raptor and F-35 Lightning II, while China has Chengdu J-20 and Russia has Sukhoi Su-57. These are the only three countries with the advanced 5th generation fighter jet. On the other hand, India is readying its Advanced

Medium Combat Aircraft (AMCA) programme to rival these nations. Former Chief of Air Staff Air Chief Marshal Rakesh Kumar Singh Bhadauria announced that the development of 5th Generation advanced multi-role combat aircraft has been launched. Recently a tweet revealed the wind tunnel model of the AMCA, highlighting the design of the fighter jet. As seen in the image, the jet will get a dual engine configuration.

IAF's most advanced fighter jet

If we see the current fleet of the Indian Air Force, India has mostly foreign-sourced fighter jets, leaving aside HAL-made Tejas LCA, that will serve as the first line of defence for India and will replace the ageing MiG-21 Bison. However, among the most advanced planes with the IAF is the French-made Dassault Rafale, which is a 4.5 Gen plane at best. While India can get the Russia-made Sukhoi Su-57 as its most advanced fighter jet, IAF has pitched strongly for an indigenous weapons platforms and will rely on the supersonic AMCA, being developed by the Aeronautical Development Agency (ADA) and Hindustan Aeronautics Limited (HAL).

AMCA Wind Tunnel model

As seen in the Twitter image, the prime features are the Diverterless Supersonic Inlet (DSI) and a 3D 'bump' that prevent radar waves from bouncing off the engine blades/turbines, making it a Stealth jet. The jet is seen sporting an Infrared Search and Track (IRST) above the nose cone along with an Active Electronically Scanned Array (AESA) radar, used to enhance medium and long-range detection of targets.

India-made 5th Gen Fighter Jet

The AMCA will be IAF's backbone in the coming decades, and the Indian Air Force is not looking to induct a foreign-made 5th Gen jet till the AMCA is made. A naval version of the 5th Generation fighter will also be developed for Indian Navy. The aircraft will have a high degree of stealth, ability to carry weapons internally as well as externally, internal fuel capacity, super cruise and perform the role of both air-to-air to air-to-ground attacks. With the AMCA will primarily engage targets at beyond visual range, it will also have a powerful thrust vectoring engine for super manoeuvrability for better dogfighting capabilities.

https://zeenews.india.com/aviation/india75-iaf-to-soon-get-5th-gen-advanced-fighter-jet-amca-design-revealed-2497270.html/amp

The Indian EXPRESS

Tue, 16 Aug 2022

What is ATAGS, the Indigenous Howitzer Used in Independence Day 21-Gun Salute?

By Sushant Kulkarni

In a first, an indigenously developed howitzer gun, ATAG, became part of the 21-gun salute during the Independence Day ceremony at the Red Fort Monday. Developed by the DRDO, the Advanced Towed Artillery Gun System (ATAGS) was used alongside the traditional British-origin '25 Pounders' artillery guns. Prime Minister Narendra Modi also referred to the gun while

speaking about the Atmanirbhar Bharat initiative of the Centre during his Independence Day speech. “Today, for the first time in 75 years since Independence, a Made-in-India artillery gun was used in the 21-gun salute that is given to the tricolour. All Indians will be inspired and empowered by this sound. And that is why, today, I want to thank our Armed forces for carrying the responsibility of *Atmanirbharta* on their shoulders in an organized manner,” the PM said.

The 21-gun salute tradition

When the National Anthem is played by the Military Band after the unfurling of the Tricolour at the Red Fort by the Prime Minister, a 21-volley gun salute is fired by a ceremonial battery from an artillery regiment. The tradition of gun salutes originates from the Western navies where guns from the ports and those from incoming ships used to be fired in a particular manner to convey that there was no belligerent intention. This tradition was carried forward as a way of paying respects or for according official welcome to the Crown, royals, military commanders and heads of states. India inherited the tradition from the British rulers who had gun salutes comprising 101 volleys, 31 volleys and 21 volleys, and so on depending on the hierarchy. In India, artillery gun salutes are fired on the Republic Day, the Independence Day and also at the time of oath taking ceremony of the President, among other occasions. Over the years, this 21-gun salute — which are blanks — was fired by the World War era howitzers of British make known as ‘Ordnance Quick Fire 25 Pounder’ or just ’25 Pounder’.

Inclusion of ATAGS

This year, two Advanced Towed Artillery Gun System (ATAGS) howitzers joined the battery that fired along with other 25 Pounders, officials have said. The ATAGS is an indigenous 155 mm x 52 calibre howitzer gun developed by the Defence Research and Development Organisation (DRDO) with its Pune-based facility Armament Research and Development Establishment (ARDE) being the nodal agency. Howitzers is an umbrella term for a category of long-range artillery guns. Some practice firing sessions of the ATAGS were held in the run up to the Independence Day celebrations. Officials said that including the ATAGS in the symbolic activity of 21-gun salute is a crucial step in the journey and is significant towards its induction into the Army.

Development of the ATAGS

The ATAGS project was started in 2013 by DRDO to replace older guns in service in the Indian Army with a modern 155 mm artillery gun. With ARDE as the nodal laboratory, other DRDO facilities that joined the development efforts are Instruments Research and Development Establishment (IRDE), Vehicle Research and Development Establishment (VRDE), Proof and Experimental Establishment (PXE), Centre for Artificial Intelligence and Robotics (CAIR), and Defence Electronics Applications Laboratory (DEAL). The ARDE has collaborated with Bharat Forge Limited and Tata Advanced Systems Ltd for the manufacturing of this specialised gun system.

After the several tests of the subsystems in the initial phases of development, July 2016 marked a key milestone when the proof-firing of ATAGS was conducted during the technical trials at DRDO’s Proof and Experimental Establishment (PXE) in Balasore. In August and September 2017, a record target range of around 48 km was achieved at Pokhran Field Firing Range. The system has subsequently undergone various levels of trials in different weather and terrain conditions. In 2020, the ATAGS reported a mishap during one of its test firing at Pokhran which

was probed by the DRDO. The system is currently undergoing an evaluation by the Directorate General Quality Assurance (DGQA) marking its final stage before the Army places orders for it. The DGQA is a nodal agency for the quality assurance of all arms, ammunition, equipment and stores supplied to the Armed Forces.

The armament system of ATAGS mainly comprises barrel, breech mechanism, muzzle brake and recoil mechanism to fire 155 mm calibre ammunition held by Army with a longer range, accuracy and precision and provides greater firepower. The ATAGS is configured with all electric drive to ensure maintenance free and reliable operation over a longer period of time. It has advanced features in terms of high mobility, quick deployability, auxiliary power mode, advanced communication system, automatic command and control system with night firing capability in the direct fire mode. During its September 2017 test at Pokhran, the maximum ranges of 38.5 km and 48 km, with boat tail and extended range full bore types of projectiles, were achieved. This, the DRDO officials say, are at least 20% more than ranges achieved by any contemporary gun system.

During the same trials, a minimum range of 4.7 km was achieved from the systems meeting the critical parameter of minimum range at high angle. The specialised gun system is compatible with C4I (command, control, communications, computers, and intelligence) systems like the Artillery Combat Command and Control System (ACCCS) called Shakti for technical fire control, fire planning, deployment management, and operational logistics management of the Army.

Future role

The development process of ATAGS by the DRDO coincides with development of Howitzer Dhanush for Advanced Weapons and Equipment India of the erstwhile Ordnance Factory Board. In 2019, the Army and the Ministry of Defence gave bulk production clearance to produce 114 Dhanush. Officials hope that the two flagship products under Make In India — ATAGS and Dhanush — will successfully replace the older systems from the artillery in coming days.

https://indianexpress.com/article/explained/what-is-atags-indigenous-howitzier-i-day-21-gun-salute-8090428/

दैनिक भास्कर

रविवार, 14 अगस्त 2022

15 अगस्त को सलामी देगी मेड इन इंडिया तोप:48 किमी की रेंज, माइनस 30 से लेकर 75 डिग्री तापमान तक में सटीक फायर

15 अगस्त की सुबह प्रधानमंत्री लाल किले पर जैसे ही तिरंगा फहराएंगे, राष्ट्रगान की धुन बजने लगेगी। इसके साथ शुरू होगी 21 तोपों की सलामी। कुल 52 सेकंड के राष्ट्रगान के दौरान 21

तोपों की सलामी दी जाएगी। पिछले 74 सालों से यह काम ब्रिटेन में बनी 7 तोपों से 21 खास गोले दागकर किया जाता है। गोले खास इसलिए क्योंकि ये गोले ब्लैंक होते हैं यानी इनसे सिर्फ धमाके होंगे। इन तोपों का नाम है 25 पाउंडर गन। मतलब, ऐसी तोप जिससे 25 पाउंड यानी करीब 11.5 किलो का गोला दागा जा सके। इस बार 74 बरस पुरानी ये तस्वीर बदली हुई होगी। पहली बार इन 25 पाउंडर ब्रिटिश तोपों के साथ देश में बनी ATAGS यानी Advanced Towed Artillery Gun System की गूंज भी सुनाई देगी।

ATAGS यानी Advanced Towed Artillery Gun System क्या है?

जैसा कि इसके नाम Advanced Towed Artillery Gun System से जाहिर है कि यह टोव्ड गन यानी ऐसी तोप है जिसे ट्रक से खींचा जाता है। हालांकि यह गोला दागने के बाद बोफोर्स की तरह कुछ दूर खुद ही जा सकती है। यानी गोला दागो और भागो । इस तोप का कैलिबर 155 एमएम है। मतलब यह कि इस आधुनिक तोप से 155 एमएम वाले गोले दागे जा सकते हैं। ATAGS को हॉवित्जर भी कहा जाता है। हॉवित्जर यानी छोटी तोपें। अब आप सोचेंगे कि इतनी बड़ी तोप को छोटा कैसे कहा जा सकता है। दरअसल, दूसरे विश्व युद्ध और उसके बाद तक युद्ध में बहुत बड़ी और भारी तोपों को इस्तेमाल होता था। इन्हें लंबी दूरी तक ले जाने और ऊंचाई पर तैनात करने में काफी मुश्किलें होती थीं। ऐसे में हल्की और छोटी तोप बनाई गईं, जिन्हें हॉवित्जर कहा गया।

ATAGS को किसने बनाया है, इसे देशी बोफोर्स क्यों कहा जा रहा है?

ये तोप भारतीय रक्षा अनुसंधान एवं संगठन यानी DRDO की पुणे स्थित लैब Armament Research and Development Establishment (ARDE) ने भारत फोर्ज लिमिटेड, महिंद्रा डिफेंस नेवल सिस्टम, टाटा पॉवर स्ट्रैटेजिक और ऑर्डिनेंस फैक्ट्री बोर्ड ने डेवलप किया है। 2013 में इसके डेवलपमेंट का काम शुरू हुआ था और पहला कामयाब टेस्ट 14 जुलाई 2016 में किया गया। इस तोप का इस्तेमाल और खासियत काफी कुछ बोफोर्स तोप से मिलती-जुलती हैं, इसलिए इसे देशी बोफोर्स भी कहा जा रहा है।

इस तोप की खासियत क्या-क्या हैं?

जैसा हमने ऊपर आपको बताया था कि इस तोप से 155 एमएम के गोले दागे जा सकते हैं। इसके साथ ही इस तोप से दागे जाने वाले गोलों की रेंज 48 किलोमीटर है, जबकि उसी गोले को बोफोर्स तोप 32 किमी दूर तक दाग सकती है। ये 155 एमएम की कैटेगरी में दुनिया में सबसे ज्यादा दूरी तक गोले दागने में सक्षम है। यह तोप -30 डिग्री सेल्सियस से लेकर 75 डिग्री सेल्सियस के तापमान पर सटीक फायर कर सकती है।

इसकी 26.44 फुट लंबी बैरल से हर मिनट 5 गोले दागे जा सकते हैं। इसमें आटोमैटिक राइफल की तरह सेल्फ लोड सिस्टम भी है। यानी इसके गोलों को लोड करने का सिस्टम ऑटोमैटिक है। इस तोप से निशाना लगाने के लिए थर्मल साइट सिस्टम लगा है। मतलब यह है कि रात में भी इससे निशाना लगाया जा सकता है। वायरलेस कम्युनिकेशन की खूबी मौजूद है।

इस तोप का कहां-कहां परीक्षण किया गया?

14 जुलाई 2016 को 155/52 कैलिबर की ATAGS का पहला सफल टेस्ट हुआ। इसके बाद सितंबर 2020 में तोप के यूजर ट्रायल में बैरल फटने से चार कर्मचारी घायल हो गए। नवंबर 2020 में परीक्षण के बाद दोबारा यूजर ट्रायल की अनुमति दी गई। जून 2021 में 15,000 फीट (4,600 मीटर) की ऊंचाई पर ATAGS तोप का सफल परीक्षण किया गया। 26 अप्रैल 2022 से 3 मई तक पोखरण फील्ड फायरिंग रेंज में एक हफ्ते तक ATAGS का ट्रायल हुआ था। ट्रायल के दौरान इनीशियल सर्विस गारंटी आवश्यकताओं को दोबारा वेरिफाई किया गया। तोपों की विश्वस्नीयता साबित करने के लिए 2 सेकेंड की फायरिंग सफलतापूर्वक आयोजित की गई। इस दौरान सटीकता और निरंतरता पर जोर दिया गया। परीक्षण के दौरान धमाकों और इंटेंस टाइम सीरीज का विशेष ध्यान रखा गया। इसके बाद इलेक्ट्रोमैग्नेटिक इंटरफेरेंस / इलेक्ट्रोमैग्नेटिक कम्पैटिबिलिटी (EMI / EMC) और डायरेक्टर जनरल क्वालिटी एश्योरेंस (DGQA) के परीक्षण भी सफल रहे।

सेना ने ATAGS के वजन में कमी करवाई थी, क्यों?

गस्त 2018 में रक्षा अधिग्रहण परिषद ने 3,365 करोड़ की अनुमानित लागत पर 150 ATAGS तोपों की खरीद के लिए मंजूरी दी थी। सेना को इस कैटेगरी में 1,580 आर्टिलरी गन की जरूरत थी। सेना ने अपनी आवश्यकताओं की तुलना में अधिक वजन के मुद्दे को लेकर आपत्ति जताई थी। सेना चाहती थी कि ATAGS का वजन लगभग 18 टन हो, ताकि इसे पहाड़ों में ले जाया जा सके। इस पर बाद में काम किया गया और सेना की मांग को पूरा किया गया। ATAGS तोप ऑटोमैटिक मोड फायरिंग और वायरलेस कम्युनिकेशन के अलावा हाई एंगल पर सबसे छोटे मिनिमम डिस्टेंस और रेगिस्तान व पहाड़ी इलाकों में जबर्दस्त प्रदर्शन करने में सक्षम है। ATAGS को सभी इलेक्ट्रॉनिक ड्राइव और पूरी तरह से ऑटोमैटिक बारूद हैंडलिंग सिस्टम के साथ सभी तरह के गोला बारूद को आग लगाने के लिए डिजाइन किया गया है।

स्वतंत्रता दिवस पर दी जाने वाली 21 तोपों की सलामी में इस तोप को क्यों शामिल किया गया है?

सरकार मेक इन इंडिया को बढ़ावा देना चाहती है। इसलिए ही पूरी दुनिया के सामने अपनी इस उपलब्धि को लाना चाहती है। इसके लिए लाल किले पर दो हफ्ते से सेना प्रैक्टिस कर रही है। इससे पहले 26 जनवरी 2017 की परेड में राजपथ पर इस तोप का प्रदर्शन किया गया था। लाल किले पर होने वाले स्वतंत्रता दिवस कार्यक्रम में 14 देशों के कैडेट भी आ रहे हैं। इनमें मॉरिशस, अर्जेन्टीना, सेशेल्स, यूएई, मुजैम्बिक, फिजी, अमेरिका, यूके, इंडोनेशिया, मालदीव्स, नाइजीरिया, ब्राजील, उज्बेकिस्तान और किर्गीस्तान शामिल हैं।

तोपों की सलामी देने की यह परंपरा कहां और कैसे शुरू हुई?

26 जनवरी, 1950 को, डॉ राजेंद्र प्रसाद ने भारत के पहले राष्ट्रपति के रूप में शपथ ली। इसके बाद उन्हें 31 तोपों की सलामी दी गई थी। इसके बाद ही 21 तोपों की सलामी का अंतरराष्ट्रीय मानदंड बन गया। साल 1971 के बाद, 21 तोपों की सलामी हमारे राष्ट्रपति और अतिथि राष्ट्राध्यक्षों को दिया जाने वाला सर्वोच्च सम्मान बन गया। भारत में सबसे पहले 21 तोपों से सलामी महात्मा गांधी के अंतिम संस्कार के दौरान दी गई थी।

तब तक राजकीय सम्मान से अंतिम संस्कार के नियम नहीं बने थे। भारत में जब किसी को राजकीय सम्मान दिया जाता है, तब भी 21 तोपों की सलामी दी जाती है। भारत में गणतंत्र दिवस के अलावा तोपों का इस्तेमाल 15 अगस्त को स्वतंत्रता दिवस पर, 15 जनवरी को सेना दिवस पर, 30 जनवरी को शहीद दिवस पर और राष्ट्रपति भवन में दूसरे देशों के प्रमुखों के स्वागत में किया जाता है।

सलामी देने का प्रोसेस कौन पूरा करता है?

21 तोपों की सलामी सेना की विशेष रेजीमेंट देती है। पारंपरिक रेजिमेंट का मुख्यालय मेरठ में है और इसमें करीब 122 जवान शामिल होते हैं। हालांकि, यह स्थायी रेजीमेंट नहीं होती है। जैसे ही ये रेजीमेंट कहीं दूसी जगह शिफ्ट होती है, तो उसकी जगह दूसरी रेजीमेंट ले लेती है।

क्या तोप से फायर होने वाला गोला असली होता है?

इस तोप से छोड़े जाना वाला गोला विशेष किस्म का बना होता है। इसे स्पेशल सेरोमोनियल कार्टरेज कहा जाता है। यह ब्लैंक होता है। इसमें केवल धुआं और आवाज आती है। इससे कोई नुकसान नहीं पहुंचता है। स्वतंत्रता दिवस पर होने वाली 21 तोपों की सलामी में 1940 से भारतीय सेना में शामिल 25 पाउंड ब्रिटिश गन भी रहेंगी, जिन्हें 1992 में डीकमीशन करने के

बाद सेरेमोनियल बैटरी के तौर पर इस्तेमाल किया जा रहा है। यह पहली बार है जब ये गन आधुनिक ATAGS के साथ मिलकर सलामी देंगी।

https://www.bhaskar.com/db-original/explainer/news/drdo-atags-howitzer-gun-technical-detail-explained-delhi-red-fort-130185933.html

Sun, 14 Aug 2022

DRDO's Developed Counter Drone System Installed Near Red Fort

Ahead of the grand celebrations on August 15**,** a counter-drone system developed by DRDO has been deployed near the Red Fort area in the national capital to tackle any potential threat from small drones, DRDO said.The system can detect and deactivate drones of any size within a radius of around 4 km, DRDO officials added. A DRDO official said the system has the capacity to detect and deactivate multiple drones at the same time within a radius of around 4 km with the help of a jammer that has been installed just next to it.The Intelligence Bureau (IB) recently issued five fresh alerts, warning of a possible terror strike in the national capital and several other cities ahead of Independence Day.The law enforcement agencies have been warned that terrorists could use IEDs during the flag hoisting ceremony, which will be held at the Red Fort on Monday.With technological advancements, the terrorists may attack the Red Fort using flying objects. Due to this, it has been suggested to put a complete ban on flying objects, including kites, near the Red Fort.

Keeping in view all such threats, Delhi Police have taken adequate measures on ground to prevent any untoward incident."Kite catchers have been deployed with necessary equipment on strategic locations, who will prevent kites, balloons and Chinese lanterns from reaching the function area," a senior Delhi Police official told IANS.Besides this, police personnel have been deployed to keep a vigil from the roof tops who will coordinate with the kite catchers. Two rounds of training and briefing have been organised for them for this purpose."Announcements have been made from religious places urging people not to fly kites in the area from August 13 to 15," the official said.From the security point of view, drones allow an attacker to reach any target in any location without any risk to the operator, and there is an ever-expanding domain of usage, ranging from weapon carriers to espionage tools.

To mitigate and negate the impact of drones, the counter-drone system comes into place.The system can detect, track and identify drones using multiple sensors, transfer the information to associated systems and enable counter techniques to deny them the intended operation (soft kill) or destroy them (hard kill).The detection of drones is done with the help of radars and radio frequency based detection systems. The identification is done with the help of electro optic sensor and COMINT. The soft kill is carried out with RF jamming and anti-GNSS technologies, while hard kill uses the help of laser directed energy weapon (DEW).

https://www.indiatvnews.com/amp/news/india/independence-day-2022-drdo-developed-counter-drone-system-installed-near-red-fort-watch-2022-08-14-799960

The Indian EXPRESS

Sun, 14 Aug 2022

Ahead of I-Day, DRDO Deploys its Counter-Drone System Near Delhi's Red Fort Area

In order to counter threats from aerial platforms and unnamed aerial vehicles, a counter drone system developed by the Defence Research and Development Organisation (DRDO) has been installed near the Red Fort area to tackle any imminent security threats or drones/kites, said officials Sunday.According to DRDO officials, the system can detect and deactivate drones of any size within a 4-km radius.

These counter drone systems, DRDO officials said can detect, track and identify airborne drones using multiple sensors. They can transfer the information to associated systems and enable counter techniques to deny them the intended operation (soft kill) and/or destroy them (hard kill). The detection of drones is done with the help of radars.The Counter Drone System comprises drone detection and tracking radar, day and night camera with laser ranging for detection and tracking of drone target, communication channel detection and jamming system (soft kill), GPS jamming/ spoofing System (soft kill), laser directed energy weapon system (hard kill) and command & control centre (C3) with power source for complete system.

https://indianexpress.com/article/cities/delhi/delhi-i-day-security-red-fort-counter-drone-system-8090272/

ThePrint

Sun, 14 Aug 2022

BRAHMOS Equipped with Impeccable Accuracy Empowers Indian Armed Forces

India, engulfed with volatile and dynamic neighbourhood spread along its vast international borders, is emerging as a leading regional and world power, in terms of economic strength and military prowess. Armed with formidable, multi-dimensional and networked military force at the forefront, protecting country's sovereignty and territorial integrity, India has gained immense expertise in designing and developing state-of-the-art defence systems in order to safeguard its national interests. This accomplishment has made it enter into an elite club of powerful nations at the global stage having the capability to build their own military platform and systems.

In today's changing security paradigm, BRAHMOS, the fastest operational cruise missile, is a perfect emblem of India's growing military might which has grown from strength to strength over the years and added new capabilities to meet divergent warfare scenarios. Its induction has significantly increased the role of Indian Armed Forces as the substantial military power in the global arena. The realisation of BRAHMOS Supersonic Cruise Missile is a shining example of empowering the core strengths of R&D organisations and India's industrial capabilities. BrahMos Aerospace was formed as a Joint Venture (JV) between Defence Research and

Development Organisation (DRDO) of India and Joint Stock Company "Military Industrial Consortium" "NPO Mashinostroyenia" (NPOM). The JV was established in India through an Inter-Governmental Agreement (IGA) signed on 12th February 1998, between The Republic of India and The Russian Federation.

The BRAHMOS is the world's first and only supersonic cruise missile. It is a precision strike weapon for Army, Navy as well as Air Force and can be fitted in Ships, Mobile Launchers, Submarines and Aircraft against land and sea targets. Compared to existing state-of-the-art subsonic cruise missiles, BRAHMOS has three times more velocity, 2.5 to 3 times more flight range, 3 to 4 times higher target detection range and more than nine times of kinetic energy.

BRAHMOS, with a conventional warhead weighing 200 to 300 kg, is a two-stage missile with solid propellant booster as its first stage and liquid ramjet for the second stage of the missile. This unique configuration enables the system to fly at speed of Mach 3 or more during its cruise phase. The missile has flight range of up to 290-kms with supersonic speed all through the flight, leading to shorter flight time, consequently ensuring lower dispersion of targets, quicker engagement and low reaction time for target and no effect of by any known counter measure system. It operates on 'Fire and Forget Principle', adopting varieties of trajectories. Stealth technology and Guidance System with advanced embedded software provide unique special features to the system. The missile is capable of perfoming multiple roles/missions with pin-point accuracy by day or night and in all weather conditions

The weapon has become the mainstay of the Indian Army's artillery firepower with several regiments raised, since its first induction in 2007. Similarly, for many of Indian Navy's frontline surface ships, BRAHMOS, since 2005, has been deployed as a prime strike weapon in both land-attack and anti-ship configurations. This system has been proved for engaging multiple/single targets with its 'salvo' launch capability, where these cruise missile(s) can be directed to either one target or towards multiple targets. BRAHMOS has also proved its prowess from an underwater platform. The missile is capable of being launched from submarine from operational depths of underwater platforms againts any land or ship target. The Indian Air Force's (IAF) frontline fighter aircraft Sukhoi-30MKI, have been modified to Intergarte air launched version of this unique missile system. The Air launched BRAHMOS weighs 2.5 tonne and designed to be integrated with aircraft using indegiously designed and produced advance airborne laucher system. This system has successfully demonstrated BRAHMOS missile's firing capability number of times. The IAF's 'Tigersharks' Squadron comprising of fourth-generation Sukhoi-30MKI fighter aircraft equipped with the BRAHMOS missile was raised in the Southern India. The successful induction of BRAHMOS in all the three services has made India the first and only country in the world to complete the "supersonic cruise missile triad".

The deployment of BRAHMOS cruise missile system in the services has given the Indian Armed Forces the much needed capability and punch to undertake deep surgical strikes in both land and sea, thus enabling them to overcome dynamic and diversified threats across country's international borders. Since the historic maiden launch on 12th June 2001, BRAHMOS has established its supersonic strength worldwide. The JV has successfully created an ecosystem of defence industries consisting of various small, medium and large enterprises across the country producing various critical systems and subsystem for BrahMos. The unique BrahMos Industry consortium has brought together a number of competent defence firms and laboratories from both the partnering countries in developing and producing different sub-systems and system missile which has rendered a unique strength to the Indian Armed Forces.

With the theme ‘Aatmanirbhar Bharat Abhiyaan’ leading the nation towards indigenisation of products, BrahMos programme, as the state-of-the-art high technology, has successfully indigenised all major sub-systems metallic and composit components. Almost entire range of GSE & launcher systems for the weapon Complex are also being manufactured domestically. BRAHMOS has conducted numerous successful launches which will boost India’s defence indigenisation efforts and boost Govt. of India’s ambitious ‘Make in India’ initiative.

BrahMos Aerospace possesses a full-fledged design centre, a unique dedicated supply chain for different sub-systems, a world-class integration, and check-out facilities, product support centres with stringent quality control, which involves over 200 small and medium Indian public and private defence sector enterprises and institutions. BRAHMOS has emerged as a potential weapon of choice with several countries across continents evincing strong desire in the versatile weapon. It has penetrated the international market with the most potent weapon system for precision strike and a Force Multiplier in contemporary Network Centric Warfare (NCW) environment. In January 2022 BrahMos Aerospace signed a landmark multi-million dollars’ export contract with the Philippines for the delivery of BRAHMOS Shore-Based Anti-Ship Missile system to the Armed Forces of the Philippines. As a flagbearer of ‘Make In India’ BrahMos Aerospace is now going to ‘Make for the World’.

As India is celebrating ‘Azadi Ka Amrit Mahotsav’, commemorating 75 years of independence, the successful journey of India’s state-of-the-art and cutting-edge military technology BRAHMOS missile has carved a niche for itself in the Indian defence industry and as a role-model in the global stage. BrahMos has continued to and will continue to evolve as India’s most prestigious and successful defence & aerospace enterprise in the years to come.

https://theprint.in/theprint-valuead-initiative/brahmos-equipped-with-impeccable-accuracy-empowers-indian-armed-forces/1082092/

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Mon, 15 Aug 2022

DRDO Completes Development Trials of Uttam AESA Radar

DRDO/LRDE completes the development trails of UTTAM MK-1 AESA Radar for TEJAS MK-1A. UTTAM MK-2 is also being developed for TEJAS MK-2 fighter jet.A more powerful variant for Su-30MKI is under development. Better Radars with GaN TRMs for AMCA & TEDBF are also under consideration according to this report.India’s DRDO has said that TEJAS MK-1A fighters will have the homegrown ‘Uttam’ radar, according to reports. The move is in sync with the government’s Atmanirbhar Bharat (self-reliant India) initiative.The first batch of TEJAS fighter jets will be equipped with the Uttam radars. Of the 123 Tejas fighters that the Indian Air Force will get, 40 will have Israel’s mechanical radars and 83 will have Active Electronically Scanned Array (AESA) radars.

Defence Research and Development Organisation (DRDO) chairman Sateesh Reddy told Times of India in Feb 2021: “We will have the Uttam radar from the 21st TEJAS MK-1A.” This means

20 of the 83 Tejas will have Israeli AESA radars and the 63 will be equipped with Uttam radars. He said Uttam has performed better than anticipated in the trials.Produced by Electronics and Radar Development Establishment (LRDE), a DRDO lab in Bengaluru, Uttam is a state-of-the-art AESA radar, which can track multiple targets and take high-resolution pictures.

Uttam AESA

Uttam AESA is a multi mode solid state phased array radar. Considering the size of nose cone in MK-1A, it can accommodate around 750-800 Transmitter/Receiver Gallium Arsenide based module.As the Uttam is getting the power of 10 KW in TEJAS, we can expect the tracking range of radar is around 150-170 KM for 2m2 object.It can track 100 target simultaneously and can engaged with 6 target at a time. Within a blink of second the radar can change from Air-to-Air to Air-to-Ground SAR (Synthetic Aperture Radar) mode or can perform both task at a timeDRDO is also started working Gallium Nitride module based T/R module for Uttam AESA which will further increase the capability of indigenous system.HAL is also planning to upgrade the entire fleet of IAF Sukhoi Su-30MKI with integrating an upscaled variant Uttam of AESA. Currently Su-30 is using PESA (Passive Electronically Scanned Array) radar which makes it vulnerable towards jamming.Upcoming fighter aircraft of India like TEJAS MK-2, TEDBF & AMCA is also going to use Uttam AESA radar. Using indigenous radar in various platforms of IAF will ease the logistics.

http://www.indiandefensenews.in/2022/08/drdo-completes-development-trials-of.html

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Fri, 12 Aug 2022

Indigenous RF Power Amplifier by IIT Roorkee And DRDO

A joint R&D activity between the Defence Electronics Application Laboratory (DEAL) Defence Research & Development Organization (DRDO) and the Indian Institute of Technology Roorkee (IIT-Roorkee) has resulted in developing indigenous radio frequency power amplifiers to meet the futuristic requirements of Programmable Radios being developed by DEAL, DRDO. The research group led by Professor Karun Rawat at IIT Roorkee, and a group of Scientists and Engineers led by PinakiSen from DEAL, DRDO have designed these amplifiers to be simultaneously able to fulfil the high-efficiency requirements (for thermal management) and good linearity for signal fidelity.

The designs have been simultaneously optimised for size, weight and power (SWaP). These amplifier units have superior performance and beat many similar products from global manufacturers, achieving high efficiency and gain while simultaneously considering good harmonic and intermodulation suppression. The lack of indigenous components poses a severe challenge to R&D organisations, such as in integrating the entire defence equipment into a given timeline of the armed forces. The scientific rigor of an academic R&D has a high potential to bring innovative designs to bolster cutting-edge technology development. However, the challenge is to direct such scientific investigations to product-oriented exercises through collaborative efforts with R&D labs.

The improvement in efficiency will result in a significant amount of heat load reduction, which will facilitate easy integration in the Programmable Radio chassis in the required form factor. The unit will be assembled with the indigenous radio units of DEAL and DRDO, and will be manufactured by private domestic partners for mass production.

Bolstering 'Atmanirbhar Bharat'

This joint product development activity has proven synergy between the two organisations and will bolster the “Atmanirbhar Bharat" as well as the “Make in India” drive for upgrading a lot of defence equipment of the Indian armed forces. Professor Ajit K Chaturvedi, Director, IIT-Roorkee, said, “With Make in India emerging as a powerful beacon to guide the development of defence technologies, we need to synergise the strengths of the government research agencies, industries as well as academic institutions to make India a truly global player in major defence technologies and systems.” "DEAL DRDO with its charter to do research, design, and development is geared up for the development of such futuristic technologies indigenously by involving academia and industry in a big way, to maintain and support India's Defence system." Keeping in tune with India’s mission for technological upgradation, the current R&D feat of Technology focus is a glimpse of the improvements to existing capabilities and also bringing up new capabilities.

http://www.indiandefensenews.in/2022/08/indigenous-rf-power-amplifier-by-iit.html?m=1

FINANCIAL EXPRESS
Read to Lead

Sun, 14 Aug 2022

Missile Programs for the Indian Navy- The Journey So Far

By Girish Linganna

The first known missile program for the Indian Navy by the Defence Research and Development Organisation (DRDO) was the Trishul missile, a low-level quick-reaction short-range surface-to-air missile, which was not a successful project. This missile was meant for ship defense against air threats. To fill the void, the Navy purchased the Israeli Barak missile system to protect the aircraft carrier INS Viraat.Subsequently, DRDO created the Barak-8 missile with the Israeli companies, and the missiles are being installed on the Indian naval ships. Barak-8 was developed to protect against air threats, including aircraft, helicopters, anti-ship missiles, unmanned aerial vehicles, cruise missiles, and combat aircraft at ranges up to 90 km at any time of the day and under adverse weather conditions.It also recently tested the Vertical Launch Short Range Surface to Air Missile (VL-SRSAM). It is a variation of the VL-SRSAM meant for other services. The VL-SRSAM is a ship-borne weapon system that neutralises various aerial threats at close ranges, including sea-skimming targets.

DRDO first modified a Prithvi missile as Dhanush for anti-ship and anti-surface applications. This missile did not see any practical application and was installed on only one warship for tests. The launcher of Dhanush had to be stabilised to cater to the rolling and pitching of the ship.Subsequently, the Brahmos project was used by the Navy in a large number of its surface ships. Recently, a longer range supersonic Brahmos, about 600 – 800 km, was tested from an

Indian warship.Last month, DRDO also test-fired a new helicopter-launched anti-ship missile. The missile is known as the "Naval Anti-Ship Missile-Short Range" or NASM-SR. The missile has an operational range of between 5 – 55 km. NASM-SR is a subsonic missile.

For the submarines, DRDO created the K-15 missile with a range of 750 km and is in the process of verifying the K-4 missile, which is advertised to have a range of 3500 km. It is rumoured that the Agni 6 missile is also being developed as a submarine launched ballistic missile (SLBM) with a range of over 8000km. When it fructifies, the Navy's INS Arihant class submarines can carry a Short Range Ballistic Missile (SRBM), Intermediate Range Ballistic Missile (IRBM) and Inter Continental Range Ballistic Missile (ICBM) for future strikes depending on the requirement. The Navy has the option of installing Brahmos missiles in its submarines but has not done so far as the K-15 has a larger range. Hopefully, we might see a new generation of Brahmos missiles in the upcoming P-76 submarine project, which is an Indian design.

For underwater anti-ship defence, DRDO has created two torpedoes – Varunashstra Heavyweight Weight Torpedo (HWT) and Torpedo Advanced Light Shyena (TAL) lightweight torpedo capable of launching from ships and helicopters to attack submarines in shallow and deep waters.Varunastra has a top speed of 40 knots and a range of over 21 nautical miles. The maximum operational depth is 400 meters. The warhead of the torpedo weighs 250 kg with a total mass of 1500 kg. TAL Shyena has a range of 19 kilometres. It has a top speed of 33 knots. The maximum operational depth is 540 meters. The warhead of the torpedo weighs 50 kg with a total mass of 220 kg. It has an endurance of six minutes in both shallow and deep water and self homing, i.e., active and passive.

DRDO has also tested a unique missile called SMART. SMART is a ballistic missile and carries a torpedo payload to a distance of about 650 Km, where it is released and performs anti-ship or anti-submarine operations. The Indian Navy has already qualified Shyena for launch with a parachute system from the Ilyushin Il-38 maritime aircraft.

https://www.financialexpress.com/defence/india-75-missile-programs-for-the-indian-navy-the-journey-so-far/2629324/lite/?utm_source=defence_landing_page&utm_medium=article_listing_widget&utm_campaign=Tags

DRDO On Twitter

DRDO @DRDO_India · 14h

Leading the Celebration of #IndependenceDay at #RCI, Dr APJ Abdul Kalam Missile Complex,
Dr G Satheesh Reddy, Chairman, DRDO urged upon the scientific fraternity to lead India's #ResoluteStrides for development of cutting edge defence systems.
#AatmanirbharBharat
@SpokespersonMoD

6 70 728

DRDO @DRDO_India · Aug 14

#DRDOUpdates | #HarGharTiranga
#AmritMahotsav
@DefenceMinIndia
@SpokespersonMoD

29 321 2,012

DRDO @DRDO_India · 16h

#DRDOUpdates | #HarGharTiranga
celebration at DG ECS office Bengaluru
#AmritMahotsav
@DefenceMinIndia
@SpokespersonMoD

5 49 464

DRDO @DRDO_India · 14h

#HarGharTiranga celebration at NSTL, RCI, DRDE
#AmritMahotsav
@SpokespersonMoD

1 41 618

Defence News

Defence Strategic : National/International

Press Information Bureau
Government of India

Ministry of Defence

Sat, 13 Aug 2022 4:12 PM

Foolproof Security Apparatus in Place to Protect the Country from Anyone Who Casts an Evil Eye, Says Raksha Mantri at an Event in Jodhpur, Rajasthan

"Safety & security of the people is Government's top priority"

'Make in India, Make for the World is our new mantra; Aim is to make India a net defence exporter: Shri Rajnath Singh

Government has created a foolproof security apparatus to ensure that no anti-India element can cast an evil eye on the sovereignty, unity and integrity of the country. This was stated by Raksha

Mantri Shri Rajnath Singh at the unveiling of statue of renowned Marwari warrior Veer Durgadas Rathorein Jodhpur, Rajasthan on August 13, 2022. Shri Rajnath Singh asserted that the Government, under the leadership of Prime Minister Shri Narendra Modi accords top priority to the safety and security of the people of India andassured the Nation that a befitting reply will be given to anyone who tries to disturb peace and harmony in the country. He stated that the Armed Forces are being equippedwith the latest weapons/platforms, adding that they are ready to deal with all future threats and safeguard national interests.

The Raksha Mantri underlined the importance of achieving self-reliance in defence production to build a strong military and said that Ministry of Defence has undertaken a number of reforms to manufacture indigenous weapons/platforms for the Armed Forces under the 'Aatmanirbhar BharatAbhiyan'. He listed out some of the reforms, including earmarking 68 per cent of the capital procurement budget for domestic industry in 2022-23 and allocating 25 per cent of domestic capital procurement budget for private industry. Shri Rajnath Singh added that due to the measures taken by the Government in the last few years,India has leapfrogged to find a place among the top 25 defence exporters of the world."By the end of this decade, India will not only make defence equipment for itself, but also fulfil the needs of friendly foreign countries. 'Make in India, Make for the World'is the new mantra of our Department of Defence Production. Our resolve is to make India a net exporter of defence equipment in the times to come," he said.

The Raksha Mantri paid glowing tribute to Veer Durgadas Rathore on the occasion, terming him as the symbol of social harmony, honesty, bravery and devotion. He stated that people, irrespective of caste or religion, should take inspiration from Veer Durgadas Rathore, who strived for peace and harmony against divisive elements in society.

https://pib.gov.in/PressReleasePage.aspx?PRID=1851532

mint

Sat, 13 Aug 2022

Aim is to Make India a Net Defence Exporter, Says Rajnath Singh

The government's goal is to make India a net exporter of defence equipment, defence minister Rajnath Singh said on Saturday.Speaking at an event in Jodhpur, Singh said that due to the measures taken by the government in the last few years, India has leapfrogged to find a place among the top 25 defence exporters of the world."By the end of this decade, India will not only make defence equipment for itself, but also fulfil the needs of friendly foreign countries. 'Make in India, Make for the World' is the new mantra of our Department of Defence Production. Our resolve is to make India a net exporter of defence equipment in the times to come," an official statement said quoting the minister.Singh was unveiling of statue of Marwari warrior Veer Durgadas Rathore in Jodhpur.The minister underlined the importance of achieving self-reliance in defence production to build a strong military and said that the Ministry of Defence has undertaken a number of reforms to manufacture indigenous weapons and platforms for the Armed Forces under the 'Aatmanirbhar BharatAbhiyan'.

The minister also said that the government has created a foolproof security apparatus to ensure that no anti-India element can cast an evil eye on the sovereignty, unity and integrity of the country. Singh said the government accords top priority to the safety and security of the people and assured that a befitting reply will be given to anyone who tries to disturb peace and harmony in the country.He stated that the Armed Forces are being equipped with the latest weapons and platforms and that they are ready to deal with all future threats and safeguard national interests.The minister paid tribute to Veer Durgadas Rathore, terming him as the symbol of social harmony, honesty, bravery and devotion.

https://www.livemint.com/news/india/aim-is-to-make-india-a-net-defence-exporter-says-rajnath-singh-11660394041359.html

FINANCIAL EXPRESS
Read to Lead

Mon, 15 Aug 2022

PM Modi Lauds Armed Forces for Supporting Self-Reliance Initiative, Mentions Export of Brahmos Missile

In his Independence Day address from the Red Fort, Prime Minister Narendra Modi on Monday complimented the armed forces for supporting his vision for a self-reliant India and made a mention of the export of Brahmos supersonic cruise missile. Modi also referred to the use of an indigenously developed howitzer gun for the first time for the ceremonial 21-gun salute at the celebrations. The Advanced Towed Artillery Gun System (ATAGS) has been developed under the government's 'Make in India' initiative by the Defence Research and Development Organisation(DRDO). "Which 'Hindustani' will not get new inspiration and strength from this sound (of the home-grown gun)," the prime minister asked.

Hailing the armed forces for their focus on defence indigenisation, Modi said, "I want to congratulate the soldiers of my country from my heart." The prime minister said India is becoming a manufacturing hub which is creating the foundation of self-reliance. "Be it manufacturing of electronic goods, manufacturing of mobile phones, today the country is progressing very fast. When our Brahmos goes to the world, which Indian's mind will not touch the sky," Modi said. In January, the Philippines concluded a USD 375 million deal with India for the procurement of three batteries of the BrahMos cruise missile. BrahMos Aerospace, an India-Russian joint venture, produces supersonic cruise missiles that can be launched from submarines, ships, aircraft, or land platforms.

A number of other countries have also shown interest in procuring the Brahmos missiles. In a related development, India signed a framework agreement with the Philippines in March that provided for government-to-government deals for the supply of defence hardware and equipment. The government has initiated a series of measures in the last few years to boost domestic defence manufacturing. In a major push towards defence indigenisation, the government in August 2020 came out with the first "positive indigenisation" list of 101 items including towed artillery guns, cruise missiles and offshore patrol vessels, which were put under import restrictions under a staggered timeline. In May last year, the government approved

restrictions on the import of an additional 108 military weapons and systems such as next-generation corvettes, airborne early warning systems, tank engines and radars under a timeline of four-and-half years.

In April, a third list of over 100 military systems and weapons were put under import restrictions under a staggered timeline of over three-and-half years. The defence ministry said orders worth more than Rs 2,10,000 crore are likely to be placed on the Indian industry in the next five years as part of the items covered in the third list. India has been one of the largest importers of arms globally. According to estimates, the Indian armed forces are projected to spend around USD 130 billion (one billion is equal to 100 crores) in capital procurement in the next five years.

The government now wants to reduce dependence on imported military platforms and has decided to support domestic defence manufacturing. The Defence Ministry has set a goal of a turnover of USD 25 billion (Rs 1.75 lakh crore) in defence manufacturing in the next five years, including an export target of USD 5 billion worth of military hardware.

https://www.financialexpress.com/defence/pm-modi-lauds-armed-forces-for-supporting-self-reliance-initiative-mentions-export-of-brahmos-missile/2630736/lite/?utm_source=defence_landing_page&utm_medium=article_listing_widget&utm_campaign=Tags

Business Standard

Tue, 16 Aug 2022

Atmanirbhar Push: PM Narendra Modi for Innovation in Defence Products

Prime Minister (PM) Narendra Modi in his Independence Day speech on Monday called upon the private sector to embrace innovation, in order to play a key role in the Atmanirbhar Bharat (self-reliant India) initiative. Voicing his oft-stated conviction that "India can make for the world," the PM commended the military for taking Atmanirbhar Bharat into the realm of technological innovation. As always, the government's new initiative came with a catchy new slogan. Citing former PM Lal Bahudar Shashtri's iconic "Jai Jawan Jai Kisan" slogan and affixing Atal Vihari Vajpayee's "Jai Vigyan" to it, Modi took it a step further by adding: "Jai Anusandhan" (hail to innovation).Placing the onus for innovation on the citizenry, Modi said: "(In) self-reliant India, (innovation) becomes the responsibility of every citizen, of every government, every unit of society. Self-reliant India is not a government agenda or a government programme. This is a mass movement of society, which we have to take forward."

"The world is seeing that India is changing. There is hope from India and the reason is the skills of 1.3 billion Indians," the PM said.The government has been drawing attention to its innovation programmes through statements and answers to questions in Parliament. On July 29, Minister of State for Defence, Ajay Bhatt, tabled a written answer to a question in the Lok Sabha, listing out measures the government had taken to promote innovation.The answer stated that the Ministry of Defence (MoD) had launched a scheme called "Innovations for Defence Excellence" (iDEX) which was a medium for funding micro, small and medium enterprises (MSMEs) and start-ups that had submitted blueprints for innovative projects. The PM

had launched iDEX in April 2018, billing it as the MoD's flagship for technological innovation. iDEX was to provide start-ups with a platform for co-creation and co-development in defence and aerospace technology.

Under iDEX, defence start-ups and MSMEs are encouraged to present technological solutions to functional problems that the military periodically raises as "challenges". Innovators are encouraged to engage directly with the military through the iDEX Open Challenge and to showcase what they have to offer. Selected applicants get a chance to pitch to the iDEX grand jury and qualify for grants and investments.Last month, iDEX signed its 100th contract in New Delhi with a firm called Pacify Medical Technologies."With these actions of the government, the expenditure on defence procurement from foreign sources, which used to be 46 per cent of the overall expenditure, has reduced to 36 per cent in the past four years (2018-19 to 2021-22)," the MoD stated in Parliament last month.

iDEX is funded and managed by the "Defence Innovation Organization", which is registered as a "not for profit" company as per Section 8 of the Companies Act 2013. Its founder members are the two biggest defence public sector undertakings (DPSUs): Hindustan Aeronautics and Bharat Electronics.The MoD has reserved certain projects and products for innovators. In March, it announced the reservation of 18 major defence platforms for industry-led design and development.Last year, the MoD had notified three "Positive Indigenisation Lists", reserving a total of 310 defence products and another 2,958 items for DPSUs. These lists embargoed the import of products beyond specified timelines.

https://www.business-standard.com/article/economy-policy/atmanirbhar-call-pm-narendra-modi-for-innovation-in-defence-products-122081500878_1.html

THE ECONOMIC TIMES

Sun, 14 Aug 2022

Will India Move Away from Import Dependence and Become Self-Reliant in HI-Tech Weapons?

India's dependence on imports to fight its many wars and skirmishes since independence has been a heavy burden, draining foreign exchange and limiting strategic options. Self-dependence is not for the fainthearted and cannot be achieved overnight. It will require dedicated efforts for at least a decade. The government will need to handhold and protect all stakeholders, particularly the private sector. As the country moves toward a century of freedom, the right trajectory has been achieved with a strong focus on shoring up domestic defence manufacturing. The policy framework has been created, with its strongest aspects being a negative import list.

Ambitious targets have been set, with the cornerstone being rapid upscaling of the private industry, with an aim to create a Rs 5 lakh crore defence and aerospace manufacturing market by 2047. This would be a quantum jump from the estimated Rs 1 lakh crore market in 2022.The negative import list already contains over 300 major systems that will only be procured from local sources. This includes products ranging from light attack aircraft to tanks and assault rifles besides a range of ammunition. It will be vital to protect and expand this list. Several moves have

also been made to make the sector competitive. The presence of a large private sector manufacturing ecosystem will be vital for infusion of technology and innovation in the armed forces. Already, in fields like Artificial Intelligence, startups and small firms have shown interest, with the first systems such as swarm drones and surveillance networks set to be inducted.

India cannot become self-reliant with an industry that depends on the national forces for orders. Playing the global market is essential to the survival and success of private sector players. If the target of achieving $ 5 billion worth of exports by 2025 is met, it will be an indicator that India is on the right path.

https://economictimes.indiatimes.com/news/india/will-india-move-away-from-import-dependence-and-become-self-reliant-in-hi-tech-weapons/articleshow/93562294.cms

Press Information Bureau
Government of India

Ministry of Defence

Sat, 13 Aug 2022 11:48 PM

Indo Oman Joint Military Exercise Al Najaf IV Concludes

The Indo Oman Joint Military Exercise Al Najaf IV concluded at Mahajan Field Firing Ranges today. A solemn Closing Ceremony marked the culmination of the exercise.This platoon level 13 days exercise had commenced on 01 August 2022.The aim of the exercise was to achieve inter-operability and to acquaint each other with operational procedures and combat drills in a Counter Terrorism environment under United Nations mandate.Both the armies were able to achieve the stated objectives. The Indian contingent was from 18th Battalion of Mechanised Infantry Regiment and the Royal Army of Oman contingent was represented by Sultan of Oman Parachute Regiment.The exercise was conducted in three phases. The first phase was orientation & familiarisation with weapon,equipment and tactical drills of each other by the participating contingents. The second phase was combat conditioning,formulation of joint drills and putting them into practise.

The last phase was a 48 hours validation exercise of key drills and concepts learnt during the first two phases. Both the contingents jointly took part in the validation exercise which included establishment of Mobile Vehicle Check Post, Cordon and Search Operations,Heliborne insertion,Room Intervention drills and effective employment of ICV in Counter Terrorism environment. The exercise also included effective employment of indigenous Advance Light Helicopter ‘Dhruv’,drones and various new generation technologies

Overall, the exercise was a resounding success. The two armies shared valuable combat experience with respect to Counter Terrorist, Regional Security and Peace Keeping Operations in an international environment. It was another significant milestone achieved in ensuring interoperability between the two armies, strengthening the cordial relations between the two countries and another step forward towards ensuring global security.

https://pib.gov.in/PressReleasePage.aspx?PRID=1851645

INDIA TODAY

Mon, 15 Aug 2022

Indian Army Set to Possess Quantum Communication Tech, Joins Elite List

The Indian Army is set to possess advanced quantum communication technology, thereby joining an elite list of nations with indigenous quantum tech. The new technology will equip troops with a high-end secured defence system. The technology, developed by QNu Labs, a Bengaluru-based deep tech start-up, will help in modern-day war fare as the communication channel created using the Quantum Key Distribution (QDK) system is non-hackable, according to the defence ministry. "A QKD system allows the creation of a quantum-secure secret pair of symmetric keys between two end points, separated by a certain distance [in this case, over 150 km] in a terrestrial optical fibre infrastructure. The QKD helps create a non-hackable quantum channel for creating un-hackable encryption keys, which are used to encrypt critical data/voice/video, across the end points," the ministry said in a statement.

After the successful trials, the Indian Army has initiated the procurement process of QNu Labs' developed QKD systems by issuing a commercial Request For Proposal (RFP), the ministry added. Defence Secretary Ajay Kumar, buoyed by the developments, termed the innovation of indigenously QKD technology as a "milestone achievement" in 'AzadiKaAmritKaal' and a befitting success story of Aatmanirbhar Bharat. Like other advanced militaries, the Indian Army is actively exploring this technology as an enabler to fuse a large density of data and decision support capability to securely deliver communication to troop leaders at various levels.

https://www.indiatoday.in/india/story/indian-army-to-possess-quantum-communication-tech-joins-elite-list-1988027-2022-08-15

The Tribune

Fri, 12 Aug 2022

IAF to Field Sukhoi for 17-Nation Drill

Fighter jets Sukhoi-30MKI and midair refueller IL-78 — both of Russian origin – along with US-made heavy-lift plane C-17 will be fielded by the Indian Air Force (IAF) in an upcoming 17-nation military exercise in Australia. Called "Pitch Black 2022", the exercise will be conducted from August 19 to September 8. The three-week-long military drill, to be conducted in Northern Territory of Australia, will involve over 100 aircraft and 2,500 military personnel. The IAF team took off today. En route, the team will stop at Malaysia for a bilateral exercise. This year's participants include India, the US, Australia, Japan, Canada, France, Germany, Indonesia, Malaysia, Netherlands, New Zealand, the Philippines, South Korea, Singapore, Thailand, the UAE and the UK. The list includes the Quadrilateral countries – India, Japan, US and Australia. The exercise will also see participation of key NATO countries, including the UK, France and

Germany. Germany, Japan and South Korea are participating for the first time. A biennial exercise, "Pitch Black" features a range of realistic and simulated threats that can be found in a modern battle-space environment and is an opportunity for militaries to test and improve integration.

https://www.tribuneindia.com/news/nation/iaf-to-field-sukhoi-for-17-nation-drill-421433

The Tribune

Fri, 12 Aug 2022

IAF Wants Industry to Assemble ELINT System Using Commercial Technology

The Indian Air Force is seeking a "quick-fix" solution to meet its requirements for generating electronic intelligence (ELINT) and communication intelligence (COMINT) by asking the industry to develop a new vehicle-based system from technology already available in the open market. The system will be developed with commercially available off-the-shelf hardware and software and no development of specialised components is envisaged in the project, according to preliminary information issued by the IAF today. "Readily available hardware and software is to be used to integrate to produce a speedy solution for providing creditable ELINT and COMINT solution," the IAF's note says.

The employment of the system will be to collect and analyse information pertaining to radio signal emissions by enemy radars and transmission systems within a defined frequency range and detect modulation of all known techniques. The system is expected to be built on a Stallion 10-ton 6X6 truck having a bullet proof cabin along with nuclear, biological and chemical protection. It should be able to function at temperatures from minus 40 degree Celsius to 50 degree Celsius and at altitude up to 16,000 feet. Steerable antenna which can point in any direction, inbuilt GPS for positioning and time stamping data, data processing facility, captive power supply generators and integration with IAF communication networks are other required parameters for the system.

The IAF already operates several types of ground-based and airborne platforms for ELINT and COMINT, some of which have been developed by the Defence Research Organisation (DRDO) and Bharat Electronics Limited (BEL). Apart from other such systems, BEL had recently developed a ground-based mobile ELINT station for the IAF, called Himraj. ELINT and COMINT, which involves collecting information through the use of electronic sensors, is a crucial requirement in today's battlefield environment as they help assess the capability of enemy equipment and its location as well as provide advance warning on enemy movements and intentions.

https://www.tribuneindia.com/news/nation/iaf-wants-industry-to-assemble-elint-system-using-commercial-technology-421390

THE TIMES OF INDIA

Fri, 12 Aug 2022

India, Bangladesh Agree to Strengthen Defence Ties

India and Bangladesh on Thursday agreed to further step up their bilateral defence ties, with greater military-to-military engagements, capacity-building and defence-industrial cooperation. This was decided during the 4th India-Bangladesh annual defence dialogue (ADD), co-chaired by defence secretary Ajay Kumar and the principal staff officer of Bangladesh's armed forces division Lt-General Waker-Uz-Zaman. The Indian armed forces are working towards "building capacity'' of the Bangladesh military, which ranges from training and exercises to military supplies and defence technologies. Bangladesh, of course, is another country in India's neighbourhood where China has made strategic inroads over the last many years. "The AAD covered the existing bilateral exercises and training, with the two sides agreeing to increase the complexity of these exercises. ," a defence ministry official said.

https://timesofindia.indiatimes.com/india/india-bangladesh-agree-to-strengthen-defence-ties/articleshow/93509238.cms

THE HINDU

Fri, 12 Aug 2022

India, Malaysia Begin Four-Day Air Exercise Udarashakti

An Indian Air Force (IAF) contingent left for Malaysia on Friday to participate in a four-day bilateral exercise 'Udarashakti' with the Royal Malaysian Air Force (RMAF). This continues the recent trend of India's expanding defence and security cooperation with South East Asian countries. "IAF is participating in the air exercise with Su-30 MKI and C-17 aircraft while the RMAF will be flying Su-30 MKM aircraft," the IAF said in a statement. The exercise is being held in the RMAF base of Kuantan. The exercise will give an opportunity to the IAF contingent members to share and learn best practices with some of the best professionals from the RMAF, while also discussing mutual combat capabilities, the IAF added.

The exercise will witness various aerial combat drills between the two Air Forces, the IAF said, adding that it would fortify the long-standing bond of friendship and enhance the avenues of defence cooperation between the two Air Forces, thereby augmenting security in the region. In recent years, India in addition to exercises and military exchanges has offered a range of major military hardware to countries in the region and there has been positive response from many. For instance, India has offered the Light Combat Aircraft (LCA) Tejas to Malaysia and to incentivise the offer has offered a Su-30 support package for the jets in the RMAF's inventory

https://www.thehindu.com/news/national/india-malaysia-begin-four-day-air-exercise-udarashakti/article65762024.ece

Sat, 13 Aug 2022

India Needs 'White Swan' TU-160 to Defend Black Swan Moment with China

By K V Ramesh

For nearly six decades after Independence, the major threat to India's security came from Pakistan, with four wars being fought between the two countries. But over the past two decades, Pakistan's conventional threat to India has diminished. The country's continuing economic degeneration forced its generals to focus on low-cost terror warfare, than conventional war.

A declining threat to India

Although Pakistan owns nuclear weapons, those are now more to act as a deterrent rather than for offensive use, since any such misadventure could lead to the erasure of Pakistan from the world map. But that's not why Pakistan continues to be a danger to India's security. Pakistan is now a de facto vassal of China, leasing vast tracts of land to Beijing for the China-Pakistan Economic Corridor, and the Pakistani establishment now has reduced itself to threatening India with a 'China card'. And while Pakistan's conventional military might continues to be formidable, its security situation has been compromised with the return of Taliban rule in Afghanistan. The Pakistani Army, which hoped for its western neighbour to become its 'strategic depth', now faces a potential foe. To that extent, the Pakistani army's problems have multiplied, and it cannot risk a conventional war with India, leave alone an unthinkable nuclear exchange.

That leaves China as the main military threat to India, given the intractable border dispute between the two, not to speak of an unspoken battle between the two Asian giants over Beijing's efforts to assert predominance in Asia. But, the dragon is roaring in the north India and China have had a difficult relationship, mainly because of the intractable border dispute in the Himalayas. China contests the McMahon Line drawn by the British being the border with India and continues to occupy Aksai Chin, a region India claims is part of Kashmir, and therefore belongs to it. The unresolved border dispute has not prevented the two countries from having burgeoning trade, but the political rivalry is sharpening. China, which views the US as its main threat, perceives India's increasing engagement with the West and its participation in the US-led Quadrilateral Security Dialogue, as an additional threat. In the recent past, China has increased the militarisation of the Line of Actual Control (LAC) which forms the de facto border in the Himalayas, building infrastructure including roads that enable the People's Liberation Army (PLA) to move armour right up to the border, airfields in Tibet and in Ladakh as well as in the eastern sector that can be used by heavy military aircraft. In other words, China is preparing itself for a conflict, when and if it arises. China also has the Xian HS-6K strategic bomber, and one of them was reported to have flown in the Ladakh area during the Galwan Valley clash in June 2020. It could have been a move to test India's air defences in the sector or could have been a definite move to station a few of them in the Xinjiang-Xizhang Military Region, China's euphemism for the Xinjiang-Tibet military sector. It is these developments that seem to have finally persuaded Delhi to go in for a strategic bomber option. India's defence planners, logically,

assume that the scenario of the next conflict with China could have unforeseen consequences – including an intensification that could call for deep strikes into Chinese territory. That is where the Tu-160 strategic bomber, which India is likely to lease or purchase from Russia, comes in.

The 'White Swan' as it is called by the Russians, and 'Blackjack' by NATO, can carry battle loads of 40 tonnes, including nuclear weapons, if needed. But, there are still doubts on Tu-160's usability There are various arguments for and against the acquisition of the Tu-160 bombers from Russia. One school of thought is that strategic bombers are a relic of the Cold War past and do not offer a military edge to India and that they offer a large radar signature and could be intercepted or interdicted in flight. The critics also argue that the cost of acquisition and maintenance of these giant aircraft is not worth it. The opponents of that theory argue that the Tu-160s are a strategic asset that fill the gap in India's offensive capability matrix. They could be a deterrent that was much needed. But India's acquisition of Tu-160s from Russia, with which both India and China have close relations, should give China food for thought. China is aware of India's nuclear inventory, as also the conventional might. The incorporation of Tu-160 heavy bombers should make the war planners in Beijing pause before they make an aggressive move against India. To put it in a nutshell, the White Swans will offer India insurance against any Black Swan moment vis-à-vis China.

https://www.news9live.com/defence/india-needs-white-swan-tu-160-to-defend-black-swan-moment-with-china-189065

NEWS18

शुक्रवार, 12 अगस्त 2022

अब चीन की खैर नहीं! भारत खरीदेगा परमाणु बम गिराने वाला दुनिया का सबसे बड़ा बॉम्बर, अमेरिका भी खाता है खौफ, जानें खास बातें

चीन अक्सर भारत से सीमा पर उलझने का प्रयास करता है. दशकों तक दोनों देशों के मध्य कोई खूनी झड़प नहीं होने के बाद दो वर्ष पूर्व अचानक गलवान में हुई घटना ने देश को चीन की ओर से बढ़ रहे खतरे के प्रति सोचने पर मजबूर कर दिया था. चीन ने उन दिनों तनाव बढ़ने पर अपना सबसे बेहतरीन स्ट्रैटेजिक बॉम्बर विमान H-6K सीमा के नजदीक तैनात कर दिया था. इस विमान का कोई जवाब भारत के पास नहीं होने के बाद भारतीय वायु सेना ने पहली बार स्ट्रैटेजिक बॉम्बर विमान की कमी महसूस की थी.

दो सालों बाद अब भारत चीन के इस स्ट्रैटेजिक बॉम्बर का जवाब दुनिया के सबसे शक्तिशाली बॉम्बर से देने जा रहा है. खबरों के मुताबिक भारतीय वायु सेना जल्द रूस से टुपोलेव Tu-160 को खरीद सकती है. रूस के इस घातक बॉम्बर को इसके रंग रूप की वजह से व्हाइट स्वान भी कहते हैं. वहीं नाटो की सेना इसके प्रकोप को देखते हुए Tu-160 को ब्लैक जैक के नाम से

बुलाती है. आवाज से भी लगभग दोगुनी तेज गति से चलने वाले इस बॉम्बर को दुनिया का सबसे भारी बॉम्बर कहा जाता है. 2,220 किलोमीटर प्रति घंटे की रफ़्तार से उड़ने वाला यह विनाशकारी बॉम्बर बालाकोट जैसी एयर स्ट्राइक पलक झपकते ही अंजाम दे सकता है. तुलना के लिए, अगर भारत वापस बालाकोट जैसी एयर स्ट्राइक करता है तो इस एयर स्ट्राइक को अंजाम देकर वापस आने में भारतीय सेना को महज 15 सेकंड का समय लगेगा.

क्या होते हैं बॉम्बर

52 हजार फ़ीट की ऊंचाई से उड़कर बम बारी करने की क्षमता रखने वाले इस बॉम्बर से अमेरिका भी खौफ खाता है. यह बॉम्बर अधिकतर दूसरे देशों में जाकर परमाणु बम गिराने के लिए काम में लिए जाते हैं. परमाणु बमों के अलावा पारंपरिक मिसाइल, रणनीतिक क्रूज मिसाइल और कम दूरी की निर्देशित मिसाइल भी इस बॉम्बर की मदद से दागी जा सकती है. बेहद तेज रफ़्तार से उड़ने वाले इस बॉम्बर की खूबी है यह कि यह रडार की पकड़ में आसानी से नहीं आता.

रूस ने सबसे पहले Tu-160 बॉम्बर का निर्माण 1970 में शुरू किया था. 1987 में परीक्षण के बाद रूस ने इसे अपनी वायु सेना के बेड़े में शामिल कर लिया. तब से अब तक रूस कई बार इस विमान को अपग्रेड कर चुका है. फ़िलहाल रूस के पास ऐसे 16 Tu-160 बॉम्बर मौजूद हैं और 10 नए Tu-160 बॉम्बर का निर्माण चल रहा है.

https://hindi.news18.com/news/world/south-asia-india-will-buy-the-worlds-largest-aircraft-to-drop-atomic-bombs-will-cause-destruction-in-a-few-seconds-4464699.html

THE ECONOMIC TIMES

Mon, 15 Aug 2022

Indian P 75I Submarine Plan Unrealistic, Timelines Cannot Be Met: Russian Designers

After pulling out of the contest for new submarines required by the Indian Navy, Russian designers say that the project is unrealistic as the desired technologies cannot be made available within the strict timelines being defined.As reported by ET in February, Russia pulled out of the Rs 43,000 crore contest for six new submarines under Project 75I that are to be made at an Indian shipyard in collaboration with a foreign technology partner.At that time `technical reasons' were cited for the withdrawal. Elaborating on the concerns with the project, Andrey Baranov, the Deputy Director General of Rubin Design Bureau has said that the requirement is for a brand new submarine design that would present difficulties at the manufacturing stage. Rubin is the leading Russian design bureau for a range of submarines, including the Kilo class used by India.

"Our major concern is that the requirements specified by the Navy and the timeline for the project are not matching. The Indian Navy would like to have the latest, state of the art submarine with powerful weapons, an Air Independent System and high stealth. No one in the world has such a submarine ready," Baranov said at the Army 2022 exhibition.The submarine designer said that difficulties are expected to surface when the first submarine under Project 75I goes under production. "The key requirement was that the submarines have to be made in India from the beginning and if the timelines are not met, the penalties are very high. A lot of responsibility is assigned to the designers but at the same time, the designers have no influence on the construction process that will happen in India," Baranov said.He added that several such technical considerations were behind the withdrawal from the project and that other contenders like Sweden and France are also not participating.

The Indian Navy's Project 75I has already hit several delays, with other foreign contenders and Indian partners seeking additional time to formulate their proposals. At least two time extensions have been granted by the ministry as foreign technology partners have expressed their inability to conclude talks with Indian yards, due to complex technical requirements.As reported, the Navy's ambitious plan hit choppy waters in its early stages, with the condition of a functional Air Independent Propulsion (AIP) spelled out in the technical documents ruling out most foreign collaborators from the project.The Indian companies shortlisted for the construction – Mazagaon Dockyards Ltd (MDL) and Larsen and Toubro (L&T) – have been in discussions with foreign technology partners from Germany, France, Russia, South Korea and Spain for the past few years to chalk out a technology transfer plan.Only Germany and South Korean participants have a functional AIP system that they can demonstrate, as it required by the Indian Navy, ruling out the rest from the competition.

https://economictimes.indiatimes.com/news/defence/indian-p-75i-submarine-plan-unrealistic-timelines-cannot-be-met-russian-designers/articleshow/93573148.cms?from=mdr

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sun, 14 Aug 2022

The Philippines Cancels Russian Helicopter Deal; Dhruv MK-4 to be in the Philippines Arsenal

The Philippine government has cancelled a deal to purchase 16 Russian military helicopters.Philippine officials said they ended the deal because they feared U.S. sanctions. Former President Rodrigo Duterte made the decision to cancel the $227 million deal last month before his term in office ended June 30. Former Defence Secretary DelfinLorenzana announced the cancellation Tuesday. "We could face sanctions," Lorenzana told the Associated Press. He said there were several other ways the U.S. could show its displeasure if the Philippines continued with the deal.The relations between the United States and Russia have been tense since Russia's invasion of Ukraine.A good defence is considered the best offense. When China was proactively trying to encircle India with its 'String of Pearls' strategy, it was very imperative for India to come up with some strong strategies to counter the Chinese influence in the region.

In counter to China, India came up with an offensive 'Necklace of Diamonds' strategy, which not only liberated the region from the shadow of the Chinese, but also contained the dragon in its own backyard.

In an effort to contain China in its neighbourhood, India made a series of economic and defence cooperation with South China Sea countries. Further, the convergence of relationships became possible due to the realisation of the fact that all of them were fighting against the common imperialist enemy, who is continuously trying to undermine the sovereignty of the respective countries.

Dhruv MK-4 In The Philippines Arsenal

Reports suggest that after the acquisition of the BrahMos cruise missile, the Philippines now wants to acquire advanced light helicopters from India to replace its aging chopper fleet. The indigenously designed and developed Advanced Light Helicopter (ALH-DHRUV) is a twin-engine, multi-role, multi-mission new generation helicopter in the 5.5-ton weight class. The major variants of ALH-DHRUV are Dhruv MK-1, MK-2, MK-3 and MK-4. The MK-1 and MK-2 are normal utility helicopters with a conventional glass cockpit. The Advanced Light Helicopter of version MK-3 is made for defence services in high altitude operations, and MK-4 versions are made for an armed attack, close air support and high altitude operations. The Philippines is interested in buying the armed version of Dhruv MK-4.

Philippines' Defence Cooperation With India

The Chinese Navy's constant confrontation with the Philippines in the Western Philippine Sea (South China Sea), with respect to the control of the Spratly Islands, has forced the country to raise the defence capabilities of its Navy. Further, the reluctance of the US to engage with China in case of any confrontation has further aggravated the security of Philippines. Therefore, in an effort to arm themselves with highly sophisticated weapons, the Philippines is on a spree of weapon buyouts.

In February 2022, the Philippines signed a USD 374 million deal with India for the supply of a shore-based anti-ship variant of the BrahMos supersonic cruise missile. The deal is important considering the involvement of Russia in making BrahMos. On one hand, the Philippines will secure its defence with the procurement of state-of-the-art missile systems against China while on the other; it will provide strategic leverage considering the ideologue alignment of Russia with China. Further, the Philippines is also considering to procure indigenously developed Light Combat Aircraft Tejas for its dense forces. For the realisation of the deal, India is reported to be ready to establish the Maintenance, Repair and Overhaul (MRO) facility in the Philippines, to support the country's aircraft fleet.

These defence cooperation with India by the Philippines are important considering the changing geopolitical situations. Traditionally, the US has been the overall security provider to the pacific countries. But its reluctance in direct engagement with China has forced these countries to enhance their own defence capabilities. When in 2013, China refused to accept the judgment of the Permanent Court of Arbitration on claims over the South China Sea and continued to transgress within the Exclusive Economic Zone and continental shelf area of these countries, the sovereignty violation became a real threat. In violation of the United Nations Convention on the Law of the Sea (UNCLOS), China made its military presence on thousands of islands and challenged the sovereign rights of the neighbouring countries.Relationship convergence was

bound to happen as the countries could not afford to tolerate bullying for a too long. Here, in the Himalayan region with India and in the South China Sea with the Philippines, China was behaving like a modern imperialist power. This bullying nature of China brought the two nations together, and the defence cooperation was envisaged.

http://www.indiandefensenews.in/2022/08/the-philippines-cancels-russian.html?m=1

mint

Mon, 15 Aug 2022

Indian Defence Attaché has Unescorted Access to Pentagon: US Air Force

Indian defence attaché now has unescorted access to the Pentagon, a top US Defense Department official has said.Such a move is aligned with the trust and cooperation that we share with India, US Air Force Secretary Frank Kendall said on at a reception hosted by India's Ambassador to the US Taranjit Singh Sandhu at India House on Independence Day on Monday."As of today, the Indian (defense) attaché team now has unescorted access in the Pentagon which is commencement with our close relationship with India's status as a major defense partner," Kendall said."And if you don't think unescorted access to the Pentagon is a big deal, I can't get into the Pentagon without an escort," he said.

The Pentagon, the headquarters of the US Department of Defense, is considered one of the most difficult places to get access. Even American citizens have no access to the building without high-level security clearances.Kendall, who worked on India issues during the Obama administration, said it was a desire then to strengthen the bonds in the national security area."It turns out that India is the country with whom we do more joint exercises than any other country, have a long close relationship and we've been able to build it up and strengthen it over the years as we work together for integrated deterrence in the region and around the world," he said.

The Defense Trade and Technology Initiative, he said, has grown over the years and is continuing to this day."We recently just a year ago started a new cooperative program for unmanned aerial vehicles. We've been able to share technology and work together in any number of programs. So it's been a remarkable journey that I know will continue," he said.

https://www.livemint.com/news/india/indian-defence-attach-has-unescorted-access-to-pentagon-us-air-force/amp-11660614434182.html

ThePrint

Mon, 15 Aug 2022

Not Dependent on Ukraine for Engines, Want to be Part of Make in India Initiative, Says Russia

Claiming that Russia is no longer dependent on Ukrainian engines to power its frigates, the head of Russian United ShipBuildingCorporation (USC) Monday said they are willing to invest in India as part of the Atmanirbhar Bharat initiative.“I don’t know why India went in for a Ukrainian engine when we have now built our own capability and capacity. We are no longer dependent on Ukraine for engines,” USC President Alexei Rakhmanov said, speaking on the sidelines of the Army 2022, Russia’s defence exhibition being held in Moscow.The top Russian official, who is in charge of the country’s shipbuilding industry, was referring to the gas turbine engines that India bought from Ukraine to power the four stealth frigates that it is building with Russian help.

As reported by ThePrint earlier, India had procured gas turbine engines from Ukraine and handed over to Russia to install them on the Admiral Grigorovich-class guided-missile stealth frigates that are being made for the Indian Navy by a Russian shipyard as part of a $2.5 billion deal.While two ships are being built in Russia, two others are to be built at the Goa shipyard with Russian help.India had ordered Ukranian engines for the ones being built in Goa, but it is learnt that the delivery had not taken place yet. One of the targets of the Russian missile attacks on Ukraine was the production facility of these gas turbine engines.It is not yet known what will happen to the two frigates that are to be built in Goa, with the engines being undelivered and the factory hit.

Trying to fast-track delivery of frigates’

Speaking about the delivery schedule of the two frigates, Rakhmanov said the first would be delivered by November 2023 and the next within six months of it.He said that the original delivery schedule was hit by the Covid pandemic as well as the ongoing war with Ukraine.“We are trying to fast track the delivery and fill up the gap,” Rakhmanov said.According to the original delivery schedule, the first ship was to be handed over by the end of this year.Talking about further plans, the top Russian defence official said that the USC is keen on investing in India and are looking at possible shipyards for the same. He also said that Russia wanted to invest in the Pipavav shipyard but it has gone into an insolvency procedure.“We want to be part of the Make in India initiative,” he said.

https://theprint.in/defence/not-dependent-on-ukraine-for-engines-want-to-be-part-of-make-in-india-initiative-says-russia/1083903/

INDIA TODAY

Mon, 15 Aug 2022

'Start of Cooperation': Sri Lanka President Thanks India for Dornier Aircraft

Sri Lankan President Ranil Wickremesinghe thanked India for gifting a Dornier maritime surveillance aircraft to the island nation on Monday. The aircraft will enhance Sri Lankan Navy's maritime surveillance capabilities and bolster the India-Sri Lanka defence ties"This is the start of cooperation between our Air force, Navy and Indian Navy in maritime surveillance," Wickremesinghe said.President Wickremesinghe further said that history has brought both nations together like two sides of the same coin and the two countries must forge ahead together.Vice Chief of Indian Navy Vice Admiral S N Ghormade, who is on a two-day visit to the country, accompanied by Indian High Commissioner in Colombo Gopal Baglay, handed over the maritime surveillance aircraft to the Sri Lanka Navy at the Sri Lanka Air Force base in Katunayake, adjoining the Colombo international airport.

The aircraft will be flown and maintained only by 15 Sri Lanka Airforce crew who were specifically trained in India for four months.The team consists of pilots, observers, engineering officers and technicians. They will be supervised by the government of India technical team attached to the Sri Lanka Air Force (SLAF).The team would undertake comprehensive supervision of aircraft, airframe, aircraft support equipment, ground support equipment, and relevant documents and would ascertain the serviceability of all the assets.Dornier was handed over to Sri Lanka a day before a high-tech Chinese missile and satellite tracking ship docks at the island nation's Hambantota port, despite India's concerns.

The ship was originally scheduled to arrive at the port on August 11 but its arrival was delayed in absence of permission by the Sri Lankan authorities.Sri Lanka had asked China to defer the visit amid India’s concerns over it. On Saturday, Colombo granted the port access to the vessel from August 16 to August 22.There were apprehensions in New Delhi about the possibility of the vessel’s tracking systems attempting to snoop on Indian installations while being on its way to the Sri Lankan port.

https://www.indiatoday.in/world/story/sri-lanka-president-wickremesinghe-thanks-india-dornier-aircraft-bilateral-defence-ties-1988310-2022-08-15

ANI

Sat, 14 Aug 2022

Taiwan Says Will Enhance Self-Defence, Thanks India, Others for Support Amid China Tensions

Taiwan on Sunday said it will continue to enhance its self-defence capabilities while maintaining close coordination with all like-minded nations, including India, to jointly preserve the rules-based international order and safeguard security across the Taiwan Strait. This statement came in the wake of tensions in the Taiwan Strait following US House Speaker Nancy Pelosi's visit to the self-ruled island that set off large-scale military exercises from Beijing. Taiwan said it is entitled to make friends and maintain relationships with countries around the world. It said China's deliberate intensification of various forms of military posturing targeted at Taiwan recently has severely disrupted peace and stability across the Taiwan Strait. "The government of ROC (Taiwan) wishes to convey sincere gratitude to the executive branches and parliamentarians of over 50 countries-including India-which have called on all sides to exercise restrain, de-escalate tensions, avoid unilateral actions to change status quo and maintain peace and stability in the region," the foreign ministry said in a statement.

"...the government of Taiwan will continue to enhance its self-defence capabilities while maintaining close communication and coordination with the US, Japan and all other like-minded nations including India to jointly preserve the rules-based international order and safeguard security across the Taiwan Strait and consolidate peace, stability and prosperity in the Indo-Pacific," the statement added. On Friday, India urged the avoidance of unilateral actions to change the status quo in the Taiwan Strait and efforts should be made to maintain peace and stability in the region."Like many other countries, India too is concerned at recent developments. We urge the exercise of restraint, avoidance of unilateral actions to change the status quo, de-escalation of tension and efforts to maintain peace and stability in the region," External Affairs Ministry spokesperson Arindam Bagchi during a media briefing. Earlier this week, China released a white paper titled "The Taiwan Question and China's Reunification in the New Era" reiterating its claims over the self-ruled island.

Chinese state media said the white paper demonstrates the country's resolve to national reunification. The white paper said the Chinese community party (CCP) is committed to the historic mission of resolving the Taiwan question and realizing China's complete reunification. Taiwan's foreign minister Joseph Wu said China is "wrecking the status quo" in the Taiwan Strait and slammed Chinese military drills.Wu said additional foreign delegations are "more than welcome" in Taipei and rebuffed China's furious reaction to Pelosi's visit. "Anyone who wants to come to Taiwan to show their support, they are more than welcome to visit us," Wu told VOA. He said Taiwan will not be prevented from conducting its own foreign policy. (ANI)

https://www.aninews.in/news/world/asia/taiwan-says-will-enhance-self-defence-thanks-india-others-for-support-amid-china-tensions20220814155300/

DefenseNews

Mon, 15 Aug 2022

All US Air Force F-35s are Flying Again After Ejection Seat Checks

By Stephen Losey

The U.S. Air Force's F-35A fighter fleet has resumed normal flying operations after checks of hundreds of ejection seat initiator cartridges discovered no problems.Service technicians inspected 706 cartridges from 349 F-35s, as well as additional supplies of spare cartridges, Air Combat Command spokeswoman Alexi Worley said in an email Monday. The Air Force has about 376 F-35As in its fleet.Of those cartridges, inspectors felt four could have problems and were replaced. Worley said further inspection of those four suspect cartridges showed they were not defective.Worley said a small number of F-35As that were already in depot maintenance have not had their cartridges checked, but that those reviews would be done within the 90-day inspection deadline, which began July 19. Because those F-35s were already undergoing maintenance and weren't in a flying status, Worley added, their cartridge inspections were scheduled for later.

The ejection seat cartridge contains magnesium powder necessary to eject an aviator from an airplane's cockpit. When an ejection is triggered, that magnesium powder ignites to launch the aviator clear of the plane and open the parachute.However, a routine F-35 inspection at Hill Air Force Base in Utah in April found a cartridge was loose and missing its explosive charge. Base personnel inspected a few other F-35s and decided it was not a more widespread problem, then allowing the fighters to fly again.Martin-Baker, the company that manufactures the seats, also found two more defective cartridges in its own stores in April. The company also found, during a quality check that followed, that its production line was creating defective cartridges.

The F-35 Joint Program Office ordered an inspection of all ejection seats within 90 days.Air Education and Training Command also temporarily grounded hundreds of trainer aircraft — 203 T-38 Talon and 76 T-6 Texan II aircraft — to see if their ejection seats had the same problem. The command said Monday it is still conducting inspections and continuing to clear trainers to resume flight during the ejection seat inspection process.Martin-Baker said in a statement to Air Force Times on Aug. 7 that ejection seat checks the military started in July uncovered no defective parts in any aircraft, leaving the one found at Hill Air Force Base in April the only bad cartridge found in an F-35.

https://www.defensenews.com/air/2022/08/15/all-us-air-force-f-35s-are-flying-again-after-ejection-seat-checks/

ThePrint

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China, Thailand Hold Joint Air Force Training Exercise

A joint training exercise between the Chinese and Thai air forces kicked off on Sunday at Udorn Royal Thai Air Force Base in Thailand. The joint training exercise, code-named "Falcon Strike 2022," marks the fifth time that the two sides held joint training exercise, Xinhua news agency reported. The Chinese side dispatches fighter jets, fighter-bombers and airborne early warning (AEW) aircraft, while the Thai side sends its fighter jets and AEW aircraft for the training exercise, which includes training courses such as air support, strikes on ground targets, and small- and large-scale troop deployment.

"With their deepened and expanded scopes, will certainly boost the skills and capabilities of the two sides and continue to write a new chapter of friendship between the air forces of China and Thailand," Chen Jun, commander in chief of the Chinese side, was quoted as saying by Global Times during the opening event of the exercises. The Chinese state media said the joint training exercise is aimed at enhancing mutual trust and friendship between the air forces of the two countries and deepening bilateral practical cooperation to jointly safeguard regional security and stability.

With the depth and breadth of the joint training exercises being further expanded, the state media said the two sides' technical and tactical levels will be improved and a new chapter of friendship will be created between the Chinese and Thai air forces. The training exercise will maintain and enhance the friendship between the Thai and Chinese air forces, improve the two sides' cooperative and collaborative capability and strengthen regional security and defence level, the report added.

https://theprint.in/world/china-thailand-hold-joint-air-force-training-exercise/1082765/

Science & Technology News

mint

Sun, 14 Aug 2022

How Innovation in Science, Technology can Pave the Way for an Atmanirbhar Bharat

As India celebrates its 75th year of independence, it reminds us of the sacrifices made by unsung heroes and is a good way to remember to forge a nation built on strength and solidarity, to work towards a prosperous India.The idea of being Atmanirbhar is of utmost importance in realizing

the dream of India being an economic superpower. However, economic success does not come easy, especially in today's interconnected world, where each country's economic prospects are linked to other countries. In order to realise the true economic potential, India must pay heed to the role that science and technology play in nation-building, from farm to factories.

We don't need to look far to see the innovation in science and technology and the kind of impact it has had on the nation. Two instances come to mind, one of a marvellous feat in outer space and one of rising to the occasion and responding in a crisis.The first one is ISRO's □800 crore Mars mission or Chandrayaan-2 mission, which was famously said 1 to be built at a lesser cost than the Hollywood movie Interstellar.The other one is of rising to the occasion in the pandemic. From Covaxin which gave India its first indigenous vaccine, to companies which came together to manufacture face masks, PPE kits and work on oxygen concentrators for a population of 1.4 billion people, this was a collective show of not only unity but also scientific prowess.

If we could achieve such wondrous results in a crisis, it begs to ask the question that in normal circumstances, what stops us from achieving our true potential.An idea is the bedrock of all economic prosperity, and execution of that idea again depends on scientific endeavours. Take any product that you can think of. Without the latest scientific technology and advancement, it would just be an idea. This brings us to another point. If we are indeed aware of the tremendous role of science and technology, we must ramp up spending on research and development. As per a study 2 conducted by the NITI Aayog and Institute for Competitiveness, India's spending on research and development is the lowest in the world, at USD 43 per capita. The report goes on to highlight that for India to achieve its goal of becoming a USD 5 trillion economy, India's GERD or Gross Expenditure on R&D needs to increase to 2% of its GrossDomestic Product. Here, corporates and the government can collaborate to increase spending on R&D.

Change in Mindset

Does India need a mindset change? A shift in perception of believing in the power of technology not only for mega projects that appeal to engineers and corporates but also at the grassroot level. This subtle shift in thinking of how we apply science and technology will cause tectonic shifts in outcomes.We need to expand our scope of science and technology in a fashion that embraces hyperlocal innovations. The magnanimity of combining hyperlocal innovations and national level innovations will be the hallmark of a well- heeled machinery working towards the betterment of the nation, to fine tune solutions for a better tomorrow.

https://www.livemint.com/news/india/how-innovation-in-science-technology-can-pave-the-way-for-an-atmanirbhar-bharat-11660495533372.html

Mon, 15 Aug 2022

Scientists Open New Frontier in Quantum Science and Technology

Researchers have opened a new frontier in quantum science and technology by using photons and electron spin qubits to control nuclear spins in a two-dimensional material. This will enable applications like atomic-scale nuclear magnetic resonance spectroscopy and the ability to read and write quantum information with nuclear spins in 2D materials.As published today (August 15) in *Nature Materials*, the research team from Purdue University used electron spin qubits as atomic-scale sensors, and also to effect the first experimental control of nuclear spin qubits in ultrathin hexagonal boron nitride.“This is the first work showing optical initialization and coherent control of nuclear spins in 2D materials,” said corresponding author Tongcang Li, a Purdue associate professor of physics and astronomy and electrical and computer engineering, and member of the Purdue Quantum Science and Engineering Institute.

“Now we can use light to initialize nuclear spins and with that control, we can write and read quantum information with nuclear spins in 2D materials. This method can have many different applications in quantum memory, quantum sensing, and quantum simulation.”Quantum technology depends on the qubit (quantum bit), which is the quantum version of a classical computer bit. Instead of a silicon transistor, a qubit is often built with an atom, subatomic particle, or photon. In an electron or nuclear spin qubit, the familiar binary “0” or “1” state of a classical computer bit is represented by spin, a property that is loosely analogous to magnetic polarity — meaning the spin is sensitive to an electromagnetic field. To perform any task, the spin must first be controlled and coherent, or durable.

The spin qubit can then be used as a sensor, probing, for example, the structure of a protein, or the temperature of a target with nanoscale resolution. Electrons trapped in the defects of 3D diamond crystals have produced imaging and sensing resolution in the 10-100 nanometer range.However, qubits embedded in single-layer, or 2D materials, can get closer to a target sample, offering even higher resolution and stronger signal. Paving the way to that goal, the first electron spin qubit in hexagonal boron nitride, which can exist in a single layer, was built in 2019 by removing a boron atom from the lattice of atoms and trapping an electron in its place. So-called boron vacancy electron spin qubits also offered a tantalizing path to controlling the nuclear spin of the nitrogen atoms surrounding each electron spin qubit in the lattice.In this work, Li and his team established an interface between photons and nuclear spins in ultrathin hexagonal boron nitrides.

The nuclear spins can be optically initialized – set to a known spin – via the surrounding electron spin qubits. Once initialized, a radio frequency can be used to change the nuclear spin qubit, essentially “writing” information, or to measure changes in the nuclear spin qubits, or “read” information. Their method harnesses three nitrogen nuclei at a time, with more than 30 times longer coherence times than those of electron qubits at room temperature. And the 2D material can be layered directly onto another material, creating a built-in sensor.“A 2D nuclear spin lattice

will be suitable for large-scale quantum simulation," Li said. "It can work at higher temperatures than superconducting qubits."

To control a nuclear spin qubit, scientists began by removing a boron atom from the lattice and replacing it with an electron. The electron now sits in the center of three nitrogen atoms. At this point, each nitrogen nucleus is in a random spin state, which may be -1, 0, or +1.Next, the electron is pumped to a spin-state of 0 with laser light, which has a negligible effect on the spin of the nitrogen nucleus.Finally, a hyperfine interaction between the excited electron and the three surrounding nitrogen nuclei forces a change in the spin of the nucleus. When the cycle is repeated multiple times, the spin of the nucleus reaches the +1 state, where it remains regardless of repeated interactions. With all three nuclei set to the +1 state, they can be used as a trio of qubits.

https://scitechdaily.com/scientists-open-new-frontier-in-quantum-science-and-technology/amp/