September 2022

समाचार पत्रों से चयित अंश
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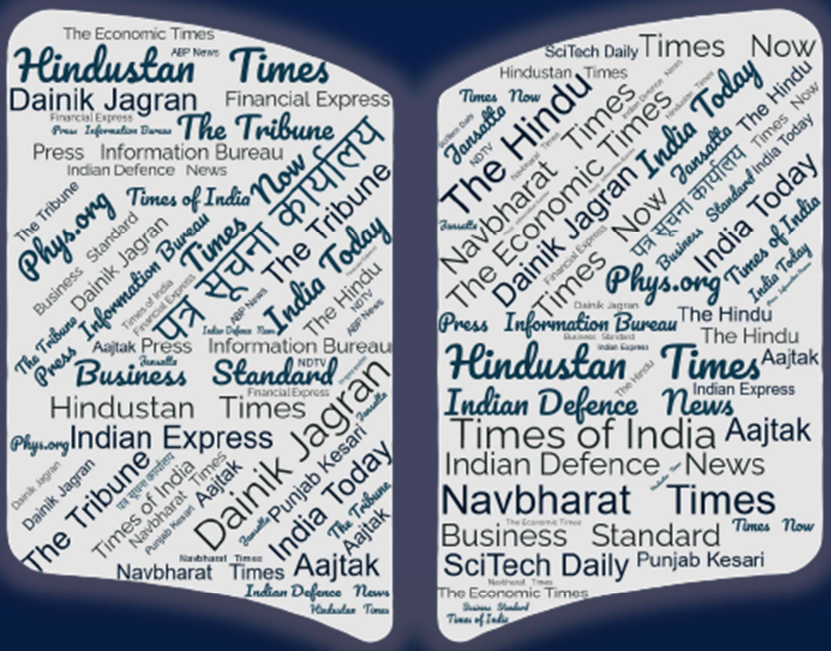
खंड : 47 अंक : 171 09 सितम्बर 2022

Vol.: 47 Issue: 171 09 September 2022



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DRDO & Indian Army Successfully Conduct Six Flight-Tests of Quick Reaction Surface to Air Missile System off Odisha Coast

Defence Research and Development Organisation (DRDO) and Indian Army have successfully completed six flight-tests of Quick Reaction Surface to Air Missile (QRSAM) system from Integrated Test Range (ITR) Chandipur off the Odisha coast. The flight tests were conducted as part of evaluation trials by the Indian Army.

The flight-tests were carried out against high-speed aerial targets mimicking various types of threats to evaluate the capability of the weapon systems under different scenarios, including long range medium altitude, short range, high altitude manoeuvring target, low radar signature with receding & crossing target and salvo launch with two missiles fired in quick succession. The system performance was also evaluated under day and night operation scenarios.

During these tests, all the mission objectives were met establishing pin-point accuracy of the weapon system with state-of-the-art guidance and control algorithms including warhead chain. The performance of the system has been confirmed from the data captured by a number of Range instruments like Telemetry, Radar and Electro Optical Tracking Systems (EOTS) deployed by ITR. Senior officials from DRDO and the Indian Army participated in the launches. These tests were conducted in the final deployment configuration consisting of all indigenously-developed

sub-systems, including the missile with indigenous Radio Frequency (RF) seeker, mobile launcher, fully automated command and control system, surveillance and multi-function Radars. The uniqueness of the QRSAM weapon system is that it can operate on the move with search and track capability & fire on short halt. This has been proven during the mobility trials conducted earlier.

Raksha Mantri Shri Rajnath Singh has complimented DRDO and Indian Army on the successful flight trials. He exuded confidence that the QRSAM weapon system will be an excellent force multiplier for the Armed Forces.

Secretary, Department of Defence R&D and Chairman DRDO has congratulated the teams associated with the successful series of trials and said that the system is now ready for induction into the Indian Army.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=1857724

TIMES NOW नवभारत

Wed, 08 Sep 2022

QRSAM: दुश्मन को खोजकर मारने की क्षमता...स्वदेशी मिसाइल सिस्टम का DRDO ने किया सफल परीक्षण

भारत ने रक्षा के क्षेत्र में एक और अहम पड़ाव को सफलतापूर्वक पार कर लिया है। भारतीय रक्षा अनुसंधान संस्थान (DRDO) ने अपने एक नए टेस्ट में सतह से हवा में मार करने वाली मिसाइल सिस्टम (QRSAM) का सफलतापूर्वक परीक्षण किया है। यह मिसाइल सिस्टम हर मानकों पर खरा उतरा है।

मिली जानकारी के अनुसार इस टेस्ट को डीआरडीओ और भारतीय सेना ने मिलकर किया था। इस मिसाइल सिस्टम को ओडिशा में स्थित चांदीपुर एकीकृत परीक्षण रेंज (ITR) से लॉन्च किया गया था। इस दौरान सतह से हवा में मार करने वाली त्वरित प्रतिक्रिया मिसाइल (QRSAM) सिस्टम के 6 फायर किए गए। जिसमें यह मिसाइल पूरी तरह से सफल रही है।

परीक्षण के बाद डीआरडीओ ने कहा- "हाई स्पीड वाले हवाई लक्ष्यों के खिलाफ परीक्षण किए गए थे। इसमें लंबी दूरी की मध्यम ऊंचाई, कम दूरी की उच्च ऊंचाई, युद्धाभ्यास लक्ष्य और दो मिसाइलों के साथ सैल्वो लॉन्च शामिल था।"

इसके साथ ही मिसाइल सिस्टम को दिन और रात दोनों ही समयों में लॉन्च करने का टेस्ट भी किया गया। जिसमें यह सफल रहा। डीआरडीओ ने कहा कि परीक्षण सफल रहे और मिशन के सभी उद्देश्यों को पूरा किया गया। डीआरडीओ और सेना के वरिष्ठ अधिकारियों की मौजूदगी में इस मिसाइल सिस्टम का परीक्षण किया गया। इस टेस्ट में स्वदेशी आरएफ, मोबाइल लांचर, पूरी

तरह से स्वचालित कमांड और नियंत्रण प्रणाली, निगरानी और बहु-कार्य रडार के साथ मिसाइल को लॉन्च किया गया था।

बता दें कि यह मिसाइल सिस्टम दुश्मन और हथियारों दोनों को खोजकर मारने की क्षमता रखता है। इसमें लगे स्वदेशी उपकरण इसे एक अलग ही पहचान देते हैं। जिस मोबाइल लॉन्चर से इसे लॉन्च किया जाता है, वो फायर करने के बाद अपनी जगह को तुरंत बदलने की भी क्षमता रखता है, जिससे दुश्मन के रडार इसे आसानी से पकड़ नहीं पाते हैं।

https://www.timesnowhindi.com/india/article/india-drdo-successfully-test-fires-quick-reaction-surface-to-air-missile-system-qrsam-from-integrated-test-range-chandipur/439508

NewsOnAIR

Thu, 08 Sep 2022

DRDO, Indian Army Successfully Conduct 6 Flight-Tests of 'Quick Reaction Surface to Air Missile'

To empower the Indian defence ecosystem, the R&D wing of the Ministry of Defence, Defence Research Development Organisation (DRDO) has been developing cutting-edge defence technologies. Acting in the same direction, DRDO along with Indian Army has successfully completed six flight-tests of 'Quick Reaction Surface to Air Missile (QRSAM)' system from Integrated Test Range (ITR) Chandipur off the Odisha coast.

The missile-tests were carried out against high-speed aerial targets mimicking different types of threats to evaluate the capability of QRSAM under different scenarios, including long range medium altitude, short range, high altitude manoeuvring target, low radar signature with receding & crossing target and salvo launch with two missiles fired in quick succession.

Complimenting DRDO and Indian Army on the successful flight trials, Defence Minister Rajnath Singh exuded confidence that the QRSAM weapon system will be an excellent force multiplier for the Armed Forces. Secretary, Department of Defence R&D and Chairman DRDO Dr. Samir V. Kamat also congratulated the teams associated with the successful series of trials and said that the system is now ready for induction into the Indian Army.

Notably, the missile system performance was also evaluated under day and night operation scenarios and the flight tests were conducted as part of evaluation trials by the Indian Army.

Deciphering QRSAM system

The Quick Reaction Surface to Air Missile system is designed and developed to eliminate aerial threats. During the trials, the system achieved all the mission objectives and established pin-point accuracy with state-of-the-art guidance and control algorithms including warhead chain.

Further, the performance of the system has been established from the data captured by a number of range instruments like Telemetry, Radar and Electro Optical Tracking Systems (EOTS) deployed by Integrated Test Range (ITR). The uniqueness of the QRSAM weapon system is that it can operate on the move with search and track capability & fire on short halt, which was proven during the mobility trials conducted earlier.

The tests were conducted in the final deployment configuration consisting of all indigenously-developed sub-systems, including the missile with indigenous Radio Frequency (RF) seeker, mobile launcher, fully automated command & control system, surveillance and multi-function Radars.

Navy, DRDO's Surface-to-Air Missile

In August last month, the Defence Research & Development Organisation (DRDO) and Indian Navy successfully flight tested the Vertical Launch Short Range Surface-to-Air Missile (VL-SRSAM). The missile was carried out from an Indian Naval Ship (INS) against a high-speed unmanned aerial target for demonstration of vertical launch capability from the Integrated Test Range (ITR), Chandipur off the coast of Odisha.

Notably, the missile has been equipped with indigenous Radio Frequency (RF) seeker, which intercepted the target with high accuracy. Further, the VL-SRSAM system has been indigenously designed and developed by DRDO.

The trial proved the effectiveness of the weapon system. It will further strengthen the Indian Navy for neutralising various aerial threats at close ranges including sea-skimming targets, Secretary Department of Defence R&D & Chairman DRDO Dr G Satheesh Reddy said while congratulating the teams involved in the successful flight test.

Earlier in June 2022, DRDO successfully carried out the trials of VL-SRSAM from an Indian Naval Ship (INS) at Integrated Test Range (ITR), Chandipur off the coast of Odisha. The short-range VL-SRSAM missile is a ship borne weapon system, which is meant for neutralising various aerial threats at close ranges including sea-skimming targets.

https://newsonair.com/2022/09/08/drdo-indian-army-successfully-conduct-6-flight-tests-of-quick-reaction-surface-to-air-missile/

THE NEW INDIAN EXPRESS

Fri, 09 Sep 2022

Made in India QRSAM Missile Tests Successfully from ITR off Odisha Coast

India conducted a series of evaluation trials of Quick Reaction Surface to Air Missile (QRSAM) system from a defence facility off Odisha coast this week proving that the weapon is induction-ready.

DRDO and Indian Army successfully flight-tested six rounds of the indigenously developed weapon system from a canister mounted on a rotatable truck-based launch platform parked at the Integrated Test Range (ITR) against high-speed aerial targets mimicking various types of threats.

Defence sources said the missiles were fired from the specially designed launcher under different scenarios including long-range medium altitude, short range, high altitude manoeuvring target, low radar signature with receding and crossing target and salvo launch with two missiles fired in quick succession.

“The system performance was also evaluated under day and night operation scenarios and demonstrated its capabilities. All the mission objectives were met establishing pin-point accuracy of the QRSAM weapon system with state-of-the-art guidance and control algorithms including warhead chain,” said a defence official.

The performance of the missile has been confirmed from the data captured by a number of range instruments like telemetry, radar and electro-optical tracking systems deployed by ITR.

Senior officials from DRDO and the Indian Army participated in the launches.The uniqueness of the QRSAM weapon system is that it can operate on the move with search and track capability and fire on short halt. This has been proven during the mobility trials conducted earlier.

Considered to be a unique system in its class, the missile with a strike range of 30 km is expected to supplement medium range surface-to-air missile Akash.Defence Minister Rajnath Singh has congratulated DRDO and Indian Army on the successful flight trials and said QRSAM weapon system will be an excellent force multiplier for the Indian armed forces.

https://www.newindianexpress.com/states/odisha/2022/sep/09/made-in-india-qrsam-missile-tests-successfullyfrom-itr-off-odisha-coast-2496418.html

Business Standard

Thu, 08 Sep 2022

QRSAM: Indian Army Clears Quick Reaction Surface-To-Air Missile System

On the morning of February 27, 2019, Pakistani fighter aircraft crossed the Line of Control (LoC) near Naushera, in what they called Operation Swift Retort — a retaliatory strike on India to avenge the previous day's strike by the Indian Air Force (IAF) on a terrorist establishment in Balakot, in Pakistan.

In the fog of war that prevailed that morning, both sides claimed downing a fighter from the other side. But what went uncontested was that a single missile, fired at an IAF Mi-17V5 helicopter from an Israeli Spyder quick reaction surface-to-air missile (QRSAM) system that the IAF had deployed to protect Srinagar Air Base, had shot down the chopper and killed six passengers and a single civilian on the ground.

The IAF is no longer going to rely on Israeli Spyder QRSAMs. On Thursday, the Indian Army successfully conducted six flight-tests of an indigenous QRSAM system at Chandipur, off the Odisha coast.

The QRSAM, which has a range of 30 kms, was designed and developed by the Defence Research and Development Organisation (DRDO). Today's test launches constituted the final part of evaluation trials by the Indian Army.

They involved firing at high-speed aerial targets that were mimicking incoming aircraft in various profiles. The aim was to evaluate the QRSAM's capability to shoot down all kinds of incoming threats — manned aircraft, drones and missiles — in all profiles.

According to a ministry of defence (MoD) press release on Thursday, the incoming threat profiles included "long-range medium-altitude; short-range high-altitude manoeuvring target; low radar signature with receding and crossing target; and finally salvo launch with two missiles fired in quick succession. The system performance was also evaluated under day and night operation scenarios," said a DRDO statement.

An MoD press release stated: "During these tests, all the mission objectives were met establishing pin-point accuracy of the weapon system with state-of-the-art guidance and control algorithms, including warhead chain."

"The performance of the system has been confirmed from the data captured by a number of range instruments like telemetry, radar and electro-optical tracking systems (EOTS) deployed by

the test range. Senior officials from DRDO and the Indian Army participated in the launches," said the MoD release.

The development of the indigenous QRSAM by the DRDO was sanctioned in 2014 with a project cost of Rs 476.43 crore. It was to be completed by July 2017, but that date was extended owing to "technology challenges," according to the 43rd report of Parliament's Standing Committee on Defence.

Thursday's tests were conducted in the final deployment configuration. That means that the missile systems included all the indigenously-developed sub-systems that it incorporated. That included the missile with an indigenous radio frequency (RF) seeker, a mobile launcher, fully automated command and control system, surveillance and multi-function radars.

The QRSAM system is unique in its ability to operate on the move, searching for and tracking enemy targets; and then fire on a short halt. The missile islaunched from a canisterised launcher that carries six missiles. The system has fully automated command and control, active array battery surveillance radar, active array battery multifunction radar and launcher. Both radars are four-walled, with 360-degree coverage.

The single-stage, solid propellant missile has a mid-course inertial navigation system with a two-way data link and terminal active seeker that the DRDO has developed indigenously.

https://www.business-standard.com/article/economy-policy/qrsam-indian-army-clears-quick-reaction-surface-to-air-missile-system-122090801051_1.html

DRDO on Twitter

Defence News

Defence Strategic : National/International

Press Information Bureau
Government of India

Ministry of Defence

Thu, 08 Sep 2022 10:27AM

Raksha Mantri & his Japanese Counterpart Review Defence Cooperation & Regional Security Situation During Bilateral Talks in Tokyo

Acknowledge their crucial role in ensuring free, open & rules-based Indo-Pacific region

Need to expand the scope of partnership in Defence Equipment & Technological Cooperation: Shri Rajnath Singh

Raksha Mantri Shri Rajnath Singh held bilateral talks with Minister of Defense of Japan Mr Yasukazu Hamada in Tokyo on September 08, 2022. The two Ministers reviewed various aspects of bilateral defence cooperation as well as regional affairs. They acknowledged the importance of India-Japan defence partnership and the critical role it will play in ensuring free, open and rules-based Indo-Pacific region.

During the delegation-level talks, Shri Rajnath Singh highlighted that the growing complexities in the India-Japan bilateral defence exercises is a testimony to the deepening of defence cooperation between the two countries. The Ministers expressed their commitment in continuing bilateral and multilateral exercises including 'Dharma Guardian', 'JIMEX' and 'Malabar'. They welcomed the operationalisation of the Reciprocal Provision of Supply and Services Agreement during Exercise 'MILAN' in March this year. The two Ministers agreed that the early conduct of the inaugural fighter exercise will pave way for much greater cooperation and interoperability between the Air Forces of the two countries.

The Raksha Mantri emphasised on the need to expand the scope of partnership in the field of Defence Equipment and Technological Cooperation. He invited Japanese industries to invest in India's defence corridors where a conducive environment for the growth of the defence industry has been created by the Government of India.

This year marks 70 years of diplomatic relations between India and Japan. As two robust democracies, the two countries are pursuing a Special Strategic and Global Partnership.

After reaching Tokyo on the night of September 07, 2022, Shri Rajnath Singh began his day's engagements by laying a wreath at a Memorial, dedicated to the personnel of Japan Self Defense Forces who laid down their lives in the line of duty, at Ministry of Defense, Japan. He was accorded a ceremonial guard of honour before the bilateral meeting with the Japanese Defense Minister.

Later in the day, the Raksha Mantri, along with External Affairs Minister Dr S Jaishankar, will participate in the 2nd India-Japan 2+2 Ministerial Dialogue. The Japanese side will be represented by Minister of Defense Mr Yasukazu Hamada and Minister of Foreign Affairs Mr Yoshimasa Hayashi. The 2+2 Dialogue will review bilateral cooperation across domains and chart out the way forward.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=1857706

the pioneer

Fri, 09 Sep 2022

India, Japan Plan First Joint Fighter Jet Drill

India and Japan on Thursday reviewed the entire spectrum of their bilateral defence ties and agreed to hold the first joint fighter jets exercise as well as enhance defence co-operation. This was the main take away from the 90-minute talks in Tokyo between Defence Minister Rajnath Singh and his Japanese counterpart Yasukazu Hamada. The bilateral meeting took place ahead of the second two plus two dialogue between the Defence and External Affairs Ministers of the two countries there.

The two Defence Ministers in their meeting also emphasised that the bilateral special strategic and global partnership plays a crucial role in ensuring a free, open and rules-based Indo-Pacific, amidst China's aggressive behaviour in the region.

Noting that India and Japan pursue a Special Strategic and Global Partnership, Rajnath said India's defence partnership with Japan will play a crucial role in ensuring a free, open and rules-based Indo-Pacific region.

Rajnath stressed on the need to expand the scope of partnership between India and Japan in defence equipment and technological cooperation and invited Japanese industries to invest in India's defence corridors.

He invited Japanese industries to invest in India's defence corridors where a conducive environment for the growth of the defence industry has been created by the government of India, the defence ministry statement issued in New Delhi said. During the delegation-level talks, Rajnath highlighted that the growing complexities in the India-Japan bilateral defence exercises is a testimony to the deepening of defence cooperation between the two countries. The two ministers expressed their commitment in continuing bilateral and multilateral exercises including 'Dharma Guardian', 'JIMEX' and 'Malabar.'

They welcomed the operationalisation of the reciprocal provision of supply and services agreement during exercise 'MILAN' in March this year, it said. "The two ministers agreed that the early conduct of the inaugural fighter exercise will pave the way for much greater cooperation and interoperability between the Air Forces of the two countries," it added.

Rajnath said after the two plus two dialogue the two countries noted the progress in the military to military cooperation and exchanges between the two sides.

He said the two sides have established staff talks and High-level dialogue between all the three Services and the Coast Guard. "I am glad that we have now agreed on Staff Talks between the Joint Staff of the Japanese Self Defense Forces and the Integrated Defence Staff of India," the defence minister said.

The Japanese defence ministry said the two leaders affirmed that they would continue to vigorously promote defence cooperation and exchanges, for further enhancing Japan-India Special Strategic and Global Partnership, to uphold and reinforce the free and open Indo-Pacific while maintaining close communication between respective defence authorities.

The joint statement released after the two plus two dialogue said the two sides acknowledged the vast potential for the two countries to expand bilateral cooperation in the areas of defense equipment and technology cooperation.

The Ministers expressed satisfaction with the ongoing cooperation in the areas of Unmanned Ground Vehicle (UGV)/Robotics and the Sixth India-Japan Joint Working Group on Defence Equipment and Technology Cooperation and concurred to further identify concrete areas for future cooperation in defence equipment and technology.

https://www.dailypioneer.com/2022/india/india--japan-plan-first-joint-fighter-jet-drill.html

The Tribune

Fri, 09 Sep 2022

India, Japan to Enhance Military Relations

India and Japan at the second 2+2 meet held in Tokyo on Thursday decided to work towards more complex and sophisticated joint military exercises even as they welcomed the move to add fighter exercises to their move to improve interoperability between all three services of the armed forces.

India and Japan regularly participate in three joint exercises — two in the maritime domain and one on the land. Besides opening a new area of joint fighter exercises, Japan will participate, for the first time, in the Indian Navy's largest exercise MILAN.

Defence Minister Rajnath Singh and his Japanese counterpart Hamada Yasukazu and External Affairs Minister S Jaishankar and his Japanese counterpart Hayashi Yoshimasa took part in the 2+2 meeting. India has also asked Japan to work together in emerging and critical technology domains in the military sector. "Enhancing defence equipment and technological cooperation are our priority areas," said Rajnath.

Japan holds cutting-edge technology in metallurgy, aero-engines, semi-conductors, artificial intelligence and robotics. India seeks to work with the country in all of these domains. Also, Japanese defence companies have been invited to look at opportunities in investing in the defence corridors in Tamil Nadu and Uttar Pradesh.

With Japan planning to reinforce its defence capabilities within the next five years with the help of a substantial increase in the budget, India expressed its support at the 2+2 meet to work towards enhanced security and defence cooperation. The ministers also agreed to launch the 'Joint Service Staff Talks' between the Japan Joint Staff and the Indian Integrated Defence Staff.

The armed forces of the two countries already participate in bilateral and multilateral exercises, including "Dharma Guardian" (army to army), JIMEX (maritime exercise) and "Malabar" (jointly with the US and Australia).

Both sides have already operationalised a logistics-sharing agreement (LSA), which in the India-Japan case is called "Agreement on Reciprocal Provision of Supplies and Services between the Self-Defense Forces of Japan and the Indian Armed Forces". It allows the two navy's easier access to the other side's military facilities for fuel and logistics.

External Affairs Minister S Jaishankar said after the meeting, the case for India and Japan to collaborate more closely on foreign policy and security questions had become even stronger. Consultations dwelt on economic and cyber security, 5G and critical and strategic minerals.

Jaishankar also wanted foreign policy coordination to be further strengthened by enlarging the focus from the Indo-Pacific to other regional, global and multilateral platforms as well. In this regard, joint consultations will be held along with Germany and Brazil (called the G4) to make a renewed push for their permanent memberships at the UN Security Council. With India chairing the G20 by year-end and Japan chairing the G7, this endeavour will be pushed at both organisations.

For free Indo-Pacific

- India-Japan joint statement reaffirms commitment to a rules-based global order
- Stresses the need for all countries seeking peaceful resolution of disputes
- Calls for a free and open Indo-Pacific, it be inclusive and resilient, based on rule of law and free from coercion

https://www.tribuneindia.com/news/nation/india-japan-to-enhance-military-relations-429891

Business Standard

Thu, 08 Sep 2022

Development of Gas Turbine Engines - The True Test of "Atmanirbharta": Insighteon Wargame

Several papers have been submitted to address the issue of indigenisation of aero gas turbine but few necessary steps have been taken in this regard. And it appears that this technological gap is not going to be bridged too soon. A three-day war-game conducted by Delhi-based Insighteon Consulting highlighted the inadequacies and challenges in developing gas turbine engines and attempted to ferret out the steps required to bridge the technological gap. If successful, it will be the biggest push to the Atmanirbhata campaign, saving the Ministry of Defence foreign exchange outflow of INR 3 lakh Crores in any block of 20 years.

Participating in the war-game were retired DRDO senior scientists, leaders from the public sector like ISRO, HAL, NAL, GTRE, private industry representatives from Godrej Aerospace, Paninian India and Bharat Forge, academia from IISC and IITs, retired defence officers, bureaucrats, diplomats and members of think tanks. The conduct of the war-game followed a "Horizon Scanning" model, forcing the participants to recognise inherent uncertainties and anticipate future opportunities or threats, thereby offer creative solutions to this challenging task at hand.

The small gas turbine engine market in India for the next 20 years was estimated to be more than INR 60,000 Crores. There was a unanimous consensus to the fact that by not indigenising aero

gas turbine engines, the nation runs a risk of compromising national security. The rising demand and diversity of applications for gas turbine engines due to increasing usage of unmanned aircraft, drones, UCAVs and low-cost cruise missiles, combined with export restrictions placed by foreign governments on engines of UAVs/missiles and components thereof, make future strategic concerns even more dire.

Consolidation of ongoing engine development programs and instituting a National Commission for Aero Engine Development to bring in the unification of vision as well as the unification of national assets available in the engine development ecosystem, was the base theme which ran through the conduct of the war-game. It was predicted that co-development models will only end up as licensed production, as they have done in the past, with major work share arriving from overseas. Therefore, it was felt necessary to nurture design talent and go through the learning curves of experience and productivity without shortcuts.

The war-game eroded a common belief that the private sector is capable of providing only engine components to government institutions and foreign OEMs. The confidence exuded by the private sector to take on complete development of smaller gas turbine engines, if given a chance, was encouraging. The analysts recommended that efforts should be made to involve private industries with identified academic institutions, to take up the challenge of developing three to four small engines for identified aerial platforms in a mission mode, through funded programs, which if required could be mentored and managed by technology labs or the user. However, there has to be an institutional mechanism to support this. The analysts were of the opinion that, keeping the strategic necessity and the lost time in mind, it would be preferable to follow a 2 plus 1 model, where there is concurrent development of smaller engines by one DRDO lab/DPSU and two private sector entities, in order to build in competition and redundancy. It was felt that the government's aim of increasing private sector participation in the defence sector is not presently backed with developmental orders at ground level, as far as gas turbine engines were concerned.

Another recommendation of the analysts was that engine development institutions should increase their interaction with academia and integrate them as R & D partner. The SPV model was recommended for the development of the 110 kN engine whereas the Kaveri was considered suitable for all platforms from 3 tons to 8 tons like the unmanned fighter aircrafts, the Remotely Piloted Strike Aircraft (RPSA) or the Ghatak UCAV.

It was estimated that a delay of approximately six years could be attributed to the absence of HAETF/FTB and other component levels in country test facilities, during the development of the Kaveri engine. Testing overseas is impractical and exposes critical technology to other nations. The analysts were hopeful that in future establishment of in-country engine test facilities will be given the highest priority if aero engines are to be developed in India.

https://www.business-standard.com/content/press-releases-ani/development-of-gas-turbine-engines-the-true-test-of-atmanirbhata-insighteon-wargame-122090800635_1.html

BusinessLine

Thu, 08 Sep 2022

Godrej Aerospace to Set Up ₹250-Crore Facility Near Mumbai

Godrej Aerospace, a business unit of Godrej and Boyce, is planning to invest ₹250 crore to build a new facility at Khalapur in Maharashtra to boost defence and aerospace manufacturing. The project is expected to be completed in three years.

"We are putting up a facility for defence and aerospace products at Khalapur, which is about 62 km from Mumbai with a land size of more than 300 acres," said Maneck Eddie Behramkamdin, Vice President and Business Head of Godrej Aerospace.

According to Behramkamdin, the company has also set aside ₹100 crore for research and development (R&D) in the next two years.

Additionally, the company is increasing its R&D spending as it intends to switch from build-to-print to build-to-spec. This means the company will design and build the components (built-to-spec) instead of just building products on instructions (built-to-print). "We currently spend close to 30 to 40 crores annually on R&D for methods and tools in the defence and aerospace sector. To move to build-to-spec, we expect to spend close to 100 crore over the next two years," Behramkamdin said.

The company expects to grow by three times in the next four to five years. The aerospace business is a relatively small business compared to the other units of G&B and contributed close to ₹300 crore of the total revenue. Godrej and Boyce generated ₹11,500 as revenue in FY22, said the Vice President.

Build-to-spec

Behramkamdin has said that international conglomerates like Airbus, Lockheed Martin, and Thales are looking for Indian partners now as the Indian space industry is open to private businesses.

"We are in talks with them about our pedigree in propulsion engines. It is an opportunity, and we have a chance to grab some of those partnerships," he said, adding, "They are also looking at designing as an option with us. So, we are trying to work with certain partners to design the particular components." Godrej Aerospace is working on two defence projects with HAL and

DRDO to design the sub-components of Tejas aircraft. “These come under BTS, and we have a consortium with a start-up called Zeus Numerix for this project,” he said.

Although the company is working in a consortium with start-ups, they are also planning to invest in a few of them, he added. Godrej Aerospace is a tier-1 manufacturer of precision and hi-tech aerospace components, assemblies, and systems, executing global projects that serve the defence, space, and aviation sectors.

https://www.thehindubusinessline.com/companies/godrej-aerospace-to-set-up-250-crore-facility-near-mumbai/article65865490.ece

THE HINDU

Thu, 08 Sep 2022

India, China Troops Disengage at LAC Friction Point in Ladakh

India and China, on Thursday, announced that their armies have begun to disengage from Patrolling Point-15 in the Gogra-Hotsprings area of Eastern Ladakh, marking a step forward to end the standoff ongoing since May 2020.

The move comes ahead of next week’s Shanghai Cooperation Organisation (SCO) summit in Uzbekistan, which both Prime Minister Narendra Modi and Chinese President Xi Jinping are attending.

Neither side has so far confirmed if the two leaders would hold bilateral talks on the sidelines of the summit, who haven’t spoken since a November 2019 meeting during the BRICS Summit in Brasilia and the beginning of the standoff in April 2020.

“On September 08, 2022, according to the consensus reached in the 16th round of India China Corps Commander Level Meeting, the Indian and Chinese troops in the area of Gogra-Hotsprings (PP-15) have begun to disengage in a coordinated and planned way, which is conducive to the peace and tranquility in the border areas,” the two sides said in a joint statement issued on Thursday.

The consensus was reached at the Corps Commander level and the ground commanders on both sides have worked out the modalities which are now being implemented, a defence official said, The disengagement began today morning and is underway, the official said adding further details on the modalities are awaited.

The 16th round of talks was held on July 17, 2022, at the Chushul border personnel meeting point on the Indian side. As per the understanding reached earlier on disengagement, a buffer zone is to be created at the friction points once troops are withdrawn by both sides and new patrolling norms are to be worked out after complete disengagement and de-escalation.

Since the stand-off began in May 2020, the two sides have so far held 16 rounds of talks with disengagement undertaken from both sides of Pangong Tso in February 2021, and from PP-17 in the Gogra-Hotsprings area in August, in addition to Galwan in 2020 after the violent clash. The friction points that remain now are Demchok and Depsang, which China has constantly refused to accept, maintaining that they are not a part of the current stand-off. India will continue to press for complete disengagement and de-escalation from all friction areas and the Corps Commander level talks will continue, officials stated.

Earlier, both sides had undertaken partial disengagement from PP15 and 17A in July 2020 after disengagement from PP14 in Galwan, but the process was stalled after the aggressive actions on the South Bank of Pangong Tso in August 2020.

Shortly after the 15th round of talks in March, Chinese Foreign Minister Wang Yi visited India, while he and Foreign Minister S. Jaishankar met in July on the sidelines of the G20 foreign ministers meeting in Bali, where they discussed the situation along the Line of Actual Control (LAC).

India has constantly stated that the relationship cannot go back to normal as long as the situation along the standoff continues and has repeatedly called for the restoration of the status quo and restoration along the LAC.

Over 50,000 troops and heavy equipment continue to be deployed on both sides close to the LAC. In the last two years, China has also undertaken massive construction of infrastructure, habitat, and support structures to maintain the troops close to the LAC, altering the ground status.

https://www.thehindu.com/news/national/india-china-begin-disengagement-in-gogra-hotsprings-pp-15-in-eastern-ladakh/article65866319.ece

THE HINDU

Thu, 08 Sep 2022

India Maintains Silence as Pakistan gets $450 Million Package for F-16 Fleet FROM U.S.

India maintained a studied silence a day after the United States announced a $450 million package to refit Pakistan's large F-16 aircraft fleet with the latest technological advances. The announcement from the US State Department came in the backdrop of intersessional talks that

the Indian and American senior officials including Assistant Secretary of State for South and Central Asian Affairs Donald Lu held on September 7, 2022.

The Ministry of External Affairs is yet to clarify if Mr Lu and his team had informed the Indian side about the announcement from the Biden administration that will add considerable lethality to Pakistan Air Force which poses the biggest challenge for India from west and northwest.

"The proposed sale will continue the sustainment of Pakistan's F-16 fleet, which greatly improves Pakistan's ability to support counterterrorism operations through its robust air-to-ground capability. Pakistan will have no difficulty absorbing these articles and services into its armed forces," stated the announcement from the State Department about the package to Pakistan. The F16 fleet of Pakistan was last seen in action against Indian fighter aircraft that indulged in dogfights over Kashmir in the aftermath of February 27 2019 Balakote strike by India.

Pakistan first received the F-16 aircraft package from the Ronald Reagan administration in the 1980s despite heavy objection from the Government of India which cautioned that the aircraft would be used against Indian targets. Indian objection was based on the findings that Pakistan would arm the F-16s with nuclear weapons that it had procured in a clandestine manner. President Reagan however cleared the sale despite opposition from certain members of the US Congress and CIA's counter proliferation wing.

In 1990, U.S. cancelled the delivery of nearly 30 F-16 aircraft to Pakistan after the Pressler Amendment came into effect. The nuclear tests by India and Pakistan in 1998, further confirmed the Indian concerns about the danger posed by nuclear-armed F-16 aircraft in Pakistan's air force.

The U.S. has repeatedly used the strategic aircraft as a tool in its diplomatic relation with Pakistan. In 2001, following the al Qaeda attack on the World Trade Center in New York, the US had released a package of $3 billion to refit and supply new F-16 aircraft to Pakistan. With nearly 2000 miles as its range of operation, the F-16 has obvious usage against Pakistan's primary military rival - India. The subsequent findings of widespread terrorist network inside Pakistan and the attacks against US citizens like Daniel Pearl could not dent the decision taken by the George W. Bush administration.

A similar decision to supply F-16 aircraft was taken in late 2015, when the Obama administration was in negotiation with the Pakistan-backed Taliban leaders in exile for an exit strategy for the U.S. forces from Afghanistan. India had vehemently protested against the sale of F-16 fighters to Pakistan and the then Foreign Secretary S. Jaishankar had summoned US Ambassador Richard Verma and lodged a strong protest against the Obama administration's decision.

The Biden administration's decision to refit Pakistan's F-16 aircraft fleet with the latest weapons and electronic systems indicates that despite the withdrawal from Afghanistan, the United States will continue to maintain strong strategic commitment to the armed forces of Pakistan.

The supply of F-16 multi role aircraft began in the Cold war scenario and continued throughout the post-9/11 era till the Biden administration and the latest package shows the consistent nature of partnership between US and Pakistan. The US assistance will improve the precision-ability of the F-16 aircraft and allow Pakistan to access the latest air attack software from the United States.

https://www.thehindu.com/news/national/india-maintains-silence-as-pakistan-gets-450-million-package-for-f-16-fleet-from-us/article65865758.ece

THE TIMES OF INDIA

Fri, 09 Sep 2022

Rampant Mining near Border can Endanger Bunkers: Army to HC

The Army has red-flagged the danger rampant mining in the border districts of Punjab poses to its defensive military fortifications by impacting the structural integrity and strength of bunkers in the proximity of these mines. According to the Army, in case of any attack, mining would restrict movement space and lead to associated delays in reinforcement and counterattack tasks.

"Mining of riverbeds is likely to change the course of the river and alter the depth of the river at various places, thereby disrupting defence layouts… The mining will also affect the natural drainage of water, leading to unpredictable flooding", the Army claimed. It said mining would lead to soil erosion, thereby causing bunkers to cave in.

An affidavit in this regard was filed before the Punjab and Haryana high court on Thursday by Captain Ashima Das, officer-incharge (legal cell), Western Command,Chandimandir.

On August 29, the Army had asserted that illegal mining has been a facilitation factor for the nexus between drug smugglers, terrorists and anti-national elements, nurtured and controlled by Pakistan's Inter-Services Intelligence (ISI). According to the Army, ditches and gorges that form as a result of illegal mining "facilitate cross-border infiltration". The BSF, too, had voiced fears of the threat to its operations due to mining activities on the international border. The matter is pending before the HC.

https://timesofindia.indiatimes.com/india/rampant-mining-near-border-can-endanger-bunkers-army-to-hc/articleshow/94085628.cms

Science & Technology News

The Indian EXPRESS

Wed, 07 Sep 2022

China's Fully Solar-Powered, Semi-Satellite Drone, Explained

China's first fully solar-powered unmanned aerial vehicle has successfully completed its maiden test flight with all onboard systems functioning optimally.

According to Chinese state media reports, the drone took off from an airport in Shaanxi province at 5.50 pm Saturday, had a smooth flight for 26 minutes and landed safely.

The new machine

With a wingspan of 164-ft, the drone is a large machine powered entirely by solar panels. The high-altitude, long-endurance (HALE) UAV can stay airborne for long durations. Named the Qimingxing-50, or Morning Star-50, this drone flies above 20-km altitude where there is stable airflow with no clouds. This helps these drones to make the maximum use of solar equipment to stay functional for extended durations. In fact, the drone's chief designer told South China Morning Post that it can operate without a break for months, even years.

Cross between drone and satellite

The fact that the drone can operate in near-space – 20 km to 100 km above the Earth's surface – makes it capable of carrying out satellite-like functions. If satellite services are not available for, say, time-sensitive operations or in case of wartime disruption, then near-space UAVs can step in to fill the operational gap. These drones are also referred to as 'High Altitude Platform Stations' or pseudo-satellites. China already has this capacity, but the Qimingxing-50's long-endurance provides an added advantage to make this capability available over a longer period.

In July this year, the US Army helped test a solar-powered, near-space Airbus Zephyr S drone that set a new record by being airborne for 42 days.

Both these drones can undertake surveillance missions that require them to stay operational, watching over borders or oceans, for months.

Easy to lock-and-load

Drones like the Morning Star-50 are cost-effective to build and are also easy to launch and operate. Being entirely powered by clean energy from the Sun, the present one can help boost China's capabilities to operate in near-space and over the ocean. This HALE UAV is capable of conducting high-altitude reconnaissance, apart from monitoring forest fires, providing communication and environment relay.

https://indianexpress.com/article/explained/explained-global/china-fully-solar-powered-semi-satellite-drone-explained-8137035/