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मंगलवार, 08 नवंबर 2022

DRDO ने भारतीय नौसेना के सोनार सिस्टम के लिए कोच्चि में परीक्षण और मूल्यांकन फैसिलिटी शुरू की

रक्षा क्षेत्र में आत्मनिर्भर भारत की दिशा में एक और कदम बढ़ाते हुए रक्षा अनुसंधान और विकास संगठन (DRDO) ने एक महत्वपूर्ण फैसला किया है। इसके तहत भारतीय नौसेना के कोच्चि में स्थित नेवल फिजिकल और समुद्र विज्ञान प्रयोगशाला (NPOL) में सोनार सिस्टम के लिए टेस्टिंग और मूल्यांकन सुविधा शुरू की गई है। बता दें कि सबमर्सिबल प्लेटफॉर्म फॉर एकाॅस्टिक कैरेक्टराइजेशन एंड इवैल्यूएशन (SPACE) मॉड्यूल को हाल ही में लॉन्च किया गया था। इसका उपयोग भारतीय नौसेना द्वारा जहाजों, पनडुब्बियों और हेलिकॉप्टरों के अलावा अलग-अलग प्लेटफार्मों पर किया जा सकता है।

क्या है Hull-Mounted सोनार सिस्टम?

Hull-Mounted सोनार सिस्टम नेवल प्लेटफॉर्म का मेन अंडरवॉटर सेंसर है, जो पानी के अंदर पनडुब्बियों, मानव रहित वाहनों, डाइवर डिलिवरी व्हीकल और माइंस का सटीक पता लगाने में काम आता है। सबमर्सिबल प्लेटफॉर्म फॉर एकाॅस्टिक कैरेक्टराइजेशन एंड इवैल्यूएशन (SPACE) फैसिलिटी को चेन्नई स्थित एलएंडटी शिपबिल्डिंग द्वारा नेवल फिजिकल और समुद्र विज्ञान प्रयोगशाला (NPOL) द्वारा अनुमानित जरूरत के आधार पर तैयार किया गया है।

जनवरी, 2022 में मिली थी सबमर्सिबल प्लेटफॉर्म की मंजूरी :

रक्षा मंत्रालय के मुताबिक, इस सुविधा का उपयोग मुख्य रूप से सोनार सिस्टम के मूल्यांकन के अलावा फौरन तैनाती और सेंसर और ट्रांसड्यूसर जैसे साइंटिफिक पैकजस की आसान रिकवरी के लिए किया जाएगा। रक्षा मंत्रालय का कहना है कि SPACE प्लेटफॉर्म का डिजाइन शिपिंग एंड वेसल क्लासिफाइंग अथॉरिटी की सभी वैधानिक जरूरतों के मुताबिक तैयार किया गया है और यह केरल इनलैंड वेसल रूल्स के अनुसार निरीक्षण और रजिस्ट्रेशन मानदंडों को पूरा करता है। जनवरी, 2022 में केरल राज्य बिजली बोर्ड ने

सोनार सिस्टम के परीक्षण और मूल्यांकन के लिए इडुक्की जलाशय में एक सबमर्सिबल प्लेटफॉर्म स्थापित करने के लिए NPOL को अपनी मंजूरी दे दी थी।

क्या है INS सागरध्वनि?

बता दें कि NPOL का अपना समुद्री ध्वनिक अनुसंधान पोत (Marine Acoustic Research Vessel) है, जिसे आईएनएस सागरध्वनि के नाम से जाना जाता है। इसे गार्डन रीच शिपबिल्डर्स एंड इंजीनियर्स लिमिटेड में बनाया गया था। इस पोत को DRDO के लिए भारतीय नौसेना चलाती और मंटेन करती है। इस पोत में पर्यावरण और ध्वनि प्रयोगों के संचालन के लिए कई सुविधाएं मौजूद हैं, जो उथले और गहरे दोनों तरह के पानी में काम करती हैं।

NPOL ने 1983 में बनाया पहला सोनार सिस्टम :

बता दें कि NPOL ने 1983 में पहली बार उन्नत पैनोरमिक सोनार Hull-Mounted (APSOH) बनाया था। अब तक इसने कई सोनार प्रणालियां बनाई हैं, जिनमें पंचेंद्रिया, हमसा और मिहिर शामिल हैं। जिन्हें भारतीय नौसेना की पनडुब्बियों के अलावा सतह के जहाजों और हवाई प्लेटफार्मों पर फिट किया गया है।

<https://hindi.asianetnews.com/national-news/drdo-launches-testing-and-evaluation-facility-for-indian-navy-sonar-systems-in-kochi-kpg-rl0q2l>



Press Information Bureau
Government of India

Ministry of Defence

Mon, 07 Nov 2022

Testing & Evaluation Facility for Sonar Systems of Indian Navy Launched by DRDO

Termed as Hull Module of Submersible Platform for Acoustic Characterization & Evaluation facility becomes operational at NPOL, Kochi

Giving impetus to the 'AatmaNirbhar Bharat' and India's 'Make in India' commitment, Defence Research & Development Organization (DRDO) launched Hull Module of Submersible Platform for Acoustic Characterization & Evaluation (SPACE) facility at Naval Physical & Oceanographic Laboratory (NPOL) Kochi recently. It is a state-of-the-art testing and evaluation facility for sonar systems developed for use by the Indian navy onboard various platforms, including ships, submarines and helicopters. The SPACE facility is based on the concept design and requirements projected by NPOL and has been constructed by M/s L&T Shipbuilding, Chennai.

This will be mainly utilized for evaluating Sonar systems, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers. The SPACE is one-of-a-

kind facility in the world. The uniqueness of this facility lies in the specially designed submersible platform, which can be lowered up to depths of 100 meters using a series of synchronously operated winches. The design and construction of the platform meet all the statutory needs of Indian Register of Shipping and the vessel classifying authority and strictly adhere to the inspection and registration criteria as per Kerala Inland Vessel Rules.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1874307>



Tue, 08 Nov 2022

Navy Bolsters Sonar Capabilities with DRDO's Space

Giving impetus to the country's maritime navigation and ranging capacities, the Defence Research & Development Organization (DRDO) has launched a state-of-the-art testing and evaluation facility for sonar systems, developed especially for the Indian navy. The hull module of the 'Submersible Platform for Acoustic Characterization & Evaluation' (SPACE) facility at the Naval Physical & Oceanographic Laboratory (NPOL) in Kochi will be utilised by Navy's various platforms, including ships, submarines, and helicopters. The Hull-mounted sonar is the main underwater sensor of naval platforms, which detects unmanned underwater vehicles, diver-delivery vehicles, submarines, and mines with precise localization.

"The SPACE facility is based on the concept design and requirements projected by NPOL and has been constructed by M/s L&T Shipbuilding, Chennai. This will be mainly utilized for evaluating Sonar systems, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers," the Defence Ministry mentioned in a statement. Notably, Sonar uses sound waves to 'see' in the water, which is then used for exploring and mapping the ocean because sound waves travel farther in the water than radar and light waves. It helps in the development of nautical charts, locating underwater hazards, and mapping objects on the seafloor such as shipwrecks, etc.

The Space of Water

The uniqueness of the one-of-a-kind facility in the world lies in the specially designed submersible platform, which can be lowered up to depths of 100 meters using a series of synchronously operated winches. Further, the design and construction of the SPACE passes all the statutory needs of the Indian Register of Shipping and the vessel classifying authority and strictly adhere to the inspection and registration criteria as per Kerala Inland Vessel Rules. In January 2022, the Kerala State Board of Electricity gave its approval to NPOL for setting up a submersible platform for acoustic characterization and evaluation at the Idukki reservoir for sonar system testing and evaluation.

The Advanced Panoramic Sonar Hull-Mounted (APSOH) was the first SONAR that was delivered by the NPOL. Further, the lab is engaged in the development of various other Sound Navigation And Ranging (SONAR) and allied technologies like Panchendriya, Humsa, and Mihir, among others, which have been fitted onto submarines, surface ships and airborne platforms of the Indian Navy. It is noteworthy that NPOL has its own marine acoustic research vessel known as INS Sagardhwani, which was indigenously built by one of India's leading

shipyards Garden Reach Shipbuilders and Engineers Limited. The vessel is run and maintained by the Indian Navy for DRDO and is based at Southern Naval Command, Kochi.

<https://newsonair.com/2022/11/08/navys-bolsters-sonar-capabilities-with-drDOS-space/>

Outlook

Mon, 07 Nov 2022

How Ballistic Missile Defence Interceptor will Help India Protect its Nuclear Arsenal

India's Defence Research and Development Organisation (DRDO) successfully completed the phase-II test of its Ballistic Missile Defence (BMD) interceptor AD-1 last week. The test was conducted at DRDO's Integrated Test Range (ITR) on APJ Abdul Kalam Island in Balasore, Odisha. Often described as an instrument of deterrence, the BMD is a system to counter ballistic missiles from enemy states. According to a statement issued by the Ministry of Defence (MoD) after the test, the sub-systems and the flight of AD-1 met all mission parameters, with the collected data substantiating the mission's success. Defence Minister Rajnath Singh told the MoD that most nations do not have the capability of a missile interceptor with such advanced technologies and that India's is a unique case.

India's BMD Measures

The need to have an advanced missile defence system became apparent to India in the aftermath of the Kargil war with Pakistan. With its hostile neighbour willing to use nuclear-armed ballistic missiles against India, the country's MoD made it a priority to acquire defence missile systems from friendly powers. China's amassment of ballistic missiles has also been a major cause of concern for India's defence establishment. This eventually led to a \$5 billion defence contract with Russia according to which India is currently in the process of procuring five S-400 defencesystem. In addition to this, India also started investing in indigenous development of such a system which reached a significant milestone last week.

The Significance Of AD-1

The AD-1 is an interceptor missile system that is capable of neutralising incoming long-range ballistic missiles as well as aircraft at both low exo-atmospheric and endo-atmospheric levels. It is powered by a two-stage solid motor with an indigenously-developed advanced control system, navigation and guidance algorithm for accurate guidance to its target, according to information shared by the MoD. Such a defence system becomes especially significant in case of a war involving nuclear missiles. "If one side has a 100% effective anti-ballistic missile (ABM), its nuclear arsenal is effectively safe from a pre-emptive or a second strike by the enemy. Thus, the side with an ABM is incentivised to initiate a conflict, knowing it will be safe from response from enemy weapons remaining after a first strike," says Andrew Green, a London-based defence analyst. DRDO chief Dr Samir Kamat says that India now has the capability to intercept missile in the 5,000 km class with the help of AD-1. This places India in an elite club of nations with such air defence capability.

<https://www.outlookindia.com/business/how-ballistic-missile-defence-interceptor-will-help-india-protect-its-nuclear-arsenal-news-235455>

Tue, 08 Nov 2022

‘PXE has Achieved Many New Highs in 128 Yrs’

The Proof and Experimental Establishment (PXE) of the DRDO at Chandipur observed its 128 Foundation Day on Monday. Director DK Joshi said that the laboratory which has been carrying out proofing of arms and ammunitions round the year also has begun conducting tests for arms and ammunitions produced by the private players of India. “Though we have been conducting tests for arms and arsenals required by the Ordnance factories and other defence units of India, over last 4-5 years we have also been proofing arms and ammunitions of private players who have evinced their interest in the sector to export their products to foreign countries,” Joshi said, dubbing it as a significant development.

“Until a few years, India was known as an importing country with respect to arms and ammunitions. Yet under the mission of Atmanirbhar Bharat, Swatantrata Bharat and Sasakat Bharat, India has taken initiatives to export their defence products,” said Joshi, adding, “Technologies are implemented at a faster pace these days to make the proofing and trails more cost and time effective.” He also lauded the efforts of all employees for their untiring spirits in completing the missions during the grim Covid period. The PXE after modernisation of its equipment and enhancing its manpower efficiencies has been able to conduct tests of newly developed arms and charge systems, an advanced towed artillery gun system (ATAG) and a Bio-Modular Charge System (BMCS).

The PXE during a month-long programme to commemorate its installation day has conducted several events including visiting orphanage and old age home, blood donation camp, cleaning under Swachh Bharat Abhiyan and Walkathon etc. Sports, games and cultural events were held with the participation of men and women employees and their families to mark the event. In recognition of their significant contributions to services, several employees were felicitated on the occasion.

<https://www.dailypioneer.com/2022/state-editions/---pxe-has-achieved-many-new-highs-in-128-yrs---.html>



बुधवार, 09 नवंबर 2022

एयर चीफ मार्शल बोले- भारत को तुरंत चाहिए 4.5 जेनरेशन के एयरक्राफ्ट

पाकिस्तान बॉर्डर के पास जोधपुर एयरबेस पर भारत और फ्रांस की एयरफोर्स का गरुड़ 7 युद्धभ्यास जारी है. पिछले 10 दिनों से जारी इस युद्धभ्यास में राफेल, तेजस, जगुआर और सुखोई-30 जैसे महत्वपूर्ण लड़ाकू विमान लगातार अपनी शक्ति प्रदर्शन कर रहे हैं. इस बीच मंगलवार को दोनों देशों के एयर चीफ जोधपुर पहुंचे और इन फाइटर जेट में एक घंटे तक उड़ान भरी. भारतीय वायुसेना प्रमुख एयर चीफ मार्शल वीआर चौधरी ने राफेल और फ्रांसीसी एयरफोर्स 'फ्रेंच आर्मी डे एयर' के चीफ जनरल स्टीफन मिल ने सुखोई में बतौर को पायलट उड़ान भरी. इस दौरान एक साथ 10 फाइटर जेट और ट्रांसपोर्ट एयरक्राफ्ट ने जोधपुर एयरबेस से उड़ान भरी. उन्होंने कहा, भारत के लिए 4.5 जेनरेशन के एयरक्राफ्ट को अपनी बेड़े में जोड़ना बहुत जरूरी है.

“निश्चित रूप से, हमें तत्काल जरूरतों को पूरा करने के लिए 4.5 जेनरेशन के एयरक्राफ्ट और राफेल के पांच से छह स्कवाड्रन की आवश्यकता है. दिल्ली में भी हुई थी मुलाकात. इससे पहले वायुसेना प्रमुख एयर चीफ मार्शल वी आर चौधरी ने सोमवार को दिल्ली में अपने फ्रांसीसी समकक्ष जनरल स्टीफन मिल के साथ व्यापक बातचीत की, जिसमें विभिन्न भू-राजनीतिक घटनाक्रमों की पृष्ठभूमि में द्विपक्षीय सैन्य सहयोग को बढ़ावा देने के तरीकों पर ध्यान केंद्रित किया गया. फ्रांसीसी सैन्य अधिकारी भारत के दौरे पर हैं. भारतीय वायु सेना ने ट्वीट किया, फ्रांसीसी वायु और अंतरिक्ष बल के चीफ ऑफ स्टाफ जनरल स्टीफन मिल ने आज एयर चीफ मार्शल वी आर चौधरी से वायु सेना मुख्यालय, नयी दिल्ली में मुलाकात की.

दोनों प्रमुखों ने द्विपक्षीय संबंधों को बढ़ाने और आपसी हित के क्षेत्रों में सहयोग को मजबूत करने के तरीकों और साधनों पर चर्चा की. पता चला है कि एयर चीफ मार्शल चौधरी और जनरल मिल के बीच हुई

बातचीत में हिंद-प्रशांत के साथ-साथ हिंद महासागर क्षेत्र में समग्र स्थिति पर चर्चा हुई. जनरल मिल की यात्रा जोधपुर में भारतीय और फ्रांस की वायु सेना के बीच 18 दिवसीय सैन्य अभ्यास के बीच हुई है. राफेल, तेजस, जगुआर और सुखोई-30 जैसे महत्वपूर्ण लड़ाकू विमानों के साथ गरुड़ सात अभ्यास 26 अक्टूबर को शुरू हुआ और 12 नवंबर को खत्म होगा.

<https://www.tv9hindi.com/india/india-french-air-force-chiefs-fly-in-rafale-sukhoi-air-chief-marshal-vr-chaudhary-au89-1547388.html>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 08 Nov 2022

IAF and FASF Chiefs Fly as Part of Ex Garuda VII

The ongoing Ex Garuda VII between Indian Air Force (IAF) and French Air and Space Force (FASF) witnessed combined flying by Chief of the Air Staff (CAS) of IAF, Air Chief Marshal VR Chaudhari, and Chief of the Air Staff of FASF, General Stéphane Mille today. While CAS flew a sortie in an IAF Rafale fighter, the FASF Chief flew in an IAF Su-30MKI fighter. Both participated in the exercise as part of a combined training mission which was flown from Air Force Station Jodhpur. Speaking to the media later, along with the FASF Chief, CAS brought out that Ex Garuda provides the unique opportunity for both Air Forces to learn and imbibe best practices of each other during operations. He also highlighted the growing interoperability between both air forces, which has been developing with each successive edition of the exercise, a regular bilateral exercise since 2003.

Ex Garuda VII is also the first occasion for the LCA Tejas and the recently inducted LCH Prachand to participate in any international exercise. The exercise, which is due to culminate on 12 November 22, includes four FASF Rafale fighters and one A-330 Multi Role Tanker Transport (MRTT) aircraft. Apart from the LCA and LCH, the IAF contingent consists of Su-30 MKI, Rafale and Jaguar fighter aircraft, as well as Mi-17 helicopters. The IAF contingent also includes Combat Enabling Assets like Flight Refuelling Aircraft, AWACS, AEW&C and Garud Special Forces.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1874508>

 **Hindustan Times**

Tue, 08 Nov 2022

India and France to Conduct Joint Surveillance of South-West Indian Ocean

French Defence Minister Sebastian Lecornu is arriving in India later this month to cement defence cooperation by expanding the envelope to joint design, development and manufacturing,

Emmanuel Bonne, Diplomatic Advisor to President Macron is in India in January 2023 to hold a strategic dialogue with NSA Ajit Doval.

After the successful completion of India-France Air Force exercise over Rajasthan sector, New Delhi and Paris will further intensify their strategic engagement with Indian Navy's Boeing P 8 I and French Navy's Falcon 50 conducting joint surveillance and ocean mapping of the Mozambique Channel, Mauritius and South-West Indian Ocean from November 9-11. The joint surveillance will go beyond ocean bed mapping with both the strategic allies committed to combat piracy, drug trafficking, arms smuggling and presence of extraneous powers on the eastern seaboard of Africa as part of maritime security cooperation. While Chinese surveillance, ballistic missile tracking ship Yuan Wang 6 is presently located around 90 degree East Ridge of the Indian Ocean south of Indonesia, the Indian and French surveillance aircraft will be conducting the ocean bed mapping and area patrol around French Reunion Islands for the second time this year. The first time the joint surveillance was held on the eastern board of Africa was in March 2022.

Keeping up with the strategic bilateral momentum between two allies, French Defence Minister Sebastian Lecornu is coming to India for two days at the end of this month from November 28 to hold talks with Defence Minister Rajnath Singh and top leadership of the Modi government. Given the importance that Prime Minister Narendra Modi government accords to France with equal commitment from French President Emmanuel Macron, Minister Lecornu will meet the PM, External Affairs Minister and the National Security Advisor. It is learnt that Emmanuel Bonne, diplomatic advisor to French President Macron, is also coming to India in the first week of January 2023 to hold talks with NSA Ajit Doval for strategic dialogue meeting. The two countries have very close defence ties with France committed to India for jointly developing aircraft engines, aircraft, submarines, and missiles under the "Aatmanirbhar Bharat" route with Indian private sector participation. Not only is France ready to joint develop and manufacture higher thrust aircraft engines with Safran as lead partner, it is also ready to help India in joint design, development and manufacture of long range submarines and missiles.

India and France are on the same page when it comes to religious fundamentalism and terrorism with Paris totally opposed to Pakistan targeting India through fifth columnists. The two countries closely coordinate along with US in the UN Security Council and have time and again listed Pakistan based terrorists for global designation by the 1267 Committee. It is a matter of deep concern to both the countries that Pakistan uses China to veto each such move in the 1267 sanction committee.

<https://www.hindustantimes.com/india-news/india-and-france-to-conduct-joint-surveillance-of-south-west-indian-ocean-101667905908997.html>

THE ECONOMIC TIMES

Mon, 07 Nov 2022

IAF Chief Holds Talks with French Air Force Chief

Chief of Air Staff, Air Chief Marshal VR Chaudhari on Monday held wide-ranging talks with his French counterpart Gen Stephane Mille focusing on ways to boost bilateral military cooperation

in the backdrop of various geopolitical developments. The top-ranking French military official is on a visit to India. "General Stephane Mille, Chief of Staff of the French Air & Space Force called on Air Chief Marshal VR Chaudhari, #CAS at Air HQ, New Delhi today. The two Chiefs discussed ways & means to enhance bilateral ties & strengthen cooperation in areas of mutual interest," the Indian Air Force (IAF) tweeted.

It is learnt that the overall situation in the Indo-Pacific as well as the Indian Ocean Region figured in the talks between Air Chief Marshal Chaudhari and Gen Mille. The visit by Gen Mile came amid an 18-day military exercise between the Indian and French air forces in Jodhpur. The 'Garuda VII' exercise, involving a significant number of combat jets such as Rafale, Tejas, Jaguar and Sukhoi-30s, began on October 26 and will culminate on November 12. The French military official also met Army Chief Gen Manoj Pande.

"General Manoj Pande #COAS interacted with General Stephane Mille, Chief of Staff, French Air and Space Force & discussed aspects of #DefenceCooperation between both the defence forces," the Army tweeted. Vice Chief of Naval Staff Vice Admiral SN Ghormade also interacted with Gen Mille with a focus on bilateral operational engagement and mitigation of security concerns in the Indian Ocean region, according to the Navy. The military cooperation between India and France has witnessed a major expansion in the last few years.

In August, a French Air and Space Force contingent, including three Rafale jets, made a strategically crucial stopover at the IAF's Sullur base in Tamil Nadu as part of a mega military operation it carried out in the Pacific Ocean. In March, the Indian and French navies carried out a five-day mega wargame in the Arabian Sea, involving frontline ships, submarines, maritime patrol aircraft, fighter aircraft and helicopters. The Indian and French navies in April last year too carried out a mega wargame in the Arabian Sea. The French Navy deployed its nuclear-powered aircraft carrier Charles de Gaulle, and its entire carrier strike group in that exercise, reflecting growing congruence in naval ties.

<https://economictimes.indiatimes.com/news/defence/iaf-chief-holds-talks-with-french-air-force-chief/articleshow/95361552.cms>



Wed, 09 Nov 2022

Need 5-6 Squadrons of 4.5 Generation Jets to Meet Immediate Needs: IAF Chiefs

A statement by the IAF said that showcasing the defence and bilateral ties between the two countries, Air chief Marshal VR Chaudhari conducted a sortie in a Rafale jet while his French counterpart General Stéphane Mille flew in a Su-30MKI fighter during the exercise in Jodhpur. India will need 5-6 squadrons of 4.5 generation fighter jets to fulfil the Indian Air Force (IAF)'s immediate needs, Air Chief Marshal VR Chaudhari said on Tuesday on the sidelines of the Garuda VII joint air exercise with the French Air and Space Force in Jodhpur. A statement by the IAF said that showcasing the defence and bilateral ties between the two countries, Air chief Marshal Chaudhari conducted a sortie in a Rafale jet while his French counterpart General Stéphane Mille flew in a Su-30MKI fighter during the exercise in Jodhpur.

“Both participated in the exercise as part of a combined training mission which was flown from Air Force Station Jodhpur,” the IAF said in a statement. The force also tweeted news of the development: “Leading by example. Chiefs from both the #IAF & @Armee_de_lair (FASF) took to the skies in one of the multi-aircraft missions flown during #ExerciseGaruda.” The drill is aimed at enhancing the interoperability between the two sides, said an IAF official familiar with the matter. Reiterating the IAF’s fighter needs, ACM Chaudhari said after the sortie: “We require 5-6 squadrons of 4.5 generation aircraft to meet immediate requirements.” Each squadron consists of 18-20 fighters.

“There’s no doubt that in any future conflict anywhere in the globe, air power will play a very vital and critical role in deciding the outcomes of the conflict. Such exercises (Garuda) give us the opportunity to hone our skills,” he added. The IAF chief further said the Garuda VII exercise was a unique opportunity for both air forces “to learn and imbibe each other’s best practices during operations”. He also highlighted the growing interoperability between both air forces, which has been developing with each successive edition of the exercise since 2003. General Mille also said the exercise was important for interoperability. “We are here to fly together with Indian aircrew. Sometimes, with a simple act, we can do a lot. Doing this exercise, we are able to understand each other during the flight. It’s very important to be able to fly and operate together,” he was quoted as saying by ANI.

“Ex Garuda VII is also the first occasion for the LCA Tejas and the recently inducted LCH Prachand to participate in any international exercise. The exercise, which is due to culminate on 12 November 22, includes four FASF Rafale fighters and one A-330 Multi Role Tanker Transport (MRTT) aircraft. Apart from the LCA and LCH, the IAF contingent consists of Su-30 MKI, Rafale and Jaguar fighter aircraft, as well as Mi-17 helicopters,” the air force said. The IAF contingent also includes combat enabling assets like flight refuelling aircraft, AWACS, AEW&C and Garud Special Forces. “The experience of the IAF with French equipment has been very good and the close cooperation between the two air forces goes back a long way to the Toofani (fighter) days of the 1950s. The two air chiefs flying in each other’s aircraft is a testimony to this friendship which extends beyond the optics to the operational arena,” said Air Vice Marshal Manmohan Bahadur (retd), former additional director general, Centre for Air Power Studies.

<https://www.hindustantimes.com/india-news/need-5-6-squadrons-of-4-5-generation-jets-to-meet-immediate-needs-iaf-chiefs-101667933515086.html>

THE ECONOMIC TIMES

Tue, 08 Nov 2022

Air Power will Play Critical Role in Deciding Outcomes of Future Conflicts: IAF Chief VR Chaudhari

Indian Air Force chief Air Chief Marshal VR Chaudhari on Tuesday in Jodhpur said air power will play a vital and critical role in deciding the outcome of conflicts in the future. "There's no doubt that in any future conflict anywhere in the globe, air power will play a very vital and critical role in deciding the outcomes of the conflict. Such exercises (Garuda) give us the opportunity to hone our skills," the IAF chief said. He also described the importance of the Garuda exercise saying that it will help improve the interoperability between the Indian

and French Air Force. "We have learned how to carry forward our interoperability. French Air Force also flies Rafale, we also fly Rafale, but we fly many other aircraft along with Rafale. It's important to learn how to interoperate with friendly nations," he said.

Rafale is a French twin-engine and multi-role fighter aircraft designed and built by Dassault Aviation. IAF chief mentioned that Garuda' is one exercise that gives an opportunity which exposes Indian pilots and crew to the best packages of the French Air & Space Force (FASF) and vice versa. IAF and FASF are participating in the 'Garuda VII' bilateral exercise in Jodhpur. French Air and Space Force Chief Gen Stephane Mille also expressed his views on the Garuda exercise and said, "We are here to fly together with Indian aircrew. Sometimes, with a simple act, we can do a lot. Doing this exercise, we are able to understand each other during the flight. It's very important to be able to fly and operate together." The 'Garuda VII' exercise, involving a significant number of combat jets such as Rafale, Tejas, Jaguar, and Sukhoi-30s, began on October 26 and will culminate on November 12.

<https://economictimes.indiatimes.com/news/defence/air-power-will-play-critical-role-in-deciding-outcomes-of-future-conflicts-iaf-chief-vr-chaudhari/articleshow/95378932.cms?from=mdr>



Tue, 08 Nov 2022

Indian Defense Firms Working towards Achieving USD 5 Billion Exports Target Set by Centre

After Prime Minister Narendra Modi asked the defense companies to achieve the target of USD 5 billion in exports, Indian entities, including both private and public firms, are taking steps to enhance their foreign sales. In this regard, the biggest public sector unit, Hindustan Aeronautics Limited (HAL), has tasked its officers to do export promotion. "HAL has a set of senior officers who look after export-related issues of the company. The countries and regions of the world are assigned and divided among these officers to explore the export opportunities," a senior official from HAL told India Today. "The group, though not named as an export promotion council or something similar, functions under HAL Corporate Marketing. It is tasked to work towards export promotion activities," he said.

Meanwhile, the BrahMos Artispac has also started finding new markets and started identifying regions which can be useful for it in selling its world-class supersonic cruise missile. "The corporate marketing division has a number of officers under it who are specially looking after export promotion as per directives of the PM," BrahMos officials said. BrahMos Aerospace chief, Atul Rane, recently told India Today that while the prime minister had set a target of USD 5 billion for the whole country, BrahMos alone would be working towards achieving that target. "Brahmos missile export target is set at USD 5 billion by 2025. BrahMos made the first export deal with the Philippines at USD 375 million," he stated. Another successful private firm, Solar Industries, which won a deal in Armenia to export its multi-barrel rocket launcher system, stated that it has started focusing on export markets along with the Indian market. "We realise that if we are able to provide solutions which the friendly countries are looking for, there would certainly

be a market for Indian weapon systems as we have lot of advantages over others,” a senior defence ministry official dealing with export promotion told India Today.

India had achieved exports of defence items and technology worth a record Rs 13,000 crore in 2021-22, which is likely to rise to Rs 17,000 crore in 2022-23," the Defence Secretary had recently stated. Defence exports grew by 334 per cent in the last five years and India is now exporting to over 75 countries due to collaborative efforts, the government has recently stated while upping the targets for further growth in the sector.

<https://www.indiatoday.in/india/story/indian-defence-firms-working-towards-achieving-exports-target-set-by-centre-2294528-2022-11-08>

ThePrint

Tue, 08 Nov 2022

Russia, India have “Strong and Continuing Contact,” Says Jaishankar

External Affairs Minister S Jaishankar said that India and Russia have strong and continuing contacts at various levels. Jaishankar and his Russian counterpart Sergey Lavrov on Tuesday held talks in Moscow covering a range of bilateral, regional and global issues of mutual interests. In the opening remarks, Jaishankar said, “As you noted, there have been strong and continuing contacts between our governments at various levels. Prime Minister Modi and President Putin met most recently in Samarkand in September. Our Defence Ministers spoke to each other. My colleague National Security Advisor Ajit Doval was in Moscow in August. Our Minister for Chemicals and Fertilizers was in Russia in June. And at the official level, I think, our colleagues have been in regular touch. And this is all very much in the spirit of our relationship.”

He further said that this is the fifth meeting between both Foreign Ministers which shows their long-term partnership. The minister also said that today’s meeting is devoted to bilateral cooperation; exchanging perspectives on the international situation and also interests. “Where bilateral ties are concerned, you would agree that it is our objective today to fashion a contemporary, balanced, mutually beneficial, sustainable and long-term engagement. Especially as our economic cooperation increases, this is a significant imperative. We would be discussing how our shared goals are best achieved,” he added.

Jaishankar, who arrived in Moscow on Monday, said, “Where the international situation is concerned, the last few years of the Covid pandemic, financial pressures and trade difficulties; these have taken a toll on the global economy. We are now seeing the consequences of the Ukraine conflict on top of that. There are also the more perennial issues of terrorism and climate change, both of which have a disruptive impact on progress and prosperity. Our talks will address the overall global situation and specific regional concerns.” He also said that India and Russia engage each other in an increasingly multi-polar and re-balanced world.

Meanwhile, Lavrov said, “We coordinate our actions in international organizations such as UNSC where India is now a non-permanent member... all this is enriching our agenda and I’m confident that today we’re going to have a good conversation about all this.” Since the start of the Ukraine conflict earlier this year, India’s bilateral ties with Russia have come under the

scanner of the West for a surge in oil imports from sanctions-hit Moscow. The war in Ukraine which has continued for more than eight months has had a significant impact on global food security and has led to a sudden increase in crude prices. Notably, India has not condemned Russia since the start of the conflict and has maintained its independent position. On several UN forums, New Delhi has consistently called for a cessation of violence and advocated peace and diplomacy.

<https://theprint.in/world/russia-india-have-strong-and-continuing-contact-says-jaishankar/1204662/>

THE ECONOMIC TIMES

Tue, 08 Nov 2022

India Hopes for Regular Defence Supplies from Russia in Winter

Regular defence supplies from Russia during the winters amid India's lukewarm ties with China would be a key element of foreign minister S Jaishankar's two-day Moscow trip. Besides ensuring regular supplies of energy, fertiliser and other commodities including coking coal and coal and smooth trade in national currencies, Jaishankar's trip is also being held in the backdrop of India's lukewarm ties with China and need for regular defence supplies from Russia for the Indian military during the upcoming winter months. It may be recalled that Russia had maintained supplies for the Indian military during the Galwan crisis notwithstanding reservations from China. ET was the first to report that Jaishankar would undertake his maiden Moscow trip early November.

The visit would also lay groundwork for a possible summit meeting between PM Narendra Modi and Russian President Vladimir Putin either in Bali on the sidelines of the G-20 summit next week or an annual summit in December in Russia. Jaishankar and his Russian counterpart Sergey Lavrov have already met four times since the Russia-Ukraine war. Lavrov had travelled to India early April to meet Jaishankar and the PM. Russia has emerged as one of the top suppliers of oil besides fertiliser, coal and coking coal and other commodities. Russia became India's largest supplier of crude oil in October 2022 as refiners stepped up the purchase of discounted oil. India has defended its oil purchases from Russia to keep prices under check for the huge aspirational population. Overall, India-Russia bilateral trade has jumped several times—according to some estimates by 310%—this year. INSTC via Iran is the connectivity route that has helped push India-Russia bilateral trade.

The talks will focus on trade and investments, transport and logistics, the use of national currencies in mutual settlements, as well as promising projects in the energy sector, especially in the Arctic shelf and the Russian Far East, according to a Russian foreign ministry statement issued on Monday. They will exchange assessments of the current international issues with an emphasis on interaction within the UN, SCO, G-20 and RIC. The ministers will also discuss India's presidency in the SCO, efforts to fight terrorism, as well as a number of regional issues, including the formation of a security architecture in the Asia-Pacific region, the situation around the Iranian nuclear problem, state of affairs in Afghanistan, Syria, and Ukraine, the statement added.

“Russia and India stand for the active formation of a more just and equal polycentric world order, and proceed from the inadmissibility of promoting the imperialist diktat on the global arena. Both countries demonstrate the proximity of positions on the most pressing issues and stand for the adherence to the universally recognised norms of international law, enshrined in the UN Charter. We are aimed at promoting a unifying agenda and building a constructive dialogue in the field of interstate relations,” the statement emphasised. It may be recalled that the Indian NSA had visited Moscow a few months back to meet his Russian counterpart, eyeing to strengthen security partnership. Subsequently, Modi and Putin met in Samarkand and the agenda focused on the entire gamut of strategic partnership. The state of Ukraine war and early cessation of hostilities that has adversely impacted supply chains of essential items will also be on the agenda during Jaishankar’s visit, indicated persons familiar with the subject amid reports that the US has nudged Ukraine privately for negotiations with Russia. All eyes are on a possible meeting between the presidents of the US and Russia in Bali on the sidelines of the G-20 summit on November 15-16.

In the recent months, Jaishankar has often referred to long standing ties with Russia including in the key sector—defence. In September, following his meeting with Lavrov in New York on the sidelines of UNGA, Jaishankar had described Russia as a “major partner in many domains” for India and noted that discussions with Lavrov focused on “bilateral cooperation” among other issues including Ukraine and G-20. Ahead of Jaishankar’s trip, Putin has heaped praise twice—describing Modi as a leader who pursues independent foreign policy and later, describing Indians as a talented lot. Jaishankar’s meeting with deputy PM Denis Manturov, his counterpart for the India-Russia Inter-Governmental Commission on Trade, Economic, Scientific, Technological and Cultural Cooperation (IRIGC-TEC), will be critical for various economic projects. Manturov has a strong Indian connection, having spent his childhood in Mumbai and is a big supporter of ties with India.

<https://economictimes.indiatimes.com/news/defence/india-hopes-for-regular-defence-supplies-from-russia-in-winter/articleshow/95365073.cms>



Tue, 08 Nov 2022

UAE Based Caracal Back in Race, Responds to Indian Army Tenders

UAE-based, Caracal is back in the competition for snipers as well as close quarter carbines (CQB) for the Indian Army. The Army is looking for both in an effort to modernize the weapons the soldiers are using. In September 2022, a request for Information (RFI) was issued by the Ministry of Defence (MoD) for more than 425,000 units of 5.56 mm caliber CQBS. Talking to Financial Express Online on the sidelines of Indo-Defence 2022 Expo & Forum in Jakarta, Indonesia, Caracal CEO Hamad Salem Alameri confirmed “Yes, we are soon going to submit our response to the Army’s Request for Proposal (RFP) for snipers. And we are also set to respond to the Request for Information (RFI) for Close Quarter Carbines too.” The UAE based

company is set to ensure that the snipers and the CQB's have more than 60 percent indigenous content keeping in line with Prime Minister Narendra Modi's 'Make in India' initiative.

Why should India consider Caracal?

According to Caracal CEO Hamad Salem Alameri, "The Company is already present in Asia and Africa and is providing best quality products. For India we are sent to provide the snipers as well as CQB's as well as fire arms for the paramilitary forces as well as police forces in the country." "The Company has been providing the highest quality of weapons to the forces across the globe and at best cost. In fact a lot of parts are now being made in India," he added. The company will offer its CSR 338 rifle in response to the Army's requirement for snipers. This is chambered for the .338 Lapua Magnum cartridges. Caracal's CAR 816 will be fielded for CQB's. It is the same which has previously qualified after stringent trials which were carried out by the army.

Sniper RFP

In October, the Ministry of Defence (MoD) issued a limited RFP for around 4,849 sniper rifles only to those who had responded to the RFI in June this year. There was also a requirement of 7,841,575 rounds of .338 Lapua Magnum ammunition issued to around 30 local vendors. The RFP for the Sniper Rifles runs into 119 pages and will be procured under the 'Buy India' procurement category. There is a requirement of 4,549 bolt-action sniper rifles for the Army, around 212 for the Air Force and around 88 for the Navy.

Caracal is back in 5.56x45mm Carabines race

Last month on the sidelines of the DefExpo 2022 in Gandhinagar in Gujarat, the UAE based Caracal had announced a tie up with an Indian company ICOMM. On signing an agreement with the Indian company, Caracal CEO Hamad Salem Alameri said that over almost a year and a half Caracal has been sourcing several components from India which will be used in snipers and CQB's. Al Ameri in an official statement issued last month had stated that the focus was going forward with positive partnership and to respond to contracts in India and to build locally under the 'Make in India' initiative.

Tie up

The MoU between Caracal and ICOMM will witness the production of full range of Caracal's small arms. These will be produced at Hyderabad factory of its Indian partner. ICOMM is a group company of Megha Engineering & Infrastructures Ltd (MEIL), and has specialization in military communications systems. And, it has entered in the business of small arms after its joint venture with Caracal.

Competition

Though Caracal now has an Indian partner, it will face stiff competition from other Indian companies who are in the small arms sector including — SSS Defence, the Jindal Group, Kalyani Group, among others.

What is the Indian Army looking for?

Financial Express Online had reported earlier that the Army is looking for CQB's which can be operated in different terrains and under extreme temperatures like minus 20 degrees to almost plus 45 degrees Celsius.

Background

Though the UAE based company was L1 earlier in 2018, the whole project was put on hold as the government was keen on making the CQB's in India and large content to be indigenous. The company, after having successfully cleared all trials, was down selected and was declared L1 to produce around 94,000 5.56×45mm carbines. However, the deal could not go through as the focus shifted to self reliance in the defence sector and to building/manufacturing locally.

In case the company wins the competition

According to a top company executive, in the initial phase there will be some components which will come directly from UAE. And in a phased manner all elements will be manufactured in India by Indian companies and will be used in the weapons.

<https://www.financialexpress.com/defence/uae-based-caracal-back-in-race-responds-to-indian-army-tenders/2791102/lite/>

The Tribune

Mon, 07 Nov 2022

India, Pak Navies Take Part in 11-Nation Drill off Japan Coast

India joined 10 other countries for a “search and rescue” exercise planned within the International Fleet Review (IFR) off the coast of Japan over the weekend. The IFR was conducted on November 6 and 7. Unusually, from the Indian perspective, the Pakistan navy was also part of the exercise at sea. Japan had invited Pakistan for the exercise. China abstained from the IFR in spite of an invitation from Japan. A day after skipping the IFR, China today joined the Western Pacific Naval Symposium (WPNS) in Yokohama. India has the status of an ‘observer’ at the WPNS and Navy Chief Admiral R Hari Kumar is participating. About 30 countries are part of the symposium. This was not for the first time that the India and Pakistan militaries were together for a multi-nation forum or exercise. In 2019, armies of the two countries participated in a multi-nation exercise in Russia under the umbrella of the Shanghai Cooperation Organisation (SCO).

Indian naval warships Shivalik and Kamorta were part of the IFR and will remain there for almost two more weeks for other engagements. The Japan Maritime Self Defence Force (JMSDF) said 11 countries — Australia, Canada, India, Indonesia, Japan, Malaysia, Pakistan, the Republic of Korea, Singapore, Thailand and the US — participated in search and rescue exercise. Sources in New Delhi said the Indian naval ships were part of a group that included ships from Japan, Malaysia and Indonesia, indicating that Pakistan was in another group. The exercise encompassed fire-fighting and medical evacuation drills, sources added. Japanese PM Fumio Kishida inspected the fleets at the IFR on board JMSDF carrier JS Izumo. Japan hosted the IFR for the first time in 20 years to commemorate the 70th anniversary of the establishment of the JMSDF this year.

<https://www.tribuneindia.com/news/nation/india-pak-navies-take-part-in-11-nation-drill-off-japan-coast-448682>

How India is tackling Chinese spy ship Yuan Wang-6 in the Indian Ocean Region

Indian military planners are working out fresh dates for user trials of the Agni series nuclear-capable ballistic missile, scheduled for November 10-11. This comes amidst the Indian Navy keeping a close watch on the movement of Chinese spy ship Yuan Wang-6 in the Indian Ocean region (IOR). Spotted late last week in Bali, the 22,000-tonne Yuan Wang-6 of the People's Liberation Army Navy (PLA Navy) is capable of tracking long-range ballistic missile trajectories and satellite launches. The Indian Navy has made it clear that it will not allow Yuan Wang-6 to enter the country's Exclusive Economic Zone (EEZ), which extends 200 nautical miles into the sea. In 2019, Indian Navy warships had chased away a suspected Chinese spy vessel, Shi Yan 1, purportedly doing research activity close to the Andaman and Nicobar Islands.

Commodore Anil Jai Singh (retd), a submariner, says the suspect Chinese vessels in the IOR are technically not warships and fall in the surveyor ship category. India, he says, cannot really do much unless the ships do something overtly hostile. "If the vessels stay in the high seas, that's everybody's territory. But we need to monitor their activity. Since these are not warships, technically they have the right to venture into EEZs too," Commodore Singh said.

The movement of Yuan Wang-6 came barely 20 days after India conducted the test firing of a Submarine Launched Ballistic Missile (SLBM) from INS Arihant, its first indigenous nuclear submarine. The projectile hit the target area in the Bay of Bengal with high accuracy. The ministry of defence (MoD) said in a statement that the SLBM launch was "significant to prove crew competency and validate" ballistic missiles which are a "key element of India's nuclear deterrence capability". The launch made India only the sixth country with capability to conduct nuclear strikes and counterstrikes on land, sea and air.

The other countries are US, Russia, UK, France and China. On November 2, India successfully conducted the test flight of the Phase-II ballistic missile defence (BMD) interceptor AD-1 missile from the A.P.J. Abdul Kalam Island off the Odisha coast. Next in line was the November 10-11 trial of the Agni series nuclear-capable ballistic missile.

PLA Navy presence in the IOR has been a growing concern for India. Some time back, the Indian Navy's maritime long-range surveillance and reconnaissance aircraft P-8I had detected as many as seven Chinese Navy warships around the Indian Ocean. In August, the Chinese spy ship Yuan Wang-5 had docked at Sri Lanka's Hambantota port despite concerns raised by New Delhi. Yuan Wang-5 is a dual-use ship with capability to track satellites, rockets and intercontinental ballistic missiles. It has 400 crew members and advanced equipment. Indian military planners say China has a long-term strategy to operate in the IOR. It has set up a submarine base in Bangladesh in return for two submarines given to Dhaka.

China has also provided an old submarine to Myanmar while eight submarines are being given to Pakistan. China is building more research ships for 'spying' activity under the garb of research.

India has only INS Dhruv in the category, which is used to monitor missile firings. Commodore Singh said the movement of Chinese vessels in the IOR was expected to be a regular feature now.

<https://www.indiatoday.in/india-today-insight/story/how-india-is-tackling-chinese-spy-ship-yuan-wang-6-in-the-indian-ocean-region-2294895-2022-11-08>



Tue, 08 Nov 2022

MKU Set to Supply Sighting System to ASEAN and MENA Region

Several countries from ASEAN as well as from MENA (Middle East & North Africa) have expressed their interest in procuring body armour as well as Netro Custom Sighting System for LMGs and HMGs from Kanpur based MKU Ltd. Talking to Financial Express Online on the sidelines of Indo-Defence 2022 Expo & Forum in Jakarta, Indonesia, Arif Masood, Manager, International Sales, MKU said: “There have been visits of top serving officials of the armed forces from several countries including Indonesia, Thailand, Malaysia, and Egypt among others.” The company has a huge presence in the region and is already supplying to armed forces, other security bodies in various Asean countries like the Philippines, Singapore, and others.

Even armed forces from Middle East as well North Africa has expressed their interest in body armour as well night vision devices which all made in India. “During a presentation made by the company in Malaysia recently, the top leadership had expressed interest in the products of our company. And this was reinforced by the top leadership of the coastguard of Malaysia visiting to see what we can offer,” said Arif Masood of MKU Ltd. Malaysia has been expressing its interest in buying Indian military platforms including the Light Combat Aircraft, Light Combat Helicopter, BrahMos supersonic missile systems and now body armour as well night vision devices.

Indonesia which is already in talks with BrahMos Aerospace Pvt Ltd for shore based anti-ship variant of the supersonic cruise missile. The Asean member country is very important for India as both are Indian Ocean Littoral neighbours and both are working towards strengthening military cooperation.

MKU in the Philippines

The company is among the few Indian defence companies present in the region. Over three years, the Kanpur based MKU Ltd has exported over 120,000 body armours, more than 1,000 night vision devices and 30,000 helmets to not only the army of that country but to also Philippine National Police and others in that country.

India & Indonesia

Later this month November 15-16 Prime Minister Narendra Modi is going to be present in Bali, Indonesia to attend the G20 summit. This year Indonesia is holding the presidency and will be handing it over to India at the end of the summit.

Which products the did countries express their interest in?

Kavro TAC-I-IIA (Body Armour Systems)

It is an integrated body armour system. It features an upper body exo load distribution system and a back-pack. Together it reduces the carried march and combat loads of a soldier by up to almost 30 percent. This smart over vest according to Mr Masood offers the soldier protection from ballistic threats, higher energy ammunition rounds and fragments. And its ergonomic design makes movement easy and agility to the operator.

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Kavro ACH 115B (High Fragmentation Helmet with Full Face Protection)

This is a lightweight ballistic helmet and has mandible protector with an integrated front mount ballistic visor. This is important as it gives the operator a full face protection from not only ballistic threats but also blunt impacts. According to the company official the helmet uses smart materials and is designed to offer both protection and comfort to the wearer.

Kavro ACH 1027T (Helmet for Protection against High Energy Ammunition)

Security personnel and soldiers who are deployed in defensive and offensive operations use the ACH 1027 T. This helmet provides protection from high energy ammunitions upto 7.62 X 51 M80 NATO Ball at 300m. And, according to the company when it is used with MACS, the soldiers can operate with modern headgear including night vision devices, communication devices and more.

Netro Custom Sighting System for LMGs and HMGs

These can be used with weapons that have picatinny compatible mounting systems. And for LMGs, Rifles and MMGs that come with other mounting systems, there are other options available.

<https://www.financialexpress.com/defence/mku-set-to-supply-sighting-system-to-asean-and-mena-region/2793236/lite/>

Business Standard

Tue, 08 Nov 2022

Embraer Says Talks for Manufacturing Aircraft in India Progressing Well

Embraer has said its discussions with Indian and global companies for building a new generation turboprop aircraft are progressing well. The Brazilian plane maker, which produces both civil and military jets, has been scouting for partners for its proposed aircraft programme, which could

include the manufacture of planes as well. “We are in discussions with potential partners in India and globally on a selection of partnering options for the next generation turboprop aircraft — including manufacturing. These discussions are ongoing and progressing well,” Embraer has said. “The next generation turboprop aircraft is in the development phase and a decision to launch the project has not been made,” it added.

Embraer shared this project update in the backdrop of Prime Minister Narendra Modi’s recent remarks on how India could become a manufacturing hub for large passenger aircraft. He made the remarks at the inauguration of the Tata-Airbus C-295 aircraft manufacturing facility in Vadodara on October 30. Embraer has more than 1,700 commercial jets in service globally. In July, it released a 20-year market outlook, estimating global demand for turboprops could touch 2,280 units. Of this, it said, around 960 units could come from the Asia Pacific region. The E175 is its most popular aircraft and US airline Sky West is the largest operator of these planes, with 230 jets. In India, Star Air operates five ERJ145 planes and recently signed an agreement to induct two E175 aircraft. At present, there are also 22 Embraer-made business jets in the country. Airbus did not respond to a query on assembly of planes in India.

“Boeing is in a sweet spot to continue delivering on our commitment to Aatmanirbhar Bharat,” the US plane maker said. “Our business and supply chain teams are constantly evaluating opportunities where India can continue to become a more significant part of Boeing’s global supply chain,” it added. Boeing’s annually sources around \$1 billion worth of aircraft parts from its network of over 300 suppliers in India. It, however, manufactures all its passenger planes in the US. It has a completion centre in China where seats are fitted in planes built and flown from the US. Airbus has aircraft assembly lines in China and the US. “Aircraft production rates have still not recovered to pre-Covid levels. Manufacturing and assembly would require billions of dollars in investment plus certified and skilled manpower. Then there is the question of market size. Manufacturers will not duplicate facilities unless there is a sound business case,” said an aviation industry veteran.

https://www.business-standard.com/article/companies/embraer-says-talks-for-manufacturing-aircraft-in-india-progressing-well-122110801112_1.html

R. REPUBLICWORLD.COM

Mon, 07 Nov 2022

UK, Japan Plan to Strike New Defence Pact to Boost Cooperation with US

The United Kingdom and Japan are planning to strike a new defense pact with the United States —Reciprocal Access Agreement (RAA)—amid the looming instability in regional security and Russia's military aggression in Ukraine. The agreement will also aim to enhance deterrence against the People's Republic of China and will ink many joint military exercises in the months to come, sources familiar with the matter told the British and the Japanese state agencies. The defense pact is planned to be signed in December and will enable the two countries to enhance military cooperation with the US, particularly in the Indo-Pacific region. It focuses on bolstering deterrence against Chinese belligerence.

Japan's veiled measure to tackle 'increasingly assertive China'

Japanese Prime Minister Fumio Kishida and the former British Prime Minister Boris Johnson had previously agreed in principle on a defense cooperation pact as part of their efforts to realize a free and open Indo-Pacific, in a veiled measure to tackle the increasingly assertive China, Kyodo news reported. A reciprocal access agreement would also be signed that will enable faster deployment of their troops for quick engagement in joint training and disaster relief efforts. Japan has already signed a similar RAA with ally Australia. Kishida has repeatedly hailed Britain's "increased involvement" in the Indo-Pacific region and noted that the Japanese allies realize the country's "strong concern" about China's unilateral attempts to change the status quo in the East and South China seas.

"Ukraine may be tomorrow's East Asia," Kishida had warned at a press conference in London. Tokyo may also be in the "initial stages" of inking a similar agreement with the Philippines, a source told the British newspapers. Kishida has also been wary of the Russian military's goals since its brutal invasion of Ukraine. He had cited the invasion as having future ramifications for Asia since the unfolding of the crisis in Ukraine. Japan has since sanctioned the assets of Russian banks and about 140 additional individuals in a coordinated step with the US, and its European allies. The newly signed RAA in the future will also make the acquisition of weapons easier for Tokyo, as well as the cross-serving agreement, will enable nations to share arms and supplies at the earliest.

<https://www.republicworld.com/world-news/rest-of-the-world-news/uk-japan-plan-to-strike-new-defence-pact-to-boost-cooperation-with-us-articleshow.html>



Tue, 08 Nov 2022

Ukraine's 'Underdog' Interceptor Missile That Kills at Near Hypersonic Speed Joins German & US Defense Systems

"Look who's here! NASAMS and Aspide air defense systems arrived in Ukraine!" Ukrainian Defense Minister Oleksiy Reznikov wrote on social media, thanking Norway, Spain, and the United States. The delivery comes when Ukraine's air defense systems have been overwhelmed by the continuing Russian attacks. After Russia began a brutal aerial bombardment of Ukrainian cities on October 10, President Zelensky urged Western countries to assist Kyiv in building an "air shield" to ward off the threat. At the G7 meet, he told world leaders that "millions of people would be grateful" for help to fend off Russian attacks from the sky. Soon after President Zelensky made the plea, Germany delivered the IRIS-T air defense systems that the Ukrainian authorities have praised. The US announced expediting delivery of the two National Advance Surface-to-Air Missile System (NASAMS) systems. Subsequently, Norwegian troops in Germany trained the Ukrainians on these systems, as previously reported by EurAsian Times.

While the American-Norway and German air defense systems have received widespread attention from the international media, the Spanish Aspide delivered alongside NASAMS has remained an underdog. It was on November 2 that Spain announced an aid package for

Ukraine that included a battery of the Aspide anti-aircraft missile system, four Hawk air defense systems, anti-tank missile systems, and guns and shells for them. The decision was announced in a briefing after Spanish Foreign Minister José Manuel Albares visited Ukraine and discussed the protection of its skies. The Ukrainian President thanked Spain for transferring air defense systems to Ukraine. “For us today, this is the number one issue to provide powerful air defense, to create an air shield to protect our civilian infrastructure.” However, despite the critical function that the Aspide air defense is set to perform in Ukraine, there’s little discussion about its role.

How Will The Aspide Defend The Sky Over Ukraine?

Since October, 19 Ukrainian troops have been receiving training on the four Aspide systems that Spain pledged to provide. Aspide is an Italian surface-to-air missile system that was first produced in the 1970s by Selenia, a division of Leonardo that is a member of the MBDA European missile consortium. It has been developed based on the American medium-range air-to-air missile AIM-7E Sparrow. There are four Aspide models: Mk.1, Mk.2, 2000, and Citedef. As of now, uncertainty surrounds the model delivered to Ukraine. However, Spain had previously purchased the Aspide 2000 variant that can be launched from the export versions of the Skyguard air-defense system and the Spada 2000 air-defense system. The Spada 2000 is an all-weather, day and night, highly automated air defense system that offers 2,000 km² of air defense missile coverage.

The missiles can intercept crossing and approaching targets to a range of 25 kilometers, while the range of target recognition and tracking is up to 60 kilometers. Even when crossing very agile targets, the kill probability is very high. Aspide missiles can be fired at up to four targets at once by the system. The Aspide 2000 missile system, which flies at Mach 4 (almost hypersonic), has a semi-active radar-homing seeker capable of engaging targets at a distance of up to 15 miles (25 kilometers). It has a high-thrust single-stage rocket motor and a 77-pound (35 kilograms) high-lethality fragmentation warhead.

Once fired, air-launched missiles can also be intercepted by the Aspide 2000. The missile uses a single-stage rocket motor, which increases missile speed, lateral acceleration, and effective range. The high-thrust single-stage solid-propellant rocket motor provides high supersonic speed and agility to intercept moving targets. Radar homing with a semi-active system is used for navigation. The Royal Thai Air Force and the Italian Air Force also use the missile as a component of the Oerlikon Contraves Skyguard air defense system. Skyguard is an air defense system manufactured by the German Company Rheinmetall Defense.

A fire control/search radar unit, up to three 4-cell missile launchers, and two twin-barrel 35mm cannons make up the air defense system. The Skyguard battery fires Sparrow/Aspide missiles. More than 40 nations worldwide use the Skyguard air defense technology. As Russia continues to pound its power grids, Ukrainian leaders and officials have been pleading with western countries for more advanced air defense systems. Not just that, Kyiv has been contemplating an evacuation of three million people, with Moscow targeting Ukrainian electricity infrastructure to cripple its war-fighting capacity. “We understand that if Russia continues such attacks, we may lose our entire electricity system,” Roman Tkachuk, the director of security for the Kyiv municipal government, told The New York Times. With Russia now ready to secure the delivery of lethal ballistic missiles from its ally in this war,

Iran, the going is getting more challenging for Ukraine, and air defense systems from the West are of primary significance.

<https://eurasianimes.com/ukraines-underdog-interceptor-missile-that-kills-hypersonic/>

नवभारत टाइम्स

मंगलवार, 08 नवंबर 2022

एरो शो के जरिये चीन दिखाने जा रहा दुनिया को अपनी ताकत, गुआंगदोंग में लगा लेटेस्ट फाइटर जेट्स का मेला

चीन के गुआंगदोंग प्रांत में इस समय एरो शो का आयोजन हो रहा है। आठ नवंबर से 13 नवंबर तक चलने वाले इस एरो शो के दौरान चीन अपने लेटेस्ट फाइटर जेट्स और असैन्य एयरक्राफ्ट का प्रदर्शन करने वाला है। चीन का मकसद इस एरो शो के दौरान वैश्विक हथियारों की बिक्री को बढ़ाना है। साथ ही अमेरिकी कंपनियों बोइंग और एयरबस के साथ प्रतिस्पर्धा को बढ़ाना है। इस एरो शो को चीन का शक्ति प्रदर्शन करार दिया जा रहा है। चीनी अथॉरिटीज का मकसद इस एरो-शो के जरिये घरेलू इंडस्ट्रीज को बढ़ाना है। साथ ही रूस पर अपनी निर्भरता को खत्म करना है।

सबसे ज्यादा हथियार निर्यात

चीन इस समय दुनिया का वह चौथा देश है जो सबसे ज्यादा हथियार निर्यात करता है। घरेलू इंडस्ट्री को सरकार का बड़ा समर्थन हासिल है। ऐसे में अब उसका मकसद ड्रोन, फाइटर जेट्स और मिसाइल डिफेंस सिस्टम बेचने का है। साथ ही वह अब शीत युद्ध के समय के हथियारों को रिटायर करना चाहता है। मंगलवार को एरो शो में चीन की तरफ से जे-20 स्टेल्थ फाइटर जेट और YU-20 हवाई टैंकर का प्रदर्शन किया गया। जे-20 फाइटर जेट चीन में ही विकसित WS-10C इंजन से ऑपरेट होता है। इसके अलावा यहां पर दो J-20A एयरक्राफ्ट भी थे। हालांकि कुछ मिनटों बाद ये एयरक्राफ्ट एरो शो से निकल गए। इस बार का एरो शो पिछले सभी शो से कहीं ज्यादा बड़ा होने वाला है। इस एरो शो में चीन ने कई नये मॉडल्स और उपकरण प्रदर्शन के लिये रखे हैं।

मानवरहित युद्ध के लिये तैयार चीन

इस एरो शो के दौरान कई चर्चाओं का भी आयोजन होगा। पीपुल्स लिबरेशन आर्मी (PLA) एयरफोर्स की तरफ से बताया गया है कि इस बार वायुसेना की 73वीं वर्षगांठ पर यह आयोजन हो रहा है। इस दौरान नए उपकरण को प्रदर्शित किया जायेगा। साथ ही वायुसेना यह भी बतायेगी कि एयरस्ट्राइक्स और मानवरहित युद्ध में वह कितनी कारगर है। इस दौरान चीन दुनिया के सबसे आधुनिक ड्रोन, मिसाइल, जेट

इंजन और यहां तक कि स्पेसक्राफ्ट को भी प्रदर्शित करेगा। साथ ही पीएलए के ऑपरेशन एयरक्राफ्ट भी इसमें नजर आने वाले हैं। पहली बार दुनिया इन हेलीकॉप्टर्स को उड़ान भरते हुए देखेगी। इसके अलावा इस एरो शो में 20 तरह के लैंड उपकरणों को रखा गया है।

सबसे बड़ा पैसेंजर प्लेन

इन सबसे अलग सबसे बड़ा आकर्षण AG600 एम्फिबियस एयरक्राफ्ट को प्रदर्शनी में शामिल करना है। इसके अलावा चीन का पहला स्वदेशी सबसे बड़ा पैसेंजर प्लेन C919 भी एरो शो में नजर आया। ये दोनों एयरक्राफ्ट इस बात का सबूत हैं कि चीन किस तरह से अपने सिविलियन एयरक्राफ्ट को डेवलप करने में लगा है। इसके अलावा चीन में ही विकसित और तैयार हुआ ताइहांग टर्बोफैन इंजन सीरीज भी इस एरो शो का सबसे बड़ा आकर्षण है।

यूक्रेन जंग के बीच शो

गुआंगदोंग के झुहाई में यह एरो शो ऐसे समय में हो रहा है जब रूस और यूक्रेन के बीच जंग जारी है। इस जंग की वजह से रूस के पास हथियारों की संख्या में कमी आती जा रही है। यहां तक कि अमेरिका ने उत्तर कोरिया पर आरोप लगा दिया है कि वह रूस के हथियारों की कमी को पूरा करने लिये उसे हथियार सप्लाई कर रहा है।

पाकिस्तान को सबसे ज्यादा हथियार

स्टॉकहोम इंटरनेशनल पीस रिसर्च इंस्टीट्यूट की तरफ से बताया गया है कि साल 2017 से 2021 के बीच चीन ने 4.6 फीसदी तक हथियार निर्यात किये थे। इसके साथ ही चीन, अमेरिका, रूस और फ्रांस के बाद चौथे नंबर पर आ गया। सबसे ज्यादा हथियार चीन से पाकिस्तान को बेचे गये जो भारत का नंबर एक दुश्मन है।

<https://navbharattimes.indiatimes.com/world/china/china-air-show-news-hindi-china-displays-latest-fighter-jets-in-an-air-show-in-guangdong/articleshow/95385388.cms>

THE ECONOMIC TIMES

Tue, 08 Nov 2022

The weakest link? North Korea's Crumbling Air Force

North Korea on Tuesday described its record-breaking blitz of missile launches last week as a "just counteraction" to the biggest-ever US-South Korea air exercises. Pyongyang has long condemned joint military exercises by Seoul and Washington, calling them rehearsals for an invasion -- but it has appeared especially sensitive to air force drills. That is because North Korea's air force is the weakest link in its military, experts says. Here is a look at the service, officially known as the Korean People's Army (KPA) Air and Anti-Air Force:

How many planes does it have?

The KPA air force has more than 900 combat aircraft, 300 transport planes and 300 helicopters, according to an assessment published last year by the Pentagon's Defense Intelligence Agency. But most of its fighters and bombers are either obsolete or near-obsolete, acquired decades ago mainly from the Soviet Union and China. Even the most potent jets in its fleet, the Soviet-designed MiG-29s, were procured in the late 1980s. The "on paper" estimates do not "represent the smaller 'active' fleet, with an unknown proportion in long-term storage or withdrawn, unlikely to ever fly again", Joseph Dempsey, a researcher at the International Institute for Strategic Studies (IISS), told AFP. North Korea is believed to be rotating its "ageing to obsolete" fleet in and out of storage "to keep them serviceable but also manage lifespan", he added.

What about its pilots?

North Korea "does not have the capacity to pay for enough fuel, cover maintenance costs or adequately train its pilots," according to a 2020 IISS report. Without enough fuel and therefore enough flight time, its pilots cannot learn or even maintain combat readiness, analysts say. North Korean combat pilots get as little as 15-25 hours in the air every year, the DIA estimated. That is far lower than the reported average in the US and South Korean air forces. The North Korean air force is so far behind that it is "simply incomparable" to other countries, North Korean studies scholar Ahn Chan-il told AFP. "It is no exaggeration to say that the North's air force is an 'air force on the ground' that almost never gets any proper training."

How did it become so weak?

North Korea boasted about "twice the air power" of the South in the 1970s, according to a 2013 report by Seoul's Institute for Military History. The then-strong North Korean air force sent help to Hanoi in the Vietnam War and to Syria and Egypt during the 1973 Yom Kippur War, it said. But the demise of the Soviet Union -- a critical source of financial and military support -- along with the deterioration of its own economy left North Korea deeply impoverished by the 1990s.

"Russia eventually established diplomatic ties with Seoul (in 1991) and partly because of it, Moscow decided not to provide the North the kind of military support the Soviets used to offer," Chun In-bum, a retired South Korean army general, told AFP. Pyongyang was also hit with crippling sanctions over its nuclear weapons and missile programmes, making it even more difficult to find the resources to build up and maintain modern conventional forces. "North Korea eventually decided to fully focus on developing its nuclear programme instead," Chun told AFP. This was a "strategic" decision on Pyongyang's part, added Yang Moo-jin, a professor at the University of North Korean Studies. "The best card for North Korea to negotiate with the world is nuclear weapons."

How does it compare with US, S. Korean air forces?

In the unlikely event of air combat with South Korea or the United States, the North Korean air force would be "severely overmatched", said Daniel Pinkston, a senior lecturer at Troy University in Seoul. "In an intense conflict with combined and joint South Korean and US forces North Korea's air power and air defences would be degraded very quickly." The difference in resources and technology was in sharp focus last week during the joint US-South Korean air drills, dubbed Vigilant Storm, which involved some of the most advanced aircraft in the

world. Unlike North Korea's Soviet-era jets, US and South Korean pilots flew high-tech F-35 stealth fighters, B-1B long-range heavy bombers, electronic warfare jets and in-flight refuelling tankers.

Last week, many of North Korea's missile launches were drills simulating the destruction of enemy air force bases. "North Korea considers it important to strike and neutralise air bases first because their air power is weak," said Cheong Seong-chang, a researcher at the Sejong Institute.

<https://economictimes.indiatimes.com/news/defence/the-weakest-link-north-koreas-crumbling-air-force/articleshow/95381330.cms?from=mdr>

DefenseNews

Tue, 08 Nov 2022

Indonesia to be First Foreign User of Turkey's Khan Missile System

Turkish missile-maker Roketsan signed a contract with Indonesia this month to supply Khan Missiles and a multilayer air defense system for the Asian nation's military. This is the first time the Khan missile system, an export version of the combat-proven Bora ballistic missile system, will enter the inventory of a force other than the Turkish military. The deal was announced at the Indo Defence Expo & Forum, which ran Nov. 2-5. Speaking to Turkish media, Roketsan's deputy general manager, Murat Kurtulus, stressed the importance of the Southeast Asian market to the company. "We will soon be putting our first products into the service of the Indonesian Ministry of Defense thanks to the contracts we have signed," Kurtulus said.

"These are two different products. The Khan missile system is the first. This is a significant weapon system with a range of 280 kilometers and high precision in the battlefield's depths. The Indonesian military will be the system's first foreign user." Kurtulus also noted the company will develop a tailor-made air defense system for the Indonesian Army. "The second contract is about the layered air defense system. The Indonesian Ministry of Defense had different requirements in this regard. We have created a new model in collaboration with our international business partners. A technical and financial model has been developed. We will present our first layered air defense system products as two separate medium- and long-range systems here.

In the coming months, we will also discuss close air defense systems," Kurtulus explained. Roketsan officials did not reveal additional information about the layered air defense system, and the company declined to answer Defense News' inquiries about the contracts' values and delivery timelines. According to Roketsan brochures, the Khan missile can launch from a multi-barrel rocket launcher on an eight-wheel drive vehicle. In accordance with the customer's requirements, it can also launch from other tactical wheeled vehicles. The 280-kilometer-range (174-mile-range) missile weighs about 2,500 kilograms (5,512 pounds) with a 470-kilogram (1,036-pound) high-explosive warhead.

Khan missiles are managed via aerodynamic control with an electromechanical actuation system, and supported with GPS and inertial guidance system technology. It's rumored the Indonesian Navy is interested in Turkey's Atmaca anti-ship missile system, though Roketsan has not confirmed this. However, Kurtulus did not Indonesia's "very large coastlines" and islands, adding that the country "needs naval systems and surface-to-surface guided missiles. We want

and hope that we can further develop the cooperation that we signed for the first time at this exhibition in the near future.”

<https://www.defensenews.com/industry/2022/11/08/indonesia-to-be-first-foreign-user-of-turkeys-khan-missile-system/>



Tue, 08 Nov 2022

Laser Power Moves a Step Closer for UK Defence

The MOD’s Defence Science and Technology Laboratory (Dstl) has hosted the UK’s first high-powered, long range laser directed energy weapon (LDEW) trial on its ranges at Porton Down. The trials involve firing the UK DragonFire demonstrator at a number of targets over a number of ranges, demanding pinpoint accuracy from the beam director. These tests improve the UK’s understanding of how high-energy lasers and their associated technologies can operate over distance and defeat representative targets. The ability to deliver high levels of laser power with sufficient accuracy are two of the major areas that need to be demonstrated in order to provide confidence in the performance and viability of LDEW systems.

The programme has developed a UK sovereign ‘centre of excellence’ staffed with experts from multiple fields. Laser directed energy weapons have the potential to provide lower cost lethality, reduced logistical burden and increased effectiveness when compared to other weapon systems – the technology could have a huge effect on the future of defence operations.

The programme’s specialist industry partners are:

- MBDA, with overall responsibility for the system; MBDA have developed the advanced command and control (C2) and image processing capabilities
- Leonardo, who have developed the beam director which can track and point at targets with pin-point accuracy
- QinetiQ’s laser experts, who have built a phase-combined laser capable of generating in the order of 50kW of power, with the ability in the future to scale fire-power levels

Dstl’s Technical Partner, Ben Maddison said:

This trial is the culmination of design, development and demonstration activity over a number of years. DragonFire has already successfully demonstrated an ability to track targets with very high levels of precision and to maintain a laser beam on the selected aim-point. This trial has assessed the performance of the laser itself – the outcome shows that the UK has world-leading capability in the technologies associated with laser directed energy weapons (LDEW) systems.

Chris Allam, UK Managing Director and Executive Group Director of Engineering at MBDA said: These successful trials are the latest step in accelerating delivery of a UK sovereign laser directed energy weapon (LDEW) capability. MBDA, Leonardo, QinetiQ and Dstl all working together are putting the UK at the forefront of research and technology in laser domain. The results from these trials have verified analysis and given the team confidence that DragonFire will offer a near term and unique capability. The trial is the culmination of significant joint

investment by the UK Ministry of Defence (MOD) and industry over a number of years totalling around £100 million.

Mark Hamilton, Managing Director Electronics UK, Leonardo said:

The DragonFire project draws on our decades of high energy laser and beam director heritage to put the UK at the very forward edge of what is possible in laser technology. The results of this live trial, which saw our beam director integrated into the DragonFire system, were impressive. We are looking forward to the next stages of the programme.

QinetiQ Chief Executive, Steve Wadey, added:

We are delighted to have been involved in the trial, which has brought together the best of UK industry expertise in the complex weapons environment to work in close collaboration with Dstl. QinetiQ's coherent beam-combining technology offers a laser system that can achieve an enhanced power density and increased engagement range, that is scalable for future uses. The trial has proven the performance of these laser technologies and their potential for adoption in sovereign defence capabilities.

This technology could provide the basis for a number of future weapon systems. The DragonFire project is running in parallel and closely connected to other defence programmes including the Novel Weapons Programme. Through the Defence and Security Accelerator (DASA), Dstl is currently seeking innovations to better understand the next steps necessary to develop and introduce the first generation of deployed directed energy weapons.

Notes to editors

Testing of the DragonFire system took place on Dstl's Porton Down Range, which for decades has undertaken novel and challenging trials. In this instance and to ensure absolute safety, it was necessary that the effects were contained within the Range area. The Range has defined distances over which the trial serials were conducted to a maximum distance of 3.4km from DragonFire. The capability of DragonFire is classified.

<https://www.gov.uk/government/news/laser-power-moves-a-step-closer-for-uk-defence>

अमर उजाला

मंगलवार, 08 नवंबर 2022

लॉन्च के बाद भी इस्तेमाल हो सकेंगे रॉकेट, इसरो कर रहा तैयारी, जल्द होगा पहला परीक्षण

भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) कर्नाटक के चित्रदुर्ग जिले में एयरोनॉटिकल टेस्ट रेंज से रियूजेबल लॉन्च व्हीकल-टेक्नोलॉजी डेमोन्स्ट्रेटर (आरएलवी-टीडी) के पहले रनवे लैंडिंग एक्सपेरिमेंट (आरएलवी-एलईएक्स) के लिए तैयार है। इसरो प्रमुख एस. सोमनाथ ने मंगलवार को इस ओर इशारा करते हुए कहा कि इसके लिए मौसम की निगरानी (मॉनिटरिंग) की जा रही है। अंतरिक्ष विभाग के सचिव सोमनाथ ने कहा, हम जलवायु को देख रहे हैं। जलवायु अभी भी अच्छी नहीं है। इसलिए, हम हवा और अन्य प्रणालियों के अनुकूल होने का इंतजार कर रहे हैं। फिर हम ऐसा करेंगे।

इसरो के अधिकारियों के मुताबिक, आरएलवी के पार्ट्स को एक हेलीकॉप्टर का इस्तेमाल करके तीन से पांच किमी की ऊंचाई तक ले जाया जाएगा और फिर क्षैतिज वेग के साथ रनवे से करीब चार से पांच किमी की दूरी पर छोड़ा जाएगा। छोड़ने के बाद आरएलवी धीमी गति से आगे की ओर खिसकेगा जाएगा और रनवे की ओर नेविगेट करेगा। फिर लैंडिंग गियर के साथ चित्रदुर्ग के पास डिफेंस एयरफील्ड में उतरेगा। अंतरिक्ष एजेंसी के सूत्रों ने कहा कि लैंडिंग गियर, पैराशूट, हूक बीम असेंबली, रडार अल्टीमीटर और स्यूडोलाइट जैसी नई प्रणालियों को विकसित किया गया है। इसके योग्य बनाया गया है।

<https://www.amarujala.com/india-news/isro-set-for-1st-runway-landing-experiment-of-reusable-launch-vehicle-monitoring-weather-says-its-chairman>

mint

Tue, 08 Nov 2022

ISRO to Conduct First Runway Landing Experiment of Reusable Launch Vehicle

The first runway landing experiment (RLV-LEX) of the Reusable Launch Vehicle - Technology Demonstrator (RLV-TD) appears to be scheduled by the Indian Space Research Organisation, with its chairman S. Somanath indicating that the weather is being monitored. "We are looking at the climate. Climate is still not good. So, we are waiting for the wind and other systems to

become benign. We will do that," Somanath, also Secretary in the Department of Space, told PTI. The RLV wing body will be transported by helicopter to an altitude of three to five kilometres before being released at a distance of about four to five kilometres in front of the runway with a horizontal velocity, according to ISRO officials.

The RLV will glide after being released, navigate to the runway, and land independently with landing gear at the defence airfield close to Chitradurga. According to earlier reports, new systems like landing gear, parachute, hook beam assembly, radar altimeter, and pseudolite have been developed and certified. The national space agency is based here. On 23 May, 2016, ISRO successfully completed its first RLV-TD HEX-01 (Hypersonic Flight Experiment-01) mission from SDSC SHAR, demonstrating the essential technologies for the design and flight testing of re-entry vehicles. However, it was a suborbital flight and designed to land on sea. One of the critical technologies to be demonstrated in the RLV-LEX mission is approach and autonomous landing on a runway, according to ISRO.

According to ISRO officials, this milestone (RLV-LEX) needs to be accomplished before the RLV ORE (Orbital Re-Entry Experiment) mission in order to acquire end-to-end reusable launch vehicle (RLV) technology capability. In ORE, a wing body known as the Orbital Re-entry Vehicle (ORV) will be launched into orbit by an ascent vehicle made of the current GSLV and PSLV stages, remain in orbit for a predetermined amount of time, re-enter the atmosphere, and land on a runway without human assistance. Earlier, Anil Bhardwaj, the director of the Physical Research Laboratory in Ahmedabad, said during a presentation on ISRO's upcoming missions at the AkashTattva conference that the space agency also intended to send a probe to Mars.

<https://www.livemint.com/news/india/isro-to-conduct-first-runway-landing-experiment-of-reusable-launch-vehicle-11667918709192.html>

Business Standard

Tue, 08 Nov 2022

Skyroot Aerospace to Launch India's First Privately Developed Rocket into Space Next Week

Kondapur (Telangana)-based Skyroot Aerospace is all set to create history by becoming the first private space company in India to launch a rocket into space. The mission named 'Prarambh', meaning "the beginning" in Sanskrit, heralds a new era for startups in the country's spacetech sector. The first space mission for Skyroot was unveiled by ISRO Chairman Dr S Somanath in Bengaluru on Monday. This followed the clearance for technical launch received from the single window nodal agency for promoting and regulating space-tech players, IN-SPACe. Although the authorities have notified a launch window between November 12 and 16, the final date will be confirmed based on weather conditions. The rocket will be sent into space from ISRO's SatishDhawan Space Centre spaceport in Sriharikota, off the Andhra Pradesh coast.

The space sector was opened up to facilitate private sector participation in 2020. In 2021, Skyroot became the first space technology startup to ink an MoU with ISRO for sharing facilities and expertise. Thanking ISRO and IN-SPACe for their support, CEO & co-founder of Skyroot Aerospace, Pawan Kumar Chandana, told Business Today, "We are proud to announce our pathbreaking mission 'Prarambh' dedicated to the Indian private space sector, which has hugely

benefited from the reforms that were guided by the government of India and its vision". Skyroot's launch vehicles are named Vikram after the founder of the country's space programme, Dr. Vikram Sarabhai and are being developed by a 200-member strong team of engineers at Skyroot. Built using an all-carbon fibre structure, the Vikram series rockets are capable of carrying up to 800 kg payloads to the Low Earth Orbit (LEO).

The company's COO & co-founder, Naga BharathDaka, said "The Vikram-S rocket getting launched is a single-stage sub-orbital launch vehicle, which would carry three customer payloads and help test and validate the majority of technologies in our Vikram series of space launch vehicles." The four-year-old Skyroot has successfully built and tested India's first privately developed cryogenic, hypergolic-liquid, and solid fuel-based rocket engines. The R&D and production activities extensively use advanced composite and 3D-printing technologies. Skyroot Aerospace successfully raised \$51 million or Rs 403 crore through a Series-B financing round, in September this year. Led by the Singapore-headquartered long-term investment firm GIC, this makes it the largest funding round ever in India's space technology sector by far. Currently, the 53 spacetechnology startups in India have collectively raised funding to the tune of \$220 million, according to data from the information technology services company Tracxn, and Business Today. Skyroot Aerospace leads the pack, followed by AgniKul and satellite maker Pixxel.

<https://www.businesstoday.in/technology/story/skyroot-aerospace-to-launch-indias-first-privately-developed-rocket-into-space-next-week-352189-2022-11-08>



Tue, 08 Nov 2022

ISRO Tests Rocket Engine Developed by Startup Agnikul Cosmos

The India Space Research Organisation (Isro) on Tuesday said that it has successfully conducted a hot test of a rocket engine developed by Agnikul Cosmos, an aerospace startup. The hot test was conducted at Isro's lead center for the development of launch vehicles, Vikram Sarabhai Space Centre. The hot test was conducted by firing the Agnilet Engine for 15 seconds on November 4 at its Vertical Test Facility, Thumba Equatorial Rocket Launching Station (TERLS), and Thiruvananthapuram. The engine is a regeneratively cooled 1.4 kN semi-cryogenic engine that works at a chamber pressure of 10.8 bar and uses Liquid oxygen and Aviation Turbine Fuel (ATF) as propellants.

The test was part of the memorandum signed between ISRO and M/s Agnikul Cosmos Pvt. Ltd. to provide an opportunity for Indian space start-ups to use the facilities of ISRO through IN-SPACE. "This engine is realised through state-of-the-art 3D printing technology and the material of construction is INCONEL-718," Isro said in a statement. The announcement came hours after another aerospace startup Skyroot said that it will conduct the maiden launch of a privately developed rocket in the second week of November. The Prarambh mission will launch from Isro's Satish Dhawan Space Centre in Sriharikota. While the company has said that the mission could be launched between November 12-16, they are yet to release any details about the final

launch date. The company has already received a technical launch clearance from IN-SPACe, the country's nodal agency for promoting and regulating space-tech players.

<https://www.indiatoday.in/amp/science/story/isro-tests-rocket-engine-developed-by-startup-agnikul-cosmos-2294877-2022-11-08>

THE TIMES OF INDIA

India-Made Drug Shows Promise in Treating Covid Heart Damage

A drug developed by the Defence Research and Development Organisation (DRDO) may reverse the heart damage caused by a protein in the SARS-CoV-2 virus, a study conducted in fruit flies and mice has found. Researchers from the University of Maryland, Baltimore, US, identified how a specific protein in SARS-CoV-2, the virus responsible for Covid-19, damages heart tissue. They then used the drug, called 2DG, to reverse the toxic effects of that protein on the heart. Developed by Dr Reddy's Laboratories in collaboration with DRDO, 2DG is an oral drug. The SARS-CoV-2 virus depends upon glycolysis or breakdown of glucose for energy. The drug hinders the process of glycolysis and prevents the growth of the virus. People infected with **Covid** are at a significantly higher risk for developing inflammation of the heart muscle, abnormal heart rhythms, blood clots, stroke, heart attacks, and heart failure for at least a year after infection, compared to those who haven't been infected with the virus, said the study. The scientists, who are from the University of Maryland, then used a drug to reverse the toxic effects of the SARS-CoV-2 virus protein on the heart. Although 2DG has not been approved by the US food and drug administration to treat the disease, it's currently in clinical trials for treatment of Covid in India, the study said.

<https://timesofindia.indiatimes.com/india/india-made-drug-shows-promise-in-treating-covid-heart-damage/articleshow/95388273.cms>

