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DRDO News

DRDO Technology News

प्रभात खबर

Mon, 29 Aug 2022

Pinaka Rocket: भारत ने तैयार किया ऐसा स्वदेशी रॉकेट लॉन्चर, हर 4 सेकंड में दुश्मनों पर बरसायेगा गोले

रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) और भारतीय नौसेना ने पिछले दिनों स्वदेशी रॉकेट का सफलतापूर्वक परीक्षण किया. डीआरडीओ के अधिकारियों ने बताया कि ओडिशा के बालासोर और पोखारण में मेड इन इंडिया एन्हांस्ड पिनाका रॉकेट का पिछले दिनों सफलतापूर्वक परीक्षण किया गया. पिनाका रॉकेट की ताकत को बढ़ाने में लगातार काम किया जा रहा है. जिसमें मुनिशंस इंडिया और इकोनॉमिक एक्ससप्लोसिव्स लिमिटेड सहित अन्य ने इसके निर्माण में बड़ी भूमिका निभायी.

भगवान शिव के धनुष के नाम पर रखा गया स्वदेशी रॉकेट का नाम

स्वदेशी रॉकेट पिनाका का नाम भगवान शिव के धनुष के नाम पर रखा गया है. परीक्षण के दौरान पिनाका ने तय मानकों को सफलतापूर्वक पार कर लिया. साथ ही टारगेट को ध्वस्त करने में भी सफल रहा.

पिनाका रॉकेट की खासियत

पिनाका रॉकेट सिस्टम के बारे में बताया जा रहा है कि इससे 44 सेकंड में 12 रॉकेट लॉन्च होंगे. यानी हर 4 सेकंड में दुश्मनों पर रॉकेट बरसाने की इस सिस्टम में क्षमता है. इसके रेंच की बात करें तो 7 किलोमीटर से 90 किलोमीटर तक दुश्मनों को निशाना साध सकता है.

रॉकेट लॉन्चर के तीन वैरियेंट्स

पिनाका रॉकेट लॉन्चर के तीन वैरियेंट्स हैं. जिसमें एमके 1 की मारक क्षमता 45 किलोमीटर, एमके 2 की 90 और एमके 3 की मारक क्षमता 120 किलोमीटर है. इसकी लंबाई 16 फीट 3 इंच से लेकर 23 फीट 23 इंच तक है.

एक सेकंड में 1.63 किलोमीटर की स्पीड से दुश्मनों पर हमला करने की क्षमता

पिनाका रॉकेट की स्पीड 5757 किलोमीटर प्रति घंटे की है. यानी 1.6 किलोमीटर प्रति सेकंड की रफ्तार से दुश्मनों हमला कर सकता है. कारगिल युद्ध में भारतीय सेना ने पिनाका एमके 1 संस्करण का इस्तेमाल किया था.

https://www.prabhatkhabar.com/national/drdo-confirms-successful-trials-of-enhanced-range-pinaka-rockets-in-pokhran-balasore-avd

TIMESNOW

Mon, 29 Aug 2022

User Trials of Enhanced Range Pinaka Rockets Successfully Completed at Balasore, Pokhran – Visuals

DRDO-developed Enhanced Range Pinaka rockets' user trials conducted at Balasore&Pokhran in past few weeks

Photo : ANI

India's Defence Research and Development Organization (DRDO), has successfully completed the enhanced range Pinaka rockets' user trials at Balasore and Pokhran in the past few weeks. In what is being viewed as a success for Make in India in defense, manufacturers of the system, namely, Munitions India Ltd & Economic Explosives Ltd met user requirements at trials' completion, the DRDO said on Monday, news agency ANI reported.

Being produced by Indian defence industry partners, the extended range Pinaka system is developed by Pune-based Armanent Research and Development Establishment (ARDE), one of the weapons -development laboratories of the DRDO. The trials of extended range Pinaka system were conducted in presence of DRDO officials and Indian Army personnel.

In April, Pinaka MK-1 Enhanced Rocket System (EPRS) and the Pinaka Area Denial Munition Rocket Systems (ADM) were successfully test-fired at the Pokhran firing range. "Pinaka Mk-I (Enhanced) Rocket System (EPRS) and Pinaka Area Denial Munition (ADM) rocket systems have been successfully flight-tested by Defence Research and Development Organisation (DRDO) and Indian Army at Pokhran firing ranges," the Ministry of Defence had said in a statement.

The technology was transferred to Munitions India Limited (MIL) and Economic Explosives Limited, Nagpur for the production of the system.

Last year as well, the agency had successfully test-fired Pinaka rockets from Multi-Barrel Rocket Launcher (MBRL) at Integrated Test Range, Chandipur, Odisha. The development of the system is being viewed as a milestone in the Make in India program, which aims at achieving self-reliance in defence besides other sectors.

https://www.timesnownews.com/india/user-trials-of-enhanced-range-pinaka-rockets-successfully-completed-at-balasore-pokhran-visuals-article-93844879

Mon, 29 Aug 2022

DRDO Conducts Successful Trials of Enhanced Range Pinaka Rockets. Know All About the Multiple Rocket Launchers

Pinaka Rockets Trials: The Defence Research and Development Organisation (DRDO) said Monday that it successfully conducted trials of the enhanced range Pinaka rockets at Balasore and Pokhran over the past few weeks.

The DRDO said that Munitions India Limited and Economic Explosives Limited, the manufacturers of the system, met the user requirements necessary for the completion of the trials, news agency ANI reported.

The successful completion of the trials is a further step in the direction of the 'Make in India' initiative of the Indian government in the defence sector, DRDO officials said.

Quoting the defence officials, the ANI report said the user trials of the DRDO-developed Range Pinaka rockets were conducted at Balasore and Pokhran over the past few weeks. They said it marked a successful milestone for the 'Make in India' initiative in the defence sector.

More About The Pinaka Rockets

The Pinaka Multi-Barrel Rocket Launcher (MBRL) is a multiple rocket launcher produced in India for the Indian Army, and comprises a free-flight artillery rocket. Pinaka Mark-I has a maximum range of 40 kilometres while the Mark-I enhanced version has a maximum range of 60 kilometres.

The Pinaka MBRL is designed by the Armament Research and Development Establishment (ARDE), a laboratory of the DRDO. Based in Pune, the ARDE is the main DRDO lab involved in the development of conventional armaments, which refer to weapons with the ability to cause damage.

Pinaka Mark-I and Mark-II have a multi-tube launcher vehicle, a replenishment-cum-loader vehicle, a replenishment vehicle, and a command post vehicle, according to the DRDO. The rocket launcher has two pods containing six rockets each, and can neutralise an area of 700 × 500 square metres within 48 seconds.

Since the Indian Army requires a free fire rocket with enhanced range, ARDE developed the Pinaka Mk-II rocket with a range of 60 kilometres.

On April 9, 2022, Pinaka Mark I Enhanced and Pinaka Area Denial Munition (ADM) were fired from the Army Test Range at Pokhran for consistency and accuracy, as part of developmental tests. On August 24, 2022, the user trials were conducted. The Pinaka ADM is made by Yantra India Limited, a Nagpur-based defence company.

More DRDO Achievements

In the month of May, DRDO confirmed that successful trials of the Advanced Towed Artillery Gun System (ATAGS) were conducted at Pokhran Field Firing Range (PFFR), Rajasthan.

The ATAGS is a completely indigenous towed artillery gun system project undertaken in mission mode by the DRDO, as part of the artillery modernisation programme of the Indian Army.

The DRDO has developed the ATAGS. Indian firms Bharat Forge and Tata Advanced Systems Limited have produced the ATAGS.

The ATAGS is expected to replace the Bofors howitzers.

https://news.abplive.com/science/drdo-successfully-tests-pinaka-extended-range-rocket-in-pokharan-know-all-about-the-multiple-rocket-launcher-1550716

The Tribune

Mon, 29 Aug 2022

Agriculture Minister Asks Defence Scientists to Assist Ladakh Administration in Implementing Government Schemes

Union minister of state for agriculture and farmers welfare, Shobha Karandlaje, on Monday called upon defence scientists to work in close collaboration with the Ladakh Administration to implement various government schemes in the region.

Inaugurating the Ladakhi-Kisan-Jawan-Vigyan Mela at the Defence Institute of High Altitude Research (DIHAR) at Leh, she appreciated the important role played by DIHAR in connecting the soldiers and the society in Ladakh.

Complimenting the efforts made by DIHAR for meeting the agro-animal requirements of troops in high altitude as well as assisting the local agriculture sector, Karandlaje said such events provide a platform for interaction between farmers, soldiers and scientists, thereby perfectly imbibing the concept of 'Jai Jawan-Jai Kisan-Jai Vigyan-Jai Anusandhan'

Stating that with Ladakh becoming a Union Territory, the role of DIHAR has increased further to accelerate the growth of the agriculture sector, Jamyang Tsering Namgyal, Member of Parliament from Ladakh asked DIHAR for scientific inputs so that farmers in the region benefit from the organic farming movement. He also appreciated the time-bound joint project undertaken by DRDO and Ladakh Administration in establishing a model apricot processing plant that aims at reducing high wastage of apricots in the region.

Dr Upendra Kumar Singh, Director General (Life Sciences), DRDO, said that DRDO is undertaking wide ranging research, including human physiology, psychology, fresh and processed foods in the Himalayan region with the aim to keep soldiers fighting fit. He stressed the need for securing borders by improving the socio-economic condition of the people living along the borders.

Union minister of state for agriculture and farmers welfare, Shobha Karandlaje being briefed on farm produce during her visit to Defence Institute of High Altitude Research in Leh on Monday. Photo: DIHAR

Dr OP Chaurasia, Director DIHAR, said that through technologies developed by the institute, the army is getting locally grown fresh organic farm produce in remote areas. As a spin-off, farmers in Ladakh are also able to produce a variety of fruits and vegetables resulting in improving their socio-economic condition. On the occasion greenhouse and microgreen technologies developed by DIHAR were transferred to Headquarters 14 Corps, which will enable local army formations to produce fresh vegetables in extreme altitude areas of Ladakh.

Technical bulletins on growing sun melon and black gogi berry in Ladakh were also released. Local entrepreneurs, progressive farmers and Army units were felicitated for their outstanding contribution in the area of agro-animal technology in Ladakh region.
https://www.tribuneindia.com/news/j-k/agriculture-minister-asks-defence-scientists-to-assist-ladakh-administration-in-implementing-government-schemes-426562

Defence News

Defence Strategic : National/International

Press Information Bureau
Government of India

Ministry of Defence

Mon, 29 Aug 2022 3:17PM

Hon'ble Raksha Mantri Shri Rajnath Singh Visits Premier Radar Station of IAF

The Hon'ble Raksha Mantri, Shri Rajnath Singh today visited a premier radar station of the IAF, where he witnessed the functioning of the Integrated Air Command & Control System (IACCS). The system is the backbone of IAF's march towards network centricity and is a key enabler in operations. The system's capabilities endow its users with an enhanced situational awareness that reduces IAF's sensor-to-shooter loop. The robust system has redundancies built into its functioning which enable seamless operations between its assets across the country.

During his visit, the Hon'ble RM was demonstrated various networked operations conducted at varied locations across the country. These included the networked and synergised operations of fighter, transport and Remotely Piloted aircraft. He was also briefed about the nuances of peacetime Command & Control functions which include ensuring the air defence of critical areas on a day-to-day basis, as well as during large events. In his address, the Hon'ble RM complimented the air warriors for keeping the nations' skies safe throughout the year.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=1855242

mint

Tue, 30 Aug 2022

Defence Import Bans Linked to Domestic Manufacturing

A new import ban imposed on hundreds of military sub-systems and components has brought India's quest for indigenization into sharper focus, set goals for local defence manufacturers and turned the spotlight on the road ahead for attaining meaningful self-reliance, officials tracking the development said on Monday.

The main steps taken to inject momentum into the self-reliance drive include bringing out a series of 'positive indigenization lists' (six lists have been published so far to ban the import of major weapons, platforms, sub-systems and components), creating a separate budget for buying locally made military hardware, earmarking research and development budgets for the private industry and start-ups and raising foreign direct investment (FDI) in defence manufacturing.

The government is also taking simultaneous measures to boost defence exports and has set a target of selling military hardware worth $5 billion to other countries by 2024.

India on Sunday published a list of 780 weapon sub-systems and components that will come under a phased import ban between December 2023 and December 2028, the third such list in nine months.

The three lists cover around 4,000 items used in fighter planes, aircraft, helicopters, submarines, tanks, infantry combat vehicles, electronic warfare systems, missiles, smart ammunition, rockets and bombs.

Close to 2,700 items on these lists have already been indigenized while the rest will be manufactured in India in phases between December 2022 and December 2028, according to defence ministry data.

Indigenization of main weapons and equipment—ranging from light weight tanks to naval utility helicopters and missiles to artillery gun systems—that figure on the three other lists will be the real test for the domestic defence industry over the next five to six years because of the complexities involved in producing full-fledged systems, the officials said. These three lists encompass 310 different types of weapons and platforms.

A multi-pronged strategy to attain self-reliance is at play, said Air Marshal Anil Chopra (retd), director general, Centre for Air Power Studies. "Indigenization of full-fledged systems will happen when their sub-systems and components are produced in India. Thus, the government is publishing separate lists periodically to set goals for the industry, which now has to rise to the occasion. This may require some hand-holding by the government," he added.

On its part, the government has earmarked ₹84,598 crore—68 % of the military's capital acquisition budget for 2022-23—for purchasing locally produced weapons and systems. The allocation for local defence purchases has climbed steadily over the last three years—the Centre had earmarked 64% (or ₹70,221 crore) of the military's capital acquisition budget for the domestic sector in 2021-22 and 58% (or ₹51,000 crore) of the capital budget in 2020-21.

India's military imports dropped 21% between 2012-16 and 2017-21, according to a report published by Stockholm International Peace Research Institute (SIPRI) in March.

Developing hardware locally has sharpened export prospects too - India's military exports touched the ₹13,000-crore mark in 2021-22 (up from ₹1,520 crore in 2016-17), according to official data.

https://www.livemint.com/industry/manufacturing/defence-import-bans-linked-to-domestic-manufacturing-11661789723798.html

THE HINDU

Mon, 29 Aug 2022

IAF to Raise First LCH Squadron at Jodhpur in October

The Indian Air Force (IAF) is set to formally raise its first unit of indigenous Light Combat Helicopters (LCHs) in Jodhpur in the first week of October coinciding with Air Force Day on October 8.

Ten LCHs will be inducted in the first batch completing one unit, a defence official said on Monday. The IAF is still working out the total number of LCHs to be acquired, the official stated.

The IAF operates the older Russian Mi-25 and Mi-35 attack helicopters, of which one squadron has been phased out following the induction of 22 Boeing AH-64E Apache attack helicopters. The existing Mi-35 squadron is in the process of being sent for overhaul which will extend its life by many years, the official stated.

The Army had already raised its first LCH squadron on June 1, 2022 in Bengaluru. As reported by The Hindu earlier, the unit will move to Eastern Command along the Line of Actual Control (LCH) on completion of the raising next year.

The Army plans to acquire 95 LCHs of which seven units, each having 10 helicopters, are planned to be deployed for combat role in the mountains.

In March 2022, the Cabinet Committee on Security (CCS) had approved procurement of 15 Limited Series Production (LSP) variants of the LCH at the cost of ₹3,887 crore along with infrastructure sanctions worth ₹377 crore. Of the 15 helicopters, 10 are for the IAF and five for the Army. The LCH is designed and developed by Hindustan Aeronautics Limited (HAL).

The Defence Ministry had stated earlier that the LCH LSP is an indigenously designed, developed and manufactured state-of-the-art modern combat helicopter containing approximately 45% indigenous content by value which will progressively increase to more than 55% for Series Production Version.

The LCH is the first dedicated attack helicopter of the Army, which otherwise operates 75 Rudra helicopters, the weaponised variant of the indigenous Advanced Light Helicopter. It will start receiving Apache attack helicopters from early 2024 onwards, six of which have been contracted

under an estimated $800 million deal from the U.S. in February 2020. It is also in talks with Boeing for the procurement of 11 additional Apache helicopters.

https://www.thehindu.com/news/national/iaf-to-raise-first-lch-squadron-at-jodhpur-in-october/article65826771.ece

Business Standard

Tue, 30 Aug 2022

Cabinet Likely to Take Up Tejas Mark 2 Case Soon to Grant Permission

By Ajai Shukla

This week, a case is scheduled to be placed before the Union Cabinet, for the grant of financial sanction and permission to proceed with the design and development of the Tejas Mark 2 – a more capable version of the indigenous Tejas Mark 1 light combat aircraft (LCA).

"The Cabinet Committee on Security, chaired by Prime Minister Narendra Modi, will accord clearance this week for the Aeronautical Development Agency (ADA) to go ahead with the design, development, testing and certification of the Tejas Mark 2 fighter," sources in the Ministry of Defence told Business Standard.

The new Tejas Mark 2 fighter is expected to be rolled out in a two-year timeframe, and its first flight will take another one year, say ADA officials. Then flight-testing and certification is expected to take another five years. That means the Tejas Mark 2 will only become operationally available around 2030.

It is estimated that the entire project, including the building of a small number of prototypes for flight testing, will require a budget of Rs 10,000 crore rupees.

The initial Tejas batches, which included 40 Tejas Mark 1 fighters and 83 Tejas Mark 1A (still under development), were developed as light fighters to replace the profusion of antiquated MiG-21 and MiG-27 light fighters in the Indian Air Force (IAF).

However, the Tejas Mark 2 variant, which is still on the drawing board, will be a larger aircraft, falling in the medium fighter category rather than the category of light fighters.

Numerous additional capabilities that the IAF and navy want incorporated into the Tejas Mark 2, will increase the weight of the 14.5-tonne Tejas Mark 1 by three tonnes, taking it into the 17.5-tonne medium fighter class.

While the two Tejas Mark 1 squadrons and four Tejas Mark 1A squadrons can be regarded as replacements for the last of the lightweight MiGs, the IAF is now billing the Tejas Mark 2 fighters as replacements for the Mirage 2000 and Jaguar medium fighters, rather than for the lightweight MiGs that are retiring soon.

Much of the Tejas Mark 2's increased weight and size comes from a more powerful and sophisticated engine demanded by the IAF and the navy. They believe that the 83 KiloNewtons (kN) of peak power provided by the current engine – the General Electric (GE) F-404IN20

engine – is inadequate for the sudden acceleration, sharp climbing and sustained turning needed in a modern fighter. To equip the Tejas Mark 2 with the power needed in the modern battlefield, ADA is powering the Mark 2 with a GE F-414INS6 engine (hereafter F-414) that delivers 98 kN of peak power.

Upgrading the Tejas' engine is equally essential for the LCA (Navy), which needs a surge of engine power for getting airborne in just 200 metres of runway that is available on an aircraft carrier's deck. The navy has demanded that ADA should develop a twin-engine fighter for carrier deck operations.

GE has already supplied the first F-414 engines for the Tejas Mark 2. These are being accommodated, along with larger air intakes, in the extra fuselage space available in the expanded Mark 2 fighter. Besides a new engine, the internals of the Tejas Mark 2 are being rearranged, to make them more accessible and maintenance friendly. Rearrangement will improve space utilisation, accessibility, and make maintenance quicker, reducing the turn-around time between operational missions.

Finally, the Tejas Mark 2 will feature upgraded avionics that are faster, lighter and smarter than the previous generation in the Mark I. This would improve combat performance and operational security. A key upgrade involves fitting indigenous Active Electronically Scanned Array (AESA) radar to replace the current ELTA EL/M-2032 multi-mode radar. The transformation of the Tejas Mark 2 from a light to a medium fighter has taken place incrementally over the preceding decade.

In 2009, the Tejas Mark 2 was categorized as a "re-engined" version of the Tejas Mark 1, with the F-404IN engine replaced by the F-414.During the three years it took to buy the F-414 engine, the IAF kept demanding additional systems and improvements in the existing ones. By 2014, when the Tejas Mark 2's preliminary design review (PDR) was conducted, the aircraft's fuselage had been stretched by half a metre and it was one-and-a-half tonnes heavier. On the positive side, the Tejas Mark 2 would also be able to carry 4.5 tonnes of payload (mainly weapons load and external fuel). This is a full tonne more than the Tejas Mark 1's maximum payload of 3.5 tonnes.

https://www.business-standard.com/article/economy-policy/cabinet-likely-to-take-up-tejas-mark-2-case-soon-to-grant-permission-122082901307_1.html

जागरण

Mon, 29 Aug 2022

दुश्मन पर वार संग आत्मनिर्भरता को भी सशक्त करेगा स्वदेश निर्मित गाइडेड राकेट लान्चर सिस्टम पिनाक

केंद्र सरकार का जोर देश की सीमाओं की रक्षा मजबूत करने के साथ ही हथियारों के निर्माण के क्षेत्र में आत्मनिर्भरता को बढ़ावा देना भी है। इसी कड़ी में दुर्गम पहाड़ी क्षेत्रों व मैदानी इलाकों में 75 किलोमीटर के दायरे में बैठे दुश्मन को खत्म करने के लिए स्वदेशी गाइडेड राकेट लान्चर सिस्टम 'पिनाक' बनकर तैयार है। यह सिस्टम 44 सेकेंड में एक के बाद एक लगातार 12 राकेट

दागकर दुश्मन को तबाह करने में सक्षम है। कानपुर स्थित एडवांस्ड वेपंस इक्विपमेंट्स इंडिया लिमिटेड की इकाई आयुध निर्माणी कानपुर (ओएफसी) के इंजीनियरों को यह हथियार प्रणाली बनाने में सफलता मिली है। देश में ओएफसी पहली आयुध निर्माणी है जिसने 'मेक इन इंडिया' के अंतर्गत उन्नत सैन्य हथियार बनाया है। अब सेना से परीक्षण रिपोर्ट मिलने का इंतजार है।

सैन्य अधिकारियों की मांग पर रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) के अंतर्गत संचालित एआरडीई के विशेषज्ञों ने पिनाक की गाइडेड स्टेबलाइजर यूनिट की डिजाइन तैयार कर ओएफसी को दी थी। ओएफसी कानपुर के महाप्रबंधक आरके सागर के निर्देशन व डीजीएम सुधीर यादव की निगरानी में इंजीनियरों ने 20 राकेट लान्चर सिस्टम में स्टेबलाइजर उपकरण लगाए। यह 20 सेट एस्टेब्लिजर यूनिट आर्मामेंट रिसर्च एंड डेवलपमेंट इस्टेब्लिसमेंट (एआरडीई) पुणे को दिए हैं। सितंबर माह में इसके परीक्षण की रिपोर्ट मिल जाएगी। हमले का ज्यादा घातक विकल्प मिला: ओएफसी महाप्रबंधक आरके सागर ने बताया कि सीमा की रक्षा को सशक्त करने के लिए भारत के दुश्मनों को सबक सिखाने के लिए ओएफसी ने पहली बार गाइडेड राकेट लान्चर बनाया है। यह पलक झपकते ही दुश्मनों पर सटीक हमला करने में सक्षम है। इस सिस्टम ने सेना को जमीन पर हमले का ज्यादा घातक विकल्प दे दिया है। इस हथियार से सेना दुश्मनों के ठिकानों को आसानी से ध्वस्त कर सकती है।

तीन चरण में होगा परीक्षण : गाइडेड राकेट लान्चर सिस्टम को तीन स्तर की परीक्षण प्रक्रिया से गुजरने के बाद सेना के बेड़े में शामिल किया जाएगा। डीआरडीओ द्वारा परखे जाने के बाद दूसरे चरण में राकेट लान्चर का परीक्षण सेना करेगी। सब ठीक मिलने पर सेना इसे अंतरराष्ट्रीय मानकों पर जांचेगी। इसके बाद ही उत्पादन का आर्डर ओएफसी को मिलेगा। अगले वित्तीय वर्ष में उत्पादन आर्डर मिलने की संभावना है।

ये हैं विशेषताएं

44 सेकेंड में 12 राकेट दागने में सक्षम है लान्चर सिस्टम

75 किमी तक है राकेट लान्चर की मारक क्षमता

388 दिन में बना लान्चर सिस्टम का मुख्य पार्ट स्टेबलाइजर यूनिट

24 से ज्यादा इंजीनियरों की टीम ने लगातार काम से पाई सफलता

एंटी टैंक व बारूदी सुरंग उड़ाने में सक्षम: पिनाक राकेट लान्चर सिस्टम के ऊपर हाई एक्सप्लोसिव फ्रेगमेंटेशन (एफएमएक्स) क्लस्टर बम, एंटी पर्सनल, एंटी टैंक और बारूदी सुरंग उड़ाने वाले हथियार लगाए जा सकेंगे।

https://www.jagran.com/uttar-pradesh/kanpur-city-indigenously-made-pinak-will-also-strengthen-self-reliance-with-an-attack-on-the-enemy-jagran-special-23023909.html

Mon, 29 Aug 2022

Army Conducts Successful Trials of Pinaka Rockets Developed by DRDO; How It'll Boost Defence Manufacturing Sector

Soon, a private company could be manufacturing over 1,000 rockets annually for use by the Indian Army.

In what could be a significant boost to the private sector, the Defence Research and Development Organisation (DRDO) has informed about the successful trials of indigenously developed and manufactured enhanced range Pinaka rockets at Balasore and Pokhran firing ranges in the past few weeks, news agency ANI reported. The Pinaka rockets have a range of over 45 km which is higher than legacy rockets that can hit targets within 37 km. According to sources, the Army test-fired more than 120 rockets to validate all technical requirements, Economic Times reported.

The rockets, built by state-owned Munitions India Limited (MIL), passed the trials along with the munitions manufactured by Nagpur-based Economic Explosives Limited (EEL) meeting all user requirements. They have been developed by DRDO with technology being shared with the industry. This is the first time that the defence sector has accepted rockets produced by the private sector for service since defence manufacturing was opened to non-governmental players in May 2021.

The success of the trials will progressively help replace imports from Russia and open up the scope of export to friendly nations. The Army, which requires 1,000 rockets of this class annually, is also expected to procure these indigenous rockets, with the order being divided between EEL and MIL. "The project showcases that the private sector can deliver when it comes to the Atmanirbhar Bharat vision," Satyanarayan Nuwal, chairman of EEL, told Economic Times.

Till now, the defence sector has been importing munitions of this class or manufacturing them at public sector undertakings. However, they were short of meeting the annual requirements of the armed forces. As a result, the Army has been looking for alternate sources of munitions to reduce its dependency on state-owned units. At the same time, the Indian Army stands to gain from the prices of privately manufactured munitions of different varieties which are estimated to be significantly cheaper than the prices offered by state-owned units. Solar Industries (India) Limited, the parent company of EEL, reported a 60 percent growth in profit after tax from Rs 276 crore in FY 2020-21 to Rs 441 crore in FY 2021-22. The company's order book value stood at Rs 2,982 crore (on a consolidated basis) as on March 31, 2022. It witnessed a 22 percent increase in sales of explosives to 4,06,372 MT in FY 2021-22 against 3,33,082 MT in FY 2020-21.

https://www.cnbctv18.com/india/army-conducts-successful-trials-of-pinaka-rockets-developed-by-drdo-14610471.htm

Mon, 29 Aug 2022

Karnataka's New Aerospace and Defence Policy Aims to Attract Rs 45,000 Crore Investment in Five Years

The Karnataka government declared on Monday that as on August 26 its Aerospace and Defense Policy 2022-27 is in force. The programme, which the government approved on August 12, aims to increase investment and make Karnataka the top location for aerospace and defence industry investments, reported The Indian Express.

The state government with the new policy aims to raise investments worth Rs 45,000 crore to the state, in the next five years, as per its policy statement.

"The policy objectives of Karnataka Aerospace and Defence Policy 2022-27 is to attract investments to the tune of Rs 45,000 crore in the aerospace and defence sector during the policy period of five years," said Dr E V Ramanna Reddy, additional chief secretary, commerce and industries department in a statement. It also hopes to create employment opportunities for about 60,000 people in the state directly and indirectly. Additionally, it aims to establish Karnataka as a centre for aerospace and defence manufacturing, with a focus on space applications for both the domestic market and exports, as well as maintenance, repair, and overhaul (MRO).

According to the press release, the policy also aims to improve the facilitation mechanism for ease of doing business through an industry-friendly policy framework.

In 2013, Karnataka became the first state to release an aerospace and defence policy, and in 2016, it underwent revisions. Additionally, the government is building phase 2 of the aerospace and defence park on more than 1,200 acres at Haralur, close to Kempegowda International Airport, as per a Karnataka state minister. Karnataka is also home to 67 percent of all aircraft and helicopter manufacturing for defence in the country.

https://www.timesnownews.com/mirror-now/in-focus/karnatakas-new-aerospace-and-defence-policy-aims-to-attract-rs-45000-crore-investment-in-five-years-article-93857700

Mon, 29 Aug 2022

Indian Army Gets Future Ready, Pushes for Mechanised Infantry Modernisation

Indian Army is getting ready for future warfare and towards this it has set out to upgrade over 2,500 Russian Infantry Combat Vehicle BMP II in its effort to modernise its Mechanised Infantry battalions. The BMP II which is the most formidable weapon platform and extremely potent will now get equipped with night fighting capabilities, high power engine as well as anti-

drone measures. According to sources in the Defence and Security establishment the BMP II which has been in service since the 80s will remain the mainstay of the Mechanised Infantry Unit. Presently they have the capability to launch rockets, mortars, missiles while moving and of course carry the troops safely.

Adding, "For modernising the Mechanised Infantry in line with Atmanirbhar Bharat in Defence initiative, the Army has plans to acquire niche technology, also interoperability with other Arms."

Upgraded BMP II will have

The upgrades that will go on the BMP II will now be focused on the Fire Control System, Automatic Target Tracker, Gunner Main Sight, Laser Range Finder, and Commander Panoramic Sight. As part of upgrade plans, the night vision capability is now going to be augmented by Thermal Imager which is based on Driver Night Sight and Commander Thermal Imaging (TI) Sight for the Commander of BMP-2/2K. The BMP II will be equipped with specialized ammunition which explodes mid-air can bring down drones and loitering munitions of a particular size.

Three Indian Companies in race

Three companies under the iDEX (Innovation for Defence Excellence) initiative were identified/qualified — Big Bang Boom, Tonbo Imaging, and Dimensions NXG. Bengaluru based start-up Tonbo Imaging which had completed the iDEX Challenge first has proven and successfully deployed an operational system.

There has been a delay in trials as the Indian Army was avoiding a single vendor situation in the case of BMP II upgrade as one of the companies in race offered a system which was just a concept and another's system was functionally flawed.

Earlier this month the trials started in Hyderabad and the biggest upgrade the existing BMP II would have is the "see through armour''. This means the troops inside can get a full view of the situation outside in day/night. "This is a big technological leap, as this will increase situational awareness," explained the source.

The upgraded BMP will now be upgraded with magnetic trackers and cameras which will be integrated with helmet display. What does this mean? According to another source in the defence and security establishment, the helmet display integrated with the cameras will enable the commander to see images of surroundings onto the insides of the tanks as if he is seeing through the armour. This is possible due to the magnetic tracker which senses the movement of the head and videos are displayed from the same direction.

For precise manoeuvering and situational assessment, sources explained that the head mounted display can also have an interface with the GPS system. The commander will get a wider view of the possible targets and threats.

Deployed in eastern Ladakh

In 2020, Financial Express Online reported in an effort to deter the Chinese troops, the Indian Army had deployed BMP2s on the confluence of the Galwan Valley and the Shyok River. They were deployed along the most critical locations including DSDBO road, and the road going towards the DBO.

The armies of Indian and China continue to be locked in a standoff at several friction points along the Line of Actual Control in eastern Ladakh, despite several rounds of military, diplomatic and political talks.

Background

The Indian Army's Mechanised Infantry in the last four decades has proven its capability to be employed in both conventional and unconventional operations. It has excelled in different terrains and operations including high altitude areas of Eastern Ladakh & Sikkim, plains of Punjab and deserts of Rajasthan. And proved its mettle in amphibious operations and United Nations assignments.

The Indian Army has the BMP 2 which is being indigenously manufactured in India at the Ordnance Factory Board and there are plans to involve the private sector companies in the manufacturing process. The BMP 2s which are being manufactured here in India have everything `Made in India,' however lacks night-vision capability. How does it impact the BMP? "When it is dark, there is smoke, or there is fog or dust, it becomes impossible for the BMP to function, as it literally goes blind," explained the source quoted above.

While the upgrade of the BMP II will be going on the Indian Army is pursuing Futuristic Infantry Combat Vehicle (FICV), a programme which was put on hold has been revived and will eventually replace the former Soviet origin BMPs.

FICV

The Indian Army is planning to replace BMP-IIs with around 480 locally developed FICVs and soon will seek government's approval for AoN (Acceptance of Necessity). In June 2021 for the third time the Indian Army had sent an RFI for the long delayed FICV.

"The army will seek the defence acquisition council's acceptance of necessity (AoN) for the FICVs at the earliest. We are simultaneously pursuing modernisation plans for tracked and wheeled vehicles. A few approvals have already come," the second official added.

More about the planned modernisation

The Indian Army has adopted a twin approach – this includes replacing the vintage with the futuristic platforms and capability enhancement of the existing equipment. This will be done through upgrades for enhancing night enablement, Surveillance and Reconnaissance (ISR) capability, lethality, and intelligence.

As part of the modernisation of the Mechanised Infantry plans are to equip it with lethal capability beyond visual range (BVR), state-of-art missiles and include the Fire and Forget Anti-Tank Guided Missiles (ATGMs).

There are plans to acquire the Canister Launched Loiter Munition System which will be integrated on BMP II/ Carrier Mortar Tracked (CMT) chassis.

Anti-drone capability to be enabled on the existing equipment, and changes in aerial sight for effectively exploiting the ability of stabilised and to engage aerial targets is being pursued for the automatic 30 mm Cannon and co-axially mounted 7.62 mm Machine Gun (PKT). For Reconnaissance and Support (Tracked) Battalions there are plans to acquire the Nag Missile

System (NAMIS). Last month, the Ministry of Defence had amended AoN for quantity 13 Nag Missile Carrier (NAMICA) and 293 Nag Missiles.

On July 29, 2022, AoN for 177 Infantry combat vehicle, Command (ICV Comd) was accorded.

Wheeled Family

To replace Soviet-origin BRDM reconnaissance vehicles, AoN has been accorded 105 New Wheeled Armoured Fighting Vehicle (WhAFV). For Standard Mechanised Infantry Battalions (Wheeled), New Wheeled Infantry Combat Vehicle (Wh ICV).

To replace the existing modified Maruti Gypsy, RFI issued last month for Light Armoured Multi-Purpose Vehicle (LAMV) which will have enhanced mobility and protection for Recce Platoon.

https://www.financialexpress.com/defence/indian-army-gets-future-ready-pushes-for-mechanised-infantry-modernisation/2648447/

Mon, 29 Aug 2022

Vostok 2022 Drills from Sept 1-7 Will Involve More Than 50,000 Troops from China, India and Several Other Countries

Russia said on Monday that the Vostok 2022 military exercises will be held from September 1 to 7 in different locations in the Far East and the Sea of Japan and involve more than 50,000 troops from China, India and several other countries.

"The Vostok 2022 strategic command and staff exercise envisages various scenarios of operations by combined arms and coalition forces (troops) to ensure military security of the Russian Federation and its allies within the area of responsibility of the Eastern Military District," the Russian Defence Ministry was quoted as saying by the state-owned TASS news agency in a statement.

The drills will be held from September 1-7 and "practice defensive and offensive operations" at seven training grounds of the Eastern Military District and in maritime and coastal areas of the Sea of Okhotsk and the Sea of Japan, the ministry said.

"The strategic maneuvers will bring together over 50,000 troops and more than 5,000 items of armaments and military hardware, in particular, 140 aircraft, 60 combat ships, gunboats and support vessels," it said, adding that it will engage troops from China, India, Laos, Mongolia, Nicaragua, Syria and several ex-Soviet nations.

There were no immediate comments from the Indian Army or the Ministry of Defence in New Delhi on the participation of Indian soldiers at the Vostok-2022 military exercises in Russia. Russia's military contingent in the drills will involve military command centers and troops of the Eastern Military District, Airborne Force units, long-range and military transport planes, the

Russian defence ministry said. “The drills are set to master the skills of commanders and headquarters in exercising command and control of combined arms and coalition forces to repel acts of aggression in the Eastern direction and in the Far Eastern maritime zone, raise compatibility and interoperability of the collation forces in jointly coping with the objectives of maintaining peace, protecting interests and ensuring military security in the Eastern region,” the ministry said.

The maneuvers will also check the preparedness of military command centers in planning operations in maritime areas, ensuring all-embracing logistics support, command and control of battlegroups in warfare, it said. The tactical episodes of the drills are based on various scenarios of practical operations by military contingents of Russia and partner states, with the basic stage to be held at the Sergeyevsky practice range, the ministry said.

The Russian and Chinese naval forces will practice joint operations in the Sea of Japan to defend sea lanes and areas of maritime economic activity and assist ground forces in maritime directions, it added.

Last year, India attended Exercise ZAPAD 2021 drills in Russia in which 17 countries including China and Pakistan took part.

The Russian defence ministry stated earlier that during the drills the participating forces would practice measures to maintain military security in the eastern region.

Earlier this month, the Chinese Defence Ministry in a press release said the People’s Liberation Army (PLA) has sent personnel to participate in this exercise, which aims to deepen pragmatic and friendly cooperation with the militaries of participating countries, enhance the level of strategic coordination of all participating parties, and enhance the ability to deal with various security threats.

The drills are unrelated to the current international and regional situation, it said, apparently referring to the Ukraine war as well as the Ladakh standoff. The eastern Ladakh border standoff erupted on May 5, 2020, following a violent clash in the Pangong lake areas.

As a result of a series of military and diplomatic talks, the two sides completed the disengagement process last year on the north and south banks of the Pangong lake and in the Gogra area.

So far, the two sides held 16 rounds of Corps Commander Level talks to resolve the prolonged standoff.

https://www.financialexpress.com/defence/vostok-2022-drills-from-sept-1-7-will-involve-more-than-50000-troops-from-china-india-and-several-other-countries/2648366/

Science & Technology News

INDIA TODAY

Mon, 29 Aug 2022

Artemis-1 Launch to Moon Scrubbed Due to Engine Issue, Next Attempt on Sept 2

Nasa on Monday scrubbed the launch of the Space Launch System (SLS) on the maiden Moon mission over issues with an engine that would have powered the rocket on a course to the lunar world. The clock was stopped and reset repeatedly as issues were encountered during the fueling of the rocket.

The 322-foot (98-meter) Space Launch System rocket is the most powerful ever built by Nasa. (Photo: Nasa)

The launch was scrubbed after engineers failed to get the RS-25 engines on the bottom of the core stage to the proper temperature range for liftoff. As the two-hour launch window ended, Nasa was forced to cancel the mission. The next available opportunity for launch is on September 2, depending on how the issue is fixed from today's failed attempt.

"The Space Launch System rocket and Orion spacecraft remain in a safe and stable configuration. Launch controllers were continuing to evaluate why a bleed test to get the RS-25

engines on the bottom of the core stage to the proper temperature range for liftoff was not successful," Nasa said in an update.

Earlier, engineers encountered an issue with fueling, which was running nearly an hour late because of thunderstorms off Florida's Kennedy Space Center. Nasa repeatedly stopped and started the fueling of the Space Launch System rocket with nearly 1 million gallons of super-cold hydrogen and oxygen because of a leak.

The leak of highly explosive hydrogen appeared in the same place that saw seepage during a dress rehearsal back in the spring. Then a second apparent hydrogen leak turned up in a valve that had caused trouble in June but that NASA thought it had fixed, officials said.

Engineers had also spotted what they feared was a crack or some other defect on the core stage — the big orange fuel tank with four main engines on it — but they later said it appeared to be just a buildup of frost.

The maiden mission is aimed at pushing the Orion spacecraft, nearly 60,000 kilometers beyond the Moon and back in a series of intense maneuvers that will establish the spacecraft is fit to fly humans into lunar orbit and surface.

The 322-foot (98-meter) Space Launch System rocket is the most powerful ever built by Nasa. The follow-on Artemis flight, as early as 2024, would see four astronauts flying around the moon.

https://www.indiatoday.in/science/story/artemis-1-launch-to-moon-scrubbed-due-to-engine-issue-next-attempt-on-sept-2-1994059-2022-08-29

The Indian EXPRESS

Tue, 30 Aug 2022

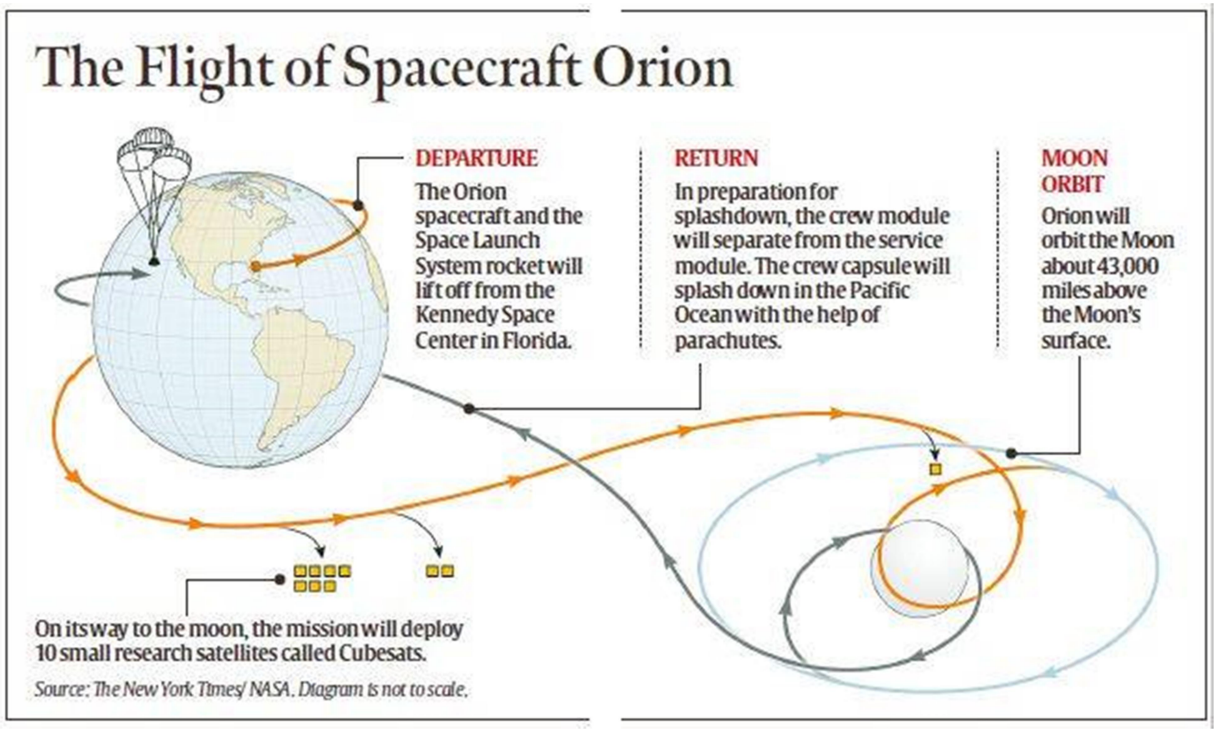
Explained: Destination Moon, and Beyond

The launch of a keenly awaited space mission that is being seen as the start of a new age in space exploration had to be put off on Monday evening after engineers were unable to resolve a problem involving inadequate flow of liquid hydrogen to one of the rocket's four engines. NASA's Artemis 1 mission is aimed at exploring the Moon with the specific objective of getting human beings back on the lunar surface and possibly beyond — to Mars and elsewhere.

NASA did not say when it would attempt to launch the mission again. There are at least two windows of opportunity in the next one week, and more after a few weeks. But it will all depend on how soon the problem is fixed.

Back to the Moon

It has been 50 years since the six Apollo human moon landings between 1969 and 1972. There has been huge progress in space exploration since then. Spacecraft have now gone beyond the solar system, exploratory missions have probed Mars, Jupiter and Saturn, more than 500 astronauts have travelled to space and back, and permanent space laboratories like the International Space Station (ISS) have been set up.



However, the promise of transporting human beings to new worlds, the possibility of landing, and living, on other planets, or travelling deep into space, probably even encountering aliens, has remained stagnant since the last of the 12 astronauts to set foot on the Moon returned in 1972.

This is why Artemis 1 is being seen as ushering in a new space age. It is the first in a series of ambitious missions that are planned to take human beings back to the Moon, explore possibilities of extended stay there, and investigate the potential to use it as a launch pad for deep space explorations.

On the face of it, Artemis 1 has extremely humble mission objectives. It is technically only a lunar Orbiter mission. It is not carrying any astronauts. It does not even have a lander or rover component. The mission's spacecraft, called Orion, will get into a lunar orbit that would be about 97 km from the Moon's surface at its closest. But unlike most other Orbiter missions, Orion has a return-to-Earth target after it has orbited the Moon for about a month.

Not reinventing the wheel

Although the objective is to ensure the return of human beings to the Moon, the Artemis missions are going to be qualitatively very different from the Apollo missions. In many ways, the Moon landings of the 1960s and 1970s came a little too early in the space age. Man had reached the Moon just 12 years after the first-ever satellite, Sputnik, had been launched.

The Apollo missions were guided by geo-political considerations, and the desire of the United States to go one up on the Soviet Union which had taken a considerable lead in space technology, having sent the first satellite in space, the first spacecraft to crash on to the lunar surface, and the first astronaut in space.

President John F Kennedy had made a public announcement in 1961 that the US would put a man on the Moon before the decade was out. That deadline was met, thanks to a massive

mobilisation of resources towards that end. But the technology ecosystem that could have maximised the benefits of such a major scientific breakthrough was still to be built. Therefore, astronauts landing on the moon could do little than bring back samples back to Earth for investigations.

The Artemis missions are in a position to exploit the major advancements in space technologies over the years. These technologies now make it possible to start extracting the resources found on the Moon, build from the materials available there, harness hydrogen or helium as energy source. Not all of that would happen with the first mission itself, but these things are distinctly possible now, making human landings on the Moon much more meaningful than earlier.

Setting the stage

Artemis 1 is all about laying the foundations for more complex and ambitious missions. It is carrying several payloads in the form of small satellites called CubeSats, each of which is equipped with instruments meant for specific investigations and experiments. The focus of these investigations is clearly to explore long-term stays of human beings in space, and on the Moon. One CubeSat will search for water in all its forms, another will map the availability of hydrogen that can be utilised as a source of energy. Then there are biology experiments, investigating the behaviour of small organisms like fungi and algae in outer space, and the effect of radiation, especially the reaction on their genes.

The Orion spacecraft, which is specifically designed to carry astronauts into deep space on future missions, will have three dummy 'passengers' — mannequins made of material that mimic human bones, skin, and soft tissue. These would be equipped with a host of sensors to record the various impacts of deep space atmosphere on the human body.

The rocket that is being used for the Artemis missions, called Space Launch System, or SLS, is the most powerful ever built, more powerful than the Saturn V rockets that had taken the Apollo missions to the Moon. The giant, 98-metre-tall rocket, weighing 2,500 tonnes, can help the Orion spacecraft achieve speeds of over 36,000 km per hour, and take it directly to the Moon, which is 1,000 times farther than the International Space Station that sees a regular traffic of astronauts.

The aborted launch

The excitement around the mission will, however, have to be held back for the time being. There was a two-hour window on Monday to launch the mission, between 8.33 am and 10:33 am Eastern Daylight Time (about 6 pm to 8 pm in India). The launch was called off shortly after 8.33 am (6 pm India time) since the engineers who had been working on the problem for over two hours had been unable to resolve the issue.

The problem had been detected a few hours ahead of the launch. The flow of liquid hydrogen to one of the four engines of the rocket was not found to be optimal, which could have resulted in over-heating.

"We don't launch until it's right," NASA Administrator Bill Nelson said on NASA TV after the launch was aborted.

"It's just illustrative that this is a very complicated machine… They're going to work it. They're going to get to the bottom of it… We'll get it fixed and then we'll fly," he said.

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