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Modi rides made-in-India Arjun tank, DRDO hopes Army will fast-track big order

The Army plans to place an order for 118 Arjun Mark 1-A ‘Hunter Killer’ tanks, each of which weighs 68 tonnes and features a 120mm main gun

By Snehesh Alex Philip

New Delhi: Prime Minister Narendra Modi rode on an Arjun tank Saturday, on a trip to the Longewala Post in the Jaisalmer sector of Rajasthan to celebrate Diwali with soldiers.

The PM’s ride aboard the made-in-India tank seemed to be another signal towards his ‘vocal for local’ push and the Defence Research and Development Organisation (DRDO) hopes this will pave the way for the Army to order 118 Arjun Mark 1-A tanks.

“I was so happy to see the Prime Minister riding the Arjun Main Battle Tank. With this, we are hopeful that the Army’s order for two regiments of Arjun Mk 1-A tanks will be fast-tracked,” V. Balamurugan, director of the Chennai-based Combat Vehicles Research and Development Establishment (CVRDE), a DRDO laboratory, told ThePrint.

The Arjun Mark 1-A weighs 68 tonnes and features a 120 mm main gun. The Army plans to place an order for 118 of them, and the file for Acceptance of Necessity is being processed, sources in the defence and security establishment said. The sources added that the Covid-19 pandemic and the tensions with China had slowed down the process.

Known as the ‘Hunter Killer’, Arjun Mark 1-A comes with 14 major improvements sought by the Army, which would make it the most potent and self-protective tank in India’s inventory.

History of Arjun and the ‘Hunter Killer’

The Arjun Main Battle Tank project was initiated in the mid-1970s. However, it was only in 2004 that the first two regiments of the tank were inducted into the Army.

The Arjun MBT outperformed Russian T-90s during a desert trial conducted by the Army in 2010. But a number of issues — including excess weight, problems with certain parts, and availability of spare parts, meant that the Arjun MBTs have never been used to their optimal capability.

In 2010 itself, the Army proposed an improved version of the tank, which would be called the Mark II, and was to have over 80 improvements, including 15 major ones.

In 2012, the DRDO offered the Arjun tank for trials with all the major enhancements, except one — a cannon-launched guided missile (CLGM).



The Army's insistence on having a CLGM meant that the project kept getting delayed, until it was finally agreed in March 2018 that the next batch of Arjuns, to be called Mark 1-A, would be supplied without the missile firing capability.

However, now, the indigenously developed laser-equipped anti-tank guided missile (ATGM) has been successfully fired twice from the Arjun MBT. DRDO is aiming for ATGM user trials by February next year.

The Mark 1-A features four upgrades to the Arjun MBT's firepower, besides other developments including new transmission systems.

The upgrades include an improved gunner's main sight, integrated with automatic target tracking. This means that the tank crew will be able to track moving targets automatically, and engage them even when Arjun is on the move.

The tank's 120 mm gun is controlled by a computerised integrated fire control system, which ensures that the Mark-1A has a high first-round-kill capability.

The gun's day-and-night stabilised sights, coupled with automatic target tracker, guarantee accurate engagement even in dynamic conditions, DRDO sources had earlier said.

<https://theprint.in/defence/modi-rides-made-in-india-arjun-tank-drdo-hopes-army-will-fast-track-big-order/544730/>



Sun, 15 Nov 2020

PM Modi rides on Arjun's 'aatmanirbhar' fire power to send message to Pakistan, China

The Indian army will raise two more regiments of Arjun MK1A (Mark 1 Alpha), which will have 72 improvements over the Mark 1 tank, out of which 14 are major improvements and 58 are minor

By Shishir Gupta

New Delhi: Prime Minister Narendra Modi on Saturday rode an Arjun tank as he spent his Diwali at the Longewala Post at the Western border. The message of vocal for local is loud and clear as the Arjun is the first indigenously developed battle tank of the India Army.

The Indian army will raise two more regiments of Arjun MK1A (Mark 1 Alpha), which will have 72 improvements over the Mark 1 tank, out of which 14 are major improvements and 58 are minor.

The new regiments will be inducted in the next six months. "The acceptance of necessity for the procurement of 118 Arjun MBT Mk1A is being progressed. We are expecting the indent in another three to four months," a senior DRDO official said. Two regiments will have 59 tanks each.

With panoramic vision thermal imaging feature, the commander of the tank will be in control of the situation. It also has a remote control weapon system to deter low-flying objects like helicopters. It also has a mine-plough feature which can dig as deep as one foot. It can fire thermobaric ammunition and penetration-cum-blast ammunition.

The Arjun entered the India Army Services in 2004. The army has, so far, inducted 124 Arjun tanks which are deployed along the border with Pakistan in Jaisalmer.



Prime Minister Narendra Modi rides in an Army tank at Longewala in Jaisalmer, Saturday.(PTI)

The defence sector is at the forefront when it comes to India's push for 'vocal for local'. The ministry recently came out with a list of 101 defence items, importing which are banned.

PM Modi's message to Pakistan and China come at a significant time when Indian army is engaged in a faceoff with the PLA on the Line of Actual Control. On Friday, five jawans were killed in a Pakistani aggression along the Line of Control (LoC).

"Today, country's Army is engaged in military exercises with other big countries. We are engaged in strategic partnerships to fight against terrorism," the Prime Minister in Jaisalmer.

"Today the whole world is troubled by expansionist forces. Expansionism is, in a way, a mental disorder and reflects 18th-century thinking. India is also becoming a strong voice against this thinking," PM Modi in a veiled dig at China.

<https://www.hindustantimes.com/india-news/pm-modi-rides-on-arjun-s-aatmanirbhar-fire-power-to-send-message-to-pakistan-china/story-Mcgg6itdrOVDKUFaMFRrsI.html>



Sun, 15 Nov 2020

'Vocal for local'! Modi rides on Arjun battle tank

The DRDO had developed an improved version of the Arjun, called the Arjun MK-1A

Prime Minister Narendra Modi has made it a point of spending Diwali with personnel of the armed forces at their forward bases. Diwali in 2020 was no different as Modi visited Army personnel in Jaisalmer, Rajasthan, close to the border with Pakistan. As has been his practice, Modi distributed sweets to the soldiers and gave a rousing speech.

During his speech, Modi referred to his government's stress on self-reliance and the 'vocal for local' campaign and complimented the armed forces for the decision to bar import of over 100 weapons and defence equipment.

And Modi, perhaps, highlighted his commitment to 'vocal for local' by finding time to get atop an Arjun main battle tank of the Indian Army. The Arjun is the first indigenously developed battle tank of the Indian Army. The first of 124 Arjun tanks were delivered to the Indian Army in 2004 after development of the project started in the 1970s. The Arjun has been the subject of considerable criticism given its significantly heavier weight (over 55 tonnes versus less than 45 tonnes for Russian T-72 and T-90 tanks) and issues with its engine.

The project that resulted in the Arjun tank took on a sense of urgency in the 1980s as news emerged that Pakistan was evaluating the US-built M1 Abrams tank. The Abrams was significantly heavier and better protected than the Russian T-72. In fact, Pakistan's military dictator general Zia ul Haq was killed in a plane crash in August 1988 as he was returning to Rawalpindi after attending a demonstration of the M1 Abrams in Bahawalpur. While Pakistan ultimately did not buy the Abrams, the Arjun's designers had already decided to 'beef up' their tank.

The Arjun features a 120mm rifled-bore gun in comparison to a 125mm smoothbore gun found on the T-72 and T-90. It also has a formidable armour system called the Kanchan that was indigenously developed.

The DRDO had developed an improved version of the Arjun, called the Arjun MK-1A, which has improved fire control, sighting system and transmission compared with the first-generation Arjun tanks.

In March this year, it was reported that the defence ministry had concluded negotiations with the Ordnance Factory Board for 118 Arjun Mk-1A tanks, with a tentative price of \$888.7 million.

<https://www.theweek.in/news/india/2020/11/14/vocal-for-local-modi-rides-on-arjun-battle-tank.html>

After PM Modi's Arjun tank ride, DRDO hopes to get orders for advanced tank

New Delhi: Buoyant after Prime Minister Narendra Modi's Arjun tank ride in Jaisalmer, the Defence Research Development Organisation (DRDO) on Saturday expressed hope that it would soon be getting an order for supplying 118 Arjun Mark 1A tanks which are far more advanced than the present version.

"We were really proud to see the Prime Minister taking a ride in the Arjun tank in the deserts of Jaisalmer. We are now hoping that the Army would soon be placing orders for two more regiments of Arjun Mark 1A tanks," DRDO's scientist V Balaguru said.

Balaguru is the Associate Director of the Combat Vehicle Research Development Research Establishment laboratory of DRDO in Chennai.

The Army has, so far, inducted 124 Arjun tanks which are deployed in the deserts of Jaisalmer along the border with Pakistan. Balaguru said the Arjun Mark 1A has 72 added features than its older version with the capability of taking care of anti-tank mines on its own with its mine ploughs.

The 12.7-inch air defence gun also can now be operated from inside the tank by the tank commander using a remote control without exposing himself to the enemy firing in times of tank battles in open fields. The exiting two regiments are deployed around Jaisalmer as part of an armoured brigade there.

DRDO is also hoping to provide the solution for Indian Army's next generation main battle tank requirements as part of the Aatmanirbhar Bharat initiative of PM Narendra Modi.

<https://timesofindia.indiatimes.com/india/after-pm-modis-arjun-tank-ride-drdo-hopes-to-get-orders-for-advanced-tank/articleshow/79227993.cms>

India to carry out multiple launches of BrahMos supersonic cruise missiles by month-end

New Delhi: Amid the ongoing tensions with China, India is all set to showcase the massive firepower of the BrahMos supersonic cruise missile by the month-end.

The three defence forces would carry out multiple firings of the Defence Research and Development Organisation (DRDO) developed missile system in the Indian Ocean Region in the last week of this month.

The BrahMos supersonic cruise missile is the world's fastest operational system in its class and recently DRDO has extended the range of the missile system from the existing 298 km to around 450 km.

The defence services are scheduled to carry out multiple test-firings of the BrahMos in the last week of November against different targets in the Indian Ocean Region. The tests would help the defence services to further improve the performance of the missile system, government sources told ANI.



In the last two months, DRDO has been successful in testing both new and existing missile systems including the Shaurya missile system which can hit targets at over 800 km and technology demonstration vehicles for hypersonic missile technology.

Recently, the Indian Air Force had flown its Sukhoi-30 aircraft from the Halwara air base in Punjab and launched the BrahMos supersonic cruise missile at an old warship acting as its target in the Bay of Bengal area. The air-launched version of the missile has been used to equip a squadron of the Air Force in Thanjavur in Tamil Nadu.

The BrahMos-equipped aircraft from the squadron were also deployed close to the Northern borders soon after the conflict with China had started and 20 Indian soldiers lost their lives in the Galwan valley in a clash with the Chinese Army.

Last month, the Indian Navy had also carried out the test firing of the Brahmos missile from its warship INS Chennai to showcase its capability to strike targets at ranges more than 400 km in high seas.

India is also working on finding export markets for the supersonic cruise missile which has been indigenised to a large extent by the DRDO under its project PJ 10.

After the launch of the joint venture between India and Russia in the late 90s, the Brahmos supersonic cruise missile has become a potent weapon for the all three armed forces which are using them for different roles in different trains.

<https://timesofindia.indiatimes.com/india/india-to-carry-out-multiple-launches-of-brahmos-supersonic-cruise-missiles-by-month-end/articleshow/79232851.cms>

नवभारत टाइम्स

Mon, 16 Nov 2020

चीन से तनाव के बीच इस महीने के आखिर तक ब्रह्मोस मिसाइलों का ताबड़तोड़ टेस्ट करेगा भारत

पिछले दो महीनों में, DRDO नई और मौजूदा मिसाइल प्रणालियों का परीक्षण करने में सफल रहा है, जिसमें शौर्य मिसाइल प्रणाली शामिल है। भारत ने देश में विकसित, परमाणु हथियार ले जाने में सक्षम और आवाज की गति से भी तेज चलने वाली 'शौर्य' मिसाइल का ओडिशा के परीक्षण रेंज से सफल परीक्षण किया था।

By Vineet Tripathi

नई दिल्ली: चीन के साथ जारी तनाव (India-China Tension) के बीच भारत हर मोर्चे पर खुद को मजबूत करने की कोशिश कर रहा है। भारत ने अपनी तीनों सेनाओं को अलर्ट पर रखा है। अब इस महीने के आखिरी तक ब्रह्मोस सुपरसोनिक क्रूज मिसाइल (BrahMos supersonic cruise missiles) की मारक क्षमता का टेस्ट होगा। रक्षा अनुसंधान और विकास संगठन (DRDO) ने इस महीने के अंतिम सप्ताह तक हिंद महासागर क्षेत्र में इस मिसाइल के ताबड़तोड़ टेस्ट करेगा।

ब्रह्मोस सुपरसोनिक क्रूज मिसाइल अपनी श्रेणी में दुनिया का सबसे तेज ऑपरेशनल सिस्टम है। हाल ही में डीआरडीओ ने मिसाइल प्रणाली की मारक क्षमता को 298 किमी से बढ़ाकर लगभग 450 किमी कर दिया है। सरकारी सूत्रों ने एएनआई को बताया कि परीक्षण से रक्षा सेवाओं को मिसाइल प्रणाली के प्रदर्शन में सुधार करने में मदद मिलेगी।

शौर्य मिसाइल की ताकत

पिछले दो महीनों में, DRDO नई और मौजूदा मिसाइल प्रणालियों का परीक्षण करने में सफल रहा है, जिसमें शौर्य मिसाइल प्रणाली शामिल है। भारत ने देश में विकसित, परमाणु हथियार ले जाने में सक्षम और आवाज की गति से भी तेज चलने वाली 'शौर्य' मिसाइल का ओडिशा के परीक्षण रेंज से सफल परीक्षण किया था। रक्षा सूत्रों ने बताया कि



इस मिसाइल की मारक क्षमता 700 किलोमीटर से 1,000 किलोमीटर के बीच है और यह 200 किलोग्राम से 1,000 किलोग्राम भार ले जाने में सक्षम है। यह मिसाइल भारत की के-15 मिसाइल का भूमि संस्करण है।

चीन से तनाव के बाद ब्रह्मोस तैनात

चीन के साथ संघर्ष शुरू होने के तुरंत बाद स्काइन से लैस ब्रह्मोस से लैस विमानों को भी उत्तरी सीमाओं के करीब तैनात किया गया था। पिछले महीने, भारतीय नौसेना ने अपने युद्धपोत आईएनएस चेन्नई से 400 किलोमीटर से अधिक ऊंचे समुद्रों में लक्ष्य पर वार करने की अपनी क्षमता दिखाने के लिए ब्रह्मोस मिसाइल का परीक्षण फायरिंग किया था।

ब्रह्मोस से घबराता है चीन

ब्रह्मोस की शक्ति का अहसास इससे भी हो जाता है कि चीनी सेना कहती रही है कि भारत द्वारा अरूणाचल सीमा पर ब्रह्मोस की तैनाती किए जाने से उसके तिब्बत और यूनान प्रांत पर खतरा मंडराने लगा है। यह देश की सबसे आधुनिक और दुनिया की सबसे तेज क्रूज मिसाइल मानी जाती है, जो पहाड़ों की ओट में छिपे दुश्मन के ठिकानों को भी निशाना बना सकती है। भारत जिस प्रकार पिछले कुछ दिनों से एक के बाद सफल मिसाइल परीक्षण कर रहा है, वह टाइमिंग के दृष्टिकोण से बहुत महत्वपूर्ण है और इसे भारत-चीन के बीच गहरा रहे सीमा विवाद के समय में चीन को कड़े संदेश के रूप में देखा जा रहा है।

अमेरिका भी पीछे

भारतीय वायुसेना और नौसेना के बेड़े में शामिल चुनिंदा सुपरसोनिक क्रूज मिसाइलों में शामिल ब्रह्मोस के सफल परीक्षणों के बाद तो भारत की सामरिक ताकत काफी बढ़ गई है। यह अमेरिका की टॉम हॉक मिसाइल के मुकाबले करीब चार गुना तेजी से हमला कर सकती है। टॉम हॉक के मुकाबले इसकी प्रारंभिक गतिज ऊर्जा करीब 32 गुना अधिक है।

भारत-रूस ने मिलकर बनाई ब्रह्मोस

दुश्मन के लिए बेहद खतरनाक मानी जाने वाली ब्रह्मोस भारत-रूस के संयुक्त प्रयासों द्वारा विकसित की गई अब तक की सबसे भरोसेमंद आधुनिक प्रक्षेपास्त्र प्रणाली है, जिसने भारत को मिसाइल तकनीक में अग्रणी देश बना दिया है। इसे राफेल तथा सुखोई-30एमकेआई के अलावा नौसेना के मिग-29के में भी तैनात किया जा सकता है। ब्रह्मोस को रूस के एनपीओ मैशिनोस्ट्रोनिया (एनपीओएम) के साथ मिलकर भारत के डीआरडीओ ने तैयार किया है। रूस द्वारा इस परियोजना में प्रक्षेपास्त्र तकनीक उपलब्ध कराई जा रही है जबकि उड़ान के दौरान मार्गदर्शन करने की क्षमता डीआरडीओ द्वारा विकसित की गई है।

आवाज की स्पीड से तेज मिसाइल की स्पीड

ब्रह्मोस की रेंज पहले 290 किलोमीटर तक थी, जिसे बढ़ाकर 400 किलोमीटर से ज्यादा कर दिया गया है। पलक झपकते ही दुश्मन के ठिकानों को नष्ट करने के लिए ब्रह्मोस को पनडुब्बी, युद्धपोत, लड़ाकू विमान या जमीन से अर्थात् कहीं से भी दागा जा सकता है। यह प्रमुख रूप से पनडुब्बियों, जहाजों और नौकाओं को निशाना बनाने में मददगार साबित होगी। ब्रह्मोस रैमजेट सुपरसोनिक क्रूज मिसाइल ध्वनि की रफ्तार से भी तीन गुना तेजी से अपने लक्ष्य पर वार कर सकती है। इसकी रफ्तार करीब 3457 किलोमीटर प्रति घंटा है और इसकी बड़ी विशेषता यह है कि यह आसानी से दुश्मन के रेडार से बच निकलने में सक्षम है। 'ब्रह्मोस' नाम दो नदियों, भारत की ब्रह्मपुत्र नदी के 'ब्रह्म' और रूस की मोस्का नदी के 'मोस' को मिलाकर बना है।

<https://navbharattimes.indiatimes.com/india/defence-research-and-development-organisation-drdo-developed-missile-system-in-the-indian-ocean-region-in-the-last-week-of-this-month/articleshow/79233481.cms>

हिंद महासागर में माह के अंत में भारत करेगा ब्रह्मोस की आतिशबाजी, तीनों सेनाएं मिसाइलों से भेदेंगी लक्ष्य

ब्रह्मोस सुपरसोनिक क्रूज मिसाइल को पनडुब्बी से पानी के जहाज से विमान से या जमीन से भी छोड़ा जा सकता है। चीन से तनाव के बीच भारत ब्रह्मोस सुपरसोनिक क्रूज मिसाइलों के ताबड़तोड़ परीक्षण हिंद महासागर में करने वाला है।

By Bhupendra Singh

नई दिल्ली: चीन से जारी तनाव के बीच भारत इसी माह के अंत तक अपनी ताकत को आजमाने के लिए ब्रह्मोस सुपरसोनिक क्रूज मिसाइलों के ताबड़तोड़ परीक्षण करने वाला है। नवंबर के आखिरी हफ्ते में तीनों सशस्त्र सेनाएं हिंद महासागर क्षेत्र में स्वदेशी मिसाइलों को लांच करेंगी।

महीने के अंत में थल सेना, नौसेना और वायुसेना करेंगे ब्रह्मोस के कई परीक्षण

सरकारी सूत्रों के अनुसार इस महीने के अंत में थल सेना, नौसेना और वायुसेना ब्रह्मोस के कई परीक्षण करेंगे। इनका मकसद हिंद महासागर में इन मिसाइलों से कई लक्ष्यों को भेदना होगा। ब्रह्मोस के इन परीक्षणों से मिसाइल प्रणाली के प्रदर्शन में और सुधार आएगा और यह सांकेतिक रूप में पड़ोसी देशों को हद में रहने की चेतावनी का भी काम करेगा।

डीआरडीओ की विकसित मिसाइल का रेंज 298 से बढ़ाकर 450 किमी किया

ब्रह्मोस सुपरसोनिक क्रूज मिसाइल को रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) की विकसित इस मिसाइल का रेंज हाल ही में 298 किमी से बढ़ाकर 450 किमी किया गया है। कम दूरी की रैमजेट, सुपरसोनिक क्रूज मिसाइल विश्व में अपनी श्रेणी में सबसे तेज गति वाली है। इसे पनडुब्बी से, पानी के जहाज से, विमान से या जमीन से भी छोड़ा जा सकता है। यह रूस की पी-800 ऑकिस क्रूज मिसाइल की प्रौद्योगिकी पर आधारित है। ब्रह्मोस के समुद्री तथा थल संस्करणों का पहले ही सफलतापूर्वक परीक्षण किया जा चुका है। भारतीय सेना, वायुसेना एवं नौसेना को सौंपा जा चुका है। इसने भारत को मिसाइल तकनीक में अग्रणी देश बना दिया है।

देश की उत्तरी सीमाओं पर ब्रह्मोस से सुसज्जित युद्धक विमानों की स्काइड्रन तैनात

हाल ही में भारतीय वायुसेना ने पंजाब में हलवारा एयरबेस से सुखोई-30 विमानों में ब्रह्मोस मिसाइल को लैस करके बंगाल की खाड़ी में स्थित एक पुराने युद्धपोत को निशाना बनाया था। मिसाइल के इस परीक्षण का मकसद तमिलनाडु के तंजावुर स्थित वायुसैनिक अड्डे पर ब्रह्मोस मिसाइलों की एक स्काइड्रन को तैयार करना था। चीन से तनाव के बीच गलवान में भारतीय जवानों के शहीद होने के बाद उत्तरी सीमाओं पर भी ब्रह्मोस से सुसज्जित युद्धक विमानों की स्काइड्रन तैनात की गई है। पिछले ही महीने भारतीय नौसेना ने भी युद्धपोत आइएनएस चेन्नई से ब्रह्मोस मिसाइल का सफल परीक्षण किया है। गहरे समुद्र में इसका परीक्षण 400 किलोमीटर से भी अधिक दूरी के लिए किया गया है।

ब्रह्मोस सुपरसोनिक मिसाइल के निर्यात के लिए बाजार तैयार

भारत अब इस सुपरसोनिक मिसाइल के निर्यात के लिए भी बाजार तैयार करने के लिए कटिबद्ध है। पिछले दो महीनों में डीआरडीओ ने नई और मौजूदा मिसाइल प्रणाली का सफलतापूर्वक परीक्षण किया है। हाल ही में डीआरडीओ ने शौर्य मिसाइल प्रणाली को भी विकसित किया है जिसकी मारक क्षमता 800 किलोमीटर तक है। यह तकनीकी रूप से हाइपरसोनिक मिसाइल प्रणाली पर आधारित है।

<https://www.jagran.com/news/national-india-will-test-brahmos-at-end-of-month-in-indian-ocean-three-forces-will-target-with-missiles-21064074.html>



ब्रह्मोस सुपरसोनिक क्रूज मिसाइल को पनडुब्बी से पानी के जहाज से विमान से या जमीन से भी छोड़ा जा सकता है। चीन से तनाव के बीच भारत ब्रह्मोस सुपरसोनिक क्रूज मिसाइलों के ताबड़तोड़ परीक्षण हिंद महासागर में करने वाला है।

ADA-IISc's remotely piloted aircraft successfully test flown

A prototype of a delta wing remotely piloted aircraft designed and developed by the Aeronautical Development Agency (ADA) and the Indian Institute of the Science (IISc) was recently successfully test flown.

This prototype of a delta wing remotely piloted aircraft or unmanned aerial vehicle (UAV) with Micro Jet Engine Propulsion is said to be the first-of-its-kind developed and flight tested in the country. Terming this a defence project, an official said that the project is a joint collaboration between the ADA and the IISc's Department of Aerospace Engineering.



“This is a defence project where the design for the prototype has come from the ADA, while the mould composition, integration of the airframes, engine, fuel tank along with the testing was done by the Department of Aerospace Engineering's UAV lab which has a lot of expertise in the developing these kind of aircraft,” an official told BM.

The ADA which is the nodal agency for LCA Tejas is also involved in the design and development of the Autonomous Unmanned Research Aircraft (AURA).

The official refused to comment on whether the delta wing remotely piloted aircraft is being developed to carry weapon payloads.

The maiden test flight of the prototype was carried out at the Taneja Aerospace and Aviation Ltd (TAAL) airfield in Hosur. Further giving out details about the flight parameters of the maiden flight, the official said that the aircraft attained a maximum velocity of 190 kmph per hour at 50 per cent throttle, while the take off velocity was 155 kmph and approach velocity was 130 kmph.

“Since this was the first flight we did not want to take much risk with the speed and flew only with 50 per cent throttle. This aircraft is designed for higher speed it can attain a velocity upto 300 kmph,” he said.

During the flight, the aircraft which is powered by Kingtech 140 attained an altitude of 100 metres.

“To the best of our knowledge, this is the first-of-its-kind indigenous project to be successfully developed and tested in the country. Over the world there are plenty of such aircraft with delta wing configuration especially flown by forces of US and Israel,” the official added.

<https://www.defencenews.in/article/ADA-IISc-remotely-piloted-aircraft-successfully-test-flown-1012869>

THE ECONOMIC TIMES

Sun, 15 Nov 2020

India will give 'prachand jawab' if it is tested: PM Modi at Longewala Post

Synopsis

Addressing soldiers at the forward post, which has become a part of military legend after troops here successfully thwarted numerically higher Pakistani forces in the 1971 war, Modi took a swipe at China without naming it, saying the world is troubled by "expansionist forces" and expansionism shows a "distorted mindset" that belongs to the 18th century.

Longewala: Delivering an unambiguous message to India's enemies, Prime Minister Narendra Modi on Saturday asserted that it will give a "prachand jawab" (fierce reply) if provoked, as he flew to Longewala Post to celebrate Diwali with soldiers, a tradition he has been following since assuming office in 2014.

Addressing soldiers at the forward post, which has become a part of military legend after troops here successfully thwarted numerically higher Pakistani forces in the 1971 war, Modi took a swipe at China without naming it, saying the world is troubled by "expansionist forces" and expansionism shows a "distorted mindset" that belongs to the 18th century.

India has become a forceful voice against forces of expansionism, he said and also took aim at Pakistan, adding that Indian soldiers have hit "sponsors of terrorism" in their home, a reference to air and surgical strikes against terror camps in the neighbouring country.

"No force in the world can prevent our brave soldiers from defending our borders. The world today knows that we will not compromise with our interests even one bit at any cost," he said amid a standoff with China in eastern Ladakh.

He said India today believes in the policy of understanding others and making them understand but if it is tested, then it will give a fierce reply.

The country has the capability and political will to give a befitting response to those who challenge it, Modi added.

He also underlined the importance of having strong capability, saying despite advanced international cooperation and equations, vigilance is the path to security, alertness leads to happiness and peace is the prize of having strength.

"History of the world tells us that only those nations have remained safe and advanced who had the ability to take on invaders," he said, adding that 130 crore Indians stand with the country's soldiers and bow to their bravery.

"They are proud of your valour," he told the soldiers, saying their bravery has got the better of all adversities, be it in deserts, forests or deep oceans.



Prime Minister Narendra Modi in New Delhi

Modi said his Diwali is complete only after he comes among soldiers, adding he cannot stay away from his own on this festival. He said the more time he spends with the soldiers, the stronger his resolve to serve and protect the country gets.

"Your sacrifices teach the country discipline and sense of service," the prime minister told soldiers, referring to his government's efforts to combat the coronavirus and also to restart the economic activity fully.

Urging soldiers to make innovation and yoga a part of their daily lives, he also asked them to learn one language other than Hindi, English and their mother tongue, saying it will enrich their lives.

The prime minister referred to his government's stress on self-reliance and 'vocal for local' campaign, and complimented the armed forces for the decision to bar import over 100 weapons and defence equipment.

Recalling the glorious battle of Longewala, Modi said it will always be remembered in the annals of strategic planning and military valour.

He said this was the time when the ugly face of Pakistan was exposed as its army was terrorising innocent citizens of Bangladesh and committing atrocities against women.

"Pakistan opened the front on western border to divert the global attention but our forces gave them a befitting reply," he said.

On the occasion, he recalled the fierce fight the post had witnessed in the 1971 war against Pakistan and paid tributes to Brig Kuldeep Singh Chandpuri, a hero of the battle who was then a Major, saying he became "rashtra deep" with his feat of bravery.

Modi noted that the battle will mark 50 years in 2021.

It was also an example of exemplary coordination among the Army, Navy and Air Force, he said.

India had defeated Pakistan in the 1971 war, leading to the independence of Bangladesh.

"Every year, I cherish spending Diwali with our security forces. It is a way of reaffirming our solidarity with them, as they bravely protect the nation and ensure our country can scale new heights of progress," Modi tweeted later.

He posted several pictures of his visit to Longewala on his Twitter account, including one in which he could be seen riding a tank.

Modi also interacted with air warriors, soldiers and security personnel at Jaisalmer.

"It is important that the coming generations know about the bravery with which our soldiers and security forces ensured that India is safe from the evil designs of those who eyed our territory," Modi tweeted along with pictures of him looking at war memorabilia.

He also laid a wreath at the war memorial at Longewala.

Modi has been visiting forward posts every Diwali since his government came to power in 2014.

He was in Rajouri last year, in Uttarakhand in 2018 and in Gurez in 2017.

<https://economictimes.indiatimes.com/news/defence/india-will-give-prachand-jawab-if-it-is-tested-pm-modi-at-longewala-post/articleshow/79221799.cms?from=mdr>

Russian firm, others get time till Nov-end to bid for Anil Ambani's Reliance Naval

Russian firm United Shipbuilding Corporation has been eyeing Navy's Project 75I under which 6 conventional submarines with air-independent propulsion systems are to be built

By Snehesh Alex Philip and Aprva Mandhani

New Delhi: Russia's state-owned United Shipbuilding Corporation (USC) and 11 other firms have been given time till 30 November to submit their resolution and revival plans to acquire the Anil Ambani Group's Reliance Naval and Engineering Ltd (R-Naval), which owns the Pipavav Shipyard in Gujarat, ThePrint has learnt.

R-Naval is undergoing process under the Insolvency and Bankruptcy Code (IBC) and is facing claims of over Rs 43,587 crore from several financial creditors, including the State Bank of India (Rs 1,965 crore), the Union Bank of India (Rs 1,556 crore), and the IDBI Bank (Rs 1,375 crore).

Of the 12 companies that had submitted expression of interest (EoI) for R-Naval, three of them — APM Terminals, USC and Chowgule Group — have raised some red flags, putting the “whole effort in a bit of a quandary”, sources in the know have told ThePrint.



Shipyard controlled by Reliance Naval & Engineering Ltd | rnaval.co.in

The firms were initially asked to submit their resolution plans by 30 October. According to sources, the date could also get extended beyond 30 November.

Russia eyeing Navy's new submarine order

While there were reports earlier that USC had opted out of the fray to buy the shipyard, the Russian Embassy, in a recent statement, has said it is looking forward to acquiring R-Naval.

The reason why USC is interested in R-Naval is because the Russian firm has been eyeing the Indian Navy's long pending Project 75I, under which six conventional submarines with Air-Independent Propulsion (AIP) System are to be built. If USC acquires R-Naval, it can build new submarines in India itself, under the Make in India initiative.

Meanwhile, sources have also said APM Terminals, a container terminal operating unit of Danish shipping conglomerate AP Moller Maersk Group, is understood to have conveyed to R-Naval's Resolution Professional that the company was not interested in submitting any bids as the Gujarat Maritime Board's approval wasn't for the terminal business and the company is not into shipbuilding.

Another company with experience in this sector, Chowgule Group, has not agreed on the terms of giving a Rs 5-crore bid bond and a Rs 75-crore personal guarantee, the sources added.

If the three companies mentioned above, including USC, do not bid, the Asset Reconstruction Companies (ARCs) such as Hazel Mercantile Ltd, ARCIL, IARC, JM ARC, CFM ARC, Invent ARC, Phoenix ARC, private equity firm Next Orbit Ventures and US-based fund Interups Inc, will be left in the fray.

It is also feared that R-Naval may go the ABG Shipyard and Bharati Shipyard way. Both ABG Shipyard (with a debt of over Rs 19,000 crore) and Bharati Shipyard (with debt of over Rs 13,000 crore) are already under liquidation, with lenders likely to get less than Rs 800 crore and Rs 600 crore, respectively.

IDBI Bank first to file claim in 2018

The IDBI Bank had first filed its claim against R-Naval in September 2018, when its dues were worth about Rs 1,250 crore. The company was admitted for insolvency proceedings by the Ahmedabad bench of the National Company Law Tribunal (NCLT) on 15 January.

In August, the company received EoIs from 12 parties.

Earlier this month, the National Company Law Appellate Tribunal (NCLAT) had also directed to exclude the lockdown phase — 25 March to 31 August — while computing the insolvency resolution period for R-Naval.

Under the IBC, the corporate insolvency resolution process of any debt-ridden firm has to be completed within 180 days or within the extended period of 90 days and mandatorily be completed within 330 days, including any extension and the time taken in legal proceedings.

Failing to do so leads to the company having to go for liquidation.

The initial 180-day period was to expire for R-Naval on 21 August. The Resolution Professional for R-Naval had approached the NCLT, demanding that the lockdown period should be excluded from calculating the time period. The professional had submitted that since the corporate office of the company is situated in Mumbai, he could not finish his work within 180 days.

The NCLT did not accept this, and only gave a 90-day additional extension. But this order was reversed by the NCLAT. Therefore, the initial 180-day period for R-Naval will now end sometime in January-February next year, after which it will be entitled to another 90-day extension, if required.

<https://theprint.in/defence/russian-firm-others-get-time-till-nov-end-to-bid-for-anil-ambanis-reliance-naval/545083/>

SpaceX launches 4 astronauts into space

By Vikash Aiyappa

Washington, Nov 16: Four astronauts were launched by SpaceX to the International Space Station on Sunday on the first taxi flight for NASA by a private company.

The Falcon rocket was launched from the Kennedy Space Centre with three Americans and one Japanese. The Dragon capsule on top named Resilience due to the various challenges this year was due to reach the space station late Monday and remain there until spring.

Owing to the virus, SpaceX founder Elon Musk was forced to monitor the action from far.

In a tweet, he had said that he most likely had a moderate case of COVID-19.

On Friday, NASA administrator, Jim Bridenstine said that this is another historic moment.

Make no mistake, vigilance is always required on every flight he also said.

Vice President, Mike Pence travelled from Washington to watch the launch.

The three-men, one-woman crew led by Commander Mike Hopkins, an Air Force colonel, named their capsule Resilience.

In June Indian Space Research Organisation congratulated NASA and SpaceX for their manned mission and termed it as "historic."

SpaceX's Dragon spacecraft with two NASA astronauts in June had successfully docked with the International Space Station after a historic launch from the Kennedy Space Center in Florida, marking the dawn of a new age in commercial space travel.

Saturday's liftoff also assumes significance as it marks the launch of humans into orbit from US soil for the first time in nearly a decade.

The SpaceX Crew Dragon spacecraft, carrying NASA astronauts Bob Behnken and Doug Hurley had lifted off at 3:22 pm EDT on June 1 atop the company's Falcon 9 rocket from Launch Complex 39A at NASA's Kennedy Space Center.

India too is preparing for its first manned space mission "Gaganyaan".

The Rs 10,000-crore ambitious project is expected to be launched in 2022, the year of the 75th anniversary of India's Independence.

Four Indian Air Force fighter pilots are currently undergoing training in Moscow, and are going to be the potential candidates for the Gaganyaan project.

<https://www.oneindia.com/international/spacex-launches-4-astronauts-into-space-3177163.html>



Tough new bioinspired material to replace petroleum-based plastics

Modern life relies closely on plastics, even though the petroleum-based production creates serious environmental challenges. The industry opts out to use sustainable materials due to their limited mechanical properties or complex manufacturing processes. An advanced strategy to design and produce high-performance sustainable structural materials is of great need.

A new bioinspired material is here to overtake petroleum-based plastics. A team led by Prof. Shu-Hong Yu from the University of Science and Technology of China (USTC) reports a method to manufacture materials with similar structure as nacre from wood-derived fiber and mica, with adaption to mass production, good processability, and tunable coloration.

Natural nacre has a hierarchically ordered structure at multiscale levels, just like bricks and mortar, enabling it to be of both strength and toughness. Inspired by nacre, the researchers mimic the ordered brick-and-mortar structure using the TiO₂ coated mica microplatelet (TiO₂-mica) and cellulose nanofiber (CNF) by the proposed directional deforming assembly method.



Based on different commercially available raw materials (e.g., TiO₂-mica, Fe₂O₃-mica), a variety of all-natural bioinspired structural materials with different colors can be fabricated. Credit: GUAN Qingfang

This method directly presses the hydrogel of TiO₂-mica and CNF, while keeps the size on in-plane directions unchanged. The thickness of the hydrogel is dramatically reduced and materials are directly constructed with the highly ordered brick-and-mortar structure.

At the nanoscale, the TiO₂ nano-grains on the surface of TiO₂-mica lead to efficient energy dissipation by frictional sliding during TiO₂-mica pull-out. All the hierarchically ordered structure at multiscale levels contribute to the load redistribution and toughness enhancement.

The obtained materials have excellent strength (~281 MPa) and toughness (~11.5 MPa m^{1/2}), which are more than 2 times higher than those of high-performance engineering plastics (e.g., polyamides, aromatic polycarbonate), making it a strong competitor to petroleum-based plastics.

Even better, these materials adapt to temperature ranging from -130 °C to 250 °C, while normal plastics easily get soft at high temperature. Therefore, such materials are safer and more reliable at high or variable temperatures.

Results are published in *Nature Communications*.

Reference: “An all-natural bioinspired structural material for plastic replacement” by Qing-Fang Guan, Huai-Bin Yang, Zi-Meng Han, Zhang-Chi Ling and Shu-Hong Yu, 3 November 2020, *Nature Communications*. DOI: [10.1038/s41467-020-19174-1](https://doi.org/10.1038/s41467-020-19174-1)

This biomimetic design of the highly ordered brick-and-mortar structure provides key ideas to fabricate sustainable structural materials for plastic replacement. As being environmentally-friendly, possessing even better mechanical and thermal properties than plastics, the materials are expected to play a key role in plastic replacement.

<https://scitechdaily.com/tough-new-bioinspired-material-to-replace-petroleum-based-plastics/>

New family of quasiparticles in graphene-based materials

Findings to help achieve Holy Grail of 2D materials - superfast electronic devices

Summary:

After years of dedicated research a group of pioneering scientists have again revealed a phenomenon that is 'radically different from textbook physics' and this work has led to the discovery and characterization of a new family of quasiparticles found in graphene-based materials. Called Brown-Zak fermions these extraordinary particles have the potential to achieve the Holy Grail of 2D materials by having ultra-high frequency transistors which can in turn produce a new generation of superfast electronic devices.

A group of researchers led by Sir Andre Geim and Dr Alexey Berdyugin at The University of Manchester have discovered and characterised a new family of quasiparticles named 'Brown-Zak fermions' in graphene-based superlattices.

The team achieved this breakthrough by aligning the atomic lattice of a graphene layer to that of an insulating boron nitride sheet, dramatically changing the properties of the graphene sheet.

The study follows years of successive advances in graphene-boron nitride superlattices which allowed the observation of a fractal pattern known as the Hofstadter's butterfly -- and today (Friday, November 13) the researchers report another highly surprising behaviour of particles in such structures under applied magnetic field.

"It is well known, that in zero magnetic field, electrons move in straight trajectories and if you apply a magnetic field they start to bend and move in circles," explain Julien Barrier and Dr Piranavan Kumaravadivel, who carried out the experimental work.

"In a graphene layer which has been aligned with the boron nitride, electrons also start to bend -- but if you set the magnetic field at specific values, the electrons move in straight line trajectories again, as if there is no magnetic field anymore!"

"Such behaviour is radically different from textbook physics." adds Dr Piranavan Kumaravadivel.

"We attribute this fascinating behaviour to the formation of novel quasiparticles at high magnetic field," says Dr Alexey Berdyugin. "Those quasiparticles have their own unique properties and exceptionally high mobility despite the extremely high magnetic field."

As published in *Nature Communications*, the work describes how electrons behave in an ultra-high-quality superlattice of graphene with a revised framework for the fractal features of the Hofstadter's butterfly. Fundamental improvements in graphene device fabrication and measurement techniques in the past decade have made this work possible.

"The concept of quasiparticles is arguably one of the most important in condensed matter physics and quantum many-body systems. It was introduced by the theoretical physicist Lev Landau in the 1940s to depict collective effects as a 'one particle excitation'," explains Julien Barrier "They are used in a number of complex systems to account for many-body effects."

Until now, the behaviour of collective electrons in graphene superlattices were thought in terms of the Dirac fermion, a quasiparticle that has unique properties resembling photons (particles with no mass), that replicate at high magnetic fields. However, this did not account for some experimental features, like the additional degeneracy of the states, nor did it match the finite mass of the quasiparticle in this state.

The authors propose 'Brown-Zak fermions' to be the family of quasiparticles existing in superlattices under high magnetic field. This is characterised by a new quantum number that can

directly be measured. Interestingly, working at lower temperatures allowed them to lift the degeneracy with exchange interactions at ultra-low temperatures.

"Under the presence of a magnetic field, electrons in graphene start rotating with quantised orbits. For Brown-Zak fermions, we managed to restore a straight trajectory of tens of micrometres under high magnetic fields up to 16T (500,000 times earth's magnetic field). Under specific conditions, the ballistic quasiparticles feel no effective magnetic field," explain Dr Kumaravadivel and Dr Berdyugin.

In an electronic system, the mobility is defined as the capacity for a particle to travel upon the application of an electrical current. High mobilities have long been the Holy Grail when fabricating 2D systems such as graphene because such materials would present additional properties (integer and fractional quantum hall effects), and potentially allow the creation of ultra-high frequency transistors, the components at the heart of a computer processor.

"For this study we prepared graphene devices that are extra-large with a very high level of purity." says Dr Kumaravadivel. This allowed us to achieve mobilities of several millions of cm^2/Vs , which means particles would travel straight across the entire device without scattering. Importantly, this was not only the case for classical Dirac fermions in graphene, but also realised for the Brown-Zak fermions reported in the work.

These Brown-Zak fermions define new metallic states, that are generic to any superlattice system, not just graphene and offers a playground for new condensed matter physics problems in other 2D material based superlattices.

Julien Barrier added "The findings are important, of course for fundamental studies in electron transport, but we believe that understanding quasiparticles in novel superlattice devices under high magnetic fields can lead to the development of new electronic devices."

The high mobility means that a transistor made from such a device could operate at higher frequencies, allowing a processor made out of this material to perform more calculations per unit of time, resulting in a faster computer. Applying a magnetic field would usually scale down the mobility and make such a device unusable for certain applications. The high mobilities of Brown-Zak fermions at high magnetic fields open a new perspective for electronic devices operating under extreme conditions.

Story Source:

[Materials](#) provided by [University of Manchester](#). *Note: Content may be edited for style and length.*

Journal Reference:

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Steroid treatment should be reserved for worst Covid-19 cases: Scientists

According to the research, published in the journal Science Advances, fewer than 5% of the Covid-19 patients, including some of the sickest individuals, had the life-threatening, hyperinflammatory immune response known as the cytokine storm syndrome

Washington: Most adults with moderate-to-severe Covid-19 have a suppressed immune response against the novel coronavirus rather than life-threatening hyper-inflammation, according to a study which suggests steroids such as dexamethasone should be reserved for the sickest patients.

Scientists, including those from St. Jude Children's Research Hospital in the US, assessed the levels of the immune system protein cytokines, and other health markers in 168 adults with Covid-19, 26 adults with flu and 16 healthy volunteers.

They said more than 90% of the Covid-19 patients were hospitalised, and about half in the intensive care unit (ICU), while more than half of flu patients were admitted for treatment, and 35% were in the ICU.

According to the research, published in the journal Science Advances, fewer than 5% of the Covid-19 patients, including some of the sickest individuals, had the life-threatening, hyperinflammatory immune response known as the cytokine storm syndrome.

The researchers explained that cytokine storms develop when excess or abnormally regulated levels of cytokine proteins in the body lead to hyperinflammation and tissue damage. While dexamethasone and other steroids are prescribed to treat cytokine storms, they said these drugs can backfire in patients whose immune response is already suppressed.

"We did identify a subset of Covid-19 patients with the broadly upregulated array of cytokines. But, overall, the average person with Covid-19 had less inflammation than the average person with flu," said study co-author Paul Thomas from St. Jude Children's Research Hospital.

Based on the findings, the scientists said treatment suppressing inflammation might only be effective in a minority of patients with the hyperinflammatory profile.

They believe the need of the hour is a fast, reliable, and inexpensive test to measure cytokines and identify patients who are most likely to benefit from dexamethasone treatment.

"Directing immunosuppressive therapies to the small subset of Covid-19 patients who have an overactive immune response is the only way to know if these approaches are ultimately helpful," said Philip Mudd, another co-author of the study from the Washington University School of Medicine in the US.

<https://www.hindustantimes.com/health/steroid-treatment-should-be-reserved-for-worst-covid-19-cases-scientists/story-4tluXUnWNZfbA8lObKqVzO.html>



Based on the findings, the scientists said treatment suppressing inflammation might only be effective in a minority of patients with the hyperinflammatory profile. (Sanchit Khanna/Hindustan Times Photo)

