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समाचार पत्रों से चयनित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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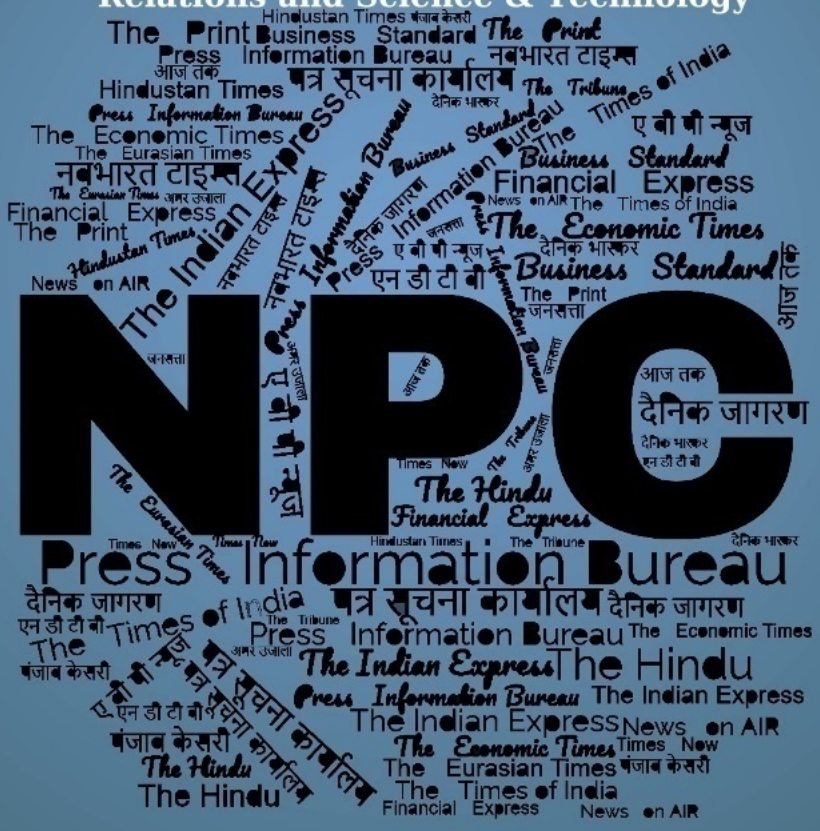

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Thu, 13 Jun 2024

चीन–PAK की हालत होगी खराब... भारत टेस्ट करने जा रहा सबसे खतरनाक मिसाइल

भारतीय रक्षा अनुसंधान संगठन (DRDO) ने देश के लिए सबसे खतरनाक मिसाइल बना ली है. यह मिसाइल ऐसी है जैसी अमेरिका, रूस, चीन के पास है. इसकी स्पीड इतनी होती है कि इसे रोक पाना मुश्किल होता है. यह एक हाइपरसोनिक क्रूज मिसाइल (HCM) है, जिसकी गति 6126 से 12,251 km/hr तक हो सकती है.

इससे पहले डीआरडीओ ने साल 2020 और 2023 में इसका परीक्षण कर चुका है. दोनों ही सफल रहे थे. आइए जानते हैं कि भारत के इस हथियार से सेना की ताकत कितनी बढ़ जाएगी.

पहले जो परीक्षण हुए थे, उनका नाम था हाइपरसोनिक टेक्नोलॉजी डिमॉन्सट्रेटर व्हीकल (Hypersonic Technology Demonstrator Vehicle – HSTDV). भारत पिछले कुछ सालों से हाइपरसोनिक हथियार पर काम कर रहा है. पिछली बार एचएसटीडीवी का परीक्षण 20 सेकंड से भी कम समय का था.

कुछ ही सेकेंड में खत्म हो जाएंगे चीन–PAK के टारगेट

तब इसकी गति करीब 7500 किमी प्रति घंटा थी. भविष्य में इस गति को घटा या बढ़ा सकते है. अगर इसमें पारंपरिक या परमाणु हथियार लगाकर दागते हैं, तो पाकिस्तान में हमला कुछ ही सेकेंड में हो जाएगा. यानी कुछ ही सेकेंड में पाकिस्तान और चीन के कई महत्वपूर्ण जिले या सैन्य बेस ध्वस्त किए जा सकते हैं.

क्यों पड़ी इस मिसाइल की जरूरत?

हाइपरसोनिक मिसाइल की जरूरत क्यों पड़ी? इसकी वजह है अमेरिका. अमेरिका पिछले कुछ सालों से लगातार हाइपरसोनिक मिसाइल बनाने का प्रयास कर रहा है. हालांकि रूस उससे इस मामले में आगे निकल चुका है. रूस के पास कई हाइपरसोनिक मिसाइलें हैं. चीन के पास भी ऐसे हथियार हैं.

क्या हैं हाइपरसोनिक हथियार?

हाइपरसोनिक हथियार वो होते हैं, जो साउंड की गति से पांच गुना ज्यादा स्पीड में चले. यानी 6100 km/hr या उससे ज्यादा. इनकी गति इतनी तेज होती है कि इन्हें ट्रैक करके मार गिराना आसान नहीं होता. रूस ने यूक्रेन पर हाइपरसोनिक मिसाइल से हमला तक किया था.

भविष्य में ये हथियार हो जाएंगे और खतरनाक

भविष्य में हाइपरसोनिक हथियारों का जखीरा बढ़ेगा और ये ज्यादा घातक हो जाएंगे. अमेरिका तो ऐसे हथियार बना रहा है जो बैलिस्टिक मिसाइल की तरह लॉन्च होगा लेकिन टारगेट को ध्वस्त करने से पहले उसकी गति आवाज की गति से आठ गुना ज्यादा होगी.

क्या किसी मिसाइल को हाइपरसोनिक बना सकते हैं

किसी भी क्रूज और बैलिस्टिक मिसाइल की गति तेज होती है. इनकी गति और दिशा को ट्रैक कर सकते हैं. इन्हें मार कर गिरा सकते हैं. लेकिन गति अगर 6100 km/hr ज्यादा होती है तो इन्हें गिराना लगभग असंभव हो जाता है. अगर खुद से दिशा बदलने की तकनीक हो तो इन्हें ट्रैक करना बहुत मुश्किल होता है.

कितने प्रकार के होते हैं हाइपरसोनिक हथियार?

हाइपरसोनिक हथियार दो प्रकार के होते हैं. पहले होते हैं ग्लाइड व्हीकल्स. दूसरे क्रूज मिसाइल. फिलहाल दुनिया के ज्यादातर देश यहां तक कि भारत भी हाइपरसोनिक ग्लाइड पर ध्यान दे रहे हैं. असल में इन ग्लाइड व्हीकल्स के पीछे मिसाइल लगाई जाती है. एक तय दूरी तक करने के बाद मिसाइल अलग हो जाती है, उसके बाद ग्लाइड व्हीकल्स खुद ही दिशा और गति तय करते हुए टारगेट की तरफ बढ़ते हैं. इन हथियारों में स्क्रैमजेट इंजन होता है जो हवा मे मौजूद ऑक्सीजन का इस्तेमाल करके तेजी से उड़ता है.

किन देशों के पास हैं हाइपरसोनिक मिसाइल?

फिलहाल हाइपरसोनिक मिसाइल अमेरिका, रूस और चीन के पास हैं. उत्तर कोरिया के बारे में भी कहानियां आती रहती हैं लेकिन पुख्ता सबूत नहीं है. भारत भी ऐसे हथियार विकसित करने लगा है. साथ ही ऑस्ट्रेलिया और यूरोपीय देश भी जुटे हैं. दुनिया का सबसे घातक हाइपरसोनिक हथियार रूस के पास है. इसे एवगार्ड मिसाइल कहते हैं. यह एक ICBM है. जो 24,696 किलोमीटर प्रतिघंटा की रफ्तार से उड़ सकती है.

भारत तैयार कर रहा है ब्रह्मोस–2 हाइपरसोनिक मिसाइल

भारत ब्रह्मोस–2 हाइपरसोनिक मिसाइल बना रहा है. इसमें स्क्रैमजेट इंजन लगेगा. इससे तेज गति और ग्लाइड करने की ताकत मिलेगी. इसकी रेंज अधिकतम 600 km होगी. इसे जहाज, पनडुब्बी, विमान या जमीन पर लगाए गए लॉन्चपैड से दागा जा सकेगा.

https://www.aajtak.in/defence-news/story/drdo-to-test-hypersonic-cruise-missile-very-soon-know-why-india-needed-this-weapon-1965203-2024-06-13

Defence News

Defence Strategic: National/International

THE ECONOMIC TIMES

Thu, 13 Jun 2024

Army gets its first indigenous Man-Portable Suicide Drones

The army has got its first indigenous man-portable suicide drones that are designed to target enemy training camps, launch pads and infiltrators with precision, without endangering the lives of soldiers. Sources said the first batch of Nagastra 1 loitering munition, also known as suicide drones, has been received by the army, adding to its ability to undertake shallow strikes across the border when needed.

The drones were ordered by the army using its emergency procurement powers and were delivered within a year to meet urgent requirements both on the Pakistan and China borders.

De-signed and developed fully in India by EconomicExplosives Limited (EEL), the drones can carry out GPS-enabled precision strikes with an accuracy of 2 meters and have a range of almost 30 km. Designed to be carried by infantry troops on foot, the drones have a low acoustic signature and electric propulsion that makes them a silent killer.

They can be used against a variety of soft skin targets and unlike traditional missiles and precision munitions, these are a low-cost solution that can be employed against relatively lower end targets like a group of infiltrating terrorists on the border. Another unique feature is a parachute recovery mechanism, which can bring back the munition in case of an aborted mission, enabling it to be used multiple times.

Similar systems are being used extensively in current conflicts, specially the Ukraine-Russia war and were also seen in action in the Armenia-Azerbaijan skirmishes. In the past, the armed

forces had acquired similar systems from foreign vendors under an earlier round of emergency procurements but at a significantly higher price.

The Nagastra 1 has indigenous content of over 75%, cutting down dependence on foreign sources.

Given the scale of production that has brought down costs, there is a strong case for exports of the munition to friendly foreign nations that have been looking for similar solutions.

The Indian armed forces have been investing in standoff weapons over the past two years, some of which can operate deeper into enemy territory. The focus is firmly on procuring all such systems from the domestic industry and shunning all imports.

https://economictimes.indiatimes.com/news/defence/army-gets-its-first-indigenous-man-portable-suicide-drones/articleshow/110977055.cms

Thu, 13 Jun 2024

India rolls out T-90 Mk-III tanks

India's state-owned Armoured Vehicles Nigam Limited (AVNL) has delivered the first batch of 10 T-90 Mk-III main battle tanks (MBTs) to the Indian Army, a senior AVNL official told Janes on 12 June.

“The tanks are newly produced by AVNL's Heavy Vehicles Factory (HVF) under [a] licensing agreement with Russia,” the official said.

The Indian Army signed a contract with HVF in November 2019 to procure 464 new T-90MS tanks, and the delivery is part of this contract, the official added.

According to the official, the T-90 Mk-III is equipped with a “new” automatic target tracking system, a digital ballistic computer, and sighting systems. It is also fitted with a midwave infrared (MWIR)-based commander sight jointly developed by India's Defence Research and Development Organisation (DRDO) and Bharat Electronics Limited (BEL).

According to the Indian Ministry of Defence (MoD), this sight employs a thermal imager capable of detecting targets at 8 km during day and night and a laser rangefinder (LRF) to find ranges up to 5 km, thereby enhancing its capability to engage targets at longer ranges.

“With the corrections from ballistic software and LRF, the commander of T-90 can detect, engage, and neutralise the targets with accuracy,” the MoD added.

The remaining fleet of 454 T-90 Mk-IIIs will be delivered to the Indian Army in phases over the next five years, the AVNL official said.

The official added that HVF is also upgrading the Indian Army's in-service T-90S tanks to T-90MS standards.

https://www.janes.com/osint-insights/defence-news/defence/india-rolls-out-t-90-mk-iii-tanks

THE HINDU

Thu, 13 Jun 2024

Aim is to achieve self-reliance in defence manufacturing: Rajnath Singh

The government's target will be to export over ₹50,000 crore worth of defence equipment by 2028-2029, Defence Minister Rajnath Singh said on Thursday after assuming charge for the second consecutive term.

He chaired a review meeting on the first 100 days' action plan of the Ministry under the new government, with a focus on ex-servicemen welfare. "The meeting focused on the welfare of veterans, wherein major issues pertaining to the Department of Ex-Servicemen Welfare were discussed.

He instructed the officers to rededicate themselves to fulfil the agenda laid out in the 100 days' action plan," a Defence Ministry statement said. "Under the leadership of Prime Minister Narendra Modi, our aim will be to further strengthen the security apparatus of the country, with focus on achieving self-reliance in defence manufacturing. Armed forces modernisation and the welfare of the soldiers, both serving and retired, will continue to be our main focus," Mr. Singh said. In this regard, he noted that defence exports had touched a record ₹21,083 crore in financial year 2023-24. "It was historic," he stated.

The Defence Minister asserted that the armed forces are being equipped with state-ofthe-art weapons and platforms.

In line with this, Mr. Singh stated that he would hold regular review meetings to fast-track the progress of the flagship schemes and the initiatives of the Ministry.

Emphasising the growing salience of the Indian Ocean Region in the defence calculus, Mr. Singh's first visit this term would be to the Eastern Naval Command, Visakhapatnam, where he would interact with the officers and sailors, the Defence Ministry said.

https://www.thehindu.com/news/national/armed-forces-ready-to-face-every-challenge-rajnath-after-taking-charge-of-defence-ministry-for-second-term/article68285039.ece

ThePrint

Thu, 13 Jun 2024

Recruiting Agniveers for 7-8 yrs, retaining 60-70% afterwards — possible changes to Agnipath scheme

Recruiting Agniveers for seven or eight years rather than four, retaining 60-70 percent of the recruits after this period rather than 25 percent, extending the training period to nine months from

six — these are some of the changes that may be introduced to the Agnipath military recruitment scheme.

The scheme seems set for an overhaul in the wake of fresh controversy over its provisions after the National Democratic Alliance (NDA) came to power at the Centre for the third consecutive time this month.

The Janata Dal (United), a key partner of the BJP-led alliance, has demanded a review of the scheme that was launched in June 2022. It had immediately drawn violent nationwide protests, with the Hindi heartland impacted the most.

Under the scheme, people aged between 17-and-a-half and 21 are recruited as soldiers (Agniveers) in the three armed forces for a period of four years. They don't have any pension entitlement or other benefits, and only 25 percent are retained after they complete their service duration.

The Army had in January this year started collecting empirical data about the Agniveers to ascertain how the Agnipath scheme can be tweaked for the best results, and it is believed that the scheme will go in for a major overhaul soon.

Speaking to ThePrint, Lt Gen Ashok K. Mehta (retd) said the government will likely announce a review soon, and it will be done by the armed forces and a few civilian officials.

The armed forces review every new scheme that is introduced. In the case of Agnipath, the feedback from the three forces has led them to reconsider certain aspects of the scheme.

One of these, according to reports, is the number of years that Agniveers can be retained. While currently the short-term recruits are taken in for a period of four years, it is being speculated that the number of years they can serve in the forces may go up to seven to eight.

Further, 75 percent of Agniveers are discharged from duty after four years and get a lump sum payment of around Rs 12 lakh, according to the current provisions. These numbers, too, are reportedly likely to undergo changes and retention may go up to at least 60-70 percent.

The training period, which is six months for Agniveers, may be changed to what it was for recruits prior to the introduction of the scheme — nine months.

Speculation is also rife that the recruitment age of Agniveers will now go up to 23 years for technical arms.

These changes have reportedly been suggested after internal feedback and have not yet been formally taken to the government.

'Shortage of personnel'

Since its launch, the Agnipath scheme has drawn flak, especially from veterans, for several reasons and primarily because it pertains to the human capital of the forces — which can impact the overall synergy and morale of personnel.

Pensions have been a major contention, given that most personnel below officer rank come from rural regions and belong to humble families. The benefit has been withheld from Agniveers while a regular soldier's family will get it even after his or her death.

Another issue is that some of the Gorkha battalions may be disbanded if the Agnipath scheme is continued. These troops comprise Gorkhas from India as well as Nepal but there has been no recruitment from Nepal since the scheme was launched.

Lt Gen Mehta pointed out that manpower levels in the Army, Navy and Air Force — especially the Army — have shrunk considerably.

Alluding to the gap in recruitment during the pandemic years, he said that more personnel are retiring than coming in. The years of the Covid pandemic when no one was recruited created a gap of 1.5-2 lakh personnel, he added.

“Recruitment under the Agnipath scheme is just 40,000 for all three services, of which the Army quota is 28,000. Every year, approximately 60,000-70,000 people retire from the Army,” he explained.

He further said that as the scheme allows only 25 percent of the 28,000 personnel to be retained, the Army gets just 7,000 personnel.

“The idea of Agnipath was not just to make the profile of the armed forces youthful, but also to reduce salaries and pensions. With the current changes that are being talked about, it is surprising that the Army took so long to discover these figures,” he added, pointing out that there may be manpower shortages, especially for combat forces deployed along the Line of Control and the Line of Actual Control.

‘Should be rolled back’

Maj Gen Yash Mor (retd), one of the most vocal critics of the Agnipath scheme, told ThePrint that it would “ruin the cohesion in units, where personnel will be wary of each other and will try to compete with one another to retain their position”.

He explained that the armed forces were dependent on personnel supporting each other in times of crisis. With Agnipath, there will be divisions and unnecessary competition within units, he said.

He further pointed out that personnel who had joined the forces before the pandemic (or before the Agnipath scheme) ger 90 days’ leave, whereas Agniveers get only 30 days’ leave per year. This will affect their mental state as they will only be able to go home twice for 15 days each, he said.

According to Maj Gen Mor, if the scheme continues, in the future, almost 70-80 percent of an Army unit would consist of Agniveers, with very few personnel who had been inducted before Agnipath. And the bulk of the personnel, being Agniveers would lack technical expertise, he added.

On the changes to the scheme said to be in the works, he said: “This is a knee-jerk reaction. They should not have introduced the scheme. I think it should be rolled back completely. Major policy changes revolving around human resources should always undergo a pilot test.”

https://theprint.in/defence/recruiting-agniveers-for-7-8-yrs-retaining-60-70-afterwards-possible-changes-to-agnipath-scheme/2130092/

THE TIMES OF INDIA

Thu, 13 Jun 2024

Ajit Doval reappointed as National Security Adviser: Government order

Ajit Doval has been reappointed as the National Security Adviser for a third term, as per a government order issued on Thursday. The Appointments Committee of the Cabinet has approved Doval's appointment with effect from June 10. "His appointment will be co-terminus with the term of the Prime Minister or until further orders, whichever is earlier," the order read.

Even before the extension, is the longest-serving . He served his first term of 5 years beginning 2014, and his second term in 2019. His last term ended on June 5. Meanwhile, the Centre on Thursday reappointed Pramod Kumar Mishra as the principal secretary to Prime Minister Narendra Modi.

https://timesofindia.indiatimes.com/india/ajit-doval-reappointed-as-national-security-adviser-government-order/articleshow/110970279.cms

news nine

Thu, 13 Jun 2024

Explained: Amid move to review Agnipath scheme, why other countries also rely on short term recruits in Army

The issue of the Agnipath Scheme meant for Army recruitment was raised big time during the 2024 Lok Sabha elections. The Congress had in its manifesto even claimed to do away with the scheme if their INDI Alliance government came to power. Even the NDA partners JDU and LJP (RV) also raised concerns over the scheme after the Modi government came to power for the third term and demanded a review of the scheme. Amidst these concerns, the Indian Army has reviewed the Agneepath Scheme in an effortto ensure that there are no problems in the inclusion of Agniveers and that “operational efficiency” is maintained.

What is being proposed?

The Modi-led NDA government has asked the secretaries of 10 major central ministries to review the Agneepath scheme and suggest how to make the recruitment of Agniveers more attractive and better so that the recruitment process is done seamlessly. This review panel formed to improve the Agneepath scheme has come up with its report and will submit the final presentation to PM Modi on June 17 or 18 after the PM returns from his Italy trip. After this, the Prime Minister’s Office will take necessary steps to improve it. The Indian Army is discussing changes in the Agneepath scheme wherein issues like increasing the

training period of Agniveers and changing the rules to give further opportunity to only 25 per cent of the existing Agniveers after the completion of training are being mulled.

Prior to this scheme, the training period of soldiers was between 37 to 42 weeks and now for Agniveers it has been reduced to 24 weeks. Reports claim that the Army wants to maintain the number of Agniveers at 60-70 per cent even after the training of Agniveers. According to the current rules, only 25 per cent of the Agniveers will be retained after the completion of training while 75 per cent will be allowed to leave by paying about Rs 12 lakh.

Some unconfirmed sources say that the Army has recommended that the Agniveer service period should be increased from 4 years to 7- 8 years. The Army is also mulling over whether the training period for Agniveers should be made similar to that of civilian soldiers while increasing their service time to seven years instead of four so that they can be given gratuity and ex-servicemen status. Suggestions are also afloat to include hiring graduates for other jobs as professionals are needed for technical jobs, and Agniveer is a great way to recruit them feels the Army. This will also reduce the issue of what happens next when several senior officers retire and the posts fall vacant.

How countries enlist

The Agnipath model that is being criticised in India is being followed by many other countries that have been recruiting personnel for contractual terms for years. Many countries like the USA and the UK rely on short-term enlistment. European countries, in particular, have embraced this practice where they both compulsory military service for eligible youth for a fixed number of years and also voluntary recruitment. USA, the country having the strongest military power in the world, recruits army personnel for fours during which they are on “active” duty while they also serve for another four years on “inactive” duty under which they can be recalled if a need arises.

In China too the term of service for conscripts is three years in the Army, four in the Navy and the Air Force and for volunteers, the term of active service is eight years and no more than 12 years. Even Russia follows a hybrid model when it comes to its military. All males aged 18 to 27 are subject to conscription for a year of military duty after an 8-month training period. Thus by introducing the Agnipath scheme, India also wished to pursue a global trend but the conditions in India are different because India’s military has historically been an allvolunteer force.

Unlike in the West, in India getting into the armed forces is perceived as patriotic and a source of pride. Here working in the military is a matter of social prestige. The challenge, however, is attracting good talented and qualitatively superior recruits in keeping with the technological changes in the military operations which have become more and more complex, requiring a professional skill sets.

Why the need to review?

There have been two different viewpoints being put forth regarding the Agnipath scheme. The supporters term it ‘the single biggest human resources management transformation in the Indian military.’ Many feel that with its implementation, India’s armies will become a

“future-ready fighting force which is prepared to meet multiple challenges across the full spectrum of warfare that is being unfolded in the present times. The supporters also feel that the need of the hour is to bring in youngsters into the forces to benefit from the new generation’s fastadapting nature and forward-looking belief and knowledge about the changing technologies, AI, etc. The people against this scheme feel that the long-term impact of the scheme should be considered when in terms of training standards, unit cohesion, and operational effectiveness. Thus it is no harm if the government and the Army are reviewing the scheme which was initiated as a pilot project. Based on the experience of the past year necessary changes can be brought about to tweak the Agnipath scheme keeping in mind the national security and requirements of the defence forces.

https://www.news9live.com/opinion-analysis/amid-move-to-review-agnipath-scheme-why-other-armies-also-rely-on-short-term-recruits-2575427

Thu, 13 Jun 2024

China's unmanned HH-100 cargo aircraft conducts first flight

The Aviation Industry Corporation of China's (AVIC's) unmanned HH-100 cargo aircraft has flown for the first time.

The state-owned broadcaster, China Central Television (CCTV), aired video imagery of the unmanned aerial vehicle's (UAV's) first flight on 12 June. The UAV took off from an airport in Shaanxi province at 0916 h local time and returned to the airbase after a 35 km flight, the broadcaster said.

“It performed [satisfactorily] during the test, and its equipped systems were working well,” the broadcaster added. Project officials told the broadcaster that the twin-engine HH-100 is being developed for “low-cost” cargo-carrying operations. AVIC previously said that the aircraft has a planned maximum take-off weight (MToW) of 2,000 kg and a payload capacity of 700 kg.

The HH-100 is also being designed to achieve a cruising speed of 300 km/h, a service ceiling of 5,000 m, and a range of 520 km with a maximum payload, according to AVIC.

Chen Lei, chief designer for the programme, told the broadcaster that the aircraft will operate as a multirole logistics platform. According to Chen, the main cargo hold can accommodate modular payloads. “We can integrate specialised types of cargo containers to the aircraft based on [the] logistics and transport requirements [of users],” he said.

The prototype has a twin-boom design. The UAV also has a small stabilising bar mounted midway over the booms for added structural support. The landing gear is in tricycle configuration and appears to be non-retractable.

https://www.janes.com/osint-insights/defence-news/air/chinas-unmanned-hh-100-cargo-aircraft-conducts-first-flight

The EurAsian Times

Thu, 13 Jun 2024

China 'Trashes' JF-17 Fighters For Vigorous Dragons; Here Is Why PLAAF Prefers J-10 Over 'F-16, MiG-21 Hybrid'

The JF-17 'Thunder' or FC-1 Xiaolong (Fierce Dragon) is said to be a cross between the Soviet MiG-21 and American F-16. Its development stemmed from Pakistan's need to modernize its aging fleet of fighter jets while cutting down its dependence on the West.

When Islamabad and Beijing were reeling under sanctions from the West, the two countries joined hands to JF-17.

The aircraft undertook its first flight in 2003 and has become the backbone of the Pakistan Air Force (PAF). The jet is meant to replace Pakistan's aging fleet of Nanchang A-5, Chengdu F-7, and Mirage III and V attack and fighter jets.

It is one of the most widely operated Chinese combat jets, but China has not inducted it into its inventory.

The JF-17 has not been designed to compete with the F-22 but is a cheap multi-role fighter jet that can offer developing countries freedom from the strings attached to defense sales from Western countries. The fighter jet is priced between $15 million and $25 million each, considerably cheaper than every other fourth-generation jet on the market.

"This is not an aircraft that is designed to compete head-to-head with the F-22, so it doesn't need the most sophisticated engines and parts," Heath said. "It's a cheap multirole budget aircraft that is suitable and probably most appealing to developing countries that are looking for a basic aircraft to either bomb their own people, like insurgents or to carry out basic defense against similar-type countries," Timothy Heath, a senior international and defense researcher at the Rand Corporation think tank, was quoted saying.

The PAF officially inducted its first JF-17 squadron on 18 February 2010. The PAF aims to acquire up to 250 jets. In December 2013, the production of the next-generation JF-17 Thunder fighters began at the Pakistan Aeronautical Complex facility in Kamra, Punjab.

The aircraft has undergone many enhancements, including an air-to-air refueling capability, better avionics, and electronic warfare capability. In 2015, it was announced that a Block III JF-17 Thunder and a two-seat variant were to be built with AESA radar and a helmet-mounted display (HMD).

On October 3rd, 2019, Jane's Defence Weekly reported that the first Block III JF-17 Thunder had been unveiled in a ceremony at the Pakistan Aeronautical Complex (PAC) in Kamra.

No JF-17s For China?

The Joint Fighter JF-17 has developed from China's experience reverse engineering MiG-21 and Pakistan's experience flying F-16s. It has been deployed operationally and exported to Myanmar

and Nigeria. Deals have been signed with Iraq and Azerbaijan to supply the fighter jet. But the glaring question remains why China has refrained from inducting the aircraft.

Apart from the fact that the JF-17 was developed to cater to Pakistan's security needs, China has veered away from shorter-range fighter jets and towards larger, multi-role fighter jets like the J-10.

With a vast expanse to defend, China needs modern fighter jets with extended range capable of carrying more weapons than JF-17. JF-17 has seven hard points compared to eleven of J-10.

J-10 'Vigorous Dragon' is much larger than JF-17.

The JF-17 is ideal for Pakistan, which requires easy-to-maintain aircraft. China's fleet of J-10 and J-20 gives it a sophisticated arsenal to secure its vast air space. Pakistan has also inducted J-10s into its inventory, although in smaller numbers.

The J-10C model is considered comparable to the 4.5-generation fighters. The biggest addition has been the AESA radar, the cornerstone of modern-day air warfare.

The J-10C has also improved its stealth by using non-reflective composite materials, reducing its visibility on radar. This decreased the range at which the J-10C could be detected and targeted.

The J-10C is armed with long-range PL-15 radar-guided air-to-air missiles, which outrange the US Air Force's AIM-120 D. The J-10s can carry long-range anti-radiation missiles designed to target air defense radars for both at sea and land.

Medium-weight combat aircraft J-10, along with lightweight multi-role fighter JF-17, is well suited for Pakistan. Islamabad doesn't need JF-17 to penetrate the Indian borders.

With most of the Indian air bases located within 50-60 kilometers of the border, for anything further, Pakistan's missiles can do the job. JF-17 was developed to fight insurgents within its borders and drop bombs on its neighbors, and it does the job at a low cost.

J-10 has a conventional delta wing design with canards, yet it boasts impressive maneuverability. The J-10 fighter is powered by a single Saturn AL-31FN series 3 engine, providing 13.5 tons of thrust, and has a top speed of Mach 2.2. The latest variant, J-10C, is powered by a single WS-10 Taihang turbofan engine with a thrust of 13,500 kgf (29,800 lbf). The engine has afterburners and provides good acceleration and maneuverability. The aircraft also has a digital fly-by-wire flight control system, which makes it highly maneuverable and responsive.

The Vigorous Dragon has a range of 2,940 km (with external fuel tanks) and can stay in the air for up to 3 hours and 30 minutes. The PLAAF fighter can reach speeds of up to Mach 2.2 (1,700 mph, 2,735 km/h) at high altitude and has a maximum altitude of 60,000 feet (18,290 meters). The aircraft is also highly maneuverable at high speeds and can quickly change direction and altitude.

With high top speed, the J-10C can achieve faster speeds during combat maneuvers. The aircraft has a much lower radar cross-section than its earlier variants, enhancing its stealth capabilities. The aircraft is also known for its integrated electronic warfare suite, which provides advanced jamming and countermeasures capabilities, making it more effective in electronic warfare scenarios.

https://www.eurasiantimes.com/china-trashes-jf-17-fighters-for-vigorous-dragons/

THE ECONOMIC TIMES

Thu, 13 Jun 2024

Pakistan's budgetary allocation for defence falls to 1.7 per cent of its GDP

Pakistan's budgetary allocation of Rs 2,122 billion for defence for 2024-25 constitutes just 1.7 per cent of the cashstrapped but nuclear-armed nation's GDP, which is the same as the previous year, despite the higher than the Rs 1,804 billion set aside during the outgoing fiscal 2023-24, according to budget documents.

Finance Minister Muhammad Aurangzeb on Wednesday presented a Rs 18,877 billion heavily taxed budget for 2024-25. The finance minister's speech and various budget documents show that Rs 2,122 billion allocated for the next fiscal year is Rs 318 billion higher than Rs 1,804 billion budgeted for the outgoing fiscal year 2023-24, ending on June 30.

According to the Pakistan Economic Survey 2023-24, which is a key document showing the budget and performance of the economy each year and is released ahead of the budget each year, defence spending as a percentage of the GDP has come down since 2020. It shows that the defence spending was 2.6 per cent of the GDP in 2020 but it decreased to 2.4 per cent in 2021, and went down further to 2.1 per cent in 2022, followed by 1.9 per cent in 2023 and 1.7 per cent in 2024.

For the year 2025, defence spending has been retained at 1.7 per cent of the GDP, showing that there was no change in the share of the army in the overall pie despite it getting more money in the budget. The document lists defence spending as per GDP since 2016 when it was 2.3 per cent, and increased to 2.5 per cent of the GDP in 2017 and further to 2.6 per cent in 2018. It remained unchanged at 2.6 per cent from 2018 to 2020 and then decreased.

For example, a sum of Pakistani Rs 662 billion, allocated for retired military personnel, which equals to about 31 per cent of the allocation for the armed forces, will not be drawn from the defence budget but rather from the government's current expenditure. Similarly, it is believed that key military acquisitions or funding for nuclear weapons and missile programmes are believed to be financed through separate channels, obscuring the exact military spending.

However, the budget document provides some details about the latest allocation, showing that the share of the three services and inter-services organisations has remained fairly consistent since 2019, with the Army getting 47.5 per cent, the Air Force 21.3 per cent, the Navy 10.8 per cent and the inter-services organisations 20.3 per cent of the budget. It shows that this year the Army, Pakistan Air Force, Pakistan Navy and interservices organisations will receive an equal percentage increase of 22.3 per cent in their respective allocations, a rare display of parity in funding distribution.

The allocation is divided into four categories: 'Employees Related Expenses', covering salaries and allowances for servicemen; 'Operating Expenses', which include costs for transportation, fuel, rations, medical treatment, training, and other essential services; 'Physical Assets', which funds the procurement of arms, ammunition, and related equipment through local purchases and imports; and

'Civil Works' dedicated to maintaining existing infrastructure and financing new construction projects. The civil works category got the biggest 25 per cent increase with Rs 244.8 billion allocation, followed by physical assets, which received Rs 548.6 billion (18.8 per cent increase), and operating expenses got Rs 513.3 billion (15.6 per cent raise).

The ERE (employee-related expenses) head still got the largest chunk of the budget for the armed forces with 39 per cent allocation. Physical assets and operating expenses got 25.8 per cent and 25 per cent of the budget, respectively, while civil works claimed 11.5 per cent. Due to the peculiar security situation of Pakistan and its uneasy ties with India, its defence spending often comes under the scanner both at home and abroad.

https://economictimes.indiatimes.com/news/defence/pakistans-budgetary-allocation-for-defence-falls-to-1-7-per-cent-of-its-gdp/articleshow/110967351.cms

THE TIMES OF INDIA

Fri, 14 Jun 2024

US, Ukraine ink 10-year defence pact billed as Nato precursor

US President Biden and Ukraine President Zelenskyy signed a 10-year bilateral security agreement on Thursday aimed at bolstering Ukraine's defence against Russian invaders. The agreement, signed on the sidelines of the G7 summit in Italy, is meant to be a step towards Ukraine's eventual Nato membership, according to the text of the deal.

"The parties recognise this agreement as supporting a bridge to Ukraine's eventual membership in the Nato alliance," the text says. Zelenskyy has long sought Nato membership but the allies have stopped short of taking that step. The Western alliance regards any attack launched on one of its 32 members as an attack on all under its Article Five clause.

In the event of an armed attack or threat of such against Ukraine, top US and Ukrainian officials will meet within 24 hours to consult on a response and determine what additional defence needs are required for Ukraine, the agreement says. Under the agreement, the US restates its support for Ukraine's defence of its sovereignty and territorial integrity, amid a renewed push by Russia on Ukraine's eastern front.

"To ensure Ukraine's security, both sides recognise Ukraine needs a significant military force, robust capabilities, and sustained investments in its defense industrial base that are consistent with Nato standards," the text says.

"The US intends to provide long-term materiel, training and advising, sustainment, intelligence, security, defense industrial, institutional, and other support to develop Ukrainian security and defense forces that are capable of defending a sovereign, independent, democratic Ukraine and deterring future aggression," it says.

https://timesofindia.indiatimes.com/world/europe/us-ukraine-ink-10-year-defence-pact-billed-as-nato-precursor/articleshow/110978511.cms

THE ECONOMIC TIMES

Thu, 13 Jun 2024

NASA's cutting-edge alloy investment set to drive Aerospace innovation

NASA has made a groundbreaking investment in a superalloy known as GRX-810, signaling a significant step forward in materials science with farreaching implications for the US economy and the future of aerospace technology.

Developed under NASA's Technology Transfer Program, this 3D-printable, high-temperature material is set to revolutionize the construction of airplane and spacecraft components, offering superior durability and performance in extreme conditions. GRX-810, a nickel-based alloy, has been designed to withstand temperatures exceeding 2,000 degrees Fahrenheit (1,093 degrees Celsius) and can endure more stress and oxidation than traditional materials.

According to Dr. Tim Smith, a materials researcher at NASA's Glenn Research Center and coinventor of GRX-810, “GRX-810 represents a new alloy design space and manufacturing technique that was impossible a few years ago.” The alloy's properties include the ability to last up to 2,500 times longer, flex nearly four times more before breaking, and resist oxidation damage twice as effectively as other nickel-based alloys.

The innovative design of the superalloy was achieved through a combination of computer modeling and laser 3D-printing, allowing metals to be fused together layer-by-layer. This approach not only saves time but also incorporates oxygen atoms throughout the alloy, significantly enhancing its strength.

NASA's decision to license GRX-810 to four American companies—Carpenter Technology Corporation of Reading, Pennsylvania; Elementum 3D, Inc. of Erie, Colorado; Linde Advanced Material Technologies, Inc. of Indianapolis; and Powder Alloy Corporation of Loveland, Ohio—underscores the agency's commitment to translating its technological advancements into commercial opportunities.

These companies are now positioned to produce and market GRX-810 to airplane and rocket equipment manufacturers, as well as other entities within the aviation and spaceflight supply chains. “NASA invests tax dollars into research that demonstrates direct benefit to the US and transfers its technologies to industry by licensing its patents,” said Amy Hiltabidel, a licensing manager at NASA's Glenn Research Center.

The coexclusive license agreements are expected to stimulate innovation and enhance the competitiveness of American aerospace industries by providing access to this advanced material. Originally intended for aerospace applications, including liquid rocket engine injectors,

combustors, turbines, and other components exposed to extreme temperatures, the potential of GRX-810 extends beyond space exploration.

Dale Hopkins, deputy project manager of NASA's Transformational Tools and Technologies project, emphasized the broader implications of adopting GRX810: "Jet engine and rocket components made from GRX-810 will lower operating costs by lasting longer and improving overall fuel efficiency."

The development of GRX-810 is a collaborative effort involving NASA's Glenn Research Center, Ames Research Center in California's Silicon Valley, The Ohio State University, and Marshall Space Flight Center in Huntsville, Alabama.

Recent testing at these facilities included the 3D-printing of rocket engine parts, demonstrating the alloy's practical applications in real-world scenarios. As NASA continues to advance its understanding of space and improve air transportation, technologies like GRX-810 illustrate the agency's role in driving innovation that not only meets the challenges of space exploration but also offers significant economic benefits.

Through its Technology Transfer Program, NASA has successfully transitioned more than 2,000 technologies to the commercial sector, fostering economic growth and enhancing the quality of life.

With the implementation of GRX-810, the future of sustainable aviation and space exploration looks promising. As Hiltabidel, licensing manager at NASA's Glenn Research Center in Cleveland said, "Our aim is to bring this process to a conclusion. Our view is that the time for haggling is over."

https://economictimes.indiatimes.com/news/science/nasas-cutting-edge-alloy-investment-set-to-drive-aerospace-innovation/articleshow/110974198.cms

ThePrint

Thu, 13 Jun 2024

Pune astronomers identify galaxy in Milky Way's neighbourhood as 'explosive factory' of gamma rays

Astronomers from Pune's Inter-University Centre for Astronomy and Astrophysics have identified a galaxy, known as Kathryn's Wheel, as "an explosive factory" of gamma rays of unidentified origin. Located some 30 million light years from the Milky Way, Kathryn's Wheel is one of the rarest kind of galaxies. It was birthed when two galaxies collided directly into each other with intense star formation activity occurring in their outer layers.

The researchers also confirmed that the galaxy — categorised as a collisional ring — was formed, when the smaller galaxy — called 'bullet' — pierced through the larger one. This led to a shock wave that pushed the dust and gas out of the system, leaving behind it a star-forming ring.

Published in the peer-reviewed journal The Astrophysical Journal Letters Tuesday, the analysis revealed that the data gathered about the collision of the two galactic centres and star formation merely does not explain the amount of the observed gamma ray emission.

The study noted that additional high-energy phenomena like pulsars, supernova remnants, or black holes at the centre of the galaxies need to be investigated to understand how such large amounts of gamma rays are emitted.Some of the most powerful high-energy phenomena in the universe are gamma ray bursts. These directional beams of gamma rays originate from extremely violent astrophysical environments, such as a supernova or a black hole. If beamed directly at earth from a close source, a direct gamma ray has the potential to wipe out life, wherever it touches, through radiation.

Additionally, the team of astronomers also noticed cosmic rays — harmless high-energy particles that move almost at the speed of light — coming from the collisional galaxy. According to them, more detailed investigation is needed to determine their source inside the unique galaxy that is in our galactic neighbourhood.

Churning of galaxies

The research confirmed that the ‘bullet’ galaxy was undergoing a lot of active star formation, while the centre of the larger galaxy was relatively empty as all the gases and material had been shot out of it by the impact of the ‘bullet’. This interaction continues to trigger large quantities of cosmic rays, which interact with interstellar gas and radiation fields, leading to diffused gamma ray emissions from star-forming regions, including the centre of the ‘bullet’ galaxy.

But the observed data indicated that only a minor amount of observed gamma rays can be explained by this phenomenon. As a result, the paper concluded that a “non-negligible” contribution from active galactic nuclei, and other powerful objects like pulsars, could explain the findings and need to be detected.

The gamma ray burst is thought to emanate from an unidentified source that has been named 4FGL J1647.5−5724, and was first detected in 2020. The X-ray emission sources were identified as coming from three star-forming regions, and radio sources were successfully mapped to the star-forming knots in the ring around the galaxy. The researchers used data from telescopes for high-energy astrophysics and space observatories to observe the various types of radiation coming from the galaxy.

Need to study sources of gamma rays

Gamma rays are emanated in the form of relativistic jets — powerful jets of electromagnetic radiation moving at speeds approaching the speed of light — and made up of photons that come from active galactic nuclei, supernovae or explosions of massive stars, and other such high-energy environments.

Hunting the sources of gamma rays and other high-energy astrophysical phenomena is a key problem in research. Understanding astronomical sources that produce these intense energy beams is necessary to know how high-energy particles interact with galactic environments. Studying these particles is also opening up a new field in physics — the study of neutrinos: exotic, tiny collapsed atoms of dead stars that pass through everything without causing any damage. Understanding high-

energy physics also helps in furthering research into dark matter and dark energy, which are thought to make up a majority of the known universe.

https://theprint.in/science/pune-astronomers-identify-galaxy-in-milky-ways-neighbourhood-as-explosive-factory-of-gamma-rays/2129566/

Thu, 13 Jun 2024

SSI announces release of Mantra 3 surgical robot, first robotic telesurgery in India

SSI Mantra has launched the third version of its Mantra robotic platform. The low-cost, indigenously developed surgical platform is meant to provide access to safe surgery procedures with faster recovery times to as many people as possible. Compared to the previous generation, version 3 uses a console with an ergonomic headset. The new version features slimmer modular carts and a robotic arm, and allows for the use of five robotic arms at once.

The benefit of the new configuration is that the surgeon can reduce the reliance on asurgical assistant, or do away with the assistant entirely. SSI also announced the first ever telesurgery in India, that was conducted in Delhi between SSI HQ in Gurugram and the World Laparoscopy Hospital, also in Gurgaon. The technology used comms infrastructure by Airtel, and can potentially allow for surgeries across any two locations in the country with a lag of less than 100 milliseconds.

SSI Maya

SSI also revealed the Maya mixed reality platform that combines web3 and metaverse technologies to provide immersive virtual and augmented reality experiences for preoperative and intra-operative procedures. The technology allows surgeons to convert data from medical imaging technologies into 3D models that can be overlaid in realtime over the patients, supporting the training and mentoring of surgeons as well as surgical staff.

The SSI Chitrasa is an advanced AI based 3D medical imaging engine that seamlessly interfaces with the PACS networks of hospitals for CT and MRI segmentation, enhancing the precision of, and the confidence in robotic surgeries. There is also the mixed reality teleproctoring component known as SSI Guru, that allos surgeons to remotely sit in on surgery, providing realtime guidance over long distances. There is also the Ved element in Maya that enables training of surgeons and support staff about the intricacies of the robotic platform. SSI also announced that the founder of Intuitive Surgical, the makers of the Da Vinci robotic platform, Frederic Moll has joined SSI Mantra has joined the board as the Vice Chairman, and will be playing a more active role in the company from now on.

https://www.news9live.com/science/ssi-announces-release-of-mantra-3-surgical-robot-first-robotic-telesurgery-in-india-2576122