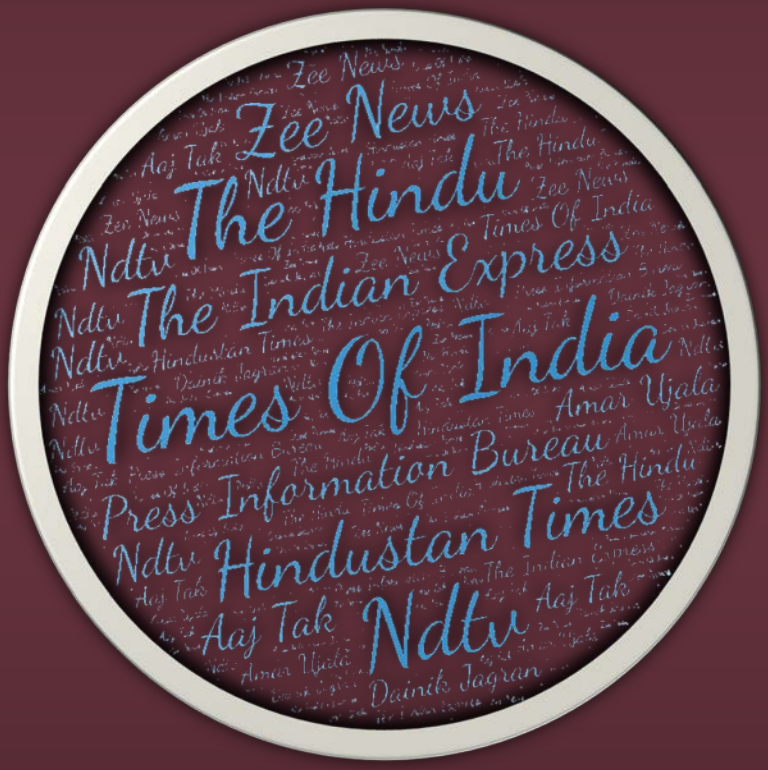
August
2022

समाचार पत्रों से चयित अंश
Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

खंड : 47 अंक: 145 30 जुलाई - 01 अगस्त 2022

Vol.: 47 Issue: 145 30 July - 01 August 2022



रक्षा विज्ञान पुस्तकालय
Defence Science Library
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र
Defence Scientific Information & Documentation Centre
मेटकॉफ हाउस, दिल्ली - 110 054
Metcalfe House, Delhi - 110 054

CONTENTS

DRDO News

DRDO Technology News

जागरण

रविवार, 31 जुलाई 2022

ब्रेन ट्यूमर के फैलाव को लेकर अब मिलेगी सटीक जानकारी, डीआरडीओ की तैयार की एमडीएम किट

वैभव शर्मा, हिसार। ब्रेन ट्यूमर होने पर अक्सर चिकित्सकों को ट्यूमर कितने क्षेत्र में है इसकी जानकारी सटीक नहीं मिल पती है। अभी तक ट्यूमर के फैलाव का पता लगाने के लिए विभिन्न दवाओं या अन्य प्रक्रियाओं का प्रयोग किया जाता है। वह काफी महंगी और जटिल होती हैं। मगर इसके बावजूद भी कई बार देखा गया है कि ट्यूमर का सटीक तरीके से पता नहीं चल पाता है। अब इस समस्या का हल रक्षा अनुसंधान तथा विकास संगठन (डीआरडीओ) के नाभिकीय औषधि तथा संबद्ध विज्ञान संस्थान (इनमास) ने खोज लिया है।

इसके लिए इनमास डीआरडीओ के विज्ञानियों ने एमडीएम रेडी किट विकसित की है। इस किट की मदद से अब चिकित्सक कैंसर (खासकर ब्रेन ट्यूमर) को आसानी से शुरुआती समय में ही रेखांकित कर सकेंगे। गौरतलब है कि नाभिकीय औषधि तथा संबंद्ध विज्ञान संस्थान यानि इनमास में विज्ञानी देश में ऐसी चिकित्सकीय समस्याओं का हल खोजते हैं जो काफी महंगी हैं या उनका उपचार नहीं है। इस नई एमडीएम किट को हिसार में एस्पाइरिंग हरियाणा 2022 के तहत लगाई प्रदर्शनी में विज्ञानियों ने प्रदर्शित भी किया।

केमिकल पर आधारित है यह एमडीएम रेडी किट

इनमास के विज्ञानियों की मानें तो इस किट में मेथिओनिन का प्रयोग किया गया है। मेथिओनिन एक अमाइनो एसिड होता है। यह ब्रेन में हर सेल्स के अंदर तक चला जाता है। ऐसे में ट्यूमर की जो बाउंड्री होती है यह उसे अच्छे से रेखांकित कर देता है। जिससे चिकित्सकों को पता चल जाता है कि ट्यूमर की क्या बाउंड्री है और कहां उन्हें ट्यूमर निकालने के लिए कार्य करना है। इसे खोजने वाली टीम के विज्ञानियों को करीब चार वर्ष का समय लग गया। इनमास डीआरडीओ के डायरेक्टर अनिल मिश्रा के नेतृत्व में विज्ञानियों की टीम ने इस किट की खोज की है। यह पूरी तरह से स्वदेशी है।

एमडीएम रेडी किट अन्य माध्यमों से होगी सस्ती

एमडीएम रेडी किट ब्रेन ट्यूमर के डायग्नोज में कार्य आने वाले दूसरे माध्यमों से काफी सस्ती होगी। हालांकि इसकी लागत और बाजार में आने के बाद क्या दाम रहेंगे इसको लेकर अभी स्थिति अधिक स्पष्ट नहीं है। मगर सबसे अच्छी बात है कि यह स्वदेशी और सस्ती होगी।

मौजूदा समय में एमडीएम किट का फेज-1 व फेज-2 का ट्रायल पूरा हो गया है। इसके साथ ही पोस्ट ग्रेजुएट इंस्टीट्यूट आफ मेडिकल एजुकेशन एंड रिसर्च (पीजीआइएमइआर, चंडीगढ़), आल इंडिया इंस्टीट्यूट आफ मेडिकल साइंस (एम्स दिल्ली), आल इंडिया इंस्टीट्यूट आफ मेडिकल साइंस (एम्स ऋषीकेश), दिल्ली स्थित इनमास में मल्टीसेंट्रिक क्लीनिकल ट्रायल प्रगति पर हैं। गौरतलब है कि हिसार में एस्पायरिंग हरियाणा 2022 के तहत प्रदर्शनी लगाई गई है जिसमें डीआरडीओ के विज्ञानी भी शामिल हुए हैं।

https://www.jagran.com/haryana/hisar-now-accurate-information-will-be-available-about-spread-of-brain-tumor-drdo-prepared-mdm-kit-22940802.html

The Indian EXPRESS

Fri, 29 Jul 2022

Kirori Mal College Signs MoU with DRDO, Students will Now Get to Use Research Facilities

Delhi University's Kirori Mal College (KMC) has signed a Memorandum of Understanding (MoU) which will give its students access to the research facilities at the DRDO's Institute of Nuclear Medicine and Allied Science (INMAS). The two institutes signed the MoU on Thursday to create a platform for collaborative academic and research programmes for students and teachers. The initiative for this step was taken by KMC's Internal Quality Assurance Cell as an "important step towards maintaining quality research in sciences and social sciences".

At the signing, Dr Upendra Kumar Sing, Director General of Life Science at DRDO, said that the collaboration would lead to exchange programmes between both the institutes. "The MoU opens up the highly advanced labs and the scientific equipment at INMAS for the students and teachers of KMC to strengthen their academic growth and research programmes," he said. The DRDO is the Research & Development wing of the Ministry of Defence and the INMAS works in the area of biomedical and clinical research. "The MoU opens doors for translational research that takes products from laboratory to society, eventually leading to making India atmanibhar," added Dr Anil Kumar Mishra, Director INMAS.

https://indianexpress.com/article/cities/delhi/kirori-mal-college-drdo-mou-8058261/

ThePrint

Fri, 29 Jul 2022

DRDO Scientist Tessy Thomas to Receive Tilak National Award Monday

Senior scientist Tessy Thomas, popularly known as India's missile woman, will be conferred the Lokmanya Tilak National Award for the year 2022 at a function in Pune on Monday. The award, instituted by the Lokmanya Tilak Smarak Trust, is given every year to an Indian who has dedicated his life to strengthening the country's democratic principles and contributed to Tilak's dream of a strong and modern India. "The trustees have unanimously decided to give her the award in recognition of her contribution to promoting 'swadeshi' philosophy," said Deepak Tilak and Rohit Tilak, President and Vice President of the Tilak Smarak Trust, in a statement.

Thomas was the project director for Agni-4 and Agni-5 missile systems and overseen their successful flight tests. Currently, she serves as the Director General (Aeronautical Systems), Defence Research and Development Organisation. The Award will be conferred at Tilak Maharashtra Vidyapeeth in Pune. PTI SKU SKU NSD NSD

https://theprint.in/india/drdo-scientist-tessy-thomas-to-receive-tilak-national-award-monday/1061030/

जागरण

रविवार, 31 जुलाई 2022

DRDO सही मायने में आत्मनिर्भर भारत का सपना साकार करने की दिशा में अग्रसर

By Sanjay Pokhriyal

आज दुनिया का कोई भी देश भारत को आंख दिखाने की कोशिश नहीं करता क्योंकि हम उन्हें मुंहतोड़ जवाब देने में सक्षम हैं और भारतीय सैन्य बलों को इतना शक्तिशाली बनाने में रक्षा अनुसंधान और विकास संगठन यानी डीआरडीओ का महत्वपूर्ण योगदान है। डीआरडीओ को रक्षा विज्ञान संगठन, तकनीकी विकास प्रतिष्ठान और तकनीकी विकास एवं उत्पादन निदेशालय को मिलाकर गठित किया गया। 'बलस्य मूलं विज्ञानम्' यानी शक्ति का स्रोत विज्ञान है, इस मूलमंत्र के साथ रक्षा अनुसंधान और विकास संगठन ने अपने गठन के बाद से 64 साल का लंबा व सुनहरा सफर तय किया है। डीआरडीओ ने सैन्य बलों की मजबूती के लिए आधुनिक हथियारों का अनुसंधान एवं विकास कर देश की सुरक्षा को

सुनिश्चित करने में बड़ी भूमिका निभाई है। शांतिपूर्ण परमाणु विस्फोट में महत्वपूर्ण योगदान देने के साथ यह यात्रा आज मेक इन इंडिया के अंतर्गत 'तेजस' जैसे लड़ाकू विमानों तक पहुंच गई है।

'पृथ्वी', 'अग्नि', 'आकाश', 'प्रलय', 'ब्रह्मोस' जैसी मिसाइलों के साथ-साथ रडार, सोनार, टारपीडो, टैंक, लड़ाकू हवाई जहाज, पनडुब्बियां आदि विकसित कर डीआरडीओ सही मायने में आत्मनिर्भर भारत का सपना साकार करने की दिशा में अग्रसर है।डीआरडीओ भारत सरकार के रक्षा मंत्रालय का अहम अंग है। खेती पर निर्भर रहने वाले इस देश ने अपनी सीमाओं और आने वाली पीढ़ियों को सुरक्षित करने के लिए वर्ष 1958 में डीआरडीओ का गठन किया। ये 64 वर्ष भारत के लिए कई मायनों में उतार-चढ़ाव भरे रहे। पड़ोसी मुल्कों से रिश्तों में तनातनी हुई। बदलते समय के साथ इस संगठन ने मिसाइलों, हथियारों, हल्के लड़ाकू विमानों, रडार के साथ-साथ दूसरी तकनीकी के जरिए जल, थल और वायु सेना को मजबूती और देश को ताकत दी, सैन्य बलों को आधुनिक हथियार प्रदान करने में बड़ी भूमिका निभाई और देश को सुरक्षित किया। आज डीआरडीओ भारत को आधुनिक हथियारों से लैस कर रहा है।

सैन्य बलों की आवश्यकताओं को दृष्टिगत रखते हुए इनके उपयोग में आने वाले ज्यादातर उपकरणों का विकास भारतीय उद्योग जगत डीआरडीओ की प्रयोगशालाओं के सहयोग से कर रहा है। नई तकनीकी और तंत्र की वजह से भारत आधुनिक हथियारों की डिजाइनिंग और विकास में सक्षम हो गया है, जिससे देश के रक्षा आयात खर्च में कमी आई है। आज भारत इतना सक्षम है कि दुनिया के अन्य देश भी भारत की आधुनिक और कम दर में मिल रही तकनीकी का फायदा ले रहे हैं।कम संसाधनों में कमाल 'मिसाइल मैन' कहे जाने वाले पूर्व राष्ट्रपति ए.पी.जे. अब्दुल कलाम के नेतृत्व में भारत को मिसाइल तकनीकी के क्षेत्र में आत्मनिर्भर बनाने के लिए डीआरडीओ ने अतुलनीय काम किया। यहां निर्मित 'पृथ्वी', 'अग्नि', 'त्रिशूल', 'आकाश' और 'नाग' जैसी मिसाइलें भारतीय सैन्य बलों के लिए रीढ़ की हड्डी बनीं। पूरी तरह से स्वदेशी, सतह से सतह पर मार करने वाली मिसाइल और 'मिशन शक्ति' के तहत एएसएटी मिसाइल की सफलता बताती है कि डीआरडीओ सीमित समय में कठिन कार्य कर सकता है। डीआरडीओ ने कम संसाधनों में भी देश के सैन्य बलों की जरूरतों को पूरा किया है। 5,000 से अधिक विज्ञानियों और 25 हजार से ज्यादा स्टाफ प्रयास-दर-प्रयास टैंक, लड़ाकू विमान, मिसाइल, तोपखाना और एडवांस आम्र्स बनाने में निरंतर योगदान दे रहे हैं।

वैश्विक स्तर पर धमक : जब विकसित देश रक्षा क्षेत्र में काफी काम कर चुके थे, तब डीआरडीओ ने शुरुआती दौर में शांतिपूर्ण परमाणु विस्फोट से लेकर दूरी मापने के यंत्र बनाने तक पर काम किया और भारत की धमक वैश्विक स्तर पर दर्ज कराई। एक्सप्लोसिव रिसर्च और कैरियर डिजाइन से संबंधित कार्यों में महत्वपूर्ण योगदान दिया। इसी दशक में डीआरडीओ ने उपग्रह संचार प्रणाली के क्षेत्र में काम शुरू किया और देश को अंतरिक्ष में मजबूत किया। इसके साथ ही डीआरडीओ ने सिस्टम इंजीनियरिंग की दिशा में काम करते हुए कई जटिल प्रणालियां विकसित की हैं। इस साल की पहली छमाही डीआरडीओ के लिए स्वर्णिम सफलताओं से भरी रही है। कम समय में ही डीआरडीओ ने मैन पोर्टेबल एंटी-टैंक गाइडेड

मिसाइल, एलसीए तेजस के लिए एईएसए रडार, पनडुब्बियों के लिए एयर इंडिपेंडेंट प्रोपल्शन और सात मंजिला फ्लाइट कंट्रोल सिस्टम इंटीग्रेशन कांप्लेक्स के उद्घाटन जैसे बड़े कार्य किए हैं। फ्लाइट कंट्रोल सिस्टम इंटीग्रेशन कांप्लेक्स का निर्माण अब तक के रिकार्ड समय 45 दिनों में स्वदेशी तकनीक, पारंपरिक विधि, अभियांत्रिकी और पद्धति के माध्यम से पूरा किया गया।

डीआरडीओ ने पिनाक एमके-1 राकेट सिस्टम, पिनाक एरिया डिनायल म्यूनीशन राकेट सिस्टम, सालिड फ्यूल डक्टेड रैमजेट, नेवल एंटी-शिप मिसाइल, लेजर गाइडेड एंटी टैंक गाइडेड मिसाइल का भी सफल परीक्षण किया है। सतह से हवा में वार करने वाली वर्टिकल लांच शार्ट रेंज सरफेस टू एयर मिसाइल और हाई स्पीड एक्सपेंडेबल एरियल टारगेट यानी 'अभ्यास' का परीक्षण किया। इसके अलावा रक्षा क्षेत्र में भारत को आत्मनिर्भर बनाने के लिए इसने भारत डायनेमिक्स लिमिटेड के साथ एक अनुबंध पर हस्ताक्षर किए हैं।

सुरक्षित भविष्य का विश्वास : डीआरडीओ ने भारत को उन चुनिंदा देशों में शामिल कर दिया है, जो सामरिक प्रतिरोधक क्षमता से लैस हैं। संगठन अब अगली पीढ़ी के सिस्टम जैसे- एडवांस मीडियम कांबैट एयरक्राफ्ट, अगली पीढ़ी के मुख्य युद्ध टैंक, एयरबोर्न अर्ली वार्निंग एंड कंट्रोल सिस्टम, डायरेक्टेड एनर्जी वेपन, लांग कैपेसिटी अनमैन्ड एयरक्राफ्ट्स, हाई एंड्योरेंस अंडर वाटर अनमैन्ड व्हीकल, सोलर यूएवी, रोबोटिक्स, आर्टीफीशियल इंटेलिजेंस, हाइपरसोनिक्स प्रणालियों और साइबर स्पेस रक्षा के लिए तकनीकी के विकास पर काम कर रहा है। डीआरडीओ ने हाल ही में पांच युवा विज्ञानी प्रयोगशालाओं का गठन किया है। यानी भविष्य में हमें प्रतिभावान विज्ञानी और बेहतर सैन्य उत्पाद मिलने की अपार संभावनाएं हैं।

देश स्वाधीनता का अमृत महोत्सव मना रहा है और वतन की सीमाएं चाक-चौबंद रहें, इसके लिए डीआरडीओ नित नए कदम बढ़ा रहा है। देश के 10 सेंटर आफ एक्सीलेंस को डीआरडीओ-औद्योगिक-शैक्षिक संस्थानों में बदल दिया गया है। इनमें से आठ का संचालन इनको चलाने वाली शैक्षिक संस्थाएं कर रही हैं, जबकि दो का संचालन डीआरडीओ करता है। इसके अलावा कानपुर, जोधपुर, रुड़की, बीएचयू और हैदराबाद के आइआइटी संस्थानों में पांच सेंटर आफ एक्सीलेंस विकसित किए जा रहे हैं।

नवाचार को प्रोत्साहन : रक्षा मंत्री द्वारा तकनीक विकास कोश योजना के तहत परियोजना राशि 10 करोड़ रुपए से बढ़ाकर 50 करोड़ रुपए करने की मंजूरी दी गई है, जिससे लघु और मध्यम उद्योगों, स्टार्टअप को और प्रोत्साहन मिलेगा। इस योजना का उद्देश्य लघु एवं मध्यम उद्योगों व स्टार्टअप्स को प्रोत्साहित कर रक्षा क्षेत्र में शोध और नई तकनीकों का विकास करना है। डीआरडीओ ने 300 विश्वविद्यालयों और कालेजों को 1,200 करोड़ रुपए का फंड देने की योजना बनाई है, जिससे संगठन से जुड़े 3,000 शिक्षक और शोध छात्रों के साथ 5,000 विशेषज्ञों, विद्यार्थियों को लाभ मिलेगा। योजना के तहत 56 परियोजनाओं को मंजूरी दी गई है और 117 परियोजनाएं प्रक्रिया में हैं। अब तक चार तकनीकें विकसित भी की जा चुकी हैं।

चमक रहा नई क्षमताओं का सूरज : स्वतंत्रता के बाद सीमित संसाधनों के बाद भी डीआरडीओ ने रक्षा प्रणालियों को निरंतर विकसित करने की दिशा में काम किया, जिससे भारत हथियारों के साथ तकनीक के मामले में भी आत्मनिर्भर हो सके और रक्षा उपकरणों का बड़ा निर्यातक बन सके। डीआरडीओ की नीतियां 'मेक इन इंडिया' के रास्ते पर चलते हुए भारतीय उद्योगों को साथ लेकर काम कर रही हैं। संगठन के प्रयासों से देश सैन्य क्षेत्र में सही मायनों में आत्मनिर्भर और सशक्त भारत का उदाहरण बन रहा है। आशा की इस सुबह में नई क्षमताओं के साथ डीआरडीओ सूरज की तरह चमक रहा है। आज एयरोनाटिक्स, युद्ध सामग्री, इलेक्ट्रानिक्स, लैंड कांबैट इंजीनियरिंग, सेंसर, एवियोनिक्स, वायरलेस और उपग्रह संचार प्रणाली, इलेक्ट्रानिक वारफेयर, जैविकीय सुरक्षा, विज्ञान सामग्री, मिसाइल और नौसेना प्रणाली जैसी लगभग प्रत्येक रक्षा तकनीकी क्षेत्र के सिस्टम की डिजाइनिंग और विकास पर काम हो रहा है। आज नई युद्ध प्रणालियां विकसित हो रही हैं, जिनमें साइबर, अंतरिक्ष रक्षा, सूचना प्रौद्योगिकी, रोबोटिक्स, आर्टिफीशियल इंटेलिजेंस, मशीन लर्निंग शामिल हैं। डीआरडीओ इन पर भी तेजी से कार्य कर रहा है। डीआरडीओ ने भारतीय सैन्य बलों को सर्वशक्तिशाली बनाने के लिए भविष्य की तैयारी कर रखी है। अतएव यह उन विशिष्ट रक्षा प्रौद्योगिकियों को विकसित करने की दिशा में काम कर रहा है, जो इस वक्त चुनिंदा देशों के पास ही उपलब्ध हैं।

https://www.jagran.com/news/national-drdo-is-moving-towards-realizing-the-dream-of-a-truly-self-reliant-india-jagran-special-22940806.html

Defence News

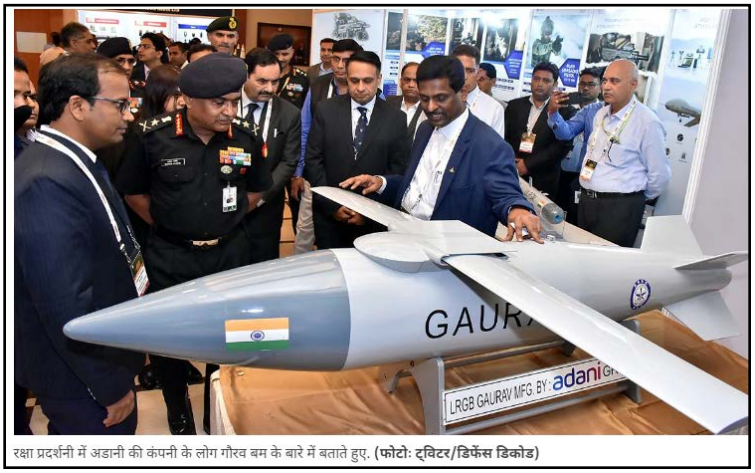
Defence Strategic : National/International

शनिवार, 30 जुलाई 2022

अडानी की कंपनी ने बनाया Gaurav बम, हवा में तैरकर पहुंचता है दुश्मन तक

भारतीय वायुसेना (Indian Air Force) को एक ऐसे स्मार्ट बम की जरुरत थी, जो खुद नेविगेट और ग्लाइड करते हुए दुश्मन के टारगेट को बर्बाद कर दे. इस काम में भारतीय रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने मदद की. उसके वैज्ञानिकों ने दो तरह के बम का डिजाइन बनाया.

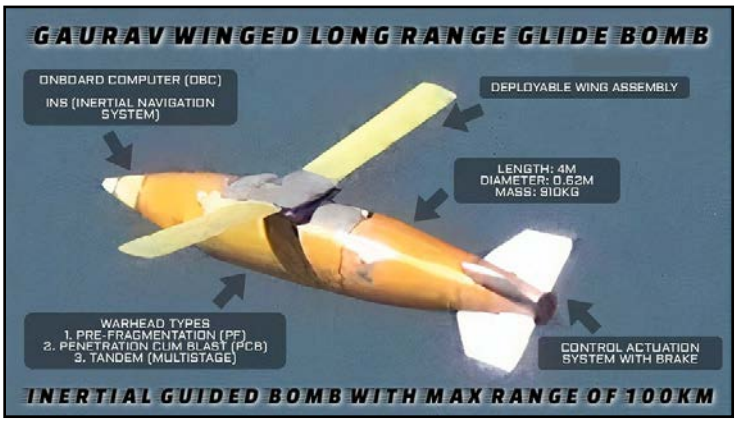
डिजाइन के बाद इस बम को बनाने की जिम्मेदारी उद्योगपति गौतम अडानी की कंपन Adani Defence And Aerospace ने ली. उसने दोनों बमों का निर्माण किया. पहला विंग के जरिए ग्लाइड करने वाला गौरव (Gaurav) लॉन्ग रेंज ग्लाइड बम (LRGB). इससे अपने फाइटर जेट के सर्वाइव करने और कोलेटरल डैमेज की आशंका कम हो जाती है.



रक्षा प्रदर्शनी में अडानी की कंपनी के लोग गौरव बम के बारे में बताते हुए. **(फोटो: ट्विटर/डिफेंस डिकोड)**

गौरव 1000 किलोग्राम का विंग वाला लंबी दूरी का ग्लाइड बम है. वहीं, गौथम 550 किलोग्राम का बिना विंग का बम है. दोनों की लंबाई 4 मीटर है. दोनों का व्यास 0.62 मीटर है गौरव (Gaurav) और गौथम

(Gautham) दोनों ही बमों में CL-20 यानी फ्रैगमेंटेशन और क्लस्टर म्यूनिशन लगते हैं. ये टार्गेट से कॉन्टैक्ट करते ही प्रॉक्जिमिटी फ्यूज़ कर देता है. विस्फोटक फट जाता है. गौरव की रेंज 100 किलोमीटर ग्लाइड करने की है. जबकि गौथम की बिना विंग के 30 किलोमीटर ग्लाइड करने की है.



यह अधिकतम 10 किलोमीटर की ऊंचाई तक जा सकता है दोनों ही बमों में इनर्शियल नेविगेशन सिस्टम लगा है. जो जीपीएस और नाविक सैटेलाइट गाइडेंस सिस्टम की मदद से टारगेट तक पहुंचता है. इसे सुखोई सू-30 एमकेआई (Sukhoi Su30MKI) फाइटर जेट पर तैनात किया जा सकता है. पिछले साल अक्टूबर महीने में बालासोर में सुखोई फाइटर जेट से गौरव का सफल परीक्षण किया गया था . इससे पहले 2014 में इसका सफल परीक्षण किया गया था. दोनों की फिलहाल अपग्रेडेड रेंज 50 से 150 किलोमीटर है.

https://www.aajtak.in/science/story/adani-defence-aerospace-gaurav-gautham-long-range-glide-bomb-drdo-tstrd-1509266-2022-07-30+&cd=3&hl=en&ct=clnk&gl=in

NEWS 24 Think First

Sun, 31 Jul 2022

Adani builds 'Gaurav & Gautham' Bombs, Design by DRDO

A long-range glide bomb has been designed for the Indian Air Force (IAF). The bomb has been manufactured by Gautam Adani's Adani Defence and Aerospace. The bomb is designed by the DRDO (Defence Research and Development Organization). The bomb weighs around 1000 kgs and was successfully tested last year. Here is the strength, range and firepower of this bomb. DRDO has designed the two types of smart bomb which can self-navigate, glide and destroy the enemy targets. The bomb was designed for the Indian Air Force. Following this Adani Defence and Aerospace took the lead in manufacturing the bomb. The scientists of DRDO designed two types of Long Range Glide Bomb (LRGB). The bombs are named as Gaurav and Gautham. Gaurav is the winged version whereas Gautham is the non-winged version.

Dimensions and strength of the bombs

Both these bombs are precision guided weapons. They are used in anti-aircraft defense to destroy the targets which are out of range. This reduces the chance of collateral damage. Gaurav is a long-range glide bomb with a wing of 1000 kg. Whereas, Gautham is a 550 kg bomb without a wing. The length of both the bombs is 4 meters. The diameter of both the bombs is 0.62 m.

This is how the bombs work

The Gaurav and Gautham bombs have CL-20 which means having fragmentation and cluster munition. As soon as it establishes a contact with the target it fuses the proximity and explodes.

Range of the bombs

It fuses the proximity as soon as it makes contact with the target. The explosive explodes. Gaurav has a range of 100 kms to glide. Whereas Gautham has to glide 30 km without wing. It can go up to a maximum height of 10 km.

Firepower of the bombs

Both the bombs have an inertial navigation system. They can reach the target with the help of GPS and NavIC Satellite Guidance System. It can be deployed on Sukhoi Su-30 MKI fighter jet.

Tested successfully

In October last year, Gaurav was successfully test fired from a Sukhoi fighter jet in Balasore. Earlier it was successfully tested in 2014. Both currently have an upgraded range of 50 to 150 km.

https://news24online.com/india/adani-builds-gaurav-gautham-bombs-design-by-drdo/6875/

THE ECONOMIC TIMES

Fri, 29 Jul 2022

Indian Defence Sector Scales Newer Heights with Latest Technology

Indian defence sector is bolder than before and with every passing day it is arming itself to combat any kind of situation whereby providing stability to the country. The Indian Army is planning to procure approximate quantity 800 Light Armoured Multipurpose Vehicle (LAMV) for Mechanised Infantry and Armoured Corps. The LAMV is planned to be procured in sync with 'Make in India' and 'Atmanirbhar Bharat' initiative. The Request for Information generated by the Defence Ministry stated the LAMV will be employed by Reconnaissance (Recce) & Surveillance Platoons of Mechanised Infantry and Recce Troops of Armoured Corps for Recce & Surveillance tasks. Hence, the proposed LAMV must possess adequate mobility and provide protection for troops on board.

In addition, it should be able to carry the battle loads to include weapons, ammunition, surveillance and communication equipment required to carry out mandated operational tasks. The LAMV should be modular in design, thereby offering the scope for future upgrades through

simple modifications and to facilitate subsequent development. The LAMV will be deployed for on road and cross-country movement in the plain and desert terrain along the Western borders. These advanced multipurpose vehicles will also be employed in the high-altitude regions, up to 5,000 metres altitude, mountainous terrain including snow bound areas as occurring along Northern borders, including eastern Ladakh and North Sikkim. On the operational requirements, the Indian Army stated that it intends to carry out silent recce and continuous surveillance of intended area of operations with protected mobility in the battle field and provide early warning and intelligence of hostile elements.

It will used for carriage of weapons, ammunition, surveillance and communication equipment along with recce and marking stores apart from integrating with dynamic resources like drones and loiter munitions. On the other hand, Defence Research and Development Organisation (DRDO) carried out successful trail of futuristic unmanned aircraft. According to reports, in a major leap in indigenous flying technology, the DRDO carried out the successful maiden flight of the 'Autonomous Flying Wing Technology Demonstrator' from the Aeronautical Test Range in Chitradurga, Karnataka. Operating in a fully autonomous mode, the aircraft showcased a perfect flight, including take-off, way point navigation and a smooth touchdown.

Congratulating DRDO on this major achievement Defence Minister Rajnath Singh tweeted: "Congratulations to @DRDO_India on successful maiden flight of the Autonomous Flying Wing Technology Demonstrator from Chitradurga ATR. It is a major achievement towards autonomous aircrafts which will pave the way for Aatmanirbhar Bharat in terms of critical military systems."" Designed & developed by Aeronautical Development Establishment (ADE), a premier research laboratory of DRDO, the Unmanned Aerial Vehicle is powered by a small turbofan engine. It also consists of an airframe, undercarriage, entire flight control and avionics systems. Notably, all these components have been developed indigenously in India. The defence acquisition council (DAC) -- India's apex procurement body -- accorded its acceptance of necessity (AoN) for the capital acquisition proposals. Under India's defence procurement rules, AoN by the council, headed by Defence Minister Rajnath Singh, is the first step towards buying military hardware. India has imposed a phased ban on the import of 310 types of weapons and systems, including next-generation corvettes, in the past two years to boost self-reliance.

https://economictimes.indiatimes.com/news/defence/indian-defence-sector-scales-newer-heights-with-latest-technology/articleshow/93212740.cms?from=mdr

ThePrint

Fri, 29 Jul 2022

‘Made in India’ Hinges on Existing Small Arms Manufacturers. Global Players Come and Go

In a bid to promote ‘atmanirbharta’ within India’s small arms manufacturing industry, the Narendra Modi government has initiated a fresh process to procure carbines to replace its decades-old 9mm British Sterling 1A1 submachine guns—a project that began in 2008. The Ministry of Defence gave Acceptance of Necessity (AoN), the first step in any defence

procurement process, to the plans to induct approximately four lakh of these weapons. And the administration is correct. This is a mega deal for the industry and would ensure that Indian companies benefit. While the defence ministry remains tight-lipped on whether the procurement will take place through the Buy Indian category or the Indigenously Designed, Developed and Manufactured (IDDM) route, sources in the defence and security establishment told ThePrint that it would be through the former. Under IDDM, the competition would have been between only three firms, out of which the Bengaluru-based SSS Defence, which has come out with an indigenous carbine called the M72, would be the only private firm. The other two in competition would have been the Defence Research and Development Organisation (DRDO) and the Ordnance Factory Board.

But the good thing about the Buy Indian category is that it opens up the competition to include those companies that have set up plants in India or are in the process of doing so in collaboration with a foreign Original Equipment Manufacturer (OEM). For example, PLR Systems, now part of the Adani Group, has a tie-up with the Israeli Weapons Industry (IWI) and are already manufacturing its small arms with a 'Made in India' tag on them. There are other companies too, which have already tied up with a foreign OEM, have either set up plants or are in the process of doing so. This includes the Kalyani Group, which has a tie-up with French firm Thales but is also in talks with the DRDO; the Jindal Group, which has tied up with a Brazilian firm called Taurus and Neco Desert Tech, a joint venture between Indian and American firms.

The process matters

This is where India must draw a line. The Request for Proposal (RFP), also known as a tender, should mention that such companies would be given preference. It cannot be a global RFP where multiple companies across the world offer their product and say they will invest in India after bagging the contract. This would be unfair to firms who have already invested their money and time to set up a manufacturing facility and have been waiting for orders. SSS Defence is one such example. It has an array of small, indigenous arms products but is yet to get any order from the Services or the police forces. But that's a given, since they have to bid and compete, which they are doing with multiple police forces trying out their systems. The indigenous firm, which has worked closely with various Indian security agencies to finetune their weapon, could bag a contract.

Another example is PLR Systems, which is locally manufacturing the best Israeli weapons in India that the Armed Forces and even state police use. Those weapons were bought when the joint venture didn't exist but any follow-up order for the contracts already inked in the past by the Army has to still go to the Israeli company. As reported earlier, this is because if an order is given to PLR Systems, the name of the company changes and that would mean a fresh procurement process. So the Armed Forces give fresh orders to IWI directly, which manufactures the weapons in Israel and sends them over to India. The Army is inducting the IWI-supplied LMGs, even when the joint venture is capable of manufacturing it indigenously with many elements 'Made in India'. So what does PLR Systems do in the meantime? Apply for fresh tenders and wait.

PLR Systems is likely to field the Galil Ace 21 carbine that is now manufactured in India. Interestingly, the Ace 21 was chosen by the Army in an earlier attempt (2013-14) to buy carbines but the deal could not go through because of a single vendor situation, a condition that does not allow going ahead, under the Indian defence procurement rules. It is therefore important to

incentivise companies who have already invested in India for the carbine deal. It is natural that with the news of India planning to procure nearly four lakh carbines, many foreign and domestic companies would be in frenzy to announce tie-ups. But their actual investment and work will depend on whether they bag the contract or not. So it would be completely unfair to pit companies who have already invested and manufactured arms here against global players who have not done so.

https://theprint.in/opinion/brahmastra/made-in-india-hinges-on-existing-small-arms-manufacturers-global-players-come-and-go/1060086/

Press Information Bureau
Government of India

Ministry of Defence

Sun, 31 Jul 2022 11:16 AM

Royal Army of Oman Contingent for Joint Exercise Al NAJAH-IV Arrive in India

The 4th Edition of India Oman Joint Military Exercise 'AL NAJAH-IV' between contingents of Indian Army and the Royal Army of Oman is scheduled to take place at the Foreign Training Node of Mahajan Field Firing Ranges (Rajasthan) from 01 to 13 August 2022. The Royal Army of Oman contingent comprising 60 personnel from the Sultan of Oman Parachute Regiment have arrived at the exercise location. The Indian Army is represented by troops from the 18 MECHANISED INFANTRY Battalion. The previous edition of Ex AL NAJAH IV was organised at Muscat from 12 to 25 March 2019.

The scope of the exercise includes professional interaction, mutual understanding of drills & procedures, establishment of joint command & control structures and elimination of terrorist threats. The joint exercise would focus on Counter Terrorism Operations, Regional Security Operations and Peace Keeping Operations under United Nations charter apart from organising joint physical training schedules, tactical drills, techniques and procedures. A comprehensive training programme to culminate in a 48 hours long validation exercise involving establishing of joint mobile vehicle check posts, joint cordon and search operations followed by joint room

intervention drills in a built up area has been worked out. The joint military exercise aims to enhance the level of defence co-operation between Indian Army and Royal Army of Oman and will further manifest in enhancing the bilateral relations between the two nations.

https://pib.gov.in/PressReleasePage.aspx?PRID=1846679

Sat, 30 Jul 2022

Why India's Indigenously Built Aircraft Carrier INS Vikrant Worries China

INS Vikrant: India's first indigenously built aircraft carrier

India received its first indigenously built aircraft carrier INS Vikrant from the its manufacturer, Cochin Shipyard. The commissioning of the ship is likely to take place on August 15 during India's Independence Day. The Indian Navy said the warship was delivered after extensive user acceptance trials calling it a "momentous day in the Indian maritime history and indigenous shipbuilding". The largest warship ever to be built in India has a deep displacement of 45,000 tonnes with a steel structure of 21,500 tonnes. The aircraft carrier, built at a cost of nearly $2.9 billion had successfully completed the fourth and final phase of sea trials three weeks back. India has now joined a select group of nations who have the capability to indigenously design and build an aircraft carrier.

INS Vikrant set to operate fighter jets

INS Vikrant is set to operate MiG-29K fighter jets, Kamov-31 helicopters and MH-60R multi-role helicopters. It has over 2,300 compartments designed for a crew of around 1,700 people, including specialised cabins to accommodate women officers. India's latest warship has a top speed of around 28 knots and a cruising speed of 18 knots with an endurance of about 7,500 nautical miles. The IAC is 262 metres long, 62 metres wide and it has a height of 59 metres. The construction of the warship began in 2009 and it was reportedly delivered ahead of time. The Navy said the aircraft carrier would soon be commissioned into the force and it would bolster India's position in the Indian Ocean Region (IOR) and its quest for a blue water Navy.

INS Vikrant bolsters India's position in Indian Ocean Region

"Vikrant has been built with a high degree of automation for machinery operation, ship navigation and survivability and has been designed to accommodate an assortment of fixed wing and rotary aircraft," the Navy said. It has been a big boost to India's quest towards 'Aatma Nirbhar Bharat' (self-reliant India) with the warship ready to set sail soon. The warship would serve to bolster India's position in the Indian Ocean Region (IOR) and its quest for a blue water Navy. The warship has been christened after her illustrious predecessor India's first aircraft carrier which played a vital role in the 1971 war. The 262-metre-long carrier is much larger and more advanced than its predecessor and is powered by four gas turbines totalling 88 MW power. The project progressed in three phases of contract between the Ministry of Defence (MoD) and CSL, which concluded in May 2007, December 2014 and October 2019.

INS Vikrant: Short Take-Off but Arrested Landing system

INS Vikrant can operate with 30 aircraft and is equipped with the Short Take-Off but Arrested Landing system comprising a ski-jump for launching aircraft and a set of 'arrester wires' for their recovery onboard when they land. Another outcome of the project was the development and production of indigenous warship-grade steel for the ship through a partnership between Navy, DRDO and Steel Authority of India (SAIL) which has enabled the country to become self-sufficient with respect to warship steel. In fact, the Cochin shipyard is currently constructing 8 anti-submarine warfare shallow water crafts (ASWSWCs) and it has also won an order for the construction of six next-generation missile Vessels (NGMV) for the Indian Navy.

STOBAR configuration with a ski-jump

The warship had begun sea trials last year in August. It is expected to conduct flight trials next year with STOBAR configuration with a ski-jump. It is a milestone for the Indian Navy which expects to keep China at bay in the contentious Pacific waters. Chief of Naval Staff Admiral Karambir Singh had said INS Vikrant would be fully operational before the end of 2022. It is a big boost for the Indian Navy with INS Visakhapatnam already part of its arsenal. India's new warship is fitted with a modern surveillance radar which provides target data to the gunnery weapon systems of the ship. The anti-submarine warfare capabilities are provided by the indigenously developed rocket launchers, torpedo launchers and ASW helicopters. The ship is also equipped to fight under nuclear, biological and chemical (NBC) warfare conditions.

https://www.wionews.com/photos/why-indias-indigenously-built-aircraft-carrier-ins-vikrant-worries-china-501942#ins-vikrant-set-to-operate-fighter-jets-501932

INDIA TODAY

Fri, 29 Jul 2022

Navy Takes Delivery of India's 1st Indigenous Aircraft Carrier 'Vikrant'

Indian Navy has created maritime history on Thursday, July 28, by taking delivery of the prestigious indigenous aircraft carrier (AC) Vikrant from her builder Cochin Shipyard Limited (CSL), Kochi. Designed by Indian Navy's in-house Directorate of Naval Design (DND) and built by CSL, a public sector shipyard under Ministry of Shipping (MoS), the carrier is christened after her illustrious predecessor, India's first aircraft carrier which played a vital role in the 1971 war. Coinciding with the celebrations to commemorate 75th anniversary of India's independence 'Azadi Ka Amrit Mahotsav', the reincarnation of Vikrant is a true testimony to the country's zeal and fervour in pursuing capability build up towards enhanced maritime security.

The 262 metre long carrier has a full displacement of close to 45,000 tonnes which is much larger and advanced than her predecessor. The ship is powered by four gas turbines totaling 88 MW power and has a maximum speed of 28 knots. Built at an overall cost of close to Rs. 20,000 crores, the project has been progressed in three phases of contract between MoD and CSL, concluded in May 2007, Dec 2014 and Oct 2019 respectively. The ship's keel was laid in Feb 2009, followed by launching in Aug 2013. With an overall indigenous content of 76 per cent,

IAC is a perfect example of aatmanirbhar bharat and provides thrust to Government's 'Make in India' initiative. With the delivery of Vikrant, India has joined a select group of nations having the niche capability to indigenously design and build an aircraft carrier.

Vikrant has been built with high degree of automation for machinery operation, ship navigation and survivability, and has been designed to accommodate an assortment of fixed wing and rotary aircraft. The ship would be capable of operating air wing consisting of 30 aircraft comprising of MIG-29K fighter jets, Kamov-31, MH-60R multi-role helicopters, in addition to indigenously manufactured Advanced Light Helicopters (ALH) and Light Combat Aircraft (LCA) (Navy). Using a novel aircraft-operation mode known as STOBAR (Short Take- Off but Arrested Landing), the IAC is equipped with a ski- jump for launching aircraft, and a set of 'arrester wires' for their recovery onboard. The ship has large number of indigenous equipment and machinery, involving major industrial houses in the country- BEL, BHEL, GRSE, Keltron, Kirloskar, Larsen & Toubro, Wartsila India etc. as well as over 100 MSMEs.

The indigenisation efforts has also led to development of ancillary industries, besides generation of employment opportunities and bolstering plough back effect on economy, both locally as well as pan-India. A major spin-off of this is the development and production of indigenous warship grade steel for the ship through a partnership between Navy, DRDO and Steel Authority of India (SAIL), which has enabled the country to become self-sufficient with respect to warship steel. Today all the warships being built in the country are being manufactured using indigenous steel. Several design iterations, including use of 3D virtual reality models and advanced engineering softwares were used by the Directorate of Naval Design in shaping the design of the carrier. CSL had also upgraded their shipbuilding infrastructure as well as enhanced productivity skills during the building of the ship. Delivery of Vikrant was marked by signing of acceptance documents on behalf of Indian Navy by the Commanding Officer Designate of Vikrant, representatives of Naval Headquarters and Warship Overseeing Team (Kochi) and by the chairman and managing director on behalf of Cochin Shipyard Ltd., in the presence of senior officers of Indian Navy and Cochin Shipyard.

Vikrant has been delivered to the Indian Navy by CSL following extensive user acceptance trials conducted between Aug 2021 and Jul 2022, during which ship's performance, including hull, main propulsion, PGD, auxiliary equipment, aviation facilities, weapon and sensors as well as sea keeping and manoeuvring capabilities were proved satisfactory in accordance with trial protocols and system parameters. The delivery of Vikrant is the culmination of a long design, build and trials phase, during which both Indian Navy and CSL had to overcome multitude of unprecedented technical and logistic challenges including Covid-19 pandemic and changed geo-political scenario. The successful delivery of the indigenous carrier, a major milestone activity and historical event, is testimony to the dedicated efforts of large number of stakeholders within Indian Navy, shipyard, industry, OEMs and MSMEs for over two decades. The Indigenous Aircraft Carrier would soon be commissioned into the Indian Navy as Indian Naval Ship (INS) Vikrant which would bolster India's position in the Indian Ocean Region (IOR) and its quest for a blue water Navy.

https://www.indiatoday.in/india/story/navy-takes-delivery-of-india-s-1st-indigenous-aircraft-carrier-vikrant-1981240-2022-07-29

THE HINDU

Sun, 31 Jul 2022

HAL to Supply 12 Light Utility Helicopters to Armed Forces

Hindustan Aeronautics Ltd. (HAL) has received the Letter of Intent from the Services for the manufacture of 12 Light Utility Helicopters (LUH), which have been designed and developed indigenously. At the same time, nine Light Combat Helicopters (LCH) have been manufactured against the sanction of 15 limited series production (LSP) variants and are in the process of being handed over to the Services. In another development, the Army is in negotiations for acquiring 11 more Apache AH-64E attack helicopters from the U.S. “Production work has begun. Two LUH are in an advanced stage of completion,” a HAL source confirmed to The Hindu. In addition, the Request For Quotation (RFQ) for the larger order for LUH RFQ has also been issued, one source stated.

HAL is in the process of responding to the RFQ and expects to conclude the related issues in one or two years, the source stated. Last November, the Defence Acquisition Council approved the procurement of an initial lot of 12 LUH, six each for the Army and the Air Force. In June, the Army raised its first LCH squadron in Bengaluru which will move to the Line of Actual Control (LAC) in Eastern Command once complete next year. “Of the 15 LSP on order, nine LCH have been produced. They are in acceptance stage,” HAL sources said. As of now the Army is looking at acquiring around 111 LUH and 95 LCH, officials stated. Army sources had said that seven LCH units are planned for combat role in the mountains, with each having 10 helicopters. The IAF is also scheduled to raise its first LCH squadron in the next few months.

More Apache attack helicopters

The Cabinet Committee on Security had earlier given sanction for the procurement of 39 AH-64 Apache attack helicopters from the U.S.. Following this, IAF had inducted 22 Apaches procured under a deal signed in September 2015. The government had ruled that any further Apache procurements would go to the Army. In line with this, India signed a deal for six more Apaches at a cost of around $800 million in February 2020. Deliveries which were to begin in the first half of 2023 have been delayed by around 10 months due to the COVID-19 pandemic, a defence official said. They are now scheduled to arrive in early 2024, an Army source said. In addition, the Army is pushing the case for the remaining 11 Apaches of the 39 sanctioned, the official added. A senior official of aircraft manufacturer Boeing had recently confirmed that they were in talks with the Indian Army for additional Apaches.

The Army has three Aviation Brigades at Leh, Missamari and Jodhpur. It operates around 145 indigenous Advanced Light Helicopters (ALH), 75 of which are the Rudra-weaponised variants. Another 25 ALH Mk-III are on order and scheduled to be inducted within two years. The Army operates around 190 Cheetah, Chetak and Cheetal helicopters and are in dire need of their replacement, while the IAF operates close to 140 of them. In all, the IAF operates a wide mix of around 500 rotary platforms which includes around 90 Mi-17s, over 130 Mi-17V5s, over 70 ALH, including the weaponised variants, 22 Apaches, one squadron of Mi-35 attack helicopters and 15 CH-47F Chinook heavy lift helicopters.

In the utility helicopter category, the Army and the IAF together have a requirement of more than 400 helicopters and are meant to replace the vintage Cheetah and Chetak helicopters in

service. This requirement was to be met jointly by the LUH and the 200 Ka-226T utility helicopters to be built with technology transfer from Russia. However, the Ka-226T deal has been delayed by several years over indigenisation issues and with the LUH now ready and the geopolitical situation due to the war in Ukraine, the deal is all set to be dropped, officials had stated. The LUH has come up well, but will take time for sufficient numbers to come in, Army sources had stated.

https://www.thehindu.com/news/national/hal-receives-letter-of-intent-for-12-indigenous-utility-helicopters-nine-lch-ready/article65707237.ece

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sat, 30 Jul 2022

India Flight-Testing New Tejas Mk-1A Variant of the Fighter: Int'l Media

The flight trials of the MK-1A are largely being conducted in secret as HAL said that the trials are part of the production project. The company said it is keen to adhere to delivery schedules for the Indian Air Force. India has been conducting flight trials of the MK-1A variant of its domestically developed light combat aircraft (LCA) TEJAS. Hindustan Aeronautics Limited (HAL), confirmed that the first MK-1A entered flight-testing in April. According to a second HAL source, the aircraft under flight-testing is SP25, a Final Operational Clearance (FOC) block aircraft that was manufactured by HAL in 2020. “This aircraft has been modified to the MK-1A standard and will serve as the test platform for the production line of MK-1As,” the HAL source said. The flight trials have not been made public because HAL said the flights are part of production activities. “We are geared towards ensuring that the aircraft are delivered to the Indian Air Force (IAF) on time and on schedule by 2024,” the HAL source said.

On 13 January 2021 the Indian government approved the acquisition of 73 TEJAS MK-1A fighter aircraft and 10 TEJAS MK-1 trainer aircraft for a contract value of INR 480 billion (USD 6.07 billion). This includes design and development of infrastructure and manufacturing. HAL is required to deliver the first three aircraft in 2024 and 16 aircraft annually for the next five years. The state-owned aircraft manufacturer has been earlier criticised for slow deliveries of the MK-1A to the IAF. The MK-1A is a program intended for improving the operational capabilities of the TEJAS, based on feedback from the IAF.

http://www.indiandefensenews.in/2022/07/india-flight-testing-new-tejas-mk-1a.html

FINANCIAL EXPRESS
Read to Lead

Sun, 31 Jul 2022

Army Chief Meets Bhutan King in Thimphu; Focus on Further Boosting Enduring Strategic Ties

Chief of Army Staff Gen Manoj Pande has met Bhutanese King Jigme Khesar Namgyel Wangchuck and other top civil and military leaders of Bhutan with a focus on further boosting enduring strategic ties. Gen Pande is on a visit to Bhutan in the backdrop of growing concerns in India over China's relentless attempts to expand military infrastructure around Bhutanese territory in the Doklam plateau. People familiar with Gen Pande's engagements in Bhutan said regional defence and security challenges, Chinese activities in the plateau and adjoining areas and ways to further enhance bilateral defence cooperation figured in his talks in Thimphu.

The Army chief's visit to Bhutan coincided with India's decision to authorise the export of 5,000 metric tonnes of wheat and 10,000 metric tonnes of sugar to Bhutan as per Thimphu's requirements. Earlier this year, India restricted the export of the two commodities to strengthen India's food security. The Army chief called on the King on Saturday besides meeting Jigme Singye Wangchuck, the Fourth King of Bhutan. "General Manoj Pande #COAS called on His Majesty the King of Bhutan Jigme Khesar Namgyel Wangchuck and discussed aspects of enhancing the enduring bilateral relationship between the two Nations," the Army said in a tweet. It said he was also accorded an "impeccable Guard of Honour" at Thimphu.The people cited above said Gen Pande held extensive talks with his Bhutanese counterpart Lt General Batoo Tshering on all key issues including the overall situation in the Doklam tri-junction.

In 2017, the Indian and Chinese armies were locked in a 73-day stand-off at the Doklam tri-junction after China tried to extend a road in the area that Bhutan claimed belonged to it. Gen Pande also met with the Indian officials engaged in capacity-building of Bhutanese military.Gen Pande's visit to Bhutan came days after new satellite images emerged showing China constructing a village East of the Doklam plateau on the Bhutanese side, a region that is considered important for India's strategic interest. After the images came out, the Ministry of External Affairs said India keeps a constant watch on all developments having bearing on national security and takes necessary measures to safeguard its interests. In October last year, Bhutan and China signed an agreement on a "three-step roadmap" to expedite negotiations to resolve their festering boundary dispute.

Bhutan shares an over 400-km-long border with China and the two countries have held over 24 rounds of boundary talks in a bid to resolve the dispute. The Doklam tri-junction is considered important from the point of view of India's security interests.The India-China stand-off in the Doklam plateau in 2017 even triggered fears of a war between the two nuclear-armed neighbours. Bhutan said the area where China attempted to build the road belonged to it and India supported the Bhutanese claim.India had strongly opposed the construction of the road at the Doklam tri-junction as it would have impacted its overall security interests.The India-China face-off was resolved following several rounds of talks

https://www.financialexpress.com/defence/army-chief-meets-bhutan-king-in-thimphu-focus-on-further-boosting-enduring-strategic-ties/2612409/lite/

FINANCIAL EXPRESS
Read to Lead

Sat, 30 Jul 2022

Indian Army Sends RFI for 4G/5G for High Altitude along LAC

By Huma Siddiqui

To counter China rolling out 5G along the Line of Actual Control on its side, earlier this week the Indian Army has issued an open Request for Information (RfI), seeking bids from companies to help provide technology needed in the field by the troops. The Indian Army is seeking technology related to 4G- and 5G-based mobile cellular networks which will be used at high altitude in mountainous terrain and will also help in improving its communication and data network. This network is needed to be operated at altitudes of almost 18,000 feet, have temperature of -20 to -25 degrees, .5 mm to 50 cm of rain, snowfall of up to 10 feet and winds of 50 to 120 kilometers per hour. User device should have 256 bit AES Encrypted Security. The ongoing Russia-Ukraine war is a proof of how 5G can be used in the battlefield in the use of different technologies in some form or the other with minimum human loss.

Lower latency Internet network and it is ideal for different applications in defence and military use. In simple terms – The fifth-generation cellular wireless, is set to take the former standard - which we are using ie., the 4G LTE – network performances to a whole new level.

How?

It will set in motion another digital revolution on the battlefield with its ultra-high data rates and instantaneous real time transmissions. And when used in military applications, can be used in Real-time cyber attack, Detection and Response. 5G is important for a smart military base and is critical for infrastructure. Useful for the 'battle network'- Real Time Maps etc; Battlefield Wearable; Drones and Artificial Intelligence. In India for 5G we are still building the companies and the infrastructure and are at a very nascent stage. "We have been suspicious about Chinese company Huawei and its military application of 5G in India," explained a telecom expert. Adding, "State sponsored tech companies from our borders like China can impact our future war preparedness."

What is the Indian Army looking for?

According to the RfI, the army is keen to get a network which is not only secure but will provide secure messaging, and data services in the intended area of coverage, and will also be helpful in supporting the field formations in their operational requirements. The package of services should include delivery of network, execution and it should be done within 12 months of signing the contract. Following the Galwan incident in 2020, the Chinese side wasted no time in laying down fibre-optic cables on its sides of LAC which enabled it to have smooth communication within the formations. Based on reports, the Chinese side has already rolled out 5G networks in eastern Ladakh on its side of LAC and is also in the process of converting their entire surveillance and communication system to the same.

Is this impacting the communication system of the Indian Army?

Yes. According to reports, the 5G system deployed by the Chinese side is creating problems for the Indian Army and now efforts are on to address these issues. According to the RfI, the solution being provided by the vendor should be based on the specifications laid down by the Army and not any particular OEM specifications. It should also be capable of supporting global accepted standards. And for the safety and secrecy of the network, it should be able to be integrated with an encryption device as buyer-furnished equipment.

Why is 4G/5G required?

This is important for communications and faster data transfer and will help the Indian Army which is facing some issues related to communications at high altitude in forward areas. According to reports, India is expected to get 5G services by March 2023 and towards this, the first major phase of the 5G rollout process started earlier this week. Companies including Bharti Airtel, Reliance Jio, and Vi (formerly Vodafone Idea) and Adani Enterprises, bid in the 5G auction. And according to sources in the defence establishment, one of these companies is expected to respond to the RfI floated by the Indian Army.

The Indian Army has gradually started providing a high speed network for soldiers stationed in high altitude areas. The work of providing high speed communication to every village of the kilometer border and every post of the army in high altitude has been started expeditiously. In the form of communication, China has brought 5G closer to the LAC. Last year, China started a 5G signal base on the world's highest radar station in Tibet near the Bhutan-India border. Interestingly, roaming signals of Chinese service providers can come on Indian phones, especially in the villages situated near LAC. And to tackle this problem, Indi is getting set to respond to Chinese attempts to infiltrate the communication systems.

Until now, private companies in far flung and border areas have not been giving services to the far flung areas and have often said that they do not get the profit by spending as much money as the companies spend to set up the infrastructure. Almost two years ago, the Ministry of Telecommunications started work on several projects in an effort to provide mobile connectivity to 354 remote and border villages of the country. There are 144 villages in Jammu and Kashmir and Ladakh out of the 354 remote locations where there is no mobile connectivity. And for this a Very Small Aperture Terminal (VSAT) in Jammu and Kashmir and Ladakh has been set up so that the jawans can use satellite phones. This year in June the 4G network was introduced in some forward parts of Ladakh by Reliance Jio to a village close to Pangong lake, which is a friction point between India and China, and has set up a mobile tower at Spangmik village.

https://www.financialexpress.com/defence/indian-army-sends-rfi-for-4g5g-for-high-altitude-along-lac/2611927/lite/

FINANCIAL EXPRESS
Read to Lead

Sat, 30 Jul 2022

India to Ground MIG-21 Fighter Jets by 2025 – Report

India will ground all its Soviet-era Russian fighter jets, the MiG-21, by 2025, following the death of two officers in a crash, the latest in a series of casualties involving the single-engine jet's failure, a newspaper reported on Saturday. The Times of India quoted unnamed Indian Air Force officials as saying the MiG-21s have long past their retirement but must be replaced before being grounded.The report did not specify what portion of India's fighter-jet capability would be affected. The Wion news outlet said the air force has around 70 MiG-21s. The air force and defence ministry have been buying aircraft from Western makers in recent years.

A senior defence ministry official declined to confirm or deny the Times of India report, telling Reuters only that discussions on the future of the MiG-21 were underway, as sourcing of spare parts from Russia was increasingly difficult due to the war in Ukraine. A defence ministry spokesman did not immediately respond to a message-seeking comment.The MiG-21, dubbed "flying coffins" by the Indian press, has been the country's key fighter jet since its introduction in 1963 but has been plagued by crashes in later years. The jets have been a critical security asset in India's military infrastructure, used for example to strike neighbouring rival Pakistan after an alleged suicide attack in the disputed Kashmir region in 2019.

Thursday's crash of an air force MiG-21 Bison in the desert state of Rajasthan brings to six the number of MiG-21 crashes since last year, with five officers killed, according to official data and a source.In 2012, then-Defence Minister A.K. Antony told parliament that more than half of India's 872 MiG-21s had been lost to crashes over the previous four decades.

https://www.financialexpress.com/defence/india-to-ground-mig-21-fighter-jets-by-2025-report/2611578/lite/

THE NEW INDIAN EXPRESS

Sat, 30 Jul 2022

Fifth-Generation Fighter Jet Engine, OROP: Modi Government Presents its Defence Roadmap in Parliament

The government on Friday said it is exploring collaboration with a foreign defence major for co-production of engines for a medium combat aircraft. India is working on an ambitious USD 5 billion project to develop the fifth-generation Advanced Medium Combat Aircraft (AMCA). "Indigenous capability exists with DRDO and Indian industries for design, development and manufacturing of 80kN combat jet engine," Minister of State for Defence Ajay Bhatt said in Lok Sabha.

He was replying to a question.

"Collaboration with a foreign engine house is being explored for co-development and co-production of the higher class thrust engines for AMCA," he said. "The cost including technology transfer for manufacturing the jet engine can be known after further progress," Bhatt added. India's confidence for the development of the AMCA saw a significant jump after the development of the Light Combat Aircraft (LCA) Tejas. Manufactured by state-run aerospace behemoth Hindustan Aeronautics Ltd (HAL), the Tejas aircraft is a potent platform for air combat and offensive air support missions while reconnaissance and anti-ship operations are its secondary roles. In February last year, the defence ministry sealed a Rs 48,000 crore deal with HAL for procurement of 83 LCA Tejas fighter aircraft for the Indian Air Force (IAF). To another question on whether the government proposes to revamp the Sahayaks system, Bhatt said "no". Sahayaks in the Indian Army are soldiers and their duties include protecting the officers, maintaining their weapons and equipment and helping them in carrying out their responsibilities.

Sahayaks are also known as "buddies".

"In the Indian Army, a buddy has clearly defined military duties and forms an integral part of the organisation structure of a unit and has specific functions during war and peace," Bhatt said. "During operations in the field areas, he and the officer/ JCO (junior commissioned officer) act as buddies in arms," he said. "One covers the movement of the other buddy and protects him in operations where support has to be total, whether mental or physical or moral," Bhatt added. The revision of pension for ex-servicemen under the 'One Rank One Pension' (OROP) is under process, the government said in Lok Sabha. In responding to a question, Minister of State for Defence Ajay Bhatt said the revision is being carried out with effect from July 1, 2019. The minister also cited an order by the Supreme Court on the matter.

The government issued notifications in 2015 announcing the implementation of the OROP scheme. It had a provision for reviewing the pensions every five years. "The Supreme Court vide its order dated March 16 directed that in terms of the communication dated November 7, 2015, a re-fixation exercise shall be carried out from July 1, 2019, upon the expiry of five years," Bhatt said. "Revision of pension under OROP with effect from July 1, 2019, is under process," he added. The OROP implies that a uniform pension be paid to the armed forces personnel retiring in the same rank with the same length of service regardless of their date of retirement. To a separate question, Bhatt said the government has taken measures to "de-stress and upgrade the capabilities" of the soldiers and officers serving in the Army, Navy and Air Force.

Elaborating on the measures, he said training of soldiers and officers is conducted as per a well-planned schedule. Bhatt said the steps included annual planning of major training and administrative events to "provide stability and predictability in commitments of personnel". "In order to de-stress the soldiers and officers their daily/ weekly routine & training schedule is well spaced out and is designed to improve their physical and mental capabilities," he said.India's military spending for the year 2021 was ranked as the third highest in the world, the government said citing data collated by Stockholm-based defence think-tank SIPRI. "This (defence) ministry does not maintain expenditure data of other countries," Minister of State for Defence Ajay Bhatt said, replying to a question in Lok Sabha.

"However, as per data available on Stockholm International Peace Research Institute's (SIPRI) website, India's military spending for the year 2021 is ranked as third highest in the world," he said. Bhatt was asked whether India's military spending is ranked third highest globally.

According to the details provided by Bhatt, citing data from SIPRI, the US ranked first with the expenditure of USD 800,672.20 million, followed by China's USD 293,351.90 million while the figure for India was USD 76,598.00 million. Asked whether more than 50 per cent of defence equipment has been imported from 2017 to 2021, he said "no". "During 2017-21, the percentage of foreign procurement (both revenue and capital) made for the purchase of stores/ defence equipment has been in the range of 33.97 per cent to 41.60 per cent," he said.

To a separate question, Bhatt said coastal monitoring and surveillance is being carried out on a real-time basis by the Indian Coast Guard around the country's coastline through a "chain of static sensors (CSS) consisting of 46 radar stations." He said the infrastructure has been put in place under the Coastal Surveillance Network (CSN). "Coastal surveillance system through chain of coastal high definition surface warning radars is one of the means through which coastal security is being implemented," he said. "The radars have been installed since 2011 and there is no known harmful effect on the environment," he added.

https://www.newindianexpress.com/nation/2022/jul/30/fifth-generation-fighter-jet-engineoropmodi-government-presents-its-defence-roadmap-in-parliamen-2482312.html

शुक्रवार, 29 जुलाई 2022

चीन अपनी सेनाओं पर भारत से कितना अधिक करता है खर्च? सरकार ने संसद में बताया

चीन (China) अपनी सेनाओं (Army) के आधुनिकीकरण (Modification) पर भारत से करीब चार गुना ज्यादा खर्च करता है. शुक्रवार को खुद रक्षा मंत्रालय (Defence Ministry) ने सिपरी की रिपोर्ट (Sipari Report) के आधार पर संसद (Parliament) में ये आंकड़ा पेश किया. सिपरी की रिपोर्ट के मुताबिक, चीन (China) का सालाना सैन्य-खर्च 2.93 लाख करोड़ है जबकि भारत का मात्र 77 हजार करोड़ है. शुक्रवार को लोकसभा सांसद नुसरत जहां (Nusarat Jahan) के लिखित सवाल के जवाब में रक्षा राज्यमंत्री अजय भट्ट (Ajay Bhatt) ने बताया कि हालांकि भारत (India) दूसरे देशों के सैन्य खर्च का लेखा-जोखा नहीं रखता है. ग्लोबल थिंकटैंक, स्टॉकहोम इंटरनेशनल पीस रिसर्च सेंटर (सिपरी) की वर्ष 2021 की सालाना रिपोर्ट के मुताबिक, अमेरिका का सैन्य खर्च करीब 8 लाख करोड़ है.

रक्षामंत्रालय ने दिया सिपरी रिपोर्ट का हवाला सिपरी की रिपोर्ट का हवाला देते हुए रक्षा मंत्रालय ने बताया कि चीन का सैन्य खर्च 2.93 लाख करोड़ है (293351 करोड़) है जबकि भारत का सैन्य खर्च 76598 करोड़ है. सिपरी की रिपोर्ट के मुताबिक, दुनियाभर में सैन्य खर्च के मामले में अमेरिका और चीन के बाद भारत तीसरे स्थान पर है. स्वदेशी और स्टार्टअप को दिया प्रोत्साहन रक्षा राज्य मंत्री (Defence State Minister)

के मुताबिक, 2017-21 के बीच सशस्त्र सेनाओं (Armed Forces) के लिए जो हथियार (Wepon) और सैन्य साज-ओ-सामान खरीदे गए उनमें से करीब 41 प्रतिशत विदेशी थे जबकि करीब 59 प्रतिशत मेक इन इंडिया (Make in India) के तहत लिए गए थे. इस साल मेक इन इंडिया का टारगेट और बढ़ने की उम्मीद है. उन्होनें ये भी बताया कि मेक इन इंडिया के तहत स्वदेशी उपक्रम और स्टार्ट-अप (Startup) को प्रोत्साहन दिया जा रहा है.

https://www.abplive.com/news/india/china-military-spending-4-time-of-india-says-defense-ministry-in-parliament-ann-2179985/amp

THE ECONOMIC TIMES

Fri, 29 Jul 2022

Percentage of Capital Expenditure on Import by Armed Forces on Decline in Last 3 yrs: Govt Data

The percentage of capital expenditure incurred by the armed forces for the import of equipment and military hardware witnessed a steady decline in the last three years, data provided by the government in Lok Sabha on Friday showed. According to the details furnished by Defence Minister Rajnath Singh, the armed forces spent Rs 38,156 crore on importing military hardware in 2019-20 which was 41.89 per cent of the total capital procurement. In 2020-21, the capital expenditure on imports was Rs 42,786 crore but the percentage came down to 36 compared to the overall procurement of hardware.

The capital expenditure on imports in 2021-22 was Rs 39,650 crore and it was 35.28 per cent of total procurement. Singh said India's defence exports have grown eightfold in the last six years -- from Rs 1521 crore in 2016-17 to Rs 12,815 crore in 2021-22. "The major contribution in this growth has come from the private sector. During 2021-22, the private sector has contributed almost 70 per cent of the total exports. According to the details provided by Singh, contribution of the private sector in India's defence exports in 2016-17 was Rs 194 crore while the total value of exports was Rs 1,521 crore. In 2017-18, the value of India's total exports was Rs 4,682 crore including Rs 3,163 crore worth of exports by the private sector.

The contribution of the private industries went up to Rs 9,813 crore in 2018-19 while the total volume was Rs 10,746 crore. In 2019-20, the total exports were valued at Rs 9,116 crore out of which Rs 8,008 crore was from the private sector. The volume of exports in 2020-21 was Rs 8,435 crore which included the contribution of Rs 7,271 crore by the private industries. The total defence exports went up to Rs 12,815 crore in 2021-22 out of which Rs 8,800 crore was contributed by the private sector, the details furnished by Singh showed. "About 80 countries import Indian defence equipment, sub-systems, parts and components. However, the names of the countries cannot be divulged due to strategic reasons," Singh said.

The government has initiated a series of measures in the last few years to boost domestic defence manufacturing. India is one of the largest importers of arms globally. According to estimates, the Indian armed forces are projected to spend around USD 130 billion in capital procurement in the

next five years. The government now wants to reduce dependence on imported military platforms. The defence ministry has set a goal of a turnover of USD 25 billion (Rs 1.75 lakh crore) in defence manufacturing in the next five years that included an export target of USD 5 billion worth of military hardware.

https://economictimes.indiatimes.com/news/defence/percentage-of-capital-expenditure-on-import-by-armed-forces-on-decline-in-last-3-yrs-govt-data/articleshow/93217994.cms

Hindustan Times

Fri, 29 Jul 2022

Domestic Procurement of Defence Equipment Sees Upward Trend: Govt to Lok Sabha

The domestic procurement of defence equipment has seen an upward curve over the past three years, from 54% in 2018-19 to 64% in 2020-21, Union minister of state for defence Ajay Bhatt told the Lok Sabha on Friday, with this year's target being 68%. "An innovation ecosystem for defence, titled innovations for Defence Excellence (iDEX), was launched in April 2018 to foster innovation and technology development in defence and aerospace by engaging industries such as MSMEs, start-ups, individual innovators, R&D institutes and the academia, and provide them grants/funding and other support to carry out R&D which has potential for future adoption for Indian defence and aerospace needs. So far, 125 such problems have been opened, 136 startups have been engaged and 95 contracts have been signed," Bhatt said.

In a written response to a series of questions from Trinamool Congress MP Nusrat Jahan Ruhi, the MoS defence informed that the import of defence equipment from 2017-21 was in the range of 33.97% and 41.60%. Bhatt said that the Centre has sanctioned 498.78 crore to encourage innovation and support start-ups in the defence and aerospace sector till 2026. "This will enable more than 300 start-ups to participate in new design and development projects, and also support 20 partner incubators," he said. The central government has imposed a phased ban on the import of 310 different types of weapons, systems and ammunition (through three positive indigenisation lists), and earmarked 84,598 crore — 68 % of the military's capital acquisition budget — for the purchase of indigenous weapons and systems in FY 2022-23. India on Tuesday cleared indigenous defence purchases worth 28,732 crore, including armed drones, carbines, bullet-proof jackets and ammunition.

The ministry has also created a list to indigenise imported items and achieve self-reliance in defence manufacturing. "The list contains 2,500 imported items that have already been indigenised, and 351 high-value imported items which will be indigenised in the next three years. Of these 351 items, 147 have already been indigenised," the ministry said. Referring to the Stockholm International Peace Research Institute (SIPRI) report, the ministry acknowledged that India is the third highest in military spending, only behind the United States and China. The ministry has also formulated the Defence Testing Infrastructure Scheme (DTIS) for the creation of 6-8 greenfield defence testing infrastructures in the country.

https://www.hindustantimes.com/india-news/domestic-procurement-of-defence-equipment-sees-upward-trend-govt-to-lok-sabha-101659100784999.html

Hindustan Times

Thu, 28 Jul 2022

Collaboration with Foreign Companies Intrinsic to Self-Reliance Goal: Army Chief

Traditional dependence on imported armaments and ammunition was a matter of concern and the current reversal of this trend is very encouraging, Indian Army chief General Manoj Pande said on Thursday, emphasising that collaboration with foreign OEMs (original equipment manufacturers) is intrinsic to the goal of 'atmanirbharta' (self-reliance) in the defence sector. "It has been unequivocally stated that collaboration with foreign OEMs is intrinsic to 'Aatmanirbhar Bharat' and we have moved from a relationship of buyer-seller to co-development and co-production (of weapons and systems) with our foreign partners," Pande said at the 'Ammo India 2022' conference, jointly organised by the Federation of Indian Chambers of Commerce and Industry and the Centre for Joint Warfare Studies.

Pande's comments came a day after Union defence minister Rajnath Singh made a strong pitch for self-reliance in the ammunition sector at the same conference, while asking private industry to partner with the central government to cater to the requirements of the armed forces. The army chief said ongoing reforms in the defence sector provide an opportunity for foreign OEMs to partner with Indian companies and work towards shared objectives. Import substitution of ammunition, which is a recurring requirement, is a top priority for the Centre, which has imposed a phased ban on the purchase of different types of ammunition from abroad. "With the government's push for 'Make in India' in recent years, the defence industry understands that the development of both platforms and ammunitions through Indian industry is the way forward," said N Raveeswaran, co-chair, FICCI defence and aerospace committee.

India has taken several steps over the last two to three years to boost self-reliance in the defence sector, curbing imports and allocating more funds for domestic procurement. The Centre has imposed a phased ban on the import of 310 different types of weapons, systems and ammunition, and earmarked ₹84,598 crore – 68% of the military's capital acquisition budget – to purchase indigenous weapons and systems in FY 2022-23.

https://www.hindustantimes.com/india-news/collaboration-with-foreign-companies-intrinsic-to-self-reliance-goal-army-chief-101659014797596.html

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sun, 31 Jul 2022

What MOS Defence Said on Collaboration with Foreign Firms

The government on Friday said it is exploring collaboration with a foreign defence major for co-production of engines for a medium combat aircraft. India is working on an ambitious USD 5 billion project to develop the fifth-generation Advanced Medium Combat Aircraft (AMCA).

"Indigenous capability exists with DRDO and Indian industries for design, development and manufacturing of 80kN combat jet engine," Minister of State for Defence Ajay Bhatt said in Lok Sabha.

He was replying to a question.

"Collaboration with a foreign engine house is being explored for co-development and co-production of the higher class thrust engines for AMCA," he said. "The cost including technology transfer for manufacturing the jet engine can be known after further progress," Bhatt added. India's confidence for the development of the AMCA saw a significant jump after the development of the Light Combat Aircraft (LCA) TEJAS. Manufactured by state-run aerospace behemoth Hindustan Aeronautics Ltd (HAL), the TEJAS aircraft is a potent platform for air combat and offensive air support missions while reconnaissance and anti-ship operations are its secondary roles. In February last year, the defence ministry sealed a 48,000 crore deal with HAL for procurement of 83 LCA TEJAS fighter aircraft for the Indian Air Force (IAF). To another question on whether the government proposes to revamp the Sahayaks system, Bhatt said "no". Sahayaks in the Indian Army are soldiers and their duties include protecting the officers, maintaining their weapons and equipment and helping them in carrying out their responsibilities.

Sahayaks are also known as "buddies".

"In the Indian Army, a buddy has clearly defined military duties and forms an integral part of the organisation structure of a unit and has specific functions during war and peace," Bhatt said. "During operations in the field areas, he and the officer / JCO (junior commissioned officer) act as buddies in arms," he said. "One covers the movement of the other buddy and protects him in operations where support has to be total, whether mental or physical or moral," Bhatt added.

http://www.indiandefensenews.in/2022/07/what-junior-defence-minister-said-on.html

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sun, 31 Jul 2022

Indian Army to Procure 800 Light Armoured Multipurpose Vehicle (LAMV) for Mechanised Infantry

Indian defence sector is bolder than before and with every passing day it is arming itself to combat any kind of situation whereby providing stability to the country. The Indian Army is planning to procure approximate quantity 800 Light Armoured Multipurpose Vehicle (LAMV) for Mechanised Infantry and Armoured Corps. The LAMV is planned to be procured in sync with 'Make in India' and 'Atmanirbhar Bharat' initiative. The Request for Information generated by the Defence Ministry stated the LAMV will be employed by Reconnaissance (Recce) & Surveillance Platoons of Mechanised Infantry and Recce Troops of Armoured Corps for Recce & Surveillance tasks. Hence, the proposed LAMV must possess adequate mobility and provide protection for troops on board. In addition, it should be able to carry the battle loads to include weapons, ammunition, surveillance and communication equipment required to carry out mandated operational tasks.

The LAMV should be modular in design, thereby offering the scope for future upgrades through simple modifications and to facilitate subsequent development. The LAMV will be deployed for on road and cross-country movement in the plain and desert terrain along the Western borders. These advanced multipurpose vehicles will also be employed in the high-altitude regions, up to 5,000 metres altitude, mountainous terrain including snow bound areas as occurring along Northern borders, including eastern Ladakh and North Sikkim. On the operational requirements, the Indian Army stated that it intends to carry out silent recce and continuous surveillance of intended area of operations with protected mobility in the battle field and provide early warning and intelligence of hostile elements. It will used for carriage of weapons, ammunition, surveillance and communication equipment along with recce and marking stores apart from integrating with dynamic resources like drones and loiter munitions.

On the other hand, Defence Research and Development Organisation (DRDO) carried out successful trail of futuristic unmanned aircraft. According to reports, in a major leap in indigenous flying technology, the DRDO carried out the successful maiden flight of the 'Autonomous Flying Wing Technology Demonstrator' from the Aeronautical Test Range in Chitradurga, Karnataka. Operating in a fully autonomous mode, the aircraft showcased a perfect flight, including take-off, way point navigation and a smooth touchdown. Congratulating DRDO on this major achievement Defence Minister Rajnath Singh tweeted: "Congratulations to @DRDO_India on successful maiden flight of the Autonomous Flying Wing Technology Demonstrator from Chitradurga ATR. It is a major achievement towards autonomous aircrafts which will pave the way for Aatmanirbhar Bharat in terms of critical military systems.""

Designed & developed by Aeronautical Development Establishment (ADE), a premier research laboratory of DRDO, the Unmanned Aerial Vehicle is powered by a small turbofan engine. It also consists of an airframe, undercarriage, entire flight control and avionics systems. Notably, all these components have been developed indigenously in India. The defence acquisition council (DAC) -- India's apex procurement body -- accorded its acceptance of necessity (AoN) for the capital acquisition proposals. Under India's defence procurement rules, AoN by the council, headed by Defence Minister Rajnath Singh, is the first step towards buying military hardware. India has imposed a phased ban on the import of 310 types of weapons and systems, including next-generation corvettes, in the past two years to boost self-reliance.

http://www.indiandefensenews.in/2022/07/indian-armyto-procure-approximate.html

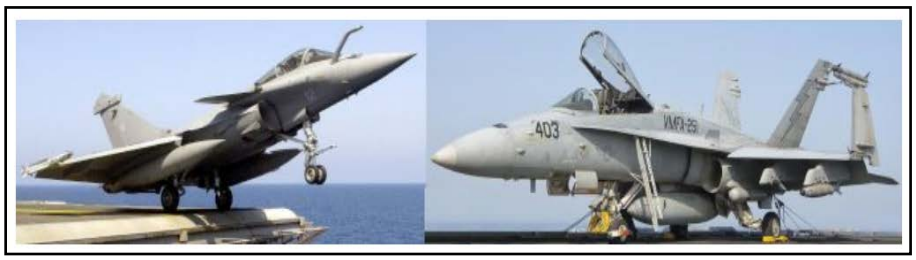
IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sat, 30 Jul 2022

Which Naval Fighter will Fly from the Deck of Indigenous Aircraft Carrier INS Vikrant

After the decommissioning of INS Viraat, in 2017, the Indian Navy's naval air capabilities relied solely on the aircraft carrier INS Vikramaditya, commissioned in 2013 after being acquired by Russia [under the name Admiral Gorshkov] and refitted, not without difficulty, from the Indian naval industry. However, as of 28 July, the Indian Navy once again has two aircraft carriers, with INS Vikrant being officially handed over to the Indian Navy by the Indian group Cochin

Shipyard Limited. According to the Indian press, the cost of this ship is about 2.8 billion euros [$2.85 billion]. It is recalled that INS Vikrant is the first aircraft carrier designed by India. The project began in 2009, with construction going through dozens of problems, obstacles, and hazards. It was originally supposed to be delivered in late 2010. That deadline had to be pushed back due to delivery failures of specific equipment ordered from Russia [while 75% of its components are of Indian origin – ed] and Covid-related health measures 19 pandemic.



F/A-18E, Rafale and MiG-29 begin their battle for the Indian Navy.

With a displacement of approximately 40,000 tons with a length of 262 meters and a beam of 60 meters, INS Vikrant is in STOBAR configuration ie. it is equipped with a springboard to allow its carrier planes to take off. Powered by four General Electric LM2500+ gas turbines allowing it to reach a top speed of 28 knots [18 knots at cruising speed], it can carry around thirty aircraft, including 26 MiG-29K fighters. However, and with the hope of having a third aircraft carrier in CATOBAR configuration [with catapults and restraints] in the future and the MiG-29K not satisfying it, the Indian Navy is looking for another carrier-based fighter-bomber compatible with the INS cockpit Vikrant. Hence the assessments of Dassault Aviation's Rafale M and Boeing's F/A-18 Super Hornet, at the INS Hansa Naval Base in Goa.

The challenge was to verify that these two types of aircraft could take off, in different configurations, on runways equipped with a springboard. If Dassault Aviation played the discretion card when the Rafale-M was evaluated last January, Boeing did not hesitate to announce the introduction of the F /A-18 Super Hornet. Now it remains for the Indian Navy to make its choice. Each bid has its own strengths and weaknesses… Thus, the fact that the Indian Air Force has 36 Rafale B/Cs could be an advantage, particularly for maintenance in operational condition [MCO], spare parts supply, and training. On the other hand, the F/A-18 Super Hornet is equipped with General Electric F404 engines, which belong to the same family as that which powers the HAL TEJAS, the Indian fighter jet. But as often in this kind of business, political aspects will take precedence over technical considerations.

http://www.indiandefensenews.in/2022/07/ins-vikrant-which-naval-fighter-will.html

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sat, 30 Jul 2022

Swarm Drones is the New Effective and Expendable Soldiers on the Battlefield of the Future

By KV Ramesh

The Defence Ministry's announcement that it was clearing the acquisition of swarm drones for the Indian armed forces surprised none. Defence Minister Rajnath Singh's announcement that the government had cleared arms procurement proposals worth Rs 28,732 crore, including swarm drones is but a logical decision. The package announced by Singh and cleared by the Defence Acquisition Council headed by him included approval to acquire four lakh close-quarter battle carbines and bulletproof jackets with advanced tech was aimed at combating the "current complex paradigm of conventional and hybrid warfare" and terrorism at the borders, a Defence Ministry press release said.

The Defence Ministry's decision to go in for swarm drones for the armed forces is learning from the ongoing Ukraine conflict where the Turkish Bayraktar drones deployed by Ukraine took a heavy toll on the Russian tanks. The wars of the future will be fought by weaponised, unmanned aerial platforms. Heavy artillery of the HIMARS genre, plus kamikaze drones will likely lead offensives. Once the enemy is stunned by the assault, armour and infantry will move in for the kill

The ministry said the armed swarm drones were being acquired as drone technology has proved to be a force multiplier in military operations. "In the recent conflicts across the world, drone technology proved to be a force multiplier in military operations. Accordingly, to augment the Indian Army's capability in modern warfare, AoN for procurement of autonomous surveillance and armed drone swarms has been accorded by the DAC under Buy (Indian-IDDM) category," the defence ministry note to the media said. It also spoke of the approval of an Indian Navy proposal to procure an upgraded 1,250-KW capacity marine gas turbine generator for power generation application onboard the Kolkata class of warships to be manufactured by Indian industry, and a proposal to acquire 14 fast patrol vessels (FPVs) for the Indian Coast Guard, with 60 per cent indigenous content.

Swarm drones are the new buzz among defence planners the world over. The concept of drones, or unmanned aerial platforms began attracting attention in the 90s, and initially their light weight and limited range saw them being used in reconnaissance roles. But the US army developed armed drones like the Reaper and Predator and the success in deploying effectively against hostile targets in Afghanistan consolidated weaponised drones as part of militaries' offensive capability. The Americans were the initial pioneers in drone development, but soon the Chinese became the world's mass producer of drones for a range of roles including commercial

photography. But integrated, layered air defence systems could even bring down missile-carrying fixed-wing drones due to their larger radar signature and slow speed, and the cost of producing them was not inconsiderable.

So, the next development was turning the drones themselves into weapons, called the loitering munitions. The concept was simple: Instead of the drone carrying a missile that it would fire against hostile targets, the drone would itself be a flying missile that would cruise in air over the contested space in the battlefield, choose its target and crash into it. In other words, these are suicide or kamikaze drones. They are, in effect, a marriage of machine, AI and explosive warheads. The advantage of kamikaze drones is that in a saturated battlefield, a swarm of them, launched in the battlefield either from the ground, through catapult systems, modified mortar tubes or launched by air, would swarm over the enemy forces, identify targets such as tanks, APCs or artillery and launch themselves into them with lethal effect, with little no reaction time left for the targets. As suicide drones, they are not recoverable after use. They are a one-time weapon.

The advantages of swarm drones are that launched in a swarm, their small radar signature and sheer numbers can defeat radar arrays, with at least a few getting through, hitting their targets and causing unaffordable damage. Moreover, the smaller drones, whether they are fixed wing or quadcopters, are inexpensive consumables. Unlike mortars used by armies, loitering munitions are more accurate and cause damage inordinate to their size and cost. Moreover soldiers do not need large air fields to launch them. Furthermore, the mobile launchers enable the users to fire and shift their locations in order to escape air attacks. That is why defence forces the world over are now trying to replace their battlefield legacy systems like rockets and mortars with swarm drones. Loitering munitions have been validated in battlefield conditions in Afghanistan, Syria and Yemen, where the Houthi rebels have used swarms to attack the Saudi oil terminals effectively.

But the killer drones established themselves as the weapon of the future in the Azerbaijan-Armenian war over Nagorno-Karabakh province in 2020. The deployment of suicide drones supplied by Turkey such as the Bayraktar, and Israeli-made Harpy devastated the Armenian positions, and won the war for the Azeris. And in the ongoing war, the drones such as Switchblade supplied by the Americans, along with man-portable anti-armour systems like Javelin, have helped the Ukrainians to inflict heavy damage on the Russian forces in the early stages of the war. The Russians, always slow to react to disruptive technological developments, did not take to drones as enthusiastically as the Americans, Chinese or the Israelis. That explains the recent reports that they have approached the Iranians for a hundred systems of the swarm drones for use in the war against the Ukrainians.

By early this year, many armies in the world had inducted the kamikaze drones in their battle formations. These include Azerbaijan, China, Germany, the US, Israel, Kazakhstan, South Korea, Turkey and Uzbekistan. The systems they have deployed include the American Coyote and Switchblade, the Israeli Harpy and Harop, the China-made CH-901 and WS-43, and South Korea's Devil Killer. There are concerns surrounding the swarm drones too. Many defence analysts worry about leaving it to AI to make autonomous decision to identify and attack a target. The possibility of technological errors leading to innocent people being killed, a charge against that the US drone operations have faced in Afghanistan, besides the possibility of such lethal man-portable systems falling into terrorist hands have haunted many defence establishments.

As for India, it already has the Harpy and Harop drones in its inventory, and its decision to develop indigenous swarm drone capability has not come too soon. The MoD has already placed loitering munitions in the import ban category. Three such munitions, two fixed wing variants and a hexacopter, developed by Economic Explosives Ltd in partnership with Bangalore-based start-up Z Motion Autonomous System Pvt Ltd were tested by the Indian Army at an altitude of 15,000 feet in Nubra Valley. A couple of other Indian start-ups too have been mandated by the MoD to develop such systems. The Indian-made loitering munitions are expected to be at least 40 per cent cheaper than those imported from Israel and are likely to be mass produced soon.

http://www.indiandefensenews.in/2022/07/swarm-drones-is-new-effective-and.html

The EurAsian Times

Sat, 30 Jul 2022

MH-60 Romeo – Indian Navy to Get All 24 Choppers by 2025; Top Commander Calls Them 'The Best in Business'

The Special Air Assignment Mission Flight of the US Air Force delivered the choppers at Cochin airport. Meanwhile, the MH-60S recently gained attention on July 26 when a storm damaged several of them. A few MH-53E were also damaged in the incident. The delivered helicopters are part of the 24 MH-60R Multirole helicopters India purchased from the United States at over US $2.6 billion. The Indian Navy crew is being trained on the helicopters by the US. On August 22, another helicopter is expected to be delivered to India. With the delivery on July 28, the Indian Navy received a total of five helicopters. Hellfire missiles and deadly rocket systems will be mounted on 24 all-weather helicopters.

"The delivery of all the 24 MH-60R multirole helicopters will be completed by 2025. The induction of these helicopters will significantly boost the integral Anti-Submarine Warfare (ASW) capability of the Indian Navy," said the Indian Navy officials. Lockheed Martin/Sikorsky, a US-based company, also posted a teaser on July 28, announcing the arrival of MH-60R multi-mission helicopters for the Indian Navy. In a tweet, Lockheed Martin's social media account stated, "Romeos are approaching India. We repeat. Romeos IV, V, and VI are approaching India."

MH-60R To Strengthen The Indian Navy?

These helicopters will strengthen the Indian Navy's ability to conduct anti-submarine and anti-surface warfare in the Indian Ocean and Indo-Pacific regions. The helicopters will be modified with cutting-edge sensors, avionics, and India-specific weapons and equipment. Speaking to EurAsian Times, former Indian Navy Vice-Admiral Shekhar Sinha discussed the potential uses of the helicopter. The helicopter can perform specific tasks, including surface ship reconnaissance to update the Maritime Domain Picture at sea and identify adversary submarines within its Radius of Operation.

Sinha pointed out, "MH-60R is a contemporary Anti-Submarine & Anti-Surface Warfare Helicopter. It is one of the best. The Indian Navy was in dire need of such helicopters to replace

Sea King 42A/B ASW helicopters which were difficult to maintain due to obsolescence." "Also, each Destroyer and Frigate is expected to operate at least one helicopter each of this type to provide reconnaissance well ahead of the ship/fleet to minimize the submarine threat," the former Indian Navy Vice-Admiral said. Sinha explained that "MH-60R is particularly important at the time of departure and arrival of ships/fleet from and to a harbor. Also, at the choke points of the Indian Ocean, these helicopters will play a significant role in locating submarines and, in times of war, destroy them. Their arrival is a powerful improvement to ASW capability of IN."

MH-60R Capabilities

These aircraft can launch submarine detection sonobuoys during ASW operations, both active and passive, and can identify unknown submarines and ships lurking in the water. The helicopter can detect submarines that are submerged in the water. ASW assets are crucial to have on board for any fleet moving on the high seas. The latest assets will aid the Indian Navy in warning of potential enemy stealth submarine attacks. Both the P-8I and the MH-60R are equipped with the ability to fire torpedoes, and together, they serve as an ASW screen and will aid in neutralizing any hostile submarine or underwater threats.

The 10-month training period for the first MH 60R "Romeo" aircrew group was completed at Naval Air Station, North Island, in San Diego, USA. The crew underwent conversion and other advanced qualifications as part of their MH-60H training. These helicopters, produced by the US company Lockheed Martin, are sold through the Foreign Military Sales (FMS) program in a deal worth $2.6 billion. They will significantly impact the Indo-Pacific Region, where the Chinese Navy is expanding its presence. These helicopters, which will replace the outdated British Sea King helicopters currently in use, are the Sikorsky UH-60 Black Hawk naval variants. These helicopters, which belong to the Sikorsky S-70 family and are the fourth generation, can be armed with missiles and torpedoes for ASW action.

https://eurasiantimes.com/mh-60-romeo-indian-navy-on-course-to-receive-all-24-choppers/

Business Standard

Sun, 31 Jul 2022

Russian Forces to Get Zircon Hypersonic Missiles in Coming Months: Putin

The Russian Armed Forces will obtain Zircon hypersonic missile systems in the coming months, the country's President Vladimir Putin said on Sunday. "The capabilities of the Navy ... are constantly improving. Suffice it to mention the latest Zircon hypersonic missile systems, which are unstoppable and have no analogues in the world. Dear comrades, their delivery to the Russian Armed Forces will begin in the coming months," Putin said during the Navy Day parade. The frigate Admiral Gorshkov will be the first to take up combat duty with this weapon on board, he added.

"The duty area of the ship equipped with Zircon hypersonic cruise missiles will be determined based on the interests of ensuring Russia's security," he said. Putin said earlier that a Zircon

missile could have a speed of Mach 9 (over 11,000 kph) and a flight range of more than 1,000 km.

https://www.business-standard.com/article/international/russian-forces-to-get-zircon-hypersonic-missiles-in-coming-months-putin-122073100924_1.html

THE HINDU

Sat, 30 Jul 2022

China Announces Military Exercise Opposite Taiwan

China said it was conducting military exercises Saturday off its coast opposite Taiwan after warning Speaker Nancy Pelosi of the U.S. House of Representatives to scrap possible plans to visit the island democracy, which Beijing claims as part of its territory. The ruling Communist Party's military wing, the People's Liberation Army, was conducting "live-fire exercises" near the Pingtan islands off Fujian province from 8 a.m. to 9 p.m., the official Xinhua News Agency said. The Maritime Safety Administration warned ships to avoid the area. Such exercises usually involve artillery. The one-sentence announcement gave no indication whether Saturday's exercise also might include missiles, fighter planes or other weapons.

Pelosi, who would be the highest-ranking American elected official to visit Taiwan since 1997, has yet to confirm whether she will go. President Xi Jinping warned his U.S. counterpart, Joe Biden, in a phone call on Thursday against "external interference" in Beijing's dealings with the island. China says Taiwan has no right to conduct foreign relations. It sees visits by American officials as encouragement for the island to make its decades-old de facto independence official. The Ministry of Defense warned Washington this week not to allow Pelosi, who is Biden's equal in rank as leader of one of three branches of government, to visit Taiwan. A spokesman said the PLA would take unspecified "strong measures" to stop pro-independence activity.

The PLA has flown growing numbers of fighter planes and bombers near Taiwan and has in the past fired missiles into shipping lanes to the island. Taiwan and China split in 1949 after a civil war that ended with a communist victory on the mainland. The two governments say they are one country but disagree over which is entitled to national leadership. They have no official relations but are linked by billions of dollars in trade and investment.

https://www.thehindu.com/news/international/china-announces-military-exercise-opposite-taiwan/article65702534.ece

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sun, 31 Jul 2022

China's Military Steps Up Development of Ship-Based Warplanes to Keep Up with Aircraft Carrier Advances: Chinese Media

China has stepped up efforts to develop its next generation of ship-based warplanes for its new aircraft carriers, with recent photos revealing Beijing's progress in developing early warning aircraft and stealth fighter jets. A video circulating on Chinese social media this week showed the KJ-600 – China's first fixed-wing early warning plane capable of operating on the carriers – on a test flight over the north-western city of Xian, where its manufacturer, Xian Aircraft Industrial Corporation, is based. The KJ-600 made its first flight in August 2020. And the latest online pictures showed a plane in green and white paint – suggesting it was still a prototype – and on its nose was a protruding pitot tube, which is used to measure airspeed. The aircraft is believed to have active electronically scanned array (AESA) radars and is, in many ways, aimed at matching the Northrop Grumman E-2D Advanced Hawkeye.

The People's Liberation Army Air Force is equipped with land-based early warning aircraft KJ-2000 and KJ-500. But currently, Chinese navy aircraft carriers must rely on helicopters for their airborne early warning system. Once the KJ-600 enters service with much improved range, speed and payload, it could greatly enhance the carrier strike group's situational awareness. It could also be key to communication in the battlefield command chain and data link network, and even be used to guide missiles fired from destroyers on from the land in over-the-horizon attacks. Although the twin turboprop engine-driven KJ-600 probably cannot be operated on the ski-jump deck of the Liaoning and Shandong, the PLA Navy's two active Kuznetsov-class carriers, it is very probably suitable for use on the next-gen carriers.

China's third aircraft carrier, Fujian, which was launched last month, has three advanced electromagnetic catapults. Last year, Shenyang Aircraft Corporation, the maker of China's current carrier-borne fighter, the J-15, released its catapult-capable variant. The news about KJ-600 followed last week's leak of a photo that was believed to show the next ship-based stealth fighter. An unverified photo revealed a twin-jet single-seat FC-31 fighter on the ground with its cockpit canopy open. Painted in PLA Navy grey, with serial number 350003, the 35 and 03 in different positions likely suggest it is the third prototype and that this variant for the navy would be named J-35.

The original medium-weight FC-31 is China's second stealth fighter after the heavyweight J-20, and the first positioned for an overseas market. Its maiden flight was in 2012 but since at least 2019 later prototypes were observed to have significant changes and were rumoured to be adapted for the carriers. The first high-resolution picture of the J-35 showed some resemblance to the Lockheed Martin F-35 Lightning-II and it appears to be fitted with home-made WS-21 engines. In addition, a J-15D, the electronic attack variant of the "Flying Shark", was seen for the first time on board the Shandong in official publicity footage of the carrier's training in March. With some armaments removed and replaced with electronic warfare pods and other electronic equipment, the J-15D is designed to detect, track, interfere and suppress enemy radar and other

electronic communication, to provide protection for the ship-borne fighter fleets. J-15D began operational tests in 2018. Its deployment on the carrier made China the second country to have specialised ship-based electronic warfare planes.

http://www.indiandefensenews.in/2022/07/chinas-military-steps-up-development-of.html

The Statesman

Sat, 30 Jul 2022

Japan Rearms

China's unchecked expansionism and belligerence, coupled with the shocking optics of US troops abandoning Afghanistan to the Taliban, and leaving the hapless Ukrainians to virtually fend for themselves against the Russian onslaught, is giving Japan sleepless nights. The perceived tenability of the historical US-Japan Mutual Security Treaty, signed following the end of World War 2, is becoming increasingly suspect. Through this treaty, the United States had pledged to defend the sovereign integrity of Japan, in exchange for a pacifist constitution that required Japan to eschew arming itself militarily. Pursuant to this treaty, the United States has over eighty Military sites in Japan harbouring over sixty thousand US troops (largest in any other country). Recent unease with the cost sharing formula (with previous US President Donald Trump going embarrassingly public over accusations of Japan short paying) and the overall unease over the presence of US troops has dampened the credibility of the existing arrangement.

Even the schizophrenic 'Bromance' between Donald Trump and the North Korean leader, Kim Jong-un, without really accounting for the vulnerabilities imagined in Japan, had led to a sense of being disregarded in Japan. Sensitivity in Japan can be gauged by the fact that Japan was amongst the first and most decisive nations to act against Russia, following the invasion of Ukraine. Ukrainian President Zelenskyy had hailed Japan as the 'first Asian nation that has begun exerting pressure on Russia', after it froze assets of Russia's central bank, banned export of high-end technology and revoked Russia's trade status as a 'Favoured Nation'. Clearly, Japan shed all pretenses of neutrality. The late Japanese Prime Minister, Shinzo Abe, had initiated the first meaningful questioning of the contentious Article 9 of the Japanese Constitution which had imposed pacifist restraints in its policies.

Abe ushered 'collective selfdefense' wherein the Japanese Self-Defense Forces could legitimately intervene in a hypothetical attack of a US warship, allowed mine clearance missions in the Middle East, to even opening of a first full-scale overseas military base in distant Djibouti, indicating the re-assertion of the Japanese military footprint. Even the much bandied and speculated construct of Quad (Quadrilateral agreement between the 'Sino-wary' nations of United States, India, Australia and Japan) can be principally attributed to Shinzo Abe and his revisionist thinking. It also reflected the strategic necessity of collective action, as opposed to solely banking on the diminishing power of the United States to guarantee security. Signs of Japanese warships engaged in joint training, exercises, and interoperability operations with 'friendly' nations, increased.

The constitutionally mandated threshold of 1 per cent of the Japanese GDP dedicated towards the Defence Budget is increasingly under pressure and calls to raise the same to 2 per cent, in line with the Nato countries, is growing. Hitherto unheard concepts like a potential Japanese

‘counterstrike capability’, as the threats from China or even a recalcitrant North Korea loom, has led to thinking beyond the existing Patriot and Aegis intercepting missile defense systems, as the Japanese want to posture a hard ‘price to pay’, onto anyone targeting it. Currently, with America’s reliability as an effective and capable ally to safeguard Japan under a cloud, a sense of defenselessness against a Chinese or North Korean barrage of missiles is feared. The practical reality and benefits of easing restrictions on the Japanese militaristic preparedness are not lost on Washington DC, either. Already, work on joint ballistic-missile technology between the US and Japan has led to the latter being designated as the ‘strongest missile defense partner’. Importantly, both the countries agreed to recognise maintaining stability over Taiwan Straits, as an imperative towards Japan’s own security ~ hence, suggesting ‘close cooperation’ between Washington DC and Tokyo, in an eventuality of China attacking Taiwan.

Today, the Joe Biden administration has reiterated the position taken by the earlier Trump and Obama administrations of bringing the Japanese Senkaku Islands or Diaoyu Islands as called in China (a perennial flashpoint between Japan and China) to be brought under the cover of Article 5 of the Bilateral Security Treaty, that automatically affords US military intervention, should China use force. Pushing the agenda of rearming Japan is its newly designated ‘Acquisition, Technology and Logistics Agency’ with the Defense Ministry which has announced the development of its own hypersonic systems i.e., Hypersonic Cruise Missile (HCM) and the Hyper Velocity Gliding Projectile (HVGP), that could be game changers in the future.

From a revised policy perspective, Tokyo announced its intent to allow export of its advanced technology and weaponry to a select 12 countries (including India), which the government said unabashedly was to, ‘enhance deterrence against China by cooperating with countries that have signed individual security agreements with Tokyo’. Now, Japan’s current conventional military might surpass Britain, Germany, or Italy (though the nuclear weapon still remains a no-no), and it has bought 147 fifth generation F-35 fighter planes (making it the largest user outside of the United States, something often denied to even Nato members). Japanese Prime Minister Fumio Kishida who succeeded late Shinzo Abe is walking in the footsteps of his predecessor in terms of security outlook and has promised considering ‘all options’ to ‘increase Japan’s defense power’. Last year, despite the pandemic related slowdown, the defense spending went up by an impressive 15 per cent, from the previous year.

Last week, Japan issued its annual Defense White Paper, where it named and shamed China as a direct threat, mentioning it 51 times in the 28-page report, directly. The Chinese Foreign Ministry reacted almost immediately stating that it was tantamount to, ‘vilifying China’s national defense policy, normal military development and legitimate maritime activities, hyping up the so-called China threats and interfering in China’s internal affairs on the Taiwan question’, and that indeed was the substance of Japanese assertions. With more than two-thirds of Japanese lawmakers supporting the reneging of Article 9 of the Japanese Constitution, it is only a question of time before even that formality is done away with. This aggressive Japanese stance augurs well for India as it counters China’s moves in the region, which as Beijing’s unofficial mouthpiece, Global Times, noted was full of ‘obvious, straightforward, aggressive and condemnatory references against China’, something even India hasn’t mustered the courage to use explicitly.

https://www.thestatesman.com/opinion/japan-rearms-1503095004.html

DefenseNews

Sat, 30 Jul 2022

Most US F-35s Temporarily Grounded as Ejection Seat Issue Threatens Jets Worldwide

By Rachel S. Cohen

The U.S. military discovered a problem with the ejection seats used across its F-35 Joint Strike Fighter fleet in April, but waited three months to ground those aircraft flown by the Air Force, Navy and Marine Corps to fully investigate the issue, multiple sources told Air Force Times Friday. Officials initially saw the problem as a potentially isolated incident. But an ongoing investigation sourced the issue to the production line, prompting waves of temporary stand-downs this week. “During a routine maintenance inspection at Hill [Air Force Base, Utah,] in April ‘22, an anomaly was discovered with one of the seat cartridge actuated devices in the F-35 seat,” Steve Roberts, a spokesperson for seat manufacturer Martin-Baker, said Friday. “This was quickly traced back to a gap in the manufacturing process, which was addressed and changed.”

Cartridges are the ejection seat component that explode to propel an aviator out of the cockpit and prompts their parachute to open. The defective part was loose and missing the magnesium powder used to ignite the propellant that shoots someone to safety, Roberts said. A maintainer inspecting an F-35 found that an ejection cartridge felt suspiciously light, according to an unconfirmed summary of a briefing within the Air Force’s Air Education and Training Command obtained by Air Force Times. After a closer look, the cartridge turned out to be missing its explosive charge that would lift someone to safety.

The military tested 2,700 F-35 ejection seat cartridges and discovered three failures as of Wednesday, the briefing summary said. Service officials declined to confirm or deny the summary’s narrative of events. Roberts said the problem was unique to a particular cartridge number and to the F-35, but did not answer how many defective parts have turned up so far. The U.S.-led Joint Strike Fighter program conducted a “short inspection” and determined that the jets could return to flight, he said. “Martin-Baker has been providing the [prime aircraft contractors like Lockheed Martin] and multiple [government] agencies with supporting data to prove that all other aircraft may be excluded,” Roberts said. “Outside the F-35, not a single anomaly has been discovered worldwide as a result of the forensic investigation which continues at pace.”

A majority of the Air Force’s F-35A Lightning II fleet on Friday became the latest to stand down amid concerns about Martin-Baker ejections seats on a wide range of military aircraft at home and abroad. Air Combat Command spokesperson Alexi Worley confirmed that the first faulty cartridge was found during a routine inspection in April. The military immediately inspected additional aircraft, she said, and halted its investigation when Martin-Baker discovered a quality-assurance failure on its production line. The F-35 Joint Program Office then issued a “routine” directive, known as a time compliance technical order, that mandated inspection of all ejection seat cartridges within 90 days starting July 19. Ten days later, Air Combat Command grounded its F-35s to speed up those checks, Worley said.

ACC aims to finish looking at the seats within 90 days, or by mid-October, Worley said in a statement first reported by Breaking Defense on Friday. Each plane can return to regular flights

once it passes inspection. “The stand-down of aircraft will continue through the weekend, and a determination to safely resume normal operations is expected to be made early next week, pending analysis of the inspection data,” Worley told Air Force Times. Though ACC owns most of the Air Force’s more than 300 F-35As, some are managed by other major commands like U.S. Air Forces in Europe and Pacific Air Forces. Command spokespeople did not respond to emailed queries Friday. Air Education and Training Command also paused its F-35 operations on Friday “to allow our logistics team to further analyze the issue and expedite the inspection process,” spokesperson Capt. Lauren Woods told Breaking Defense. AETC oversees F-35 training units at Luke Air Force Base, Arizona, and Eglin AFB, Florida.

“Based on the results of these inspections and in conjunction with ACC, the lead command for F-35, AETC will make a decision regarding continued operations,” Woods said. The Navy and Marine Corps have also stopped flying F-35B and F-35C jets while investigations are ongoing. Each aircraft will be inspected before its next flight rather than in batches over three months. “All inspections are being conducted in an expedited manner with a high priority,” F-35 Joint Program Office spokesperson Chief Petty Officer Matthew Olay said Friday. Naval Air Systems Command has declined to say how many aircraft are affected, citing operational security concerns. It began shipping replacement parts to its own maintenance centers with planes affected by the problem on July 24. The issue “only affects aircraft equipped with [cartridge actuated devices] within a limited range of lot numbers,” the service said in a statement.

Military and company officials declined to say how many cartridges were produced as part of the defective lots. The Navy said no one has died or been injured because of the defect; the Air Force has stressed its groundings are a precaution to get ahead of any fatalities. On Wednesday, the Air Force temporarily stood down its T-38 Talon and T-6 Texan II training aircraft due to the same ejection seat worries. Most were slated to returned to service on Friday, but nearly 300 aircraft that may be affected by faulty cartridges will remain on the ground. That comprises about 40% of the T-38 fleet and 15% of the T-6 fleet, including planes at each undergraduate pilot training base and Naval Air Station Pensacola, Florida. The T-38 is a supersonic jet used to prepare pilots to fly fighter and bomber aircraft, and the T-6 is the service’s turboprop plane used to teach basic flight skills. Each aircraft contains multiple explosive cartridges so pilots have backup options if one charge fails.

It’s unclear how taking a significant portion of Air Force trainers out of commission will affect the service’s ability to graduate new pilots amid an enduring shortage of about 1,600 airmen, particularly in the fighter community. The Air Force produces about 1,300 new pilots a year. “Our primary concern is the safety of our airmen and it is imperative that they have confidence in our equipment,” Nineteenth Air Force boss Maj. Gen. Craig Wills, who runs an organization responsible for the service’s training enterprise, told Air Force Times in an emailed statement. “Our actions … were taken out of an abundance of caution in order to ensure the safety of our pilots and aircrew.” Several aircraft fleets across the Defense Department that use Martin-Baker ejection seats — from the T-38s and T-6s to the Navy’s F/A-18B/C/D Hornet and F/A-18E/F Super Hornet fighter jets, E/A-18G Growler electronic attack plane, and T-45 Goshawk and F-5 Tiger II trainers — are on hold while the military digs into the problem. The issue may also affect European airframes like the Eurofighter Typhoon and Dassault Rafale and aircraft flown by Turkey and South Korea.

The U.K. Royal Air Force also stopped “non-essential” flights for its Red Arrows jets and Typhoon warplanes over safety concerns with its ejection seats, the Daily Mail reported.

NATO's Allied Air Command did not respond to queries emailed Friday about the potential impact on the international fighter enterprise. F-35 Joint Strike Fighters are the Pentagon's premier fighter jet flown by the Air Force, Navy and Marine Corps, plus more than a dozen foreign countries that have ordered or received them. In April, the Government Accountability Office reported it will cost more than $1.7 trillion for the Pentagon to buy, operate and maintain the jets in the U.S. Lockheed Martin plans to build more than 3,000 F-35s for militaries around the globe. More than 800 planes have been delivered so far over the past 15 years, over half of which belong to the U.S.

Joint Strike Fighters were last publicly grounded in South Korea in January after one of the country's jets malfunctioned and landed on its belly. Before that, the U.S. grounded all of its F-35s worldwide over fuel tube problems, among a slew of other software and hardware hurdles to the fleet's rollout. The same day as the military began probing its ejection seats in earnest, Bloomberg reported some F-35s could be grounded for a separate problem: an enduring shortage of working engines. Nine percent of F-35s weren't operational in mid-2020, GAO said in a July 19 report. "DOD's strategy allows 6% of F-35s to be unavailable for missions at any given time due to engine issues," the federal watchdog wrote. "But the number of F-35s that this leaves available for operations isn't what the military services consider to be sufficient … in part because its strategy doesn't ensure enough spare engine parts are available."

https://www.defensenews.com/news/your-air-force/2022/07/29/air-force-grounds-f-35as-as-ejection-seat-issue-threatens-fighter-jets-worldwide/

Science & Technology News

Sat, 30 Jul 2022

MIT Engineers Develop Ultrasound Stickers That Can See Inside the Body

New stamp-sized ultrasound adhesives deliver clear images of the heart, lungs, and other internal organs. When clinicians need live images of a patient's internal organs, they often turn to ultrasound imaging for a safe and noninvasive window into the body's workings. In order to capture these insightful images, trained technicians manipulate ultrasound wands and probes to direct sound waves into the body. These waves reflect back out and are used to produce high-resolution images of a patient's heart, lungs, and other deep organs. Ultrasound imaging currently requires bulky and specialized equipment available only in hospitals and doctor's offices. However, a new design developed by MIT engineers might make the technology as wearable and accessible as buying Band-Aids at the drugstore.

The engineers presented the design for the new ultrasound sticker in a paper published on July 28 in the journal Science. The stamp-sized device sticks to skin and can provide continuous ultrasound imaging of internal organs for 48 hours. To demonstrate the invention, the researchers applied the stickers to volunteers. They showed the devices produced live, high-resolution images of major blood vessels and deeper organs such as the heart, lungs, and stomach. As the volunteers performed various activities, including sitting, standing, jogging, and biking, the stickers maintained a strong adhesion and continued to capture changes in underlying organs. In the current design, the stickers must be connected to instruments that translate the reflected sound waves into images. According to the researchers, the stickers could have immediate applications even in their current form. For example, the devices could be applied to patients in the hospital, similar to heart-monitoring EKG stickers, and could continuously image internal organs without requiring a technician to hold a probe in place for long periods of time.

Making the devices work wirelessly is a goal the team is currently working toward. If they are successful, the ultrasound stickers could be made into wearable imaging products that patients could take home from a doctor's office or even buy at a pharmacy. "We envision a few patches adhered to different locations on the body, and the patches would communicate with your cellphone, where AI algorithms would analyze the images on demand," says the study's senior author, Xuanhe Zhao, professor of mechanical engineering and civil and environmental engineering at MIT. "We believe we've opened a new era of wearable imaging: With a few patches on your body, you could see your internal organs." The study also includes lead authors Chonghe Wang and Xiaoyu Chen, and co-authors Liu Wang, Mitsutoshi Makihata, and Tao Zhao at MIT, along with Hsiao-Chuan Liu of the Mayo Clinic in Rochester, Minnesota.

A sticky issue

To image with ultrasound, a technician first applies a liquid gel to a patient's skin, which acts to transmit ultrasound waves. A probe, or transducer, is then pressed against the gel, sending sound waves into the body that echo off internal structures and back to the probe, where the echoed signals are translated into visual images. For patients who require long periods of imaging, some hospitals offer probes affixed to robotic arms that can hold a transducer in place without tiring, but the liquid ultrasound gel flows away and dries out over time, interrupting long-term imaging. In recent years, scientists have explored designs for stretchable ultrasound probes that would provide portable, low-profile imaging of internal organs. These designs gave a flexible array of tiny ultrasound transducers, the idea being that such a device would stretch and conform to a patient's body.

But these experimental designs have produced low-resolution images, in part due to their stretch: In moving with the body, transducers shift location relative to each other, distorting the resulting image. "Wearable ultrasound imaging tool would have huge potential in the future of clinical diagnosis. However, the resolution and imaging duration of existing ultrasound patches is relatively low, and they cannot image deep organs," says Chonghe Wang, who is an MIT graduate student.

An inside look

By pairing a stretchy adhesive layer with a rigid array of transducers, the MIT team's new ultrasound sticker produces higher resolution images over a longer duration. "This combination enables the device to conform to the skin while maintaining the relative location of transducers to generate clearer and more precise images." Wang says. The device's adhesive layer is made

from two thin layers of elastomer that encapsulate a middle layer of solid hydrogel, a mostly water-based material that easily transmits sound waves. Unlike traditional ultrasound gels, the MIT team's hydrogel is elastic and stretchy. "The elastomer prevents dehydration of hydrogel," says Chen, an MIT postdoc. "Only when hydrogel is highly hydrated can acoustic waves penetrate effectively and give high-resolution imaging of internal organs."

The bottom elastomer layer is designed to stick to skin, while the top layer adheres to a rigid array of transducers that the team also designed and fabricated. The entire ultrasound sticker measures about 2 square centimeters across, and 3 millimeters thick — about the area of a postage stamp. The researchers ran the ultrasound sticker through a battery of tests with healthy volunteers, who wore the stickers on various parts of their bodies, including the neck, chest, abdomen, and arms. The stickers stayed attached to their skin, and produced clear images of underlying structures for up to 48 hours. During this time, volunteers performed a variety of activities in the lab, from sitting and standing, to jogging, biking, and lifting weights.

From the stickers' images, the team was able to observe the changing diameter of major blood vessels when seated versus standing. The stickers also captured details of deeper organs, such as how the heart changes shape as it exerts during exercise. The researchers were also able to watch the stomach distend, then shrink back as volunteers drank then later passed juice out of their system. And as some volunteers lifted weights, the team could detect bright patterns in underlying muscles, signaling temporary microdamage. "With imaging, we might be able to capture the moment in a workout before overuse, and stop before muscles become sore," says Chen. "We do not know when that moment might be yet, but now we can provide imaging data that experts can interpret."

The engineering team is working to make the stickers function wirelessly. They are also developing software algorithms based on artificial intelligence that can better interpret and diagnose the stickers' images. Then, Zhao envisions ultrasound stickers could be packaged and purchased by patients and consumers, and used not only to monitor various internal organs, but also the progression of tumors, as well as the development of fetuses in the womb. "We imagine we could have a box of stickers, each designed to image a different location of the body," Zhao says. "We believe this represents a breakthrough in wearable devices and medical imaging."

Reference: "Bioadhesive ultrasound for long-term continuous imaging of diverse organs" by Chonghe Wang, Xiaoyu Chen, Liu Wang, Mitsutoshi Makihata, Hsiao-Chuan Liu, Tao Zhou and Xuanhe Zhao, 28 July 2022, Science. *DOI: 10.1126/science.abo2542*

https://scitechdaily.com/mit-engineers-develop-ultrasound-stickers-that-can-see-inside-the-body/amp/

Fri, 29 Jul 2022

A Roadmap for the Future of Quantum Simulation

A roadmap for the future direction of quantum simulation has been set out in a paper co-authored at the University of Strathclyde. Quantum computers are hugely powerful devices with a capacity for speed and calculation which is well beyond the reach of classical, or binary,

computing. Instead of a binary system of zeroes and ones, it operates through superpositions, which may be zeroes, ones or both at the same time. The continuously-evolving development of quantum computing has reached the point of having an advantage over classical computers for an artificial problem. It could have future applications in a wide range of areas. One promising class of problems involves the simulation of quantum systems, with potential applications such as developing materials for batteries, industrial catalysis and nitrogen fixing.

The paper, published in Nature, explores near- and medium-term possibilities for quantum simulation on analog and digital platforms to help evaluate the potential of this area. It has been co-written by researchers from Strathclyde, the Max Planck Institute of Quantum Optics, Ludwig Maximilians University in Munich, Munich Center for Quantum Science and Technology, the University of Innsbruck, the Institute for Quantum Optics and Quantum Information of the Austrian Academy of Sciences, and Microsoft Corporation. Professor Andrew Daley, of Strathclyde's Department of Physics, is lead author of the paper. He says that "there has been a great deal of exciting progress in analog and digital quantum simulation in recent years, and quantum simulation is one of the most promising fields of quantum information processing. It is already quite mature, both in terms of algorithm development, and in the availability of significantly advanced analog quantum simulation experiments internationally."

"In computing history, classical analog and digital computing co-existed for more than half a century, with a gradual transition towards digital computing, and we expect the same thing to happen with the emergence of quantum simulation." "As a next step along the development of this technology, it is now important to discuss 'practical quantum advantage,' the point at which quantum devices will solve problems of practical interest that are not tractable for traditional supercomputers." "Many of the most promising short-term applications of quantum computers fall under the umbrella of quantum simulation: modeling the quantum properties of microscopic particles that are directly relevant to understanding modern materials science, high-energy physics and quantum chemistry."

"Quantum simulation should be possible in the future on fault-tolerant digital quantum computers with more flexibility and precision, but it can also already be done today for specific models through special-purpose analog quantum simulators. This happens in an analogous way to the study of aerodynamics, which can be conducted either in a wind tunnel or through simulations on a digital computer. Where aerodynamics often use a smaller scale model to understand something big, analog quantum simulators often take a larger scale model to understand something even smaller." "Analog quantum simulators are now moving from providing qualitative demonstrations of physical phenomena to providing quantitative solutions for native problems. A particularly exciting way forward in the near term is the development of a range of programmable quantum simulators hybridizing digital and analog techniques. This holds great potential because it combines the best advantages of both sides by making use of the native analog operations to produce highly entangled states."

More information: Andrew J. Daley et al, Practical quantum advantage in quantum simulation, Nature (2022). *DOI: 10.1038/s41586-022-04940-6*

https://phys.org/news/2022-07-roadmap-future-quantum-simulation.html

INDIA TODAY

Sun, 31 Jul 2022

Amid Concerns China's Most Powerful Long March 5B Rocket Crashes over Indian Ocean

A Chinese Long March 5B rocket first stage made an uncontrolled reentry through Earth's atmosphere over Southeast Asia on Saturday, six days after it launched a new science module to China's Tiangong space station. "US Space Command can confirm the People's Republic of China (PRC) Long March 5B (CZ-5B) re-entered over the Indian Ocean at approx 10:45 am MDT on 7/30," the US military unit said on Twitter, referring to China's official name. "We refer you to the #PRC for further details on the reentry's technical aspects such as potential debris dispersal+ impact location," it said. The Long March 5B rocket was used last Sunday to launch an uncrewed spacecraft, named Wentian, carrying the second of three modules China needed to complete its new Tiangong space station.

The Tiangong space station is one of the crown jewels of Beijing's ambitious space program, which has landed robotic rovers on Mars and the Moon, and made China only the third nation to put humans in orbit. The new module, propelled by the Long March 5B, successfully docked with Tiangong's core module on Monday and the three astronauts who had been living in the main compartment since June successfully entered the new lab.

https://www.indiatoday.in/science/story/amid-concerns-china-s-most-powerful-long-march-5b-rocket-crashes-over-indian-ocean-1981965-2022-07-31