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The 'Maha Kumbh' - Raksha Mantri Rajnath Singh

The 15th edition of Aero India 2025 kicked-off with India's air power in full display and the Raksha Mantri, Rajnath Singh reiterating the government's resolve to surpass the ₹1.27 lakh crore defence production and ₹21,000 crore defence exports figures in the near future.

Inaugurating the mega event, which has attracted over 9,000 exhibitors, including 150 foreign, Rajnath Singh, likened it to the ongoing *Maha Kumbh* underway in the holy city of Prayagraj. "While *Maha Kumbh* is the Kumbh of introspection, Aero India is the Kumbh of research. While *Maha Kumbh* is focussing on internal strength, Aero India will centre on

external strength. While *Maha Kumbh* showcases the culture of India, Aero India will display the power of India."

Aero India, he said, is a confluence of critical and frontier technologies that is a platform to further strengthen relations among like-minded countries based on mutual respect, mutual interest and mutual benefit to deal with today's uncertainties. He exuded confidence that Aero India 2025 will showcase the country's industrial capability and technological advancements to the world, while further strengthening symbiotic relations with friendly countries.

"We often interact as buyers and sellers,

►Continued on page 3



Raksha Mantri Rajnath Singh delivering the inaugural address at Aero India 2025



Winners of the 10th edition of the Aerospace & Defense Awards 2025

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Raksha Mantri Rajnath Singh witnessing the flypast at Aero India 2025

where our relations are at a transactional level. However, at another level, we forge our partnership beyond the buyer-seller relationship to the level of Industrial Collaboration. We have many successful examples of co-production and co-development with like-minded countries. For us, there is no Indian security or Indian peace in isolation. Security, stability and peace are shared constructs that transcend national borders. The presence of our foreign friends is a testimony to the fact that our partners share our vision of One earth, One family, One future.”

Global Uncertainty

Raksha Mantri pointed out that in the present environment of global uncertainty, India is one such big country which is witnessing peace and prosperity. “India has never attacked any country nor has it been involved in any great power rivalry. We have always been an advocate of peace and stability. It is part of our fundamental ideals,” he said and asserted that India is going through a transformational phase, rapidly moving from a developing to a developed nation.

Thriving Defence Industry Ecosystem

He added that a vibrant and thriving defence industry ecosystem has been created in the country due to a concerted, sustained and well thought out roadmap by the Government under the leadership of Prime Minister Narendra Modi. The defence industrial sector, which was earlier not viewed as a component of national economy, has today been fully integrated with the overall economy. The sector is now a motor, powering the growth engine of the Indian economy.

The record allocation of ₹6.81 lakh crore to Ministry of Defence in Union Budget 2025-26, including ₹1.80 lakh crore for capital acquisition, is a proof that the Government considers defence as a top-priority sector. He added that like the previous budget, 75% of modernisation budget has been reserved for procurement through domestic sources with an aim to widen and deepen the capabilities of India’s Defence Industrial Complex.

Role of Private Sector

The Government is committed to enhance the participation of private play-

ers in this overall growth story. “The private sector is going to play a big role in the economic mainstreaming. Due to its drive, resilience and entrepreneurship, the sector is capable of bringing a new wave of prosperity in the country. In many advanced countries, private industry has led defence production. The time has come that, here as well, the sector becomes an equal partner in the defence industry.”

The Raksha Mantri added that the defence manufacturers are working with a collaborative approach to strengthen the defence sector, terming the joint venture between Tata Advanced Systems Limited and Airbus for the production of C-295 transport aircraft in Gujarat as a shining example of this cooperation. “India has become a Globally Preferred Destination for Aerospace Components & Complex System Assembly and the public sector & private industries are playing an important role in this transformation.”

Defence exports to surpass ₹30,000 crore

Shedding light on the accomplishments achieved from the last Aero India, he stated that a number of high-tech products such as Astra Missile, New Generation Akash Missile, Autonomous Underwater Vehicle, Unmanned Surface Vessel, Pinaka Guided Rocket are being manufactured within the country. He voiced the Government’s unwavering resolve to surpass the ₹1.27 lakh crore defence production and ₹21,000 crore defence exports figures in the coming times, and ensure that the defence sector moves ahead at an unprecedented pace. The Defence Minister was hopeful that defence production will exceed ₹1.60 lakh crore by the end of 2025-26 and defence exports will surpass ₹30,000 crore.

On 2025 being declared as the ‘Year of Reforms’ in the Ministry of Defence, he termed it as not just a government slogan, but the Government’s commitment towards reforms. He said the decisions for reforms are not being taken only at the Ministry level, but Armed Forces and DPSUs are also participating in this endeavour. “To take this drive of reforms forward more rapidly, there should be participation of all stakeholders in the defence sector. Suggestions from all stakeholders associated with the Ministry are welcome,” he said.

The Raksha Rajya Mantri Sanjay Seth; the Chief Minister of Nagaland Neiphiu Rio; the Deputy Chief Minister of Karnataka DK Shiva Kumar; the Chief of Defence Staff General Anil Chauhan; the Chief of the Naval Staff Admiral Dinesh K Tripathi; the Chief of the Army Staff General Upendra Dwivedi; the Karnataka Chief Secretary, Dr. Shalini Rajneesh; the Defence Secretary Rajesh Kumar Singh; the Secretary (Defence Production) Sanjeev Kumar and the Vice Chief of the Air Staff Air Marshal SP Dharkhar were among the dignitaries present on the occasion. ■

-R. Chandrakanth

Tata Boeing Aerospace delivers 300th AH-64 Apache Fuselages, Manufactured in India



Tata Boeing Aerospace team members with the 300th AH-64 Apache Fuselages

Tata Boeing Aerospace Limited (TBAL) has delivered the 300th fuselage for the AH-64 Apache attack helicopter from its facility in Hyderabad. These fuselages are manufactured for customers around the world, including the U.S. Army, including the six on order with the Indian Army. The Indian Air Force operates a fleet of 22 AH-64E Apache attack helicopters. This milestone reflects TBAL's continuous dedication to bolstering India's defence capabilities and advancing the nation's indigenous manufacturing prowess.

The joint venture between Boeing and Tata Advanced Systems Limited (TASL) employs over 900 engineers and technicians, leveraging cutting-edge robotics, automation, and advanced aerospace concepts in its manufacturing processes. The facility is spread over 14,000 sqm and serves as a global sole source supplier for Apache fuselages, with over 90% of the parts used in the Apache aerostructure assemblies manufactured in India through more than 100 Micro, Small, and Medium Enterprises (MSME) suppliers. ■

HAL's Upgraded Hindustan Jet Trainer (HJT) 36 Unveiled as 'Yashas'

The flagship jet training aircraft of HAL, Hindustan Jet Trainer, HJT-36, is now renamed as 'Yashas' after extensive modifications to resolve departure characteristics and spin resistance throughout the aircraft envelope. Sanjeev Kumar, Secretary (Defence Production) unveiled the new name in the presence of Dr. D K Sunil, Chairman and Managing Director, HAL and senior officers at Aero India.

"The large-scale changes to the baseline intermediate training platform has led to significant upheaval in its capabilities and hence provided an opportunity for a new name to be given in accordance with the aircraft's continued relevance as a training system for modern military aviation. In light of this, HJT-36 is named Yashas", said Dr. Sunil.

For induction into service, the aircraft was recently upgraded with state-of-the-art avionics and an ultra-modern cockpit. These will enhance training effectiveness and operational efficiency, whilst providing weight reduction and overcoming obsolescence of imported equipment with Indian LRUs. Yashas is capable of Stage II pilot training, counter insurgency and counter surface force operations, armament training, aerobatics etc. It is powered by a FADEC controlled AL551 Jet engine, providing best in class thrust to weight ratio, optimised thrust



HAL Upgraded Hindustan Jet Trainer

management and reliability. Stepped up Rear cockpit with Drooped Nose provides excellent all-around vision and enhanced situational awareness with state-of-the-art glass cockpit with multi-function displays and Head up displays. The capabilities of HJT-36 are stall and spin, aerobatics, armament carriage up to 1000kg, single point ground refuelling and defueling. ■

Editor/ Publisher: Trilok Desai, Editor & Group Head: Bhavya Desai, Contributing Editor: R. Chandrakanth, Marketing Director: Aruna Desai, Manager (Advertising): Laila Rupawalla, Marketing Exec: Pooja Gupta, Regional Manager- Marketing : Kora Ganguly, Photo journalist: Anirudh Iyer, Designer: Rajendra Gaikwad, Production Manager: Manoj Surve
SAP Media Worldwide Ltd.

509/511, Dilkap Chambers, Fun Republic Street, Off. Veera Desai Road, Andheri (W), Mumbai - 400 053. India. Tel: +91-022-40401919 Fax: +91-022-26305184 Email: tdesai@sapmagazines.com; laila@sapmagazines.com.

Sap Media Singapore Pte. Ltd. Mobile : +65 90625120, Email: kora@sapmagazines.com

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'India should focus on Global Marketing, with technology prowess in place' - Dr. G. Satheesh Reddy

Dr. G. Satheesh Reddy, the President of The Aeronautical Society of India said that India had strong capabilities in defence manufacturing and now it had to focus on 'effective and aggressive marketing' of the products globally. He said he had submitted a report to the Government on export of subsystems as the country had shown prowess in this domain. Dr Reddy is the former Scientific Advisor to Raksha Mantri and Chairman of Defence Research Development Organisation (DRDO).

Speaking at the panel discussion of the 10th edition of 'Aerospace & Defence Awards 2025', organised by SAP Media Worldwide Ltd, the publisher of the Show Daily, Dr. Reddy underscored the huge market potential that existed in subsystems and India had the capabilities to capture at least 10% of the global market, estimated to be over \$100 billion. The panel discussion was moderated by Bhavya Desai, Editor & Group Head, SAP Media.

These subsystems can be supplied to even developed countries. Indian subsystems, he mentioned, were top-notch and the market for products like actuators, landing gear system, seekers etc. "Even developed nations are interested and we can easily achieve the export target of ₹50,000 crore, if we have effective marketing."

Convince the World

He said there was one question which India has to make the world understand and that was of 'standards'. India should be able to convince the western world that its certification by the Centre for Military Airworthiness and Certification (CEMILAC) was of international standards. "Presently, it's a question mark? So, we need to go out there and convince of our capabilities."

India is already exporting ATAX gun, varieties of radars, missiles, light weight tanks, torpedoes and now there is talk of light combat aircraft for third world countries who may not have the manufacturing capabilities but are looking for cost-effective options. India should look at exports first and then maintenance and as time progresses of manufacturing in third world countries.

Production Lines Should Gear Up

However, Dr. Reddy cautioned that first, India has to plan its production lines. "HAL (Hindustan Aeronautics Limited) has to gear up as the orders by the Indian Air Force of over 220 fighter aircraft have to be fulfilled with a possible production rate of 40 aircraft per annum, which would take six years. If there are export orders, then the production rate may go up to 60 aircraft per annum.



Dr. G Satheesh Reddy

The need to build capacities accordingly is important."

India's Engine in Seven years?

Asked whether development of aero engines has been India's Achilles' heel, Dr. Reddy was hopeful that India should be in a position to develop an engine in six to seven years as a lot of effort is going on presently. "We have availability of materials up to 60 to 70% and keys to engine development are materials, materials processing technology, manufacturing technology, high end parts etc. Development is always linked to an end product," he said and added that there was a mismatch when it came to LCA and engine because the specifications had evolved parallelly over a period of time."

To the naysayers, Dr. Reddy said, "In our country, we don't focus on what we have. We focus on what we don't have. When we built the missiles, everybody used to ask where is the seeker. Now, we have the seeker too. The question now is 'where is the engine?'" He gave the example of GE Aerospace which is making the GE 414 engines for the LCA. "GE does not make everything. Their supply chain is from all over the world. Take Embraer for example, they are making an aircraft, but are sourcing different aspects of the aircraft from all over the world. We are an evolving country. We are strongly moving forward in defence industrial production. I am very hopeful about the future."

Infrastructural facilities coming soon

Dr. Reddy mentioned the recent meeting of the Ministry of Defence and the Ministry of Civil Aviation, initiated by the latter, on how to create infrastructure facilities for

manufacture of critical items with the latest technologies. "We soon can expect facilities to come up."

As regards obsolescence of India's indigenous platforms, Dr. Reddy said that the minimum life of aircraft is 35 years and with open architecture it was possible to keep on upgrading. "Today, they are saying AMCA (Advanced Medium Combat Aircraft) may 5.5 generation, tomorrow they may say it is 6th generation."

Deep tech startups need funding

On Space as the fourth dimension of warfare, the Scientific Advisor said that the country had shown enormous capabilities in the space sector. "Many startups have come up, thanks to IDEX, Technology Development Funding, National Research Foundation etc. We should leverage the capabilities in a non-bureaucratic manner. I feel still deep tech startups are starved of funding. We need to fund them in a simpler and easier way and India would be in the frontier of these technologies. What is required is a good amount of funding, while understanding that if there is no risk, there is no R&D. The younger generation are coming up with wonderful research and we should be able to tap it."

ADA focussed on indigenisation

The Director General of Aeronautical Development Agency (ADA), Jitendra J. Jadhav, Distinguished Scientist, talked about the indigenisation efforts of ADA. "We have four programmes which are sanctioned - Mk1 is in production (inducted 37 aircraft); Mk1A is in the pipeline for manufacture of 83 aircraft to be inducted in to the IAF between 2025 to 2029; the Twin engine deck-based fighter; and the AMCA which will get into production from 2034." In all, he said, India was looking at over 500 fighter aircraft.

Production Rate of 24 aircraft per year?

"We should be able to progressively increase the production rate from 16 aircraft per year to 24 per year and complete in a four-year time frame the MK1A." Talking about the huge potential for aircraft production, he said that efforts are on for development of aircraft subsystems, having built Tier 1, 2 and 3 suppliers.

Asked about delays in aircraft deliveries, Jadhav said that they were due to disruption in supply chain due to covid and had not yet come on track. "But we are already geared up. Once the shortage of components gets resolved by March this year, we should have the production of 16 aircraft per year, we have kept everything ready."

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PANEL DISCUSSION



L to R: Bhavya Desai, Timothy Riffle, Dr. G Satheesh Reddy and Jitendra J. Jadhav at Panel Discussion Aerospace & Defense Awards 2025

On the learnings from Tejas, Jadhav said the Tejas MK2 is a medium weight fighter and that the complete design has been done with 3D modelling, to ensure smooth manufacture and assembly of the aircraft. "We have gone for modularisation and with that we can have high production rates. The third aspect we have introduced is optical types of inspection and fourth has been modularization of complete avionics and other systems." As regards supply chain, he said ADA was factoring that at the design stage itself. "We have been taking the industry on board, right from the development stage." The challenge, however, was of convincing the industry on the business potential.

13 countries show interest in LCA

On export of LCA, the ADA Director General said 13 countries had expressed interest in the aircraft. "It has its own challenges. There won't be transfer of technology right away. Generally, any aircraft development begins with maintenance and service, then kits and progressively towards manufacturing in other countries." Unlike in civil aviation which has TSO standard for universal acceptance, in defence manufacturing there is no universal standard and countries follow their own norms.

Talking about indigenization in LCA, he said there has been 63% indigenisation, the MK1 up to 75% and for Mk2 the plan is to go between 85 and 90%. "We are still dependent on foreign sources for electronic components and materials." He explained that OEMs source globally. To a question on obsolescence, he said with open architecture systems it has been mitigated to a large extent. As for materials which can go obsolete, parallel action has been taken by going for alternate materials, but there is a short supply. "We are indigenising a lot of materials."

Successful JV of Tata Lockheed

The Chief Operating Officer and Managing Director of Tata Lockheed Martin Aerostructures Limited (TLMAL), Timothy Riffle talked about the joint ventures in India had grown from strength to strength. With the initiative of 'Make in India' and for the world, the JV was on the continuous path of improvement, driving efficiency and excellence.

Digitization driving faster industrialisation

The JV had embarked upon digitization through which it was possible to industrialise faster. The JV has digitized 96% of empennage. In India there are over 500 suppliers and digitization has been helping the production. The two JVs (with Tata Advanced Systems Limited), exports have been to the tune of \$780 million and TLMAL accounts for about \$350 million. Also on the cards is the deliveries of fighter wings which is slated for deliveries this year. The plan for the JVs is to build and expand the line of business. "We are expanding the supply base."

Buoyant Defence Industry

In his welcome address, Trilok Desai, the publisher and Managing Director of SAP Media Worldwide Ltd, said the overall atmosphere in the aerospace and the defence industry is buoyant with the 'Make in India', 'Atmanirbhar Bharat', Skill India and other initiatives. There has never been such an overwhelming response from the international companies to collaborate; to transfer technology and not only to manufacture in India, but to re-export from India. The growth of MSMEs in aerospace and defence has been commendable.

In the last decade there have been major reforms. With the opening up of aerospace parks as well defence industrial corridors,

there is going to be greater momentum for India to become a manufacturing hub in the years to come.

Mr. Desai said that the nation is moving towards the vision of 'Viksit Bharat 2047' of the Prime Minister Narendra Modi. For that, the government is making efforts not only to ensure that the Indian armed forces are totally modernised, but also ensuring that the defence industrial ecosystem is in place. This is in line with the government's 'Atmanirbhar' initiative.

In sync with that the recent Union Budget has made a provision of over ₹6.8 lakh crore for the Ministry of Defence (MoD). The defence budget at 13.45% of the overall budget is the highest among the Ministries. Out of this, ₹1.8 lakh crore will be spent on Capital Outlay for acquisition of defence equipment and modernisation of the armed forces.

It is encouraging to note that the Ministry has declared 2025 as the 'Year of Reforms' and we are hoping that the government would understand the needs of the industry and frame policies to enhance the defence industrial ecosystem. We are already seeing results. In the past decade domestic defence production volumes have tripled, he added.

Exports surge 31-fold

"As an emerging power, we take pride that India is moving away from being a 'import dependent nation' to becoming an exporting nation. In the last decade exports have surged 31-fold, particularly in strategic sectors such as aerospace, armaments and ammunition. The government has indigenised 4,996 items, including 2,972 items worth over ₹3,400 crores, directly contributing to the nation's self-sufficiency in defence. It is work in progress." ■

- R. Chandrakanth

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Tentacle Aerologistix appointed as distributor for AkzoNobel Aerospace Coatings

AkzoNobel announced Tentacle Aerologistix as its distributor for the region during the show. **Show Daily** spoke to **Sreejith Padmanabhan, Sales Director, Tentacle Aerologistix** to discuss the partnership and its impact. Excerpts:

What led to this collaboration between AkzoNobel and Tentacle?

We are honoured to partner with AkzoNobel, a brand synonymous with innovation and quality. AkzoNobel provides coatings to the aerospace segments, ensuring durability, safety, and aesthetic excellence. As part of their expansion plans in South Asia, they needed a partner who understands the complexities of the aviation market.

Tentacle has an excellent track record in aviation solutions, a strong distribution network, and a customer-centric approach, making us the perfect fit for this collaboration. With the growing aviation sector in our region, there is an increasing demand for high-performance coatings. This collaboration allows us to deliver superior products with expert support, ensuring airlines, MROs, and OEMs receive the best-in-class coatings for their fleets.

Why are the AkzoNobel's aerospace coatings unique?

AkzoNobel coatings are engineered for performance, sustainability, and efficiency with a range of speciality products, including advanced primers, topcoats, and clear coats that provide long-lasting protection while enhancing the aircraft's aesthetics. AkzoNobel is also at the forefront of eco-friendly innovations, developing low-VOC and chrome-free coatings to meet global environmental regulations reducing maintenance downtime and enhancing the lifecycle of aircraft.

How do you plan to contribute to expanding their market presence in this region?

With our deep-rooted experience in aerospace supply chain management, we bring extensive industry knowledge and a well-established customer network. Our team will focus on delivering not just products, but also technical support, training, and after-sales service. We aim to ensure that airlines, maintenance providers, and defence sectors can access AkzoNobel's coatings efficiently, backed by localised expertise.

How do you see the aerospace coatings market evolving in South Asia?

The South Asian aerospace market is one of the fastest-growing



Sreejith Padmanabhan

in the world. With increasing air travel, fleet expansion and a strong push for MRO capabilities in the region, the demand for high-quality coatings is set to rise. In India, the government's push for 'Make in India' and self-reliance in aerospace manufacturing is creating exciting opportunities. Similarly, neighbouring countries, with their growing tourism-driven aviation sectors, will benefit from access to premium coatings that enhance aircraft longevity and performance.

What's next for this partnership and future plans?

Our immediate focus is on ensuring a seamless supply chain and top-notch customer support. Moving forward, we will work on expanding training programmes, technical workshops and awareness initiatives to help customers maximise the benefits of AkzoNobel coatings. We are also establishing a paint mixing facility in India with OEM technical collaboration. Our AS9120 Certified Distribution centre will help customers to reduce multiple imports and optimising the shelf-life management of coating requirements. We are eager to bring AkzoNobel's excellence closer to our customers and drive the industry forward. ■

Project Kusha unveiled

A game-changing long-range surface-to-air defence missile system 'Project Kusha' was unveiled at the show. The missile is developed by the Defence Research and Development Organisation in partnership with Bharat Dynamics Limited and private entity Solar Industries. The long-range surface-to-air air defence missile system can strike aerial targets at around 400 Km.

Project Kusha is set to provide the Indian Air Force (IAF) with a long-range air defence system, with deployment targetted for 2028-29. The ambitious indigenous project will be developed by the Defence Research and Development Organisation (DRDO) at an estimated budget of ₹21,700 crore. Drawing parallels with Israel's renowned Iron Dome system, 'Project Kusha' is expected to not only match but potentially surpass the capabilities of its Israeli counterpart.

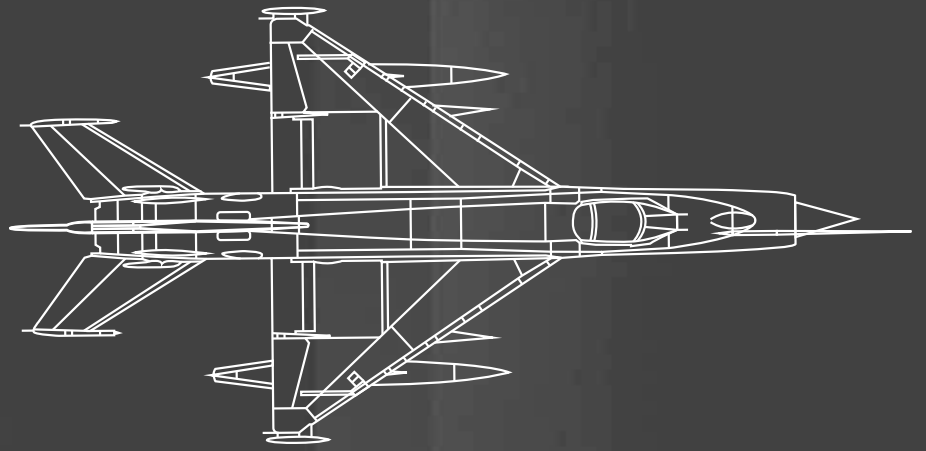
It aims to detect and destroy various hostile targets, including cruise missiles, stealth fighter jets, and drones at extended ranges. The long-range surface-to-air defence system (LR-SAM) incorporates advanced long-range surveillance and fire control radars, which empower the IAF to effectively monitor airspace and fend off enemy threats. Interceptor missiles, with ranges of 150 km, 200 km, and 350



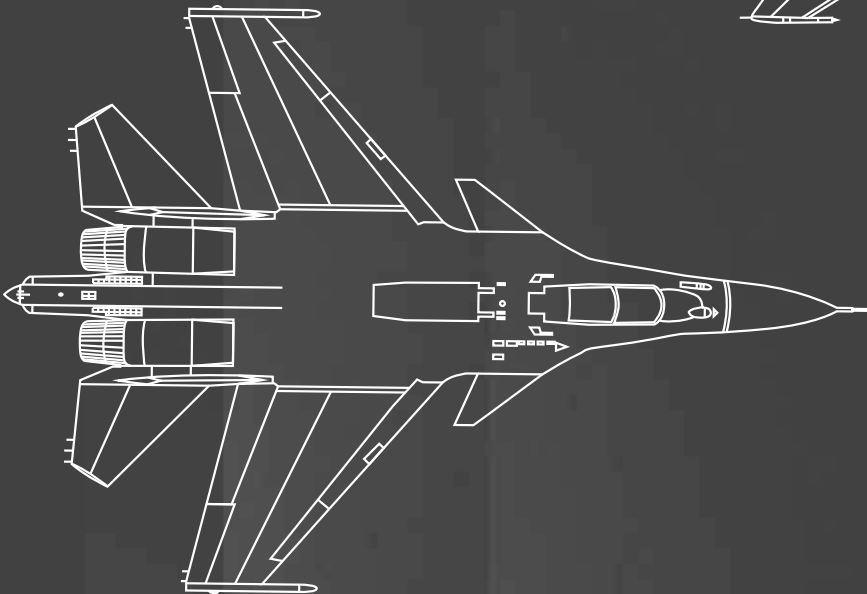
Project Kusha

km, provide the ability to detect and strike hostile targets at different distances. It will also be effective in providing strategic and tactical cover. The system reportedly has a single-shot kill chance of at least 80% and over 90% when two missiles are fired after each other. The firing units of 'Project Kusha' can seamlessly integrate with the IAF's air command and control system, facilitating coordination with a wide range of military radars. ■

3rd generation

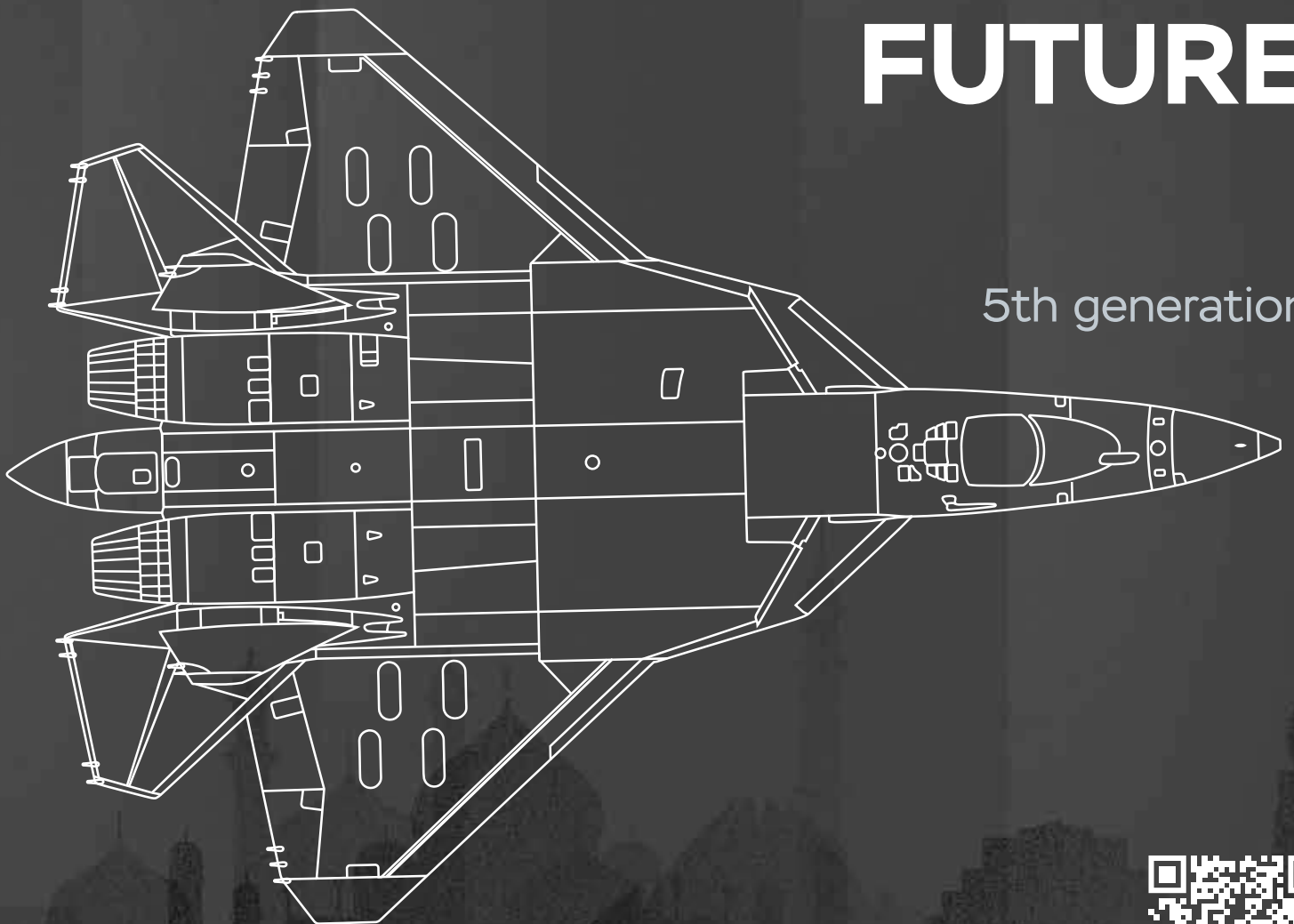


4th generation



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5th generation



Sukhoi Su-57E makes its debut



The Su-57E makes its debut at the show this year with the manufacturer stating that dozens and hundreds of far-sighting solutions have been implemented in the design of the Sukhoi Su-57 fighter. As a result, the Sukhoi Design Bureau has produced an airplane that can adjust itself to the level of pilot's skills, one that is hard to detect by radio-electronic, infra-red, electro-optical and sound sensors.

More than 50% of its airframe surface is made of composite materials. The flight suit can forecast g-loads and adjust to them so as to help pilot sustain manoeuvring. These and other innovative technologies and engineering solutions have shaped the aircraft inside and out. Besides, the technologies and solutions attested on the Su-57 offer solid foundation for the new designs developing they add.

Despite a number of controversial claims, the Russians add that the Su-57 is a real fifth generation fighter, and the only one being tested in high intensity combat operations. First, it is able to cruise with a supersonic speed. Second, the aircraft signature is dramatically lower for radio-electronic, infra-red, electro-optical and sound sensors in comparison with the previous generation. Third, it has been built according to the principles of open architecture. Besides, the Su-57 provides automation and intellectual support for the pilot. Finally, it meets the concept of network-centric warfare (NCW) being an element in the national forces' NCW control structure.

There are some distinctive features that each new aircraft has making it the world's first real multifunctional aircraft. According to the Sukhoi Design Bureau team 'there were certain requirements to our aircraft. It should be able perform 'air-to-air' missions that are attributable to an air-supremacy fighter, and, at the same time, perform strikes at surface targets, serving as a fighter-bomber. The first requirement was to ensure stealth operations for gaining advantage in the long-range air combat. In addition to that, the second requirement called for high super manoeuvrability so as to perform air combat at short ranges. As a result, we produced a fighter possessing the same or higher level of manoeuvrability compared to best fourth generation fighters.'

In other word, the Su-57 can solve air superiority tasks and strike tasks in roughly equal proportions.

The Su-57 is different to fourth generation aircraft designs from the same manufacturer. This is because it was designed from scratch with the idea of stealth operations in mind. "Compared to previous designs, the airframe for the Su-57 was deliberately made to accommodate these technologies. That's why it has such a characteristic shape with sloping sides, parallel edges and so on," states the Sukhoi Design Bureau expert.

To make the aircraft low-observable the Su-57 comes with bays inside the fuselage to accommodate air-launched munitions while the fuselage itself is strong enough to withstand high G manoeuvres.

The experts add that the Su-57 aerodynamic layout is also very special. It comes with control surfaces never seen before on any operable airplane. With more than 50% of its airframe surface made using composite materials, this made it possible to manufacture larger skin panels and to reduce the number of fasteners.

To diminish the airplane signature, other measures were also applied. They included application of special radio-wave adsorbing and reflecting layers. Besides, screening materials were applied to antenna bays, etc.

As stated earlier, the Su-57 is a multifunctional aircraft. Pilot's workload goes up with the number of tasks he solves. To manage a

single-seater aircraft for demanding missions, the designers team succeeded to make all the onboard equipment set as completely digital. Some sensors are analogue, but they generate digital signals or their readings are converted into digital format. All the data processing is digital.

In fact, the Su-57 comes with several levels of automation to be fit for both top-guns and for less prepared pilots. In other words, even an average pilot with middling talents can operate this aircraft with a sufficient level of efficiency. As time goes, he can improve his skills and start using the Su-57 capabilities better in all situations possible. Such an approach is important for those pilots who previously mastered other aircraft types.

The aircraft boasts agility and high speed in cruise. But those qualities bring about the consequent problems for the pilot: he has to endure high g-loads. In order to make the pilot's job easier, the design team applied special measures. For instance, the seat's back is set at an angle of 22 degrees.

Besides, a Sukhoi partner company has developed an improved set of pilot's outfit. In particular, the company altered the logic for the pilot's pressure suit. When the airplane executes high G manoeuvres, such a suit applies pressure to certain parts of the human body so as to keep blood in place. The new-generation suit is smart enough to react timely when the g-load is going up.

The ejection seat has been improved, too. It is capable of rescuing the pilot in all situations, even when the aircraft is parked, flying supersonically or manoeuvring.

Speaking of high technologies relevant to the fifth-generation fighter, the manufacturer added that the tech is based on previous achievements made during development and testing of aircraft attributed to earlier generations. Anything, even a revolutionary aircraft design comes into life basing on the scientific-technical experience amassed before.

It is impossible to make a leap forward without having a backlog of technologies. Especially those technologies that can apply to newer designs in order to meet the new requirements and attain higher quality. All new qualities are rooted in technical solutions that are themselves found in the scientific-technical backlog, states the Su-57 design team.

At the show the participants and guests can enjoy the flight demonstration performance of the Su-57E, an export version of the Russian-made fifth generation multipurpose fighter. ■



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Martin Baker exhibits Mk18 ejection seat

Martin-Baker is exhibiting their latest Mk18 ejection seat at the show, which introduces a number of 5th generation escape system advantages into service for the first time according to them.

The design of the Mk18 has evolved from the US16E ejection seat, which is fitted on all the Lockheed Martin F-35 Lightning II aircraft globally. The Mk18 has developed the neck protection systems further.

The Mk18 is also presently flying in the Korean Aerospace Industries (KAI) KF-21 aircraft and has recently been qualified for the Lockheed Martin F-16 Block 70/72 aircraft. The seat is rapidly becoming the new standard for aircrew safety according to the manufacturer, hence they feel it is the appropriate choice for all future Indian aircraft programmes, like the Tejas Mk 2, Advanced Medium Combat Aircraft (AMCA) and Twin-Engine Deck Based Fighter (TEDBF).

Internationally, the Mk18 is similarly being offered to all new lead-in fighter trainer and military combat aircraft programmes. A larger IGQ6000 aero-conical parachute is used to carry a heavier aircrew suspended weight (153Kg / 337lbs), while enabling a low parachute descent velocity to be achieved minimising parachute landing fall injuries.

The Mk18 ejection seat is on display at the UK Pavillion, Hall A, stand A7.



Mk18 0/0 Ejection Test

Some of the key features:

- Meets the latest US physiological requirements for aircrew ejecting with Helmet Mounted Displays (HMD);
- Offers widest aircrew size and weight ranges making it gender neutral;
- Reduced maintenance requirements through avoiding the need to repack the parachute. Its uniquely modular design will enable seat installation/removal without removing the canopy;
- Fitted with the Martin-Baker electronic sequencer (MBS)

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10th AEROSPACE & DEFENSE AWARDS 2025

On the eve of Aero India 2025, SAP Media Worldwide, the publishers of the *Show Daily* achieved another major milestone, celebrating its 10th edition of Aerospace & Defense Awards, honouring companies and individuals who have contributed substantially to the growth of the aerospace and defence sectors in the country.

The guest of honour was Dr. G. Satheesh Reddy, former Scientific Advisor to Raksha Mantri and former Chairman of DRDO who has been an inspiration and mentor to many companies and receiving the award from him was a matter of immense pride for the companies.

The range of awards reflected India's growth story, of how some

of the defence public sectors had evolved into behemoths over the years and how the MSMEs were important cogs in the wheel of progress and how the startups were making all the right noises. The awards, as some of the awardees in their thanksgiving address said were 'motivators' for them to do better in the country's quest for self-reliance.

The jury for the awards included,

- Air Marshal SP Singh (Retd), PVSM AVSM VM
- Lt Gen Shokin Chauhan (Retd), PVSM, AVSM, YSM, SM, and VSM

The Awardees are:

OUTSTANDING CONTRIBUTION IN LAND SYSTEMS
WINNER: **BHARAT DYNAMICS LTD**



(L-R) Trilok Desai, MD & Publisher, SAP Media Worldwide Ltd, Dr. G Satheesh Reddy, President of AESI & Former Chairman of DRDO & Scientific Advisor to RM, with Rajiv Saxena and Homnidhi Sharma

OUTSTANDING CONTRIBUTION IN AEROSPACE INDUSTRY
WINNER: **HINDUSTAN AERONAUTICS LTD**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Sunil Gupta, S. Nirmala, and Sanjay Kumar

OUTSTANDING CONTRIBUTION TO NAVAL SYSTEMS
WINNER: **BHARAT ELECTRONICS LTD**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with T D Nanda Kumar

EXCELLENCE IN INNOVATION, DESIGN AND TECHNOLOGY
WINNER: **BELLATRIX AEROSPACE**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Yashas Karanam

OUTSTANDING CONTRIBUTION TO NAVAL SYSTEMS
WINNER: **AIDIN TECHNOLOGIES**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Shreesha, Ravi Kiran, Harish, Chidanand, V K Kannan, B N Patil

EXCELLENCE IN RESEARCH AND DEVELOPMENT
WINNER: **CENTRE FOR AEROSPACE RESEARCH - ANNA UNIVERSITY**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Dr.Ramesh Rtd Scientist, Shri.K.V Srinivasan Rtd Scientist, Prof Dr.K.Senthil Kumar, Dr.A.Saravana Kumar, Wing Commander K.R Srikanth (Retd)

OUTSTANDING CONTRIBUTION IN BRINGING CUTTING-EDGE TECHNOLOGY
WINNER: **AZISTA INDUSTRIES**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Ajay Acharya

BEST IMPLEMENTER OF "MAKE IN INDIA"
WINNER: **BHARAT FORGE LIMITED**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Jayaram Mummadi

SPECIAL JURY RECOGNITION AWARD
WINNER: **SAHAJANAND LASER TECHNOLOGY LIMITED**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Dr. Arvind Patel

BEST JV OF THE YEAR
WINNER: **TATA LOCKHEED MARTIN AEROSTRUCTURES LTD**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Timothy Riffle

SPECIAL JURY RECOGNITION AWARD
WINNER: **XDLINK LABS PVT LTD**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with V S Hegde, advisor for XDLINK Labs

EXCELLENCE IN EXPORTS
WINNER: **BOEING DEFENSE**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Siddharth Chauhan, Madhavi Jha, Ashwani Bhargava, Ganapati Hebbar and Sagar Wadhwa

EXCELLENCE IN INDIGENIZATION
WINNER: **ROTARY CONNECTORS PVT. LTD.**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Girish Nilange and G Maheshwara Reddy

STARTUP OF THE YEAR
WINNER: **TAQBIT LABS PVT LTD**



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Isha Kumari, Mohit Mittal, Animesh Aaryan, Bilesh Prasad and Abhishek Kumar

EMERGING COMPANY OF THE YEAR
WINNER: AIRBORNICS DEFENCE & SPACE PVT LTD



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Raj Kumar Pandey

MSME OF THE YEAR
WINNER: GLOBAL ITES PVT LTD



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Amruta Desai, Suhas Gopinath and Tejas Narayana

MSME OF THE YEAR
WINNER: AEROSPACE ENGINEERS PVT LTD



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Dr. V. Anbarasi, SA. Ezhil Bharathi, Karthikk Raja, Mrs. Valli

LIFETIME ACHIEVEMENT AWARD
WINNER: JITENDRA J JADHAV



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Jitendra J Jadhav

ENTREPRENEUR OF THE YEAR
WINNER: RISHAB GUPTA, MANAGING DIRECTOR, RESSELL TECHSYS



(L-R) Trilok Desai, Dr. G Satheesh Reddy with Wnd Cmd Louis Pereira (ret'd) and Wg Cmd K V Sunil Babu (Ret'd) on behalf of Rishab Gupta



MBDA and AXISCADES to set up Centre of Excellence (COE) for Test Benches

MBDA and AXISCADES announced a strategic engagement to establish a Centre of Excellence (COE) for Test Benches in Bangalore. The COE will enable MBDA to establish a reliable platform to roll its 'Make in India' initiatives.

This COE will cater to the global Test Solution needs of MBDA including but not limited to MICA, but also other Missiles and platforms.

The COE will be set up at AXISCADES' new premises coming up at Aerospace Park near Bangalore's Kempe Gowda International Airport. The premises will host a state-of-the-art Test Bench laboratory, equipment, instruments, stores, tools along with skilled/trained resources. The COE is spread across 42,000 sq.ft. single floor plate and will be able to undertake simultaneous activities on design & development and production of multiple test benches in parallel to meet the global requirements on schedule, quality, scale and cost optimisation.

Inaugurating the facility located at the KIADB's Aerospace Park near Kempe Gowda International airport, Dr. S Ravinarayanan, Chairman of AXISCADES Technologies Limited, told that, "Our journey with MBDA has been very strong and will grow stronger. We plan to undertake many more critical activities with MBDA."

Inaugurating the facility along with MBDA's senior management team, Florent DULEUX, Group Director, Export Sales, MBDA mentioned that, "The establishment of Test Bench COE further strengthens our relationship and is a significant step forward to enhance our future Make In India objectives."

The companies are also working together to support MBDA's



MBDA and AXISCADES representatives at the signing ceremony

Depot Level Maintenance of the Missiles Launchers fitted on the Indian Air Force's Mirage and Rafale and supplying ground support and ground handling equipment.

AXISCADES has undertaken the built-to-spec and built-to-print assignments on Test Benches for MBDA since 2018 and has delivered towards MBDA's MICA Missiles and Missile Launchers. For the past decade AXISCADES has been engaged with MBDA as prime Indian Offset Partner. ■



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PBS Group showcases Advanced Turbojet Engine portfolio

PBS is showcasing its turbojet engine portfolio at the show including their expertise in advanced propulsion systems for defence applications.

Turbojet Engine Solutions

The groups PBS jet engine portfolio serves defence applications including unmanned aerial vehicles and target drones. The company's manufacturing combines precision engineering with stringent quality control, operating under EASA certification standards. They feel that it is this commitment to quality that has established the PBS Group as a trusted international partner in the aerospace industry, exemplified by significant collaborations with global leaders. Notable among these is the partnership with Lockheed Martin for the development of advanced F-35 fighter jet components, and strategic cooperation with Ivchenko-Progress SE for next-generation engine development.

Advanced Engine Portfolio

The company's turbojet engine range demonstrates exceptional capabilities across various power categories. Leading the lineup is the PBS TJ150P, which delivers 1,500 N of thrust while maintaining compact dimensions and weight efficiency, featuring rapid windmill starts and specialised adaptation for saltwater landing recovery.

The PBS TJ100 follows with 1,250 N thrust generation and supplies up to 2,300 W of electrical power for mission-critical systems. The PBS TJ80-120 series, specifically designed for UAV systems including target drones and remote carriers, delivering 900 to 1,200 N thrust with a thrust-to-weight ratio at just 12.5-13 kg.

These engines feature ground and in-flight start capabilities, salt-water recovery, quick windmill starting, and operation at altitudes up to 10,000 m and speeds of 0.9 M, while generating 650 W of electrical power through their integrated generator. For specialised applications, the PBS TJ40 family provides 395 to 425 N thrust, ensuring optimal performance for specific mission requirements.

Next-Generation Engine Development

They inform that they are continuing to push the boundaries of jet propulsion technology with two groundbreaking developments. The PBS TJ200, designed specifically for modern UAV andUCAV systems, represents a significant leap in engine efficiency.

With its innovative clean-slate design featuring a reduced frontal



diameter of 246 mm, the TJ200 achieves an impressive maximum thrust of up to 2,280 N while maintaining compact dimensions. This breakthrough design delivers over 50% more thrust than its predecessors while reducing the diameter by more than 10%.

The AI-PBS-350, developed in collaboration with Ivchenko-Progress SE, showcases PBS Group's commitment to international cooperation and market-specific solutions. The engine delivers 3,400 N of thrust and features a four-stage axial compressor and single-stage axial turbine, and is optimised for single-mission UAV systems.

Manufacturing Excellence

PBS Group maintains its primary production facilities in the Czech Republic, supported by extensive research and development capabilities. The company has expanded its global manufacturing footprint with new production facilities in the USA and India, enhancing capacity to meet increasing global demand. The establishment of local manufacturing operations in both regions mark a significant milestone in PBS Group's international growth strategy, with Indian operations set to commence in 2025.

The products are on display at booth C4.2 in Hall C during the show. ■

Bengaluru's Notorious Traffic; Shunya eVTOL on the horizon

It took over two hours to traverse about 4 km to the Yelahanka Air Force station where Aero India 2025 got underway today. Despite the traffic advisory by the police and signages, there appeared to be no relief from moving at a snail's pace. And this happened to be the 15th edition of Aero India.

But wait, there may be a solution from the skies in the near future, at least for those who will be able to afford sky taxi. By the 17th edition, Bengaluru may have electric vertical take-off and landing (eVTOL) air taxi, that can beat the traffic on the ground. Sarla Aviation has unveiled 'Shunya', India's first eVTOL air tax, expected to take flight by 2028. Designed for short trips of 20-30 km, it can carry six passengers with a speed of 250 km/h, offering a rapid alternative to traditional ground transportation. The prototype aims to ease traffic congestion and promote sustainable urban



transport.

The Bengaluru-based aerospace start-up marks a significant advancement in urban air mobility, aiming to alleviate traffic congestion and pollution in Indian cities. The first commercial route is expected to be from Electronics City to the Kempegowda International Airport. Shunya can carry a maximum payload of 680 kg, making it the highest payload eVTOL vehicle currently on the market. After Bengaluru, the company intends to expand services to

other major cities, including Mumbai, Delhi, and Pune.

The company has also plans of introducing free air ambulance service to address urgent medical needs in urban areas, enhancing emergency response capabilities. The company is exhibiting a model of the eVTOL at the Global Investors' Meet which is set to begin on February 12. ■

Chipsan Aviation acquires Two Bell 505 Helicopters

Bell Textron announced that they had made a sale of two Bell 505 helicopters to Chipsan Aviation, which is an Indian Non-Scheduled Air Operator based in New Delhi.

Chipsan Aviation was established in 2009 and provides commercial air transportation of passengers using helicopters and business jet aircraft. The company also provides aircraft and heliport management as well as aviation consultancy services.

Upon delivery, the two Bell 505s will join Chipsan's existing fleet of six helicopters and will be utilised for corporate charters, helicopter tourism, emergency medical services and utility work.

Currently there are over 505 aircraft delivered, accumulating over 100,000 flight hours globally. The helicopters are equipped with a Garmin G1000H NXi integrated avionics suite, a dual-channel FADEC-controlled engine, wraparound windows, and Synthetic Vision technology, the Bell 505 enhances situational awareness and reduces pilot workload, enabling effective operations in diverse conditions.

"The Indian general aviation market is poised for significant growth as operators and customers recognise the tremendous value that rotary-wing aircraft," said David Sale, Managing Director, Asia Pacific, Bell.

We are honoured that Chipsan has selected Bell 505 next-generation short light single helicopter for their corporate, tourism, emergency medical services and utility missions, and we look forward to supporting the return to service of both these aircraft he added. ■



Bell 505 in action

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Trump to Prod Modi to Buy More Weapons



Indian Prime Minister, Narendra Modi



President of the United States of America, Donald Trump

Speculation is rife that the President of the United States of America, Donald Trump, in his true transactional approach, will urge the Indian Prime Minister, Narendra Modi to buy more US weapons in a trade deal when the two meet in the White House on 13th February. Indian PM Modi will be the second Head of State, after Benjamin Netanyahu, to meet the US President Trump who took charge of US Presidency on 20th January, showcasing the strong relations that India has with the US.

The Modi-Trump meeting gains importance for many reasons, one of them being India's meteoric rise as a global economic powerhouse and Modi's global outreach. The Prime Minister has invited the Russian President Vladimir Putin who is expected to visit India soon. Ahead of Putin's visit, Vyacheslav Volodin, the chairman of Russia's State Duma and a close ally of President Putin, was in New Delhi on 2nd February holding 'important meetings and negotiations' with India who he called a 'strategic partner'.

Similarly, a statement from the White House said the two leaders have emphasised their commitment to advance the US-India strategic partnership and the Indo-Pacific Quad partnership. Modi and Trump had a telephonic conversation on 27th January and the White House added, "Today, President Donald J. Trump held a productive call with Prime Minister Narendra Modi of India. The two leaders discussed expanding and deepening cooperation. They also discussed a range of regional issues, including security in the Indo-Pacific, the Middle East and Europe. The President empha-

sised the importance of India increasing its procurement of American-made security equipment and moving toward a fair bilateral trading relationship."

With Trump moving quick on his theme 'Make America Great Again', political analysts believe that he will go aggressive on tariffs, immigration and flexing the US might, dollar included, which we have already seen happening (US has started deporting illegal immigrants, including from India; tariff war has commenced with Canada and Mexico; taking on BRICS).

Big-ticket Deals

It is in this background, Modi's visit becomes important. There is already talk that there will be big ticket deals with the President pushing India to buy more military hardware, collaborations on various fronts be it nuclear energy, artificial intelligence etc. India already uses a number of American military equipment, except the fighter aircraft. These include the C-17 Globemaster III and C-130J transport aircraft, the AH-64E Apache attack helicopters, CH-47F Chinook heavy-lift helicopters, MH-60 'Romeo' naval helicopters, P-8I Poseidon long range surveillance and anti-submarine aircraft, M777 ultra-light howitzer guns etc.

On India's global acquisition (through the 'Make in India' programme) list is the Indian Air Force's requirement of 114 Multi-Role Fighter Aircraft (MRFA) for which US aerospace and defence giants - Lockheed Martin and Boeing - are in contention among other players. Also, there is the IAF's plans to acquire between 40 and 60 medium

transport aircraft (MTA) to boost its airlift capability where again Lockheed Martin's C130-J Hercules (India already has 12 of them) is in the race.

India on firm path of self-reliance

Defence experts believe that with India pushing for 'self-reliance', the US companies have shown more than willingness to put up manufacturing facilities here and committing to transfer of technology. There is talk of co-production of 100 Stryker armoured vehicles, the ISTAR battlefield and ground surveillance aircraft platform, among other equipment.

The bilateral relations between the countries have grown from strength to strength in recent years. The United States is India's largest trading partner. In 2022-23, the bilateral trade reached \$128.55 billion, a 7.65% increase from the previous year, with India's exports to the US accounting for \$78.31 billion. It is estimated that US companies have invested in many sectors to the tune of \$60 billion and this number is growing, reflecting the healthy ties.

While India's quest for self-reliance continues, not just companies but governments understand how India has come to become a key player in world economy and geopolitics and cannot be ignored by any country. India has come of age wherein it can negotiate terms, far removed from the days where it was so dependent on global powers who had their way. Indeed, as the Prime Minister says 'This is India's Moment'. ■

- R. Chandrakanth

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Reutech introduces Naval Solutions for Resilient Communications

Reutech Communications has developed an integrated digital naval solution which spans the full range of communications requirements from platform level, to tactical command and control (C2), and up to strategic beyond line of site (BLOS) links to shoreside naval defence networks.

Platform level solutions comprise digital voice intercom and data networks (VT1000) which network operators and user systems across the ship to Reutech Communications new generation OEM wideband HF (TR3000) and multiband V/UHF (TR7000). Software Defined Radios.

The company can also design and provision the full platform communications system which includes: cabling and wiring designs, EMI/EMC design, power supplies, antennas, antenna placement optimisation and supply of Global Maritime Distress and Safety System (GMDSS) and related subsystems.

At the tactical C2 level, Reutech Communications provides voice and data networks using tactical data link (TDL) technology based on line of sight and non-line of sight radio links. HF communications (1.6 MHz to 30 MHz) is a unique beyond line

of site (BLOS) communications modality which historically is difficult to fully exploit for data communications due to the inherent challenges of propagation using the ionosphere.

Reutech Communications feels that their approach to HF data communications has achieved 24/7 connectivity throughout the duration of multi-month trial use in a naval application. Such a capability unlocks the potential of the HF medium for BLOS command and control (C2) using modern data only techniques.

These deployed C2 systems leverage the unique Resilient HF Network (RHFN) communications architecture, developed by Reutech Communications, which exploits two key technologies. Firstly, the latest 3G packet data waveforms for fast link setup, low latency and robust operation in low SNR conditions. These waveforms offer a form of frequency diversity via the automatic link establishment (ALE) process. Secondly: coupling multiple transceivers on the landward or fixed infrastructure side, into a data network to provide geographic diversity. Having two degrees of diversity within the system (frequency and geographic) provides the resilience necessary to claim

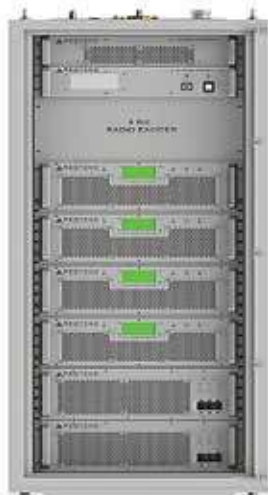
24/7 connectivity, as it becomes highly improbable that all stations lose connectivity across all available frequencies.

The intelligent HF network automatically chooses the best frequency and geographic station for seamless connectivity from the operator's perspective. The architecture still supports both split-site and non-split site configurations says Reutech.

Lastly, strategic BLOS communications may be efficiently implemented with either the before mentioned RHFN architecture coupled with high power RF amplifier technology (1 kW, 5 kW, and 10 kW), or depending on customer needs, may be implemented using the latest state-of-the-art wide band HF (WBHF) waveforms which offer connection speeds of up to 240 kbps with high power amplification and suitable conditions.

The ability to provision novel high performing naval solutions from platform, to tactical network, to strategic network levels, demonstrates Reutech Communications' leading position as the perfect naval solutions partner.

Their solutions are on display at the booth Reutech Communications India in Hall A at AS2.2.



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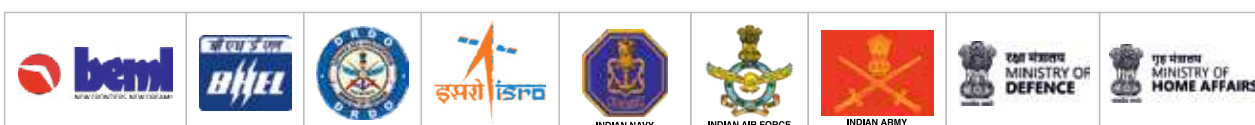
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PROUD CUSTOMER BASE



'C-130J not only flown in India but also built in India' - Timothy Riffle

With an annual production capacity of 20 empennages and over 200 installed on C-130Js delivered by Lockheed Martin to global customers, including the Indian Air Force, the Tata Lockheed Martin Aerostructures Ltd (TLMAL) is a JV that makes India proud. **Bhavya Desai** spoke to **Timothy Riffle, COO and MD, Tata Lockheed Martin Aerostructures Ltd** about the JV, upcoming opportunities and more. Excerpts:

The C-130J is already in operation with the Indian Air Force, what are the key advantages that you foresee for the MTA competition using that experience?

The IAF's effective use of the C-130J truly showcases the aircraft's capabilities and we see this experience as a competitive advantage in regard to the MTA. The IAF crews continually demonstrate the C-130J's unmatched multi-mission capabilities, which differentiate the Super Hercules from any other tactical airlifter in operation today.

The C-130J's tactical design allows it to meet a wide variety of mission requirements, making it the most versatile aircraft in military aviation today. These design features give the C-130J flexibility, enabling it to perform 20 different mission requirements - ranging from troop transport and humanitarian aid to combat operations and aerial refueling - across diverse and challenging environments.

As Lockheed Martin waits for the RFP for the MTA programme, we are continuing to support and expand our industrial partnership commitments in India as we know these partnerships will be a critical component of the MTA competition and programme. Our existing in-country facilities, Tata Lockheed Martin Aerostructures Limited (TLMAL) and Tata Sikorsky Aerospace Limited are a reflection of our commitment to "Make in India" imperatives and our recent MRO and manufacturing announcements are a testament to our commitment to the country's growth and self-reliance goals.

Lockheed Martin recently also announced the establishment of an MRO facility with Tata to support IAF's existing fleet and global fleets. How will this developments partnership position the C-130J for the Medium Transport Aircraft programme?

By setting up an MRO facility and expanding Lockheed Martin assembly lines, we aim to not only support the Indian Air Force's existing C-130J fleet, but also create a robust ecosystem for the maintenance, repair and overhaul of our aircraft in the region. Regarding the MTA programme, we know the C-130J is an ideal candidate, given its proven track; versatility; and ability to perform a wide range of missions.

The Super Hercules has already demonstrated its capabilities in various environments and scenarios, and we're confident that it can meet the IAF requirements. We are aware the MTA is a very competitive opportunity, but we are confident that the



Timothy Riffle

C-130J-30's proven performance, global interoperability and unmatched capabilities will the Super Hercules a significant advantage.

We're working closely with our Indian partners to ensure that we're aligned with the government's priorities and requirements. Our goal is to provide the best possible MTA solution for the Indian Air Force, and we're confident that the C-130J can deliver exceptional value and unmatched performance.

What kind of investments are being planned for MRO facility and Assembly line?

In September 2024, Lockheed Martin and Tata announced a strategic teaming agreement to enhance our partnership through the C-130J Super Hercules tactical airlifter. This collaboration outlines a framework for future business opportunities, including the establishment of a Maintenance, Repair, and Overhaul (MRO) facility in India. We are working closely with Tata leadership to refine the MRO facility's details in coordination with the IAF.

While specifics about the MRO are in work, we do know that this state-of-the-art MRO facility will deliver world-class support for both the IAF and other C-130J operators worldwide, especially considering India's extensive experience with the Super Hercules. In addition, the geographic location of the MRO center offers C-130J support to several regional Super Hercules operators.

Further, we continue to plan for the MRO facility with Tata for the MTA programme and are awaiting the release of the RFP, which will allow us formalise details about expanding C-130J manufacturing and assembly in India to produce aircraft for the IAF's Medium Transport Aircraft (MTA) programme.

Our existing partnerships in Hyderabad

with Tata (TLMAL and TSAL) are instrumental toward helping India develop an A&D supplier ecosystem, promote indigenous manufacturing, participate in the global supply chain, and support the government's vision to 'Make in India, For India, and For the World'.

These joint ventures not only produce major aerospace components for the C-130J Super Hercules transport aircraft, but also support commercial helicopters and have expanded to include aircraft engine components for aerospace industry companies. More than 500 suppliers, including over 140 Micro, Small & Medium Enterprises, feed into our two joint ventures and support this work. Through these JVs, more than USD \$650 million worth of exports has been generated providing over USD \$200 million of revenue for Indian industry. Lockheed Martin has invested more than USD \$100 million of manufacturing equipment, tooling and intellectual property at these joint ventures.

How many empennages has TLMAL produced so far? What is the annual production rate? What is the capacity utilisation?

Since its establishment in 2010, 231 TLMAL-built empennages have been delivered to the Air Mobility and Maritime Missions Assembly Line in Marietta, Georgia. With an annual production capacity of 20 empennages, over 200 of these have been installed on C-130Js delivered by Lockheed Martin to global customers, including the Indian Air Force. This makes the C-130J not only flown in India, but also built in India.

What is the present indigenisation component in the empennages?

Over the course of our partnership with Tata, we have significantly increased the indigenous content in the C-130 empennages that are produced at TLMAL. Currently, TLMAL indigenises 96% of the empennage detail parts by volume in India. Further, we have also invested in significant digitization processes at the facility which have enabled us to increase engineering accuracy with a First Pass Yield (FPY) of over 98% for detail Parts. Digitization has also enabled faster industrialisation with India suppliers, enhanced simulation of Digital 3D data in manufacturing, and improved digital mockup for assembly simulation, all supporting affordability initiatives.

► Continued on page 28



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►Continued from page 26

... 'C-130J not only flown in India but also built in India' – Tim Riffle

For the C130-J, besides empennages what other aerostructures is TLMAL providing or capable of providing?

Besides empennages, TLMAL also manufactures major aerostructure components for the C-130J Super Hercules transport aircraft. This is the sole supplier of these components to Lockheed Martin and is an integral part of our global supply chain. Additionally, TLMAL supports a first-of-its-

kind out of autoclave capability operational for composites production.

Further, TLMAL also produces Metal-To-Metal (MTM) bonded assemblies with Phosphoric Acid Anodize (PAA) special processing. These bonded assemblies are used as critical components in key platforms like the Apache AH-64, C-295 and C-130 Empennage components. TLMAL facility optimisation floor footprint allows for

increased component capacity providing wider range of new opportunities for C-130J Affordability initiatives.

In 2023, Lockheed Martin and Tata also announced a Memorandum of Understanding (MOU) for the production of fighter plane wings at TLMAL. The MOU envisions production of 29 fighter wing shipsets, with an option of additional shipsets, with deliveries commencing in 2025. ■

BEL order book at ₹71,000 Crore, giving it stable revenue visibility

With India's sight on achieving increased exports, Indian PSUs have been focussing on growing their capabilities and reach to the international market. With increased revenue and a stable order book, Bharat Electronics Ltd (BEL) looks poised to contribute to India's ambitious targets. **Suresh Kumar K V, Director (Marketing), BEL** spoke to **Bhavya Desai** ahead of the show. Excerpts

What is the current market for international defence products and what strategies is BEL employing to strengthen its global presence?

The Ministry of Defence has set an ambitious target of ₹50,000 Crore exports by 2028-29. BEL is, therefore, fast expanding its global presence by making all-out efforts to tap onto new export markets across the globe. In the last few years, we have made substantial progress, both in terms of export orders acquisition and dispatches. We have identified multiple products and systems for targetted marketing in focussed export markets. In a bid to develop new markets in the Indian Ocean Region and friendly foreign countries (FFCs), we have also operationalised new overseas marketing offices.

All these efforts have paid rich dividends. Our Exports business saw a robust uptick in FY 2023-24 with sales growing by 92% to a record \$92.98 Million. BEL's products continued to find increased acceptance in countries such as France, USA, Spain, Israel, Germany, Armenia, Sri Lanka, Mauritius, UK, etc., a clear indication of the company's growing capabilities. BEL also has a healthy Export order book of \$387 Million USD. BEL is enhancing its geostrategic reach and strategically opening overseas marketing offices in the Indian Ocean Region, South East Asia, Middle East Region and Americas.

Are there any diversification plans?

Defence has traditionally been contributing to around 80% of the Company's annual sales revenue. BEL, however, has been continuously exploring opportunities in allied Defence and Non-Defence areas. The Company aims to increase its Non-Defence



Suresh Kumar K V

share in the overall business in the coming years. The total opportunity in the Non-Defence business segment being pursued by BEL in the next 10-15 years is more than ₹2 Lakh Crores. Some of the areas BEL is focussing as part of diversification efforts include solutions for Civil Aviation, Unmanned systems, Railway & Metro systems, Network & Cyber Security, Smart City solutions, Space Electronics, Arms & Ammunition and Seekers, Medical Electronics and Artificial Intelligence.

Since there are number of programmes then plans would also be underway for expansion?

From time to time, depending upon the

growth needs and opportunities, BEL has been taking major initiatives to modernise and expand its infrastructure. Some of the new infrastructure initiatives taken up recently include setting up of a Defence System Integration Complex for Missiles and Weapon Systems at Palasamudram, Andhra Pradesh; state-of-the-art manufacturing facility for Electro Optics and IIR Seekers at Nimmaluru; Fuze manufacturing facility at Nagpur; manufacturing facility for Land-based EW systems at Ibrahimpatnam, Telangana; modernisation of storage magazine and hot integration facility for arms & ammunition at Vellore; and integration facility for QRSAM at Agra.

How is the company's financial performance, turnover and order book position?

BEL has always been a profit-making PSU despite various challenges. FY 2023-24 saw the company achieve a record turnover of ₹19,819.93 Crore as against ₹17,333.37 Crore in FY 2022-23, thereby registering a growth of 14.35%. The growth was driven by strong performances across all segments. Defence contributed to 81% of revenue in FY 2023-24 with the balance 19% coming from the Non-Defence segment. Profit after Tax grew by 33.7% to ₹4,020 Crore in FY 2023-24 as against ₹3,007 Crore in FY 2022-23.

BEL also continued the momentum in order acquisition by booking highest ever annual order inflow of ₹35,046 Crore during FY 2023-24. The company's order book position as on January 1st, 2025 stands at around ₹71,000 Crore, giving it stable revenue visibility. ■

BEML's new 'Infinix'

BEML Ltd. today unveiled its new brand identity, 'Infinix,' at Aero India. Admiral Dinesh Kumar Tripathi Chief of Naval Staff (CNS), unveiled the new logo at the BEML stall, alongside Shantanu Roy, CMD, BEML Ltd., Functional Directors of BEML and senior officers from Defence Forces, in a grand display featuring motion graphics that traced BEML's remarkable 60-year evolution. This landmark event showcased BEML's growing prowess in Aerospace and Defence through a fully digital and immersive experience.

BEML's Infinix logo represents its rebranding and transformation. The Phoenix breaking free from its boundary symbolises growth and innovation. The name 'Infinix' combines 'Infinity' and 'Phoenix,' highlighting BEML's focus on engineering, mobility, and technology. The design reflects efficiency and progress.

Congratulating BEML on this journey, Admiral Tripathi, shared: "I extend my heartfelt congratulations to the leadership and entire team of BEML on this historic occasion. The unveiling of 'Infinix' reflects your bold vision to emerge as one of India's most valuable companies, both nationally and globally. As BEML ventures into futuristic sectors, driving national progress and technological excellence, I have no doubt that even greater milestones lie ahead."

Shantanu Roy said: "The new logo symbolises our evolution from a legacy-driven enterprise to a global force in engineering, leading the way in key sectors. This transformation mirrors our aspirations to expand into new markets, explore emerging technologies, and embrace the challenges of tomorrow with unmatched vigor and determination. It carries with it the collective dreams and ambitions of BEML's people—employees, partners, stakeholders, and customers. It is a symbol of our shared purpose to create value, drive progress, and leave an indelible mark on the world."

At Aero India 2025, BEML is showcasing its latest advancements



BEML unveils new brand identity 'Infinix'

in aerospace, defence, and strategic engineering with a focus on its Unmanned Aerial Vehicles (UAVs), including Vihangam-35, a high-performance reconnaissance and surveillance UAV developed in collaboration with IIT Kanpur, and Abhinandan HNX50, a next-generation RPAS.

In the realm of Space and Missile Technology, BEML is presenting ISO Grid Panels designed for ISRO's LVM3 launch program, along with Light Alloy Structures for advanced launch vehicles. The company is also displaying its expertise in missile casings, which play a critical role in India's defence programs, including Akash and Kusha.

BEML's contribution to Aircraft and Helicopter Components is being demonstrated through its airborne parts and Ground Support Equipment (GSE) for the LCA Mk1, reinforcing its role in India's aerospace advancements. Additionally, in Maritime Defence, BEML will highlight its Marine Gas Turbine Flame Tubes, engineered to enhance naval propulsion efficiency, and the Universal Bomb Pallet, designed to strengthen Indian Air Force's armament systems.



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Eve Air Mobility and JetSetGo to explore Urban ATM Implementation in India

Eve Air Mobility ('Eve') and JetSetGo, a private aircraft charter and fractional ownership company, headquartered in New Delhi, have entered into an agreement to explore and advance the use of Vector, Eve's cutting-edge agnostic Urban ATM (air traffic management) software solution in India. The announcement, which was made during the Bharat Mobility AAM Conference, makes JetSetGo Eve's 14th Vector customer and its second customer in India, as interest in the Eve's Vector agnostic urban air traffic management software solution continues to grow globally.

Eve's Urban ATM software solution is a key enabler to the efficient implementation and scalability of urban air mobility (UAM) by providing services for air navigation service providers, urban authorities, fleet operators, vertiport operators, and other UAM stakeholders. The solution includes UAM flight coordination, vertiport automation airside support, airspace flow management and conformance management.

"This agreement demonstrates Eve's continued commitment to the Indian market and we are looking forward to working with JetSetGo on urban air traffic management in India," said Luiz Mauad, vice president, customer service at Eve Air Mobility. "With traffic congestion continuing to impact productivity in major cities, Urban Air Mobility has the potential to not only help address these issues, but also connect regions outside of the city that do not have efficient access. Eve's Urban ATM solution will play a critical role in helping to transport eVTOL passengers quickly and safely in densely populated cities in the future."

"Urban Air Mobility has the transformative potential to reshape urban living by making travel faster, cleaner, and more efficient while addressing the growing challenges of modern cities. At JetSetGo, we are committed to driving this change in India through our partnership with Eve Air Mobility," said Kanika Tekriwal, CEO and Co-Founder, JetSetGo.

"By leveraging Eve's cutting-edge Vector Urban ATM platform, we aim to enable the seamless and safe operation of eVTOL aircraft in the future. This technology is vital for tackling issues like traffic congestion, wasted hours, worsening air pollution, and the need for eco-friendly travel solutions. Furthermore, our efforts focus on ensuring that UAM solutions are quiet, safe, and widely embraced by communities. Through these innovations, we aim to improve urban life and position India as a global leader in the future of aviation."

As part of the agreement, the two companies will collaborate in a number of different ways including promoting Urban Air Mobility in India as JetSetGo explores new opportunities in urban air mobility. Unlocking the potential of this new form of transportation includes preparing the air space for travel alongside the production and certification of the actual electric vertical take-off and landing (eVTOL) aircraft. ■

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EcoPulse results suggest a bright future for hybrid-electric aviation

On a chilly day in mid-December, key stakeholders gathered together at a Daher hangar in Tarbes, in southwest France, to bid adieu to the EcoPulse demonstrator during a livestream wrap-up.

A distributed hybrid-propulsion aircraft demonstrator, EcoPulse was designed and developed jointly by Airbus, Daher and Safran. Leaders from all three companies were on stage to share their perspectives on the programme, including Airbus' own Jean-Baptiste Manchette, Head of Propulsion of Tomorrow.

The atmosphere on-site buzzed with excitement, with around 50 people gathered to watch the event live, over five years after EcoPulse was first announced at the 2019 Le Bourget Paris Air Show. But before we get into the flight test results, first let's have a quick refresher on what EcoPulse was testing, and the technical design aspects of the aircraft.

What was EcoPulse?

The EcoPulse demonstrator was a modified Daher TBM 900 Turboprop aircraft that aimed to evaluate the potential benefits of distributed hybrid-electric propulsion, as well as the possibility of integrating certain related technology bricks into future aircraft. Distributed propulsion systems work by breaking down thrust generation between multiple small engines located along the wings. Airbus, Daher and Safran believe that this technology could unlock improved aircraft performance, particularly in regards to cabin noise and energy savings.

To assess this, the three partners divided the work of developing the demonstrator along their different areas of expertise: Safran was in charge of developing the distributed hybrid-electric propulsion system, including

the six wing-mounted e-propellers, while Airbus Defence and Space contributed the 800-volt, high-energy-density battery that was used to power the propulsion system. This battery was capable of delivering 350 kilowatts of electricity, allowing it to power all six e-propellers in flight. Airbus developed the flight control computer system and handled the aerodynamic and acoustic integration of the distributed-propulsion system. Daher, for their part, integrated Airbus and Safran's modifications into the airframe and handled all flight and airworthiness testing.

Key takeaways

The flight test campaign lasted eight months, running from November 2023 to July 2024. 50 test flights were performed, which added up to around 100 flight hours. Several different types of testing took place during flight, examining the effects of the distributed propulsion system on aerodynamics, efficiency, noise and more. Many of the results were positive, so let's head back to the hangar in Tarbes to hear more about what we've learned.

A leap forward for battery technology

"The battery is one of the key parts of hybridisation, and the way to master how to design, manufacture and clear it for flight is really important for us," Jean-Baptiste explained to the audience. The customised lithium-ion battery had to be designed entirely in-house by Airbus Defence and Space, as the technology does not currently exist on the market. Standard battery technology for aircraft is focussed on low-voltage, low-energy-density batteries mainly used to start the auxiliary power unit (APU) or during emergencies. Larger batteries,

like those used in the automotive industry, are too heavy and bulky for use on aircraft. Christophe Robin, Head of Aircraft Design at Daher, summarised exactly why the EcoPulse battery is such a big deal while on stage: "Usually, on a light aircraft, we use a 28-volt battery. On a commercial aircraft, we use 115-volt AC as the standard. What we are using here [on EcoPulse] is 800 volts [DC], and that is a completely different story."

The EcoPulse also underwent wing aerodynamics improvements; Innovative flight control testing; Noise reduction and perception testing among others.

Future plans for hybrid-electric flight

The results of EcoPulse will have a real impact on aircraft design going forward at Airbus. "This EcoPulse campaign allows us to advance certain hybrid-electric technologies, such as high-voltage batteries, and integrate them into future aircraft, helicopters, and air mobility solutions," said Jean-Baptiste. "With distributed electric propulsion, we achieved our goal of modelling flight physics and energy management at the aircraft level, key elements for shaping the next generation of aircraft."

The collaboration between the three aerospace leaders involved in the project isn't quite over yet: Daher and Safran are teaming up on a joint project, while Airbus and Safran (through the latter's 50% ownership stake in CFM International) are working together to explore the feasibility of open fan engines through the RISE demonstrator. According to Jean-Baptiste, the ultimate benefit of collaborations such as these is to "test things in flight, because this is where you learn so much." Christophe Robin concurs: "Real conditions never lie." ■



EcoPulse test flight

FlySight debuts at the show

FlySight is making its debut at the show and is co-exhibiting with AXNES at their booth. The collaboration follows the successful integration of FlySight's OPENSIGHT with AXNES' PNG wireless intercom system.

FlySight's OPENSIGHT Automatic Target Recognition (ATR) system represents a significant leap in surveillance technology for both military and civil operations. OPENSIGHT ATR leverages AI to detect and track targets in real time, even in complex or cluttered environments. The AI algorithms process vast amounts of video and different sensor data, minimising human error and increasing the likelihood of detecting critical objects or individuals in mission-critical scenarios. From SAR to law enforcement, this technology provides operators with the tools they need to make quicker, more accurate decisions.

The standout features of OPENSIGHT ATR is its open architecture, which enables flexible integration with various mission management systems, foremost among all OPENSIGHT Mission Console. The ATR can function independently as a stand-alone system or be integrated as a component of the OPENSIGHT Mission Console, offering operators operational flexibility.

Additionally, its open architecture allows for seamless third-party integration, meaning that proprietary or third-party AI networks can be incorporated effortlessly, ensuring extensive compatibility and adaptability to evolving operational needs. This flexibility allows the system to operate across a wide range of platforms, while ensuring seamless data sharing with ground teams and other mission-critical assets. This adaptability is key to enhancing mission outcomes, as operators can relay critical information in real time, improving coordination and efficiency.

Since 2024, FlySight has been strategically expanding its global footprint, with a particular focus on key markets in Asia. This expansion includes the establishment of local commercial representatives in both Malaysia and India.

In April 2024, FlySight significantly broadened its presence in India through a strategic collaboration with Suretech International. ■



AREA SET UP FOR THE DEMONSTRATION OF OPENSIGHT ATR LIVE

Dynamatic Technologies and Deutsche Aircraft Collaborate

Dynamatic Technologies Limited, South Asia's leading aero-structure manufacturer, has partnered with Deutsche Aircraft, a regional aircraft OEM, at the show.

As India evolves into a major hub for regional aviation, Deutsche Aircraft is advancing its D328eco, a 40-seat turboprop aircraft designed to enhance connectivity, sustainability, and economic efficiency. The D328eco features a fuel-efficient engine and state-of-the-art avionics, aligning perfectly with India's UDAN scheme, which promotes connectivity to Tier 2 and Tier 3 cities. In addition, the aircraft's versatile design allows it to serve various roles, including passenger transport, cargo, and specialised mission operations.



Through collaboration with Dynamatic Technologies, Deutsche Aircraft is strengthening its supply chain resilience while reinforcing its commitment to the Indian aviation sector. The D328eco is poised to revolutionise regional air travel worldwide, offering a spacious interior and exceptional performance capabilities, along with outstanding design and operational adaptability.

Last year, the two companies entered a strategic partnership to manufacture the rear fuselage of the D328eco. This collaboration aims to establish a robust ecosystem in India, creating valuable employment opportunities for the local industry.

Udayant Malhoutra, CEO and Managing Director of Dynamatic Technologies Limited, stated, "The D328eco, with its cutting-edge fuel efficiency and reduced carbon footprint, will be the preferred choice for regional airliners worldwide. Dynamatic Technologies, responsible for manufacturing the rear fuselage, showcases India's aerospace capabilities on a global scale through world-class engineering and precision manufacturing. This initiative has strengthened the 'Make in India' movement, generating high-skilled jobs and fostering a thriving aerospace ecosystem in the country."

Nico Neumann, Co-CEO of Deutsche Aircraft, remarked, "The D328eco is a testament to the power of global collaboration in advancing sustainable aviation. Our partnership with Dynamatic Technologies highlights India's growing role in high-end aerospace manufacturing. By leveraging world-class engineering and precision manufacturing in India, we are not only reducing the carbon footprint of regional aviation, but also contributing to the 'Make in India' initiative - creating high-skilled jobs and strengthening the country's aerospace ecosystem." ■

Adani Enterprises Ltd announces 9M FY25 results

Adani Enterprises Ltd (AEL), the flagship company of the Adani Group, has announced robust operational and financial performance for the nine months ended December 31, 2024. AEL's nine-month results represent strength and consistency of its incubating businesses, which have delivered robust operational and financial performance quarter after quarter. Strong growth in the emerging core infra businesses led by Adani New Industries (Green Hydrogen Ecosystem) and Adani Airports reflect the scale of opportunities of their respective sectors.

During nine-months ended December 31, 2024, AEL has recorded its highest consolidated nine-months EBITDA of ₹12,377 crore with contribution of 62% from incubating businesses.

"This exceptional nine-month performance underscores Adani Enterprises Ltd.'s position as a powerhouse for nurturing transformative infrastructure and energy transition sectors," said Gautam Adani, Chairman of the Adani Group. "Strong growth across our incubating businesses, from energy transition to logistics and adjacencies, highlights the immense potential of our core plus portfolio. These results are a testament to our focus on execution, operational excellence, innovation and sustainability as we continue to set new benchmarks across sectors. With each milestone, AEL reaffirms its commitment to creating long-term value for its stakeholders while contributing to India's progress and global competitiveness."

Adani Airports do well

The group reported that the Navi Mumbai Airport successfully conducted first commercial flight validation test and now a step closer to become operational. Navi Mumbai International Airport is slated for inauguration on April 17, 2025. The airport, located in Ulwe, Raigad district, will open in phases, starting with Terminal 1 (T1) and the first of its two planned runways. Commercial



operations are expected to commence in May 2025, with flights increasing significantly by the winter schedule in October. Mumbai Airport becomes first in India and third in world to receive prestigious Level 5 Accreditation from ACI for exemplary standards in customer experience.

As regards airport growth, Adani said that during the quarter 14 new routes, four new airlines and nine new flights were added.

The total income from Adani Airports jumped from ₹5,866 million in FY24 (nine months) to ₹7,393 for FY25, with the year-on-year change being 26%. The passenger movement increased from 65.4 million in FY24 (nine months) to 69.7 million in FY25 with a percentage change of 7%. The ATMs (air traffic movements) increased from 440.7 (000) in FY24 to 466 (000) in FY 25 and the cargo carried went up from 7.4 lakh metric tonnes to 8.2 lakh metric tonnes. ■

India's first Drone Centres of Excellence launched in Odisha

India's first-ever Drone Centres of Excellence (CoEs) under the Sansad Adarsh Gram Yojana (SAGY) was launched recently. The centre is located in the Gram Panchayats of Sagada and Bhatangpadar in Odisha's Kalahandi district, and these centers represent a significant leap toward empowering tribal youth and women through advanced skill development in drone technology. This is the first time that such centers of excellence have been launched under the flagship scheme by the Central Government, launched by Prime Minister Narendra Modi in 2014 to drive inclusive rural development.

The initiative has been adopted by MP Sujeet Kumar under the SAGY initiative - Sagada and Bhatangpadar villages by allocating ₹10 lakhs from his MPLADS fund. The centres also create pathways for employment by facilitating placements through IG Drones' expertise and partnerships with the National Skill Development Corporation (NSDC).

Reflecting MP Kumar's focus on holistic development, the Drone CoEs place a strong emphasis on women's empowerment. By integrating Prime Minister Modi's "Drone Didis" initiative, these centres equip women to use drone technology in agriculture and other applications, fostering economic independence and breaking traditional gender barriers. This approach not only enhances their employability, but also positions them as key contributors to India's technological advancement.

In addition to empowering women, the centres address systemic unemployment in tribal regions by equipping youth with future-ready

skills. Aligned with the National Education Policy's focus on STEM education, the CoEs spark interest in technology among schoolchildren while bridging the rural-urban divide in access to advanced learning. By introducing drone technology to tribal regions, the initiative ensures equitable access to opportunities, in keeping with the government's "Sabka Saath, Sabka Vikas" agenda.

The establishment of these centres comes at a pivotal moment for India's drone industry. With applications in agriculture, logistics, defence, and infrastructure, the sector is not only driving innovation, but also creating significant employment opportunities. This initiative by MP Sujeet Kumar and IG Drones ensures that tribal youth are well-positioned to contribute to and benefit from the sector's growth, transforming Kalahandi into a hub of skill development and technological progress.

For IG Drones this partnership underscores their commitment to using technology for societal good. Based in Noida, IG Drones specialises in Made-in-India drone solutions powered by AI, and its collaboration with MP Kumar reflects its dedication to advancing India's technological self-reliance.

The Drone CoEs in Sagada and Bhatangpadar marks a new chapter in rural empowerment. By bridging technological divides, fostering gender inclusivity, and addressing unemployment, this initiative sets a benchmark for public-private partnerships in advancing national priorities. It serves as a model for leveraging innovation to uplift marginalised communities and positions India as a global leader in drone technology-driven development. ■

Indian Navy marches towards 'Aatmanirbharta'

With the push towards self-reliance in defence equipment and production, the Indian Navy is an example that has championed this cause well. The Navy today has built over 60 warships in Indian Shipyards. Indian Naval Aviation which forms an integral part of the Navy, is also steadfast on this path. To chart the future course and direction, the Navy has released a vision document 'Aatmanirbhar Indian Naval Aviation – Technological Roadmap 2047' at the show.

The Indian Navy is using the show as an opportunity to showcase the various types of naval aircraft being presently operated by Indian Navy as part of the static display. This will include MiG 29K 4th generation carrier borne fighter aircraft, Kamov 31 Airborne Early Warning helicopter, Sea King 42B and MH 60 R Anti-Submarine and Anti-Ship helicopters.

In addition, the Indian Navy is also displaying the Light Combat Aircraft (Navy) in the exhibition Area. The aircraft is designed by Aeronautical Design Agency (ADA) and manufactured by HAL. Successful landing of LCA (Navy) onboard the indigenous aircraft carrier INS Vikrant has propelled India into the league of a few nations with the capability of designing, developing, testing and manufacturing a deck borne fighter aircraft. Among the aircraft formations for the fly-past will be the all-Navy VARUNA formation in a 'V' denoting 'VICTORY', with P8I in the lead flanked by MiG 29K and Hawk 132 aircraft during the show.

The India Pavilion is also featuring the indigenous projects developed/being developed by the Indian Navy in partnership with industry and DRDO, such as missiles, air droppable Search & Rescue (SAR) Kit, Air Droppable Container (ADC) for logistic stores, carrier borne



systems for MiG 29K and Advance Light weight torpedo (ALWT).

Also, on display in the India Pavilion is the scaled model of Indian Navy's future deck borne fighter – the Twin Engine Deck Based Fighter (designed by ADA) mounted on a ski jump. The Navy is also going to hold a seminar for project future requirements of Indian naval aviation to industry, startups, DPSUs and academia called 'Transition to Aatmanirbhar Indian Naval Aviation - 2047 and its Associated Ecosystem' on 12th Feb 25. ■

RTX and its business units showcase their systems

RTX's three business units - Collins Aerospace, Pratt & Whitney, and Raytheon are showcasing their aerospace, engineering and integrated defence systems at the show. There are number of platforms that are powered by the company's businesses and this includes the F-35, F-16, C-390, C-295, MH-60R, and the indigenous LCA MK1.

RTX has produced a wide range of propulsion systems and products for global warfighters and aircraft programmes for decades, including systems for the latest 6th Gen aircraft in development. RTX products and solutions are found on the Indian Air Force, Indian Navy, and Indian Army's most modern platforms says the company.

The RTX powered platforms showcased at the show include:

F-35: Powered by Pratt & Whitney F135 engines, with products and systems from Collins Aerospace and Raytheon. F135 is a powerful engine that delivers unrivalled performance to the warfighter

C-390: RTX has significant content on most western transport aircraft in service today. Collins' high-performance solutions operational on the C-390 include aerostructures, crew seating, electric systems, avionics, oxygen systems, communication & navigation systems. The C-390 is also powered by the V2500-E5 from IAE - a multinational consortium of which Pratt & Whitney is a part. Delivering 31,000 pounds of reliable, efficient, and clean thrust, the V2500 enables the C-390 to conduct cargo and troop transport, aerial refuelling, and disaster relief missions.

C-17 Globemaster: Powered by Pratt & Whitney's F117 engines, which generate 40,400 pounds of thrust, with products and systems from Collins Aerospace. C-130J: Products and systems from Collins Aerospace.

C-295: Powered by twin Pratt & Whitney's PW127G engines, and with a suite of products from Collins Aerospace.



F-35

F-16: The F-16 has a suite of mission systems and defensive capabilities from Collins Aerospace and Raytheon, and Pratt & Whitney's F100 engine has powered the F-15 and F-16 since their respective first flights in the early 1970s. The F100 is the only 4th gen engine that offers operationally proven 5th generation technologies, such as thermal coatings, improved turbine cooling capabilities, and prognostics.

As India embarks on its next phase of modernisation and indigenisation, RTX feels that their products and solutions will provide the technological edge and mission-readiness required for the Indian Armed Forces' various next-generation programmes, such as the Advanced Medium Combat Aircraft (AMCA), the Indian Multi Role Helicopter (IMRH) and the Medium Transport Aircraft (MTA). These include propulsion (with the F100 and V2500), power systems, avionics, aerostructures, systems, and more - across Collins Aerospace, Pratt & Whitney, and Raytheon. ■

India joins Eurodrone Programme as newest OCCAR Observer State

As the Eurodrone development progresses steadily, interest in the programme continues to grow in Europe and around the world. Eurodrone is a 4-nation development programme of Germany, France, Italy and Spain, led by the Organisation for Joint Armament Cooperation (OCCAR).

India was recently granted Observer Status in the OCCAR-managed Eurodrone or Medium Altitude Long Endurance Remotely Piloted Aircraft Systems (MALE RPAS). Earlier in 2023, Japan had been accorded the observer status.

OCCAR-EA Director, Joachim Sucker, delivered the Letter of Approval (LoA) signed by the now former Chairman of the OCCAR Board, Lt Gen Frédéric Goetynck, to the Ambassador of India to Germany, His Excellency, Ajit Gupte at the Indian Embassy in Berlin.

Sucker expressed the BoS's appreciation and positive support for the GoJ's interest in OCCAR and highlighted that the BoS has taken note of India's willingness to explore opportunities to develop subjects of common interest and its recognition of the importance of cooperation between India and Europe. The OCCAR-EA Director congratulated India on committing to commence this special relationship and expressed his hope that this first step will lead to a long, fruitful and mutually beneficial cooperation.



Eurodrone for ISTAR missions

The Eurodrone is an unmanned system, designed to carry-out long endurance Intelligence, Surveillance, Target

Acquisition and Reconnaissance (ISTAR) missions developed by Airbus Defence & Space GmbH (prime contractor), Leonardo Spa, Dassault Aviation and Airbus Defence & Space SAU for Germany, France, Italy and Spain as well as other interested nations.

The Eurodrone will be operated worldwide to especially support ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) missions. OCCAR said that nowadays, most Intelligence, Surveillance and Reconnaissance (ISR) capabilities in the European Defence arena rely on non-European Union manufacturers, weakening Europe's strategic autonomy.

The MALE RPAS is an indispensable capability to facilitate international conflict prevention and crisis management during all phases of operation - especially in the field of Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR).

The MALE RPAS is the very first opportunity for the European industries to participate in a large Unmanned Aerial Vehicle (UAV) programme designed to be integrated into civil air traffic and to operate in non-segregated airspace. The development of MALE RPAS will secure European technological capabilities and sustainment in this ISTAR area and will foster the European Defence Technological and Industrial Base (EDTIB). ■



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Adani Defence Systems buying Air Works at ₹400 crore valuation

Adani Defence Systems & Technologies Ltd. (ADSTL) has signed a share purchase agreement to acquire 85.8% shareholding in Air Works, India's largest private sector MRO (maintenance repair and overhaul) company with the largest pan-India footprint. This strategic move marks a pivotal step in Adani's growth trajectory, laying the foundation for its expansion into the civil aviation services domain.

Air Works offers an end-to-end bouquet of aviation services spanning line maintenance, heavy checks, interior refurbishment, painting, redelivery checks, avionics as well as asset management services to its Indian and global customers. The company undertakes base maintenance for narrow-body and turboprop aircraft, as well as rotary aircraft from its facilities at Hosur, Mumbai, and Kochi and with regulatory approvals from civil aviation authorities of more than 20 countries.

In addition to being a market leader in civil aviation, Air Works has built significant capabilities in defence MRO, executing projects for key platforms of Indian Navy and Indian Air Force.

"The Indian aviation industry stands at a transformative juncture, now the third largest globally and on track to induct over 1,500 aircrafts in the coming years," said Jeet Adani, Director, Adani Airports. "This growth aligns seamlessly with the Government's vision to connect every corner of our nation, creating unprecedented opportunities in aviation services. For us, creating a presence in the MRO sector is more than just a strategic step - it's a commitment to building an integrated aviation services ecosystem that strengthens the backbone of India's aviation infrastructure. Together, we are excited to play a pivotal role in shaping the future of India's skies."

To offer full spectrum of MRO

This landmark acquisition represents

a pivotal step in Adani Defence & Aerospace's mission to strengthen India's MRO capabilities," said Ashish Rajvanshi, CEO, Adani Defence & Aerospace. "Our vision is to deliver a full-spectrum MRO offering - spanning line, base, component, and engine maintenance - to meet the needs of both commercial and defence aviation sectors. In a time when *Aatmanirbharta* in defence is a national imperative, we stand fully committed to scaling domestic capabilities to serve both our armed forces and the broader aviation sector. This is our pledge to the nation - to build capabilities that secure our skies and strengthen our sovereignty."

Air Works offers a large suite of aviation services including aircraft line maintenance, heavy checks, interior refurbishment, painting, redelivery checks, avionics, and asset management. The company operates base maintenance facilities for narrowbody and turboprop aircraft, as well as rotary aircraft, in Hosur, Mumbai, and Kochi. Air Works holds regulatory approvals for aircraft maintenance from civil aviation authorities in more than 20 countries.

D Anand Bhaskar, MD & CEO of Air Works Group, said, "Air Works has played a fundamental and vital role in the development of Indian civil aviation since 1951, including grooming an exceptional set of people that have evolved in an entire industry (MRO) who are certified and equipped to maintain the airworthiness of a host of aircraft that span generations - from piston-engined to those with propellers and even jet engines."

He further added, "Air Works has proven capabilities and an impeccable legacy, having successfully delivered several India-first and industry-first projects. Complementing Air Works' expertise and services portfolio with the Adani Group's ambitious presence in both Defence and Civil aviation will create an unassailable entity that possesses a comprehensive suite of offerings, and actively champions nation-

building and self-reliance. 2024 has been an incredible year for Air Works and as we step into our 75th Anniversary year, the time is right for us to address emerging opportunities with greater agility and scale, given that the acquisition will spur the realisation of synergies across several areas leading to speedier execution, faster collaboration, business growth and market dominance as a result of creating capabilities and capacities that are oriented towards taking India to the world."

From the first P-8I aircraft Phase 32 checks for Indian Navy, to maintaining Indian Air Force's 737 VVIP aircraft, and re-designing and re-configuring IAF's Mi-17 V5 transport helicopters into a VVIP configuration, Air Works has developed extensive indigenous operational capabilities for key defence and civil aviation platforms. The Group also undertakes base maintenance for A320, B737, and ATR 42/72 fleet of aircraft, from its EASA and DGCA[1] certified facilities at Mumbai, Delhi, Hosur and Kochi. Its legacy of 75 years has seen it consistently maintaining about 40+ different business aircraft platforms including fixed-wing and rotary-wing machines from Bell Textron, Leonardo, Gulfstream, Embraer, Dassault, Bombardier, as well as the Hawker and Beechcraft series, making us a leading player in the Business Aviation MRO segment.

Strategic partnership with Spanish company

In another significant development that undoubtedly strengthens the country's defence MRO capabilities, Air Works Group recently entered into a strategic partnership with Ingeniería Semasa, Spain to help bring its component maintenance expertise to Group's established aircraft maintenance operations, enabling it to provide comprehensive support to its clients. The partnership will address the growing demand for high-quality, reliable MRO solutions across Europe, India, and other international markets. Specifically, the collaboration will allow the creation of Components Repair Capabilities for Airbus products (C295, MRTT...) with the quality standards of Europe under EASA approval.

Air Works Group continues to provide Avionics upgrades for civil and defence platforms via SA Air Works (JV with Scandinavian Avionics), and aircraft finishing services (Painting and Cabin & Interior solutions), aside from other MRO-related offerings such as CAMO and Maintenance Training through Air Works Aviation Academy.

With operations spanning 35 cities and a workforce of over 1,300 personnel, Air Works brings extensive expertise in servicing both fixed-wing and rotary-wing aircraft. The acquisition enhances Adani's capabilities in the defence MRO sector, solidifying its position in India's airborne defence ecosystem. ■





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PBS TJ200

Thrust **2,280 N**
Weight **28 kg**
Outer Ø **246 mm**



PBS TJ150

Thrust **1,500 N**
Weight **17.10 kg**
Outer Ø **272 mm**



PBS TJ100

Thrust **1,100 - 1,250 N**
Weight **17.60 kg**
Outer Ø **272 mm**



PBS TJ80-120

Thrust **900 - 1,200 N**
Weight **12.80 kg**
Outer Ø **235 mm**



PBS TJ40

Thrust **395 - 425 N**
Weight **3.40 - 3.80 kg**
Outer Ø **147 mm**

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