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CIVIL

AIR INDIA-VISTARA INITIATE THE MERGER PROCESS

MUCH MORE...

ELECTRIC IS COMING

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COVER IMAGE

A revolution in Air Mobility is taking place and Joby's fully-electric pre-production prototype aircraft is a major player in the creation of an electric aerial ridesharing service.

*(**Cover Photo**: Joby Aviation)*

COVER DESIGN BY: *SP's Team*

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SPECIAL
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Aerospace Media Awards — Asia
11th February 2020 – Singapore

NEXT ISSUE: *Aviation Industry Support for SAF*

> The Aviation landscape promises to drastically change how we move around in the near future. Transportation concepts like AAM, Urban Mobility based on disruptive technologies like eVTOL, Electric and Solar propulsion are getting ready to take off which will reshape the aviation market place and redefine air transport for the traveller.

THE EVTOL VEHICLES AND AAM ARE PUSHING THE DRIVE WITH various companies and disruptive technologies coming up. One such company, Joby Aviation is aiming to launch commercial service in 2025. What is more interesting is that it is also marking it's presence in the defence sector, becoming the first electric air taxis to be stationed at a US military base. A report on Joby Aviation's aircraft programme and updates by Ayushee Chaudhary is in this issue of the magazine.

eVTOL aircraft and other such major developments in Aviation will be on display at the EBACE2023 show that is ready to take off. Co-hosted by EBAA and NBAA, the annual meeting place for the European business aviation industry will have the upcoming as well as the most established aircraft with a key focus on innovation and sustainability. A preview report of the show is also included in this edition. At a global level on the business aviation side, fluctuating trends have been observed keeping the stakeholders on the edge. Europe has specifically been an interesting market. We take a look at how April turned out for business aviation in Europe.

Indian Aviation industry is almost at the crossroads of the accelerator being pressed by the industry as well as the government. In a recent push to the nation's aviation market, the Civil Aviation Ministry initiated the fifth round of UDAN to further enhance the connectivity to remote and regional areas of the country. A story including the key features of the scheme is part of this edition. On the industrial side, a major development has been the Air India-Vistara merger process being initiated. The stakeholders have approached the CCI to seek its approval for the merger.

On the defence side too, India is witnessing significant activities on a global level. Defence Minister Rajnath Singh addressed SCO Defence Ministers in New Delhi, calling upon the member states to collectively work towards eliminating terrorism in all its forms and fix accountability on those who aid or fund such activities. A report highlighting points from the address is included in the edition.

There is a report on the visit of US Air Secretary Frank Kendall to India, who has proposed a landmark Air Information Sharing Agreement with India. The agreement will encompass a wide range of air information like weather data, flight plans and other relevant information that could assist in air traffic management and situational awareness of the sky and also facilitate the transfer of other advanced and sensitive technologies to India.

The Indian Air Force has emerged as a reliable first responder for undertaking aid and rescue during any calamity under HADR operations. Air Vice Marshal Sanjay Bhatnagar (Retd) draws on IAF's strengths especially through Operation 'Kaveri' launched by India to evacuate stranded Indian nationals from crisis ridden Sudan that has been witnessing fierce fighting.

In noteworthy developments, President Murmu took to the sky for a Sukhoi Su-30 MKI sortie, becoming the third President, and second woman President, to participate in such a flight. Also, Air Chief Marshal V.R. Chaudhari flew a sortie in the Pilatus PC-7 MkII to mark the completion of the aircraft's over two lakh flying hours.

All this and more in this issue of *SP's Aviation*. Welcome aboard and we wish you many happy landings!

JAYANT BARANWAL
PUBLISHER & EDITOR-IN-CHIEF

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THE PRESIDENT OF INDIA, DROUPADI MURMU IN A SUKHOI SU-30 MKI FIGHTER AIRCRAFT AT THE TEZPUR AIR FORCE STATION, IN ASSAM ON APRIL 8, 2023

PRESIDENT MURMU TAKES TO THE SKY

President Murmu's sortie aboard a Sukhoi Su-30 MKI fighter jet made her the third President, and second woman President, to participate in such a fighter sortie

By SP'S STAFF CORRESPONDENT

ON APRIL 8, 2023, THE PRESIDENT OF INDIA, DROUPADI Murmu, embarked on a sortie aboard a Sukhoi Su-30 MKI fighter aircraft at the Tezpur Air Force Station in Assam. In her role as Supreme Commander of the Indian Armed Forces, the President took to the skies for a duration of roughly 30 minutes, surveying the Brahmaputra and Tezpur valley while taking in a view of the Himalayas, before returning to the Air Force Station.

The aircraft was piloted by Group Captain Naveen Kumar, the Commanding Officer of the 106 Squadron. Throughout the duration of the sortie, the aircraft maintained an altitude of roughly two kilometers above sea level, reaching speeds of approximately 800 kilometers per hour. The President was also provided with a comprehensive briefing on the operational capabilities of the aircraft and the Indian Air Force (IAF).

After her sortie, the President shared her feelings by writing a brief note in the visitor's book, "It was an exhilarating experience for me to fly in the mighty Sukhoi Su-30 MKI fighter aircraft of the Indian Air Force. It is a matter of pride that India's defence capabilities have expanded immensely to cover all the frontiers of land, air and sea. I congratulate the Indian Air Force and the entire team of Air Force Station Tezpur for organising this sortie."

The President's sortie in the Sukhoi Su-30 MKI fighter aircraft is a part of her efforts to engage with the armed forces, as the Supreme Commander of the Indian Armed Forces. In March 2023, the President visited INS Vikrant and interacted with officers and sailors on board of the indigenously built aircraft.

During her three-day trip to Assam, President Murmu made her way to Tezpur from Guwahati, where she was greeted at the

PHOTOGRAPHS: PIB

PRESIDENT DROUPADI MURMU TAKES-OFF ON A HISTORIC SORTIE IN A SUKHOI SU-30 MKI

air base by Air Marshal S.P. Dharkar, Governor Gulab Chand Kataria, and Chief Minister Himanta Biswa Sarma. Following her landing in Tezpur, the President was honored with a guard of honor by IAF personnel, which was followed by an official briefing regarding her forthcoming flight aboard the Sukhoi aircraft.

President Murmu's sortie aboard a fighter jet made her the third President, and second woman President, to participate in such a flight. Prior to her, former Presidents Dr A.P.J. Abdul Kalam and Pratibha Patil had taken similar rides from the Pune air base. In a similar streak, in January of this year, Defence Minister Nirmala Sitharaman had become the second Indian woman leader to participate in a sortie aboard a Sukhoi-30 fighter jet, embarking on a 45-minute ride from the Jodhpur Air Force station. Then Defence Minister George Fernandes had become the first high-ranking official to undertake a fighter sortie in 2003. Three years later, former President Dr A.P.J. Abdul Kalam became the first Indian President to participate in such a flight. Former President Pratibha Patil, in turn, became the first woman and oldest person to take part in a fighter jet ride in 2009. Other leaders who took part in similar flights include junior Defence Minister Rao Inderjit Singh, BJP leader Rajiv Pratap Rudy, and Union Minister Kiren Rijiju.

The President took to the skies for a duration of roughly 30 minutes, surveying the Brahmaputra and Tezpur valley while taking in a view of the Himalayas, before returning to the Air Force Station.

The Sukhoi Su-30 MKI is a high-performance fighter aircraft designed by Russia's Sukhoi and manufactured by India's Hindustan Aeronautics Limited under license. As a versatile twin-seater, the aircraft is capable of conducting air superiority, ground attack, and reconnaissance missions with ease. It is outfitted with cutting-edge avionics and weapons systems, making it a powerful asset in the Indian Air Force's fleet. First inducted in 2002, the Sukhoi Su-30 MKI has the capability to engage in air-to-air, air-to-ground, and air-to-sea combat missions. Its advanced avionics, integrated electronic warfare suite, and long-range capabilities make it a versatile platform for strategic operations.

The President's recent sortie aboard the Sukhoi reinforces the aircraft's advanced capabilities and highlights its critical role in the IAF. The President's sortie also aimed at increasing public awareness of the aircraft and the IAF's capabilities, as well as the government's ongoing efforts to strengthen national security.

India has made significant strides in modernising its Armed Forces in recent years, with an emphasis on enhancing their capabilities. The induction of advanced aircraft such as the Sukhoi Su-30 MKI and the Rafale fighter jets, in addition to other modern equipment, has bolstered the Indian Armed Forces' combat capabilities considerably. SP

CHIEF OF THE AIR STAFF, AIR CHIEF MARSHAL V.R. CHAUDHARI FLEW A SORTIE IN PILATUS PC-7 MKII AT AIR FORCE ACADEMY, DUNDIGAL

IAF CHIEF FLIES IN PILATUS PC-7

Chief of the Air Staff, Air Chief Marshal V.R. Chaudhari flew a sortie in the Pilatus PC-7 MkII to mark the completion of over two lakh flying hours of the aircraft

By SP'S STAFF CORRESPONDENT

PHOTOGRAPHS: IAF_MCC / TWITTER

ON APRIL 12, 2023, CHIEF OF THE AIR STAFF (CAS), AIR CHIEF Marshal V.R. Chaudhari flew a sortie in the Pilatus PC-7 MkII aircraft at Air Force Academy, Dundigal, Hyderabad. The sortie was performed to commemorate the completion of over two lakh flying hours in a decade of operations by the Pilatus PC-7 MkII.

The Indian Air Force tweeted about the occasion and also shared pictures of the IAF chief aboard the aircraft.

The deal for 75 PC-7 MkII turboprop trainer aircraft from Swiss firm Pilatus was signed on May 24 in 2012 with the first aircraft being delivered in 2013. In a deal worth $523 million (approximately ₹2,800 crore), all the 75 aircraft were

PILATUS PC-7 MKII IS USED FOR AB-INITIO TRAINING OF FLIGHT CADETS AT THE AIR FORCE ACADEMY AND BEING USED FOR BASIC TRAINING OF ALL PILOTS OF THE INDIAN NAVY AND THE COAST GUARD

to be manufactured in Switzerland, with a 30 per cent offset commitment to Indian industry. The contract also included an integrated ground-based training system and a comprehensive logistics support package. India had worked on an options clause allowing it purchase 30 more PC-7 MkII aircraft within three years under identical techno-commercial terms.

This was the Swiss company's single largest contract ever at that time. This was also the largest contract for the Indian defence establishment for acquiring an aircraft through commercial route in open competition; despite the dictates of India's labyrinthine and arduous Defence Procurement Policy (DPP) at the time. The following year, in July 2013, Pilatus Aircraft Ltd had also announced the first Indian Air Force basic flight training course using the PC-7 MkII aircraft at the Indian Air Force (IAF) Academy at Dundigal, training over 80 cadets. The details of the entire deal, right from inception to implementation, were reported extensively in the June 2012 Issue of *SP's Aviation* (SP's Aviation 6/2012, https://www.sps-aviation.com/story/?id=983&h=Its-signed-now).

In a deal worth $523 million (approximately ₹2,800 crore) all the 75 aircraft were to be manufactured in Switzerland, with a 30 per cent offset commitment to Indian industry

The aircraft flown by the Air Chief is installed with Pratt & Whitney manufactured 25-C series Turboprop engines. Pilatus PC-7 MkII is a turboprop, tandem seating, basic trainer aircraft of the IAF. It is equipped with a glass cockpit, and modern navigation aids and is used for ab-initio training of flight cadets at the Air Force Academy and being used for basic training of all pilots of the Indian Navy and the Coast Guard. The last and final 75th aircraft was delivered by the firm in 2018.

"The Indian Air Force joined more than 30 other countries to modernise its training pipeline with the most modern, capable and cost-effective system for basic flying training on the market today. The decision to select the PC-7 MkII training system was made after a thorough evaluation by the Indian Air Force, which looked at all available options. Pilatus Aircraft Ltd views this contract for the Indian Air Force as a major success and believes it will encourage other forces to take a close look at our pilot training solution," Oscar J. Schwenk, CEO of Pilatus Aircraft had said at the time of the deal. SP

MANY POPULAR DESTINATIONS IN EUROPE ARE SERVED BY PRIVATE JET FLIGHTS

MIXED TRENDS IN 2023

In mid-April, Bizjet activity slipped back fast in Europe while seeing some growth towards the end of the month

By AYUSHEE CHAUDHARY

PHOTOGRAPH: VISTA JET

ANALYSING THE ACTIVITIES OF BUSINESS JETS THROUGHOUT April, WingX Advance charted the business aviation performance from all across the world. Picking up from the WingX data and ahead of the European Business Aviation Convention and Exhibition (EBACE) 2023, we take a look at how April turned out for business aviation in Europe.

With the gap closing between commercial airline activity in 2023 and 2019, business aviation trends are moving in the other direction, with just under 10 per cent gain in April 2023 versus April 2019. In the US, fractional operators are still hitting record levels of activity. In Europe, bizjet flights out of Germany and Austria are now trending well below 2019 levels, and activity in France is now flat compared to four years ago. Other countries inside and outside Europe, including Spain, Italy, Turkey, UAE, Israel, are still seeing strong gains in bizjet activity compared to 2019.

FARNBOROUGH AIRPORT IN UK IS ONE OF THE BUSIEST BUSINESS AVIATION AIRPORT IN EUROPE

In Week 16 Global business jet activity fell two per cent compared to Week 15, six per cent fewer than the same dates in 2022. 1st – 24th April, business jet and turboprop sectors are seven per cent below last year, nine per cent ahead of 2019. Over the same period, scheduled airlines flew 1.6 million sectors, 16 per cent more than 2022, although 14 per cent below 2019. Focussing on business jets, sectors are down nine per cent compared to last April, 13 per cent ahead of 2019.

In Week 16 European bizjet sectors grew nine per cent compared to Week 15, two per cent below the same dates last year. In the last four weeks activity has fallen six per cent behind the same dates last year. Despite departures falling 11 per cent compared to last April, Le Bourget is the busiest airport in the region, departures are up three per cent compared to 2019. Elsewhere, departures from Nice are up three per cent compared to last year, 12 per cent ahead of 2019. Geneva is seeing a 12 per cent drop compared to last year and Milan Linate is up 20 per cent.

The only aircraft segments this month to see growth compared to last April are Ultra-Long-Range jets, flights of these aircraft types are up two per cent compared to last year, up five per cent compared to 2019. Bizliners are still way behind pre-pandemic activity levels, sectors down 61 per cent compared to April 2019, down 11 per cent compared to last year. Light jets are the busiest aircraft segment in Europe this month, although departures are down eight per cent compared to last year, eight per cent ahead of 2019.

In mid-April, Bizjet activity slipped back fast in Europe. Bizjet flight activity in Germany has slipped back an eye-watering 27 per cent in April 2023 compared to April 2019. Other countries in Europe are also seeing big declines, with the overall region now below the 2019 waterline.

In Week 15 there were 9,553 bizjet departures from Europe, eight per cent more than week 14, four per cent fewer than the same dates in 2022. In the last four weeks the trend has been eight per cent below the same dates in 2022.

By April 20, European bizjet activity was down seven per cent compared to the same period last year, three per cent below the same period in 2019. Exclude Russia, and the trend is seven per cent below last year, on par with 2019. Part 135 & 91K bizjet sectors this month are 11 per cent down compared to last year, one per cent more than in 2019. Part 91 activity is five per cent ahead of last April, 12 per cent behind 2019.

In Europe, bizjet flights out of Germany and Austria are now trending well below 2019 levels, according to WingX Advance

Le Bourget stood to be the busiest bizjet airport in Europe by mid April, activity in decline compared to pre-pandemic April as well as last year. Sectors are down 14 per cent compared to April 2022. Nice is well ahead of last year, departures are up by 14 per cent compared to April 2022, 20 per cent per cent ahead of 2019.

Most bizjet flights in April had been on Aircraft Management fleets, departures down 18 per cent per cent com-

PHOTOGRAPH: FARNBOROUGHAIRPORT.COM

ZURICH AIRPORT IS AMONGST THE MOST USED AIRPORT BY BUSINESS AIRCRAFT

pared to 2019, 13 per cent per cent down on last April. Branded Charter flights are down seven per cent per cent compared to April last year, although four per cent ahead of 2019. Private and Fractional fleets are seeing double digit growth compared to 2019, one per cent and six per cent compared to last year retrospectively.

There is always significantly less flying during the Easter holidays and as that came earlier this year, the trends were suppressed compared to 2022 and 2019. That said, the deficits compared to 2022 were widening into Q2-2023, reflecting a weakening economic environment and sensitivity to the cost of flying private.

Global bizjet sectors in Week 14, April 3rd through April 9th, amounted to 65,681 sectors, five per cent fewer than the previous week, 16 per cent fewer than the week last year. European bizjet activity this month is actually below 2019 levels, but this is largely due to an earlier Easter holiday this year. In the last four weeks the global trend for business jet activity has been at 10 per cent per cent below the same dates in 2022. In the last four weeks worldwide charter and fractional activity is trending one per cent, behind the same dates in 2022, but still up 24 per cent vs comparable 2019. Scheduled airline activity continues to recover but still trends 16 per cent below April 2019.

In Week 14 there were 8,880 bizjet departures from Europe, eight per cent fewer than Week 13, 15 per cent fewer than the same dates in 2022. In the last four weeks the trend has been seven per cent below the same dates in 2022. The downward trend has clearly been exaggerated by the much earlier Easter holidays this year compared to 2019 and 2022.

In the first seven days of April European bizjet departures were down four per cent compared to last year, four per cent ahead of 2019. France was the top market, sectors down five per cent compared to the same dates in 2022, three per cent ahead of 2019. The United Kingdom and Germany complete the top three markets, both seeing declines compared to last year. Departures from Le Bourget are 10 per cent below comparable 2022, 12 per cent ahead of 2019. Nice was the only airport in the top five to see bizjet departures above last year.

In week 13, In Europe, 9,702 bizjet sectors were flown, one per cent more than in week 12, four per cent fewer than the same dates in 2022. In the last four weeks activity is five per cent below the same dates in 2022.

Business jet departures from Europe in the first quarter of this year were eight per cent down compared to Q1 2022, five per cent ahead of comparable 2019. Excluding Russia and the Q1 trend was five per cent down compared to 2022, nine per cent ahead of 2019. Light jets were the busiest aircraft segment in Q1 of 2023, departures down 10 per cent compared to 2022, although still six per cent ahead of comparable 2019. Across the aircraft segments demand was mixed in Q1, Heavy jets, entry level jets and Bizliner departures were behind 2019, although Super Light, Very Light and Midsize jets saw double digit growth compared to 2019. SP

By April 20, European bizjet activity was down seven per cent compared to the same period last year

PHOTOGRAPH: FLUGHAFEN ZÜRICH AG

EBACE2023 IS READY ON THE RUNWAY TO TAKE OFF

Co-hosted by EBAA and NBAA, the annual meeting place for the European business aviation industry, EBACE2023 is ready to be held from May 23-25, in Geneva.

By **STAFF CORRESPONDENT**

DASSAULT FALCON WILL SHOWCASE ITS LATEST OFFERINGS AT EBACE2023. FALCON 10X IS THE LATEST BIRD FROM DASSAULT AVIATION TAKING TO THE SKIES.

PHOTOGRAPH: DASSAULT AVIATION

GLIMPSES FROM EARLIER EBACE SHOWS: (TOP) LEADING BUSINESS AIRCRAFT FROM ALL OVER THE WORLD ON DISPLAY; (ABOVE LEFT) EHANG216 ON DISPLAY AT EBACE2022; (ABOVE RIGHT) PAL-V ON DISPLAY IN THE AAM AREA OF EBACE2022.

ONE OF THE LARGEST BUSINESS AVIATION SHOWS IS BACK again to outline a roadmap for the industry. The European Business Aviation Convention and Exhibition (EBACE) is returning with its 2023 edition with the promise to shape the future of on-demand aviation. Touted as Europe's premier on-demand aircraft and advanced air mobility event, it is set to be held at the Palexpo in Geneva, Switzerland, and the Geneva International Airport from May 23 to 25, 2023.

Co-hosted by EBAA and NBAA, EBACE is the annual meeting place for the European business aviation community and the continent's premier event showcasing on-demand aircraft, advanced air mobility (AAM) vehicles and the multitude of services available to operators. EBACE2023 will bring together business leaders, government officials, manufacturers, flight department personnel and all manner of people involved in nearly every aspect of business aviation not just from Europe but the entire world.

Following the last editions' successful key highlights of sustainability and innovation, this edition is set to add more flavour to the same.

REASONS TO NOT MISS EBACE2023

Here are some of the reasons that the organisers believe one must attend the event for:

- To be a part of the discussion on sustainability efforts and ideas that are accelerating the industry to carbon net zero by 2050.
- To engage with companies that are the catalyst for future flight, with high-tech small aircraft through cutting-edge intercontinental jets.
- To view the latest innovations in advanced air mobility and electric propulsion.
- To visit the top aircraft manufacturers, touch state-of-the-art avionics, see the newest engines and learn more about new advanced technologies, products and services.
- To make face-to-face connections with clients, prospects and talent looking to fill open positions at your company.
- To hear from the world's leading experts in aviation and business and discuss the big ideas that will shape the future of our industry.

PHOTOGRAPHS: EBACE

(TOP) EBACE2023 WILL MARK THE DEBUT OF VOLTAERO'S CASSIO 330 HYBRID-ELECTRIC DEMONSTRATOR; (ABOVE LEFT) AIRCAR ENABLES SUSTAINABLE AND HIGH-SPEED URBAN AIR MOBILITY FOR INTRA-CITY COMMUTERS; (ABOVE RIGHT) FIRST DOUBLE HANDED FLIGHT FOR THE SOLARSTRATOS AIRCRAFT.

PHOTOGRAPHS: VOLTAERO, SOLARSTRATOS, AIRCAR CORP

EBACE2023'S PEEK INTO THE FUTURE WITH THE INNOVATION PAVILION

Some of business aviation's most forward-looking companies and executives will be on hand to talk about what the future holds for the industry at the EBACE2023. As of May 3rd, seven companies had signed up to exhibit as part of the Innovation Pavilion and showcase their vision for business aviation's future. These include Lilium, Honeywell, SolarStratos, AirCar Corp, VoltAero SAS, ARC Aerosystems, Ascendance. EBACE2023 also will feature an education session examining what's coming down the road for the industry, including the flight plan for eVTOLs directly from electric vertical takeoff and landing aircraft test pilots as they discuss the flight test stage of the certification process; the new horizon for vertical lift; key insights by examining the AAM market from five different perspectives: operational, financial, regulatory, infrastructure and societal as well as about the AAM Certification in 2025 from the point of view of the OEMs as to where they are in their development process.

There will also be a career day, giving exclusive opportunities for the next generations and young professionals to meet and learn from the best in the world. Keeping the next generation in mind has been a constant highlight at all EBACE editions. For instance one of the keynote speakers at this edition would be Mack Rutherford, who in 2022 became the youngest person to fly solo around the world at age 17. His five-month, 52-country, 30,000-mile around-the-globe journey commenced in Sofia, Bulgaria in March 2022.

THE EBACE AIRCRAFT DISPLAY

A wide variety of the latest business aircraft at EBACE2023 is also expected to be a part of the show as an attractive highlight. Approximately 50 of the latest and most advanced business aircraft on the market will be on display throughout the upcoming EBACE2023.

The EBACE Aircraft Display at Geneva International Airport, adjacent to EBACE host facility Palexpo, will include the latest offerings from renowned European manufacturers such as Airbus, Dassault Falcon Jet and Pilatus, as well as global aircraft manufacturers including Boeing Business Jets, Cirrus, Gulfstream and Textron Aviation. This year's display will also

Digital flight control climbs higher on the Falcon 10X, with more fighter jet technologies for smooth, safe flying. A smart throttle. A Recovery Button. And simplified, more intuitive, eyes-up interfaces. All purely superior.
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DASSAULT AVIATION

ATEA, A LOW NOISE, LOW CARBON EMISSIONS VTOL AIRCRAFT BY ASCENDANCE IS BASED ON UNIQUE HYBRID PROPULSION TECHNOLOGY

include the EBACE debut of VoltAero's Cassio 330 hybrid-electric demonstrator, one of many new and upcoming AAM vehicles poised to revolutionise business aviation's ability to serve urban environments quickly, safely and sustainably.

Also new this year is a dedicated raised viewing and photography platform, offering an impressive view of the entire display for attendees to enjoy and post images on social media.

BUILDING A SUSTAINABLE EBACE2023

The EBACE Business Aviation Sustainability Summit, a multi-day event highlighting the technologies and business models the industry is developing to meet that zero-emissions goal will be featured in this edition of EBACE as well. Other EBACE sessions also aim to help attendees operate in more sustainable ways throughout their companies.

Business aviation has continued to emphasise sustainability and be a pioneer in aviation sustainability. The 2009 Business Aviation Commitment on Climate Change (BACCC) pledged that the industry would reduce carbon emissions 50 per cent by 2050, increase fuel efficiency two per cent per year from 2010 to 2020, and achieve carbon-neutral growth from 2020. The EBACE2023 Sustainability Summit aims to continue the industry's efforts to ensure a zero-carbon future for the sector. Participants will hear from leaders in next-generation propulsion systems, advanced air mobility, carbon-reduction advances and other sustainability initiatives. Some of the topics that would be covered as part of the sustainability summit include eVTOL (electric Vertical Take off & Landing) vehicles, Sustainable Aviation Fuel (SAF), carbon offsetting, AAM, certification processes, zero emissions aircraft and much more.

EXHIBITOR SUSTAINABILITY PLEDGE

In an effort to make EBACE2023 a more sustainable show, EBAA and NBAA are also inviting exhibitors to participate in the EBACE2023 Sustainability Pledge. The pledge is your commitment to producing a more sustainable trade show. Simple practices for managing waste, water and energy at the exhibits and making sustainable procurement decisions can have a big impact when multiplied across hundreds of exhibitors. By submitting an Exhibitor Sustainability Pledge, exhibitors pledge to follow sustainable exhibiting practices when producing their booth, as well as operating more sustainable while on-site.

Additionally, the EBACE Show Management – and its partners Palexpo and Freeman, EMEA – are making dedicated efforts to make EBACE2023 environmentally sustainable and they vouch of doing it through environmentally friendly practices and facilities, waste management, as well as inclusion, equality and other holistic pillars of sustainability throughout the show in various capacities. Some of the sustainability efforts that the EBACE2023 organisers are making include:

- As the second largest solar power plant in the country, Palexpo uses 100 per cent renewable energy sources: hydraulic and solar, thanks to the 30,000 square meters of photovoltaic panels on the roof of Palexpo.
- Landfilling is prohibited in Geneva. The heat from the local incineration plant is reused in the district heating system used by Palexpo.
- 78 per cent of waste is sorted on site for a recycling rate of 48 per cent, and re-sorted at the waste management plant located nine km away.
- Local supplies are favored when purchasing goods, particularly those bearing the GRTA Genève Région-Terre Avenir label.
- 100 per cent of unavoidable carbon emissions related to EBACE is offset.
- All waste would be collected single stream throughout the facility and sorted for recycling and compost materials off-site.
- Designated cardboard drop-off areas throughout the exhibit hall to maximise the cardboard effectively collected and recycled.
- Clings are collected in zero-waste pallets post-show for recycling.
- Energy consumption at the convention center and hotels is tracked to offset the carbon impact.
- Lighting levels are set to 50 per cent during move-in and move-out.
- Water refill stations are located throughout Palexpo.
- All the carbon offset projects supported are independently verified to assure emission reductions are occurring. SP

PHOTOGRAPH: ASCENDANCE

JOBY'S ALL-ELECTRIC PRE-PRODUCTION PROTOTYPE ON THE TARMAC AT THE COMPANY'S FACILITY IN MARINA, CALIFORNIA

ELECTRIC AIR TAXIS — THE FUTURE IS HERE!

PHOTOGRAPHS: JOBY AVIATION

Joby Aviation is aiming to launch commercial service of its eVTOL vehicles in 2025. It has also signed a contract with US Air Force for its electric vehicles to be stationed at US Military Base

By **AYUSHEE CHAUDHARY**

THE TRANSPORTATION AND AVIATION LANDSCAPE IS transforming and promises to drastically change how we move around in the near future. The electric vertical take-off and landing (eVTOL) vehicles and Advanced Air Mobility (AAM) are pushing the drive to change with various companies and disruptive technologies coming up.

Having started in 2007, Joby Aviation has been growing steadily through the years to eventually take-off for a smooth flight with its recent share of developments. Joby Aviation, a California-based company developing electric vertical take-off and landing (eVTOL) aircraft, recently announced the third extension of its Agility Prime contract with the United States Air Force (USAF). The $55 million contract extension brings the total potential value of Joby's current contract with the Air Force up to $131 million.

As part of the agreement, Joby will deliver and operate up to nine of its five-seat, low-noise, zero operating emissions aircraft, providing the Air Force and other federal agencies with

(LEFT) TWO US AIR FORCE PILOTS INSPECT JOBY'S EVTOL AIRCRAFT IN ADVANCE OF REMOTELY PILOTED FLIGHTS; (RIGHT) JOBY'S ALL-ELECTRIC, VERTICAL TAKE-OFF AND LANDING AIRCRAFT DURING A FLIGHT TEST.

firsthand experience of the performance of Joby's aircraft and its potential applications. The first two aircraft are expected to be delivered to Edwards Air Force Base, California, by early 2024, and will be used to demonstrate a range of potential logistics use cases, including cargo and passenger transportation. In doing so, they are expected to become the first electric air taxis to be stationed at a US military base.

The announcement comes days after four Air Force pilots, hosted by Joby at its manufacturing facility in Marina, California, became the first Air Force personnel to fly an eVTOL as sole pilot-in-command through the full flight envelope, including transition from vertical to wingborne flight. The flights, which were piloted remotely from the ground, came following completion of classroom-based and simulator training and are part of the Air Force's comprehensive approach to studying eVTOL aircraft and their potential future role.

"This next step of getting Air Force pilots trained and operating Joby aircraft at an Air Force installation is an incredibly important milestone for the programme, providing key insights to actual operations and use case validation for Advanced Air Mobility aircraft," said Lt Col Tom Meagher, AFWERX Prime Lead. "Additionally, the Joby operations provide an outstanding opportunity for accelerated learning with the other Department of Defense services and government agencies, including NASA (National Aeronautics and Space Administration) and the FAA (Federal Aviation Agency)."

Edwards Air Force Base is the second largest base in the Air Force and has been the site of hundreds of significant aviation "firsts." It's where Captain Chuck Yeager and the Bell X-1 first broke the sound barrier on October 14, 1947, the X-15 became the first winged aircraft to fly Mach 4, 5 and 6 and the space shuttle first landed on its initial return from earth's orbit.

Joby's partnership with the Department of Defense began more than five years ago and provides the company with access to testing facilities, early operational experience for government customers, as well as a partial offset to its research and development costs. Since the Agility Prime programme was established in 2020, the Army, Navy, Air Force and Marine Corps have all expressed active interest in the capabilities of eVTOL aircraft, with Joby announcing in August 2022 that the Marine Corps would participate in government-directed flight tests and use case exploration, including resupply, personnel transport, and emergency medical response applications.

Recently, Joby also announced the signing of a long-term agreement with Toyota Motor Corporation to supply key powertrain and actuation components for the production of the Company's aircraft. The agreement builds on the long-standing partnership between Joby and Toyota, which has seen the two companies collaborate on a wide variety of projects to support the production and assembly of the Joby aircraft, including on the design of Joby's pilot production line in Marina.

The components, designed by Joby and manufactured by Toyota, will be delivered to Joby's powertrain and electronics

manufacturing facility in San Carlos, California, before the finished assemblies are shipped to the Company's pilot production line in Marina for integration. Intended to prove out scalable tooling and processes at low volumes in advance of aircraft production at full scale, Joby's Marina facilities were designed with Toyota's help, leveraging decades of experience delivering reliable, high-quality cars at high volume.

Joby is also working with Toyota subsidiary Aero Asahi on an air taxi shuttle service for Toyota related passengers in Japan. Joby recently announced it has formally applied to the Japan Civil Aviation Bureau (JCAB) to validate its planned Federal Aviation Administration (FAA) aircraft type certification.Toyota is also Joby's largest external shareholder, having invested around $400 million in the Company.

Joby continues to maintain a strong balance sheet with $978 million in cash and short-term marketable securities at the end of the quarter, excluding approximately $180 million of net proceeds from its public offering. These additional funds are expected to be used to accelerate Joby's early production, enabling the business to capitalise on near-term revenue opportunities without impacting the funds available to carry the company through to type certification of its eVTOL aircraft, stated Joby as the key financial highlights from the quarter.

Key operating highlights from the quarter, apart from the US Air Force deal, were highlighted as follows by Joby:

- First company-conforming aircraft is nearing completion and is on track to roll out, as planned, in the first half of this year.
- A further three Area Specific Certification Plans (ASCPs) were submitted to the FAA, bringing the total to 11 of 13 ASCPs submitted. Two additional ASCPs were accepted by the FAA.
- Four US Air Force pilots learned to fly the Joby aircraft, becoming the first uniformed personnel to fly a eVTOL aircraft through transition as sole pilot-in-command.

Commenting on the results, JoeBen Bevirt, Founder and CEO, Joby, said: "Already in 2023 we've achieved significant milestones in production, testing and funding and I'm incredibly excited about our progress as we move towards our goal of launching commercial service in 2025.

Powered by six electric motors, Joby's aircraft takes off and lands vertically, expanding the flexibility with which it can serve almost any community. "Flying with us might feel more like getting into an SUV than boarding a plane," boasts Joby.

Joby began in 2009 with a small team of seven engineers. In 2012, Joby was selected to collaborate with NASA on several groundbreaking electric flight projects, including the X-57 and LEAPtech. After years of subscale testing and analysis, the subscale technology demonstrator flew for the first time, leading to a first full-scale demonstrator in 2017. In 2019, the pre-production prototype began a rigorous flight testing programme. The same year, Toyota became a strategic investor and has deployed dozens of engineers to work shoulder-to-shoulder with our team, lending their expertise on factory layout, manufacturing process development and high-volume production. In 2020, Joby became the first eVTOL company to receive airworthiness approval from the US Air Force. The same year, Joby expanded its partnership with Uber, agreeing to integrate the aerial ridesharing service into the Uber app, and vice versa across all US launch markets. At the same time Uber increased their investment in Joby, helping it acquire the Elevate division, bringing their software tools and commercial launch expertise in house. In 2020 itself, Joby signed the Stage 4 "G-1" certifications basis with the FAA, having received an initial Stage 2 G-1 from the agency in 2019. In 2021, Joby built a second pre-production prototype, completed our first FAA production conformity inspection and officially began the journey towards becoming the first certified eVTOL airline. In 2022, Joby received the Part 135 Air Carrier Certificate, which would allow Joby to operate a commercial air taxi service.

With all this in its bag and the new developments speeding up, Joby Aviation holds a promising future ahead ready to take up the market in both commercial as well as defence segments. SP

POWERED BY SIX ELECTRIC MOTORS, JOBY'S AIRCRAFT TAKES OFF AND LANDS VERTICALLY SERVING ALMOST ANY COMMUNITY. JOBY BECOMES FIRST EVTOL COMPANY TO SUBMIT AREA-SPECIFIC CERTIFICATION PLAN

DEFENCE MINISTER RAJNATH SINGH CHAIRED A DEFENCE MEETING OF SHANGHAI COOPERATION ORGANISATION (SCO), IN NEW DELHI ON APRIL 28, 2023

"NEED TO ROOT OUT TERRORISM COLLECTIVELY"

Defence Minister Rajnath Singh addresses SCO Defence Ministers in New Delhi

By **SP'S STAFF CORRESPONDENT**

DEFENCE MINISTER RAJNATH SINGH HAS CALLED UPON THE Shanghai Cooperation Organisation (SCO) member states to collectively work towards eliminating terrorism in all its forms and fix accountability on those who aid or fund such activities. Addressing the Defence Ministers of SCO member countries in New Delhi on April 28, 2023, Rajnath Singh asserted that any kind of terrorist act or support to it in any form is a major crime against humanity and peace & prosperity cannot coexist with this menace.

"If a nation shelters terrorists, it not only poses a threat to others, but for itself too. Radicalisation of youth is a cause of concern not only from the point of view of security, but it is also a major obstacle in the path of socio-economic progress of society. If we want to make the SCO a stronger & more credible international organisation, our top-most priority should be to effectively deal with terrorism," the Defence Minister said.

Rajnath Singh added that India envisions a robust framework of regional cooperation which mutually respects the sovereignty and territorial integrity of all member states by taking care of their legitimate interests. He asserted that New Delhi strives to further bolster trust and cooperation among the members of the SCO as it believes in maintaining peace and security based on the provisions of the Charter of the United Nations.

Sharing his insights on the vision to ensure collective prosperity, the Defence Minister called for concerted efforts by the SCO member states, so that the region, with limitless possibilities in today's multilateral world, shifts to the mindset of 'great gain from win-win paradigm' from 'great game of zero sum, win-lose paradigm'. "India has always followed the principle of 'Let us walk together & move forward together'. Every era has a zeitgeist (defining idea). The zeitgeist of the present era is 'Win-win cooperation for the great gain'," he said.

Rajnath Singh also elaborated on the concept of 'SECURE' floated by Prime Minister Narendra Modi during the SCO summit in Qingdao, China in 2018. He stated that every alphabet of the word 'SECURE' reflects India's commitment towards the multi-dimensional welfare of the region.

PHOTOGRAPHS: PIB

DEFENCE MINISTER RAJNATH SINGH WITH SHANGHAI COOPERATION ORGANISATION (SCO) DEFENCE MINISTERS, IN NEW DELHI ON APRIL 28, 2023

S - Security of citizens
E - Economic development for all
C - Connecting the region
U - Uniting the people
R - Respect for Sovereignty and Integrity
E - Environmental protection.

Drawing the attention of the member states to various dimensions of 'SECURE', the Defence Minister stated that today a large part of the world is passing through a food crisis. He urged the SCO member countries to ensure food security under an integrated plan. This will establish SCO as a role model for the whole world, he said. To deal with the issue of climate change, he called for working on a common strategy, giving priority to mitigation and adaptation. Energy security should be a part of the common strategy, he added.

Rajnath Singh also touched upon the two defence-related activities launched by India, as the SCO chair, to increase interoperability among member states. These are: a workshop on 'Humanitarian Assistance and Disaster Relief (HADR)' and a seminar on 'defence think-tanks of SCO countries'. Both the events witnessed enthusiastic participation from all SCO countries.

The Defence Minister voiced India's commitment towards defence capacity building of SCO member states through training and co-manufacturing & co-development of items. He stated that as security challenges are not limited to any one country, India is moving forward with a collaborative approach in the field of defence partnership, keeping in mind the shared interests.

Rajnath Singh reiterated India's commitment to play the role of a first responder and preferred partner for any HADR operation in the region. "Be it the COVID-19 pandemic or the recent earthquake in Turkiye, India has always moved forward in line with its spirit of 'Vasudhaiva Kutumbakam' (Whole world is one family)," he said.

Earlier, in his opening remarks, the Defence Minister described the SCO as an evolved & strong regional organisation, underlining that India views it as an important entity to promote defence cooperation among member states. He urged the member states to take forward the age-old cultural and civilisational linkages among the nations in line with changing times, emphasising that the ties have enriched the countries economically and culturally for centuries. He called for a secure, stable and prosperous region that helps in improving the quality of life of the people of each member nation.

At the end of the deliberations, all the SCO member countries signed a protocol, expressing their collective will to make the region secure, peaceful and prosperous. In his closing remarks, Rajnath Singh called for joint efforts to ensure prosperity in the region while dealing with contemporary challenges. He stressed on the need to constantly make the SCO stronger and a more vibrant & resilient organisation in line with changing times. "It is our moral responsibility to start a new journey of development in the region through mutual cooperation, harmony and respect," he said.

Addressing media persons after the meeting, Defence Secretary Giridhar Aramane stated that all the member nations arrived at the consensus on several areas of cooperation, including dealing with terrorism, security of vulnerable populations in various countries as well as HADR. He stated that all member states were unanimous in their statements that terrorism, in all its forms, must be condemned and eliminated. He exuded confidence that many areas identified for cooperation will be acted upon in the times to come and India, as the SCO chair, will lead from the front in ensuring a safe and secure future for the region and the world as a whole.

Defence Ministers of China (General Li Shangfu); Russia (General Sergei Shoigu); Iran (Brig General Mohammad Reza Gharaei Ashtiani); Belarus (Lt General Khrenin VG); Kazakhstan (Col General Ruslan Zhaxylykov); Uzbekistan (Lt General Bakhodir Kurbanov); Kyrgyzstan (Lt General Bekbolotov Baktybek Asankalievich) and Tajikistan (Col General Sherali Mirzo) attended the meeting. The Ministers discussed issues of common concern including issues of regional and international security under charter of SCO during the meeting. SP

US SECRETARY OF AIR FORCE FRANK KENDALL MEETING INDIA'S FOREIGN MINISTER DR S. JAISHANKAR DURING HIS VISIT TO INDIA

INDIA-US TO SHARE AIR INFORMATION

The agreement will encompass a wide range of air information like weather data, flight plans and other relevant information that could assist in air traffic management and situational awareness of the sky and also facilitate the transfer of other advanced and sensitive technologies to India

By **RANJIT KUMAR**

PHOTOGRAPH: DRSJAISHANKAR / TWITTER

A VERY HIGH RANKING PENTAGON OFFICIAL, THE US AIR Secretary Frank Kendall, who kept a close watch on China's military modernisation through technical intelligence for over a decade has proposed a landmark Air Information Sharing Agreement with India, which envisages exchanging information on what the two air forces do together. This will also allow transfer or sale of highly sensitive US defence equipment to India.

The contours of this proposed agreement have not yet been divulged, but it is surmised that the agreement will encompass a wide range of air information like weather data, flight plans and other relevant information that could assist in air traffic management and situational awareness of the sky. This agreement could help India to better monitor its airspace and improve its air traffic management system. Most significantly this could also help India to improve its military capabilities by obtaining better situational awareness and intelligence capabilities. Since India and US are together working for peace and stability in the Indo-Pacific region, US would like to share information regarding Indian air movements over the Indian and Pacific oceans, similarly India would also be shared US Air movements in the Indo-Pacific region. Perhaps US is preparing ground for any possible joint air action over the Indian and Pacific seas. Besides, this agreement will also facilitate cooperation in specific areas.

THE SECRETARY OF US AIR FORCE FRANK KENDALL CALLS ON THE DEFENCE SECRETARY GIRIDHAR ARAMANE, IN NEW DELHI ON MARCH 21, 2023

This proposal of US Air Secretary is indicative of deepening India-US defence ties amid increasing US confidence on India and growing belief in India that US can be a reliable defence partner. The two sides are already working on a draft of the agreement which is likely to be inked soon, which will lead to close coordination on all matters relating to Air Forces. Significantly during his India visit, Secretary Frank Kendall has also proposed transfer of technology or manufacture in India of US jet engines, which may be used in LCA Mk-2 or India's futuristic fighter aircraft, AMCA, presently under design phase. The finalisation of Air Agreement will also facilitate the transfer of other advanced and sensitive technologies to India.

The two countries have already entered into another landmark agreement, "Initiative on Critical and Emerging Technologies (iCET)" facilitating cooperation in sensitive high-tech equipment. This will expand the scope of bilateral strategic technologies partnership and defence industry cooperation. In January this year the Indian NSA Ajit Doval met his counterpart in Washington for the inaugural meeting of the iCET, during which the two delegations discussed the possibilities of enhancing the level of cooperation in critical and emerging technologies. They also discussed co-development and co-production of high-tech defence systems.

The Air Secretary besides talking to Indian Defence Secretary, also had a meeting with Indian National Security Advisor Ajit Doval and External Affairs Minister Dr S. Jaishankar, who later tweeted, "Great to catch up with an old friend, US Secretary of Air Force Frank Kendall. Discussed the global strategic scenario and new opportunities for India-US defence cooperation." Later Kendall told media, "there were a raft of areas in which the two sides could work together including space, intelligence, surveillance, and reconnaissance (ISR) technology, fighter jets and engine technology". Kendall confirmed that US engine maker General Electric (GE) is exploring the possibility of producing jet engines for fighter planes made in India. According to Kendall, "The GE offer for engine technology is in some ways a breakthrough. I hope we can work together, and India can find a way to take this forward."

India and US have already entered into four major foundational agreements to deepen cooperation in defence. These agreements are:

- Basic Exchange and Cooperation Agreement (BECA),
- The Communications Compatibility and Security Agreement (COMCASA),
- The Logistics Exchange Memorandum of Agreement (LEMOA) and
- The General Security of Military Information Agreement (GSOMIA).

These agreements between India and US have been made possible after years of high level political and bureaucratic negotiations. These agreements have led to highly sensitive cooperation on India's borders with China, as they facilitated Pentagon to share movements and locations of Chinese troops deployment on the Ladakh hills. These agreements have given India and US a close ally like partnership. The finalisation of Air Information Sharing Agreement will further strengthen close coordination between the fighting arms of the two QUAD partners. SP

Kendall confirmed that US engine maker General Electric (GE) is exploring the possibility of producing jet engines for fighter planes made in India

PHOTOGRAPH: PIB

UDAN 5.0 LAUNCHED!

- Ministry of Civil Aviation launched the 5th round of the Regional Connectivity Scheme (RCS) - Ude Desh Ka Aam Nagrik (UDAN).
- It aims to further enhance connectivity to remote & regional areas of the country.
- This round of UDAN focuses on Category-2 (20-80 seats) & Category-3 (>80 seats)

By SP'S STAFF CORRESPONDENT

PHOTOGRAPH:MOCA_GOI / TWITTER

FOLLOWING THE FOUR SUCCESSFUL ROUNDS OF BIDDING, the Ministry of Civil Aviation has launched the 5th round UDAN scheme on April 21 by releasing a bid document. The Ministry has started the process of inviting bids from airlines for various routes under the fifth round of bidding of the Regional Connectivity Scheme (RCS) - Ude Desh Ka Aam Nagrik (UDAN) to further enhance the connectivity to remote and regional areas of the country and achieve last mile connectivity.

Funding has been made available for Category 2 and Category 3 aircraft in the scheme's fifth phase, known as UDAN 5.0. According to the official statement, only aircraft operations of Category 2 (20-80 seats) and Category 3 (>80 seats) will fall in this round with no restriction on the distance between the origin and destination, with stage length cap of 600 km waived.

UDAN 5.0 will cap the Viability Gap Funding (VGF) at the same length for both Priority and Non-Priority areas. Previously, the VGF was capped at 500 km. Under the UDAN scheme, the government compensates airlines for losses incurred due to low fares through viability gap funding. The Airports Authority of India has waived airport fees, while state governments are providing free security, electricity, and firefighting services to support the scheme.

To fund the UDAN scheme, a levy of ₹50 on flight tickets has been imposed on major routes. This levy accounts for 80 per cent of the viability gap funding provided to airlines, while the remaining 20 per cent is provided by state governments.

To prevent the exploitation of monopolies on specific routes, exclusivity will be withdrawn if the average quarterly Passenger Load Factor (PLF) exceeds 75 per cent for four consecutive quarters. Airlines are required to begin operations within four months of being awarded the route, a reduction from the previous six-month deadline.

"UDAN has proved to be a lifeblood of many regions which are now well connected with places across the country. This new & stronger version of the scheme will raise the momentum, connecting new routes, and bring us closer to the target of operationalising 1,000 routes & 50 additional airports, heliports, and water aerodromes in the near future," said the Minister of Civil Aviation Jyotiraditya Scindia.

"This new & stronger version of the scheme will raise the momentum, connecting new routes, and bring us closer to the target of operationalising 1,000 routes & 50 additional airports, heliports, and water aerodromes in the near future."
— Jyotiraditya Scindia, Minister of Civil Aviation

Other key Features of UDAN 5.0 are as follows:

- No predetermined routes would be offered. Only Network and Individual Route Proposal proposed by airlines will be considered.
- The airlines would be required to submit an action/business plan after two months from the issuance of LoA wherein they submit their aircraft acquisition plan/availability of aircraft, crew, slots, etc. at the time of the Technical Proposal.
- The same route will not be awarded to a single airline more than once, whether in different networks or in the same network.
- 25 per cent of the Performance Guarantee to be encashed for each month of delay up to four months, to further incentivise quick operationalisation.
- A list of airports that are ready for operation or would soon be ready for operations has been included in the scheme to facilitate quicker operationalisation of routes under the Scheme.
- Novation process for routes from one operator to another is simplified and incentivised.

UDAN Scheme has benefitted a diverse set of stakeholders. Passengers have got the benefits of air connectivity, airlines have received concessions for operating regional routes, unserved regions have received the direct and indirect benefits of air connectivity for their economic development, the official statement read. It is another step towards the Prime Minister's vision of the common man traveling by air at affordable and subsidised airfares.

The fourth round of the regional connectivity scheme, known as UDAN 4.0, awarded 78 routes in August 2020, including around 40 from the Northeast region. The Airports Authority of India listed 50 airports (including heliports) and 268 routes currently in operation under the ambitious scheme. Since the launch of the fourth phase, 766 routes have been sanctioned under the scheme, with 29 served, eight unserved (including two heliports and one water aerodrome), and two underserved airports included in the list of approved routes.

The UDAN scheme aims to connect small and medium-sized cities with major cities through air services. Airlines compete for air routes and participate in bids, with the contract awarded to the airline that bids for the lowest subsidy. The goal is to put small-town India on the aviation map by encouraging airlines to fly on regional routes and making air travel affordable for the common man.

The primary objective of the RCS is to reduce the cost of regional air connections and promote affordable regional air connectivity by providing airline carriers with concessions from the Central and State Governments, as well as minimising the cost of regional airline operations. The UDAN Scheme is a crucial component of India's National Civil Aviation Policy, released for the first time in 2016. In April 2017, Prime Minister Narendra Modi launched the first flight from Shimla to Delhi under the RCS scheme.

The government has been pushing the UDAN scheme that has further given a boost to the civil aviation industry in India, further making the country one of the fastest growing aviation markets in the world. SP

THE MERGER PROCESS IS ALREADY UNDERWAY. VISTARA BRAND WILL BE DISCONTINUED, AND THE MERGED ENTITY WILL RETAIN THE AIR INDIA IDENTITY.

AIR INDIA-VISTARA INITIATE MERGER PROCESS

The stakeholders have approached the Competition Commission of India to seek its approval for the merger

By SP'S STAFF CORRESPONDENT

ILLUSTRATION: SP'S TEAM

THE AIR INDIA-VISTARA MERGER IS IN THE PROCESS OF obtaining one of the key approvals required for the business integration. Tata Sons, Singapore Airlines, Air India, and Vistara have approached India's anti-trust regulator, the Competition Commission of India (CCI), to seek its approval for the merger of Air India, the former national carrier, and full-service airline Vistara. The CCI is expected to evaluate potential competition threats and other factors before giving its approval.

Currently, the Tata Group fully owns Air India, while Vistara is a joint venture between the Tata Group (holding 51 per cent share) and Singapore Airlines (holding 49 per cent share). After the merger, Singapore Airlines (SIA) has committed to investing

$250 million and will own 25.1 per cent of the merged entity.

The CCI will pay close attention to whether the merged entity will have enough competition on key routes. If the CCI has any concerns about certain aspects of the merger, it will prescribe remedial steps to address them.

To aid the CCI in its evaluation, the following relevant markets have been identified: Horizontal overlaps that include domestic and international passenger air transport, air cargo transport services in India, and chartered flight services in India. Vertical relationships include ground handling services at Bengaluru, Delhi, Hyderabad, and Thiruvananthapuram airports.

The CCI's approval is just one of many requirements for the eventual merger of Air India and Vistara. The integration is expected to be finalised early next year. The Tatas will eventually control a full-service airline, which will be a joint product of Air India and Vistara, and a low-cost carrier, which will be a joint product of AirAsia India and Air India Express.

The merger process is already underway, and employee integration is a significant part of it. All 5,000+ employees of Vistara will be given roles in Air India. Interviews are being conducted for non-flying staff at various levels to assess their suitability for respective roles. The Vistara brand will be discontinued, and the merged entity will retain the Air India identity. However, some aspects of Vistara's working culture and heritage are expected to be preserved in the merged airline.

The Tata group had announced the consolidation of its airlines, Vistara and Air India, in November 2022. With this consolidation, Air India shall be India's leading domestic and international carrier with a combined fleet of 218 aircraft, making it India's largest international carrier and second largest domestic carrier, the official statement had read at the time.

Air India, an airline fully owned by Tata Sons, has been the flag carrier of India. Tata Sons, via its fully owned subsidiary, Talace Private Limited ("Talace"), had acquired 100 per cent stake in Air India on January 27, 2022.

Vistara, a 51:49 Joint Venture between Tata Sons and SIA was established in 2013 and is one of India's leading full-service carriers with international operations in Middle East, Asia and Europe.

On this occasion in November, N. Chandrasekaran, Chairman, Tata Sons said, "The merger of Vistara and Air India is an important milestone in our journey to make Air India a truly world-class airline. We are transforming Air India, with the aim of providing great customer experience, every time, for every customer. As part of the transformation, Air India is focusing on growing both its network and fleet, revamping its customer proposition, enhancing safety, reliability, and on-time performance. We are excited with the opportunity of creating a strong Air India which would offer both full-service and low-cost service across domestic and international routes. We would like to thank Singapore Airlines for their continued partnership.

"The merger of Vistara and Air India is an important milestone in our journey to make Air India a truly world-class airline. We are excited with the opportunity of creating a strong Air India which would offer both full-service and low-cost service across domestic and international routes. We would like to thank Singapore Airlines for their continued partnership."
— N. Chandrasekaran, Chairman, Tata Sons

Vistara shall be merged with Air India post receipt of requisite approvals. As part of the merger transaction, SIA shall also invest ₹2,059 crore in Air India. Post the consolidation, SIA shall hold 25.1 per cent shareholding in Air India, the press release by Tatas had stated.

Goh Choon Phong, Chief Executive Officer, Singapore Airlines, said, "Tata Sons is one of the most established and respected names in India. Our collaboration to set up Vistara in 2013 resulted in a market-leading full-service carrier, which has won many global accolades in a short time. With this merger, we have an opportunity to deepen our relationship with Tata and participate directly in an exciting new growth phase in India's aviation market. We will work together to support Air India's transformation programme, unlock its significant potential, and restore it to its position as a leading airline on the global stage."

Founded by JRD Tata, since its first flight on October 15, 1932, Air India has an extensive domestic network and has spread its wings beyond to become a major international airline with a network across USA, Canada, UK, Europe, Far-East, South-East Asia, Australia and the Gulf. Air India is a member of Star Alliance, the largest global airline consortium.

After 69 years as a Government-owned enterprise, Air India and Air India Express were welcomed back into the Tata group in January 2022. The present management at Air India is driving the five-year transformation roadmap under the aegis of Vihaan.AI to establish itself as a world-class global airline with an Indian heart. Vihaan.AI is Air India's transformational roadmap over five years with clear milestones. It will be focusing on dramatically growing both its network and fleet, developing a completely revamped customer proposition, improving reliability and on-time performance. The airline also aims to take a leadership position in technology, sustainability, and innovation, while aggressively investing in the best industry talent. Vihaan.AI is aimed at putting Air India on a path to sustained growth, profitability and market leadership. SP

PHOTOGRAPHS: MEAINDIA / TWITTER, MOS_MEA / TWITTER, DRSJAISHANKAR / TWITTER, IAF_MCC / TWITTER

OPERATION KAVERI: INDIAN GOVERNMENT LAUNCHED AN OPERATION TO EVACUATE AND BRING BACK ITS STRANDED CITIZENS FROM SUDAN. IN EXTREMELY CAREFULLY PLANNED AND EXECUTED MISSIONS, UNDERTAKEN BY INDIAN AIR FORCE AND INDIAN NAVY, HUNDREDS OF INDIANS WERE SUCCESSFULLY BROUGHT BACK TO INDIA.

SP GUIDE PUBLICATIONS

AN IMPECCABLE FORCE FOR HUMANITARIAN SUPPORT

Indian Air Force has emerged as a reliable first responder for undertaking aid and rescue during any calamity under HADR operations

By AIR VICE MARSHAL SANJAY BHATNAGAR (RETD)

INDIA HAS LAUNCHED OPERATION 'KAVERI' TO EVACUATE stranded Indian nationals from crisis ridden Sudan that has been witnessing fierce fighting. The fighting had erupted in the Sudanese capital, Khartoum, and elsewhere in the country as a direct result of a vicious power struggle within the country's military leadership, following a power struggle between the Regular Army and the Rapid Support Forces' Paramilitary force. At least 450 people are reportedly killed in the armed clashes while thousands have been hurt.

Last week, Prime Minister Narendra Modi had chaired a meeting to review the situation in Sudan and had asked for "contingency evacuation plans" to be readied for Indians stuck there.

At the time of going to Press, more than 700 Indian nationals have reached Port Sudan and there are more on their way. About 350 have reached New Delhi. The External Affairs Minister S. Jaishankar has assured that Indian aircraft and ships are set to bring Indians back safely.

OPERATION 'KAVERI'

Indian Government launched operation codenamed Operation 'Kaveri' aimed to evacuate its citizens from the clashes ravaged country. About 3,000 Indians were estimated to be stranded in Sudan when a conflict broke out about 12 days ago.

Indian Government announced that it is "committed to assist all our brethren in Sudan" and launched a joint operation of undertaking evacuation of stranded citizens by Indian Air Force (IAF) aircraft and Indian Navy (IN) ships.

In simultaneous operations the IN has deployed INS Sumedha, a Patrol vessel that evacuated 278 citizens on Wednesday April 25, 2023, followed by INS Teg.

The IAF fielded its two C-130J Super Hercules aircraft, air lifting 135 and 121 citizens on April 25 and another 135 on April 26.

It is really heartening to see some swift effort on part of the IAF wherein they positioned two of their aircraft at Jeddah airport of Saudi Arabia on April 19 itself, awaiting for a small

192 PASSENGERS WERE BROUGHT BACK FROM SUDAN IN A TACTICAL RESCUE OPERATION BY THE IAF C-17, THAT INVOLVED FLYING THROUGH EXTENDED PERIODS OF NEARLY 24 HOURS AND A NONSTOP FLIGHT BACK.

PHOTOGRAPH: IAF

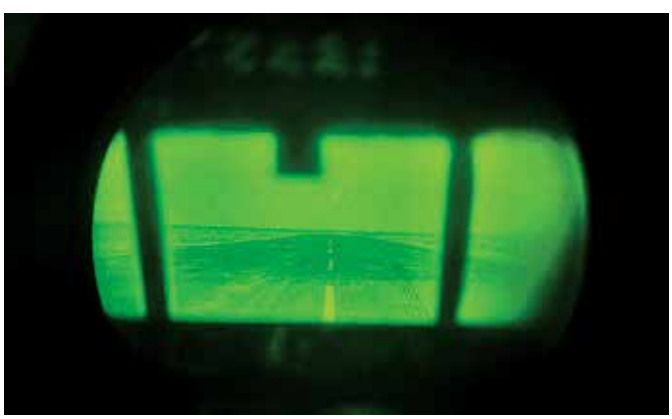
window of opportunity to lift off maximum citizens at short notice. The opportunity came in the form of a 3-day ceasefire, wherein on the first day, April 25 itself the IAF lifted more than 250 people from Port Sudan to Jeddah International airport. Another airlift took place on April 26. More operational shuttles by IAF aircraft are in the pipeline.

Such operations are termed as Humanitarian Assistance and Disaster Relief (HADR) Operations. IAF has truly excelled in undertaking the HADR operations at short notice. Evacuation of own personnel from Yemen, Ukraine, Sudan and Afghanistan are just to name a few.

It is very difficult to get something of this scale going. It needs effective diplomacy and a well planned and executed air operation, before one can deploy. India has shown that we can.

Media reports indicate that Indian Diasporas comprises of close to 14 million non-resident Indians and there are more than seven million international tourists each year. In any contingency, Indian citizens abroad are likely to be impacted by any conflict anywhere in the world. Indian Government has always tackled towards the well being of Indian Diaspora. Closer home, airlifting of 23,000 citizens during the flash floods in Uttarakhand in June 2013 under Operation 'Rahat' has been a praiseworthy achievement. IAF has emerged as the first responder for undertaking aid during any calamity covering HADR operations. Rapid intervention into Syria and Turkey during the latest Earthquake under Operation 'Dost' is another case in point.

In the ongoing Sudan crisis, owing to the conflict situation, the availability of Sudan international airfield, the runway, at the crucial time of need could not be guaranteed. The C-17 Globemaster has larger passenger carrying capacity as compared to the C-130J aircraft, however, the C-130J seems to have been preferred in this crisis because the limited availability of useful runway, operating areas, parking slots, hence a smaller aircraft with an important capability to be able to operate unhindered from semi-prepared surfaces, the C-130J was preferred over the C-17 aircraft. This is because C-130J aircraft are tactical aircraft meant for special operations, having short landing, short take off capability and can operate from dirt airstrips or semi-prepared



(LEFT-RIGHT) IAF'S C-130J AIRCRAFT RESCUED 121 PERSONNEL FROM A SMALL AIRSTRIP AT WADI SAYYIDNA, ABOUT 40 KM NORTH OF KHARTOUM IN A DARING OPERATION ON NIGHT OF APRIL 27-28, 2023. THIS APPROXIMATELY TWO AND A HALF HOUR OPERATION BETWEEN WADI SAYYIDNA AND JEDDAH WILL GO DOWN IN THE ANNALS OF IAF HISTORY FOR ITS SHEER AUDACITY AND FLAWLESS EXECUTION.

this contingency with great amount of responsibility and alacrity towards an enduring commitment of returning citizens to safety.

India is admired for its reputation and ability to harness all its resources in rescuing every single citizen in any corner of the world, every time they are in need.

All this has become possible due to transformation of IAF transport fleet with the technologically advanced C-130J Super Hercules and C-17 Globemaster aircraft. They have added an absolutely new dimension to IAF operational capability in conducting special operations and strategic heavy lift respectively.

During the Covid crisis IAF transport aircraft airlifted our citizens from Covid infested Wuhan. Later the IAF transport fleet was instrumental in delivering consignments of medical aid to remote areas. Further during the second Covid wave, the IAF fleet was involved in two major roles of airlifting cryogenic containers from abroad (Thailand, Singapore, Indonesia, Dubai and far off countries like UK, Germany and Australia) and further positioned them near oxygen operating plants within the country.

In recent past the IAF airlifted close to 3,000 citizens in just six days, under Operation 'Ganga'. Earlier 700 citizens were flown out of Kabul safely in war torn Afghanistan by the C-130J aircraft under one of the most covert operations undertaken during peacetime. All this reflects the nation's commitment airstrips if required. Considering all these, the IAF proactively positioned its C-130J Super Hercules aircraft on April 19, 2023 at Jeddah International airport in Saudi Arabia.

Saudi Arabia has emerged as a Key country which is looking after Indian stranded citizens, offering the fullest cooperation. Under its evacuation mission, India has set up a transit facility at Jeddah and all the Indians have been taken to the coastal Saudi Arabian city after their evacuation from Sudan. IAF C-130J aircraft are undertaking quick shuttles to evacuate citizens from Port Sudan to Jeddah. At the time of going to Press, the first batch of 378 Indians have arrived home on April 26 evening as first flight reached New Delhi.

The conduct of Operation 'Kaveri' is true reflection of close and healthy coordination between the IAF, IN the Ministry of External Affairs (MEA) and a very pro-active approach displayed by each functionary in the chain. All the stakeholders have considered the need for speed, precision, and coordination. It is a true example of 'whole of government approach' to achieve good results. Over the last few years, evacuation of Indian citizens in distress has become more organised. As a result, Indians now are well respected in other countries The HADR operations within the country have come off the age and India is being looked upon as a responsible nation, globally. This reputation must get strengthened. SP

PHOTOGRAPHS: SPOKESPERSONMOD / TWITTER

SALLY RIDE (1951-2012)

When Sally Ride blasted off from earth aboard the Challenger shuttle, she made history as the first American woman and the youngest of either gender to go into space

SALLY RIDE WAS AN ASTRONAUT AND PHYSICIST WHO IN 1983 became the first American woman and only the third woman to fly in space. Sally was also the youngest American astronaut of either gender to become a space traveller. The first two women in space were cosmonauts Valentina Tereshkova in 1963 and Svetlana Savitskaya in 1982. This is a very rare instance in the fierce space race between the United States and the Soviet Union where one rival achieved a pioneering feat as much as twenty years after the other.

Sally Kristen Ride was born on May 26, 1951, in Los Angeles. As a child, she was a tennis prodigy and had every intention of becoming a professional. However, she finally chose academics instead. She joined Stanford University where she earned degrees both in arts and in science and technology. Ride's space adventure began in January 1977 when she saw a newspaper article about the National Aeronautics and Space Administration (NASA) recruiting a new group of astronauts, including women for the Space Shuttle programme. Till then the US astronaut corps had been something of a boys' club of fliers, mostly Navy and Air Force pilots.

But NASA had begun atmospheric testing of the space shuttles and realised that technological and scientific skills were as crucial as good piloting ability. It was therefore searching for young scientists who could fill the role of "mission specialists". Ride was among 8,000 youngsters who applied for NASA's astronaut class of '78. Her natural athletic ability was a great help and the doctors were impressed by her physical fitness.

In January 1978 Ride became one of 35 selected astronaut candidates, of whom six were women. The training included limited experience of flying the T-38 Talon jet aircraft. However, she immediately took to flying and signed up for lessons to earn a private pilot's licence. On August 31, 1979, the class of 35 candidates were officially declared astronauts and became eligible for selection on space flight crews.

While awaiting her first mission, Sally served as the ground-based capsule communicator (CapCom) for the second and third space shuttle flights – the first woman to be employed in this role. Her technological expertise also helped her develop the Shuttle Remote Manipulator System (RMS) or robot arm. Her chance finally came when she was selected as mission specialist on the STS-7 mission of the space shuttle Challenger. She was chosen mainly because of her agreeable personality and ability to work with others, her performance as CapCom, and her skill with the robotic arm. In the run-up to the historic mission, interviewers posed questions like "Will the flight affect your reproductive organs?" and "Do you weep when things go wrong on the job?" She took it all with dignity, grace and good humour.

On June 18, 1983, when Sally Ride blasted off from earth aboard the Challenger shuttle, she made history as the youngest American to go into space at 32 years and 23 days. The mission deployed two communications satellites. Ride also used the robotic arm to deploy the first Shuttle Pallet Satellite (SPAS-01) and retrieve it two days later, the first time the shuttle was used to return a spacecraft to Earth. It proved that, in theory, a problematic satellite could be captured, repaired aboard the shuttle and then safely returned to orbit.

Sally Ride's second spaceflight was the STS-41-G mission in 1984. This too was aboard the Challenger shuttle. She spent eight days conducting scientific observations of the earth. She also worked on refuelling techniques for shuttles. This was another historic space mission since it was the first with two female crew members. The other woman astronaut, Kathryn Sullivan, became the first American woman to walk in space.

Sally was preparing for her third mission when the Challenger shuttle exploded shortly after lift-off on January 28, 1986, killing all seven crew members. Her interdisciplinary qualifications made her a natural choice for the presidential commission investigating the disaster. She helped bring to light the fact that the NASA management knew the shuttle's O-rings could fail in cold temperatures. In 2003, when another shuttle spacecraft – the Columbia – was lost along with all its crew, Sally was once again co-opted to serve on the Accident Investigation Board. She thus became the only person to serve on both the investigations.

In the course of her two space missions Ride spent a total of over 343 hours in space. She always maintained that she had not intended "to become a historic figure or a symbol of progress for women." All she had wanted was to be a good astronaut. She died of pancreatic cancer on July 23, 2012. On May 20, 2013 US President Barack Obama announced that Sally Ride would be awarded the Presidential Medal of Freedom, the nation's highest civilian award. SP

— JOSEPH NORONHA

MILITARY

BI-LATERAL TALKS BETWEEN INDIA AND MALDIVES

Defence Minister Rajnath Singh arrived in Maldives on May 1, 2023, on a 3-day official visit at the invitation of his Maldivian counterpart Mariya Ahmed Didi. Later, the Defence Minister held bilateral delegation-level talks with the Maldivian Defence Minister. Issues of mutual defence cooperation and new initiatives to further strengthen defence and security partnership were discussed in the meeting. India handed over a Fast patrol vessel along with an assault landing craft to Maldivian Coast Guard in a formal ceremony on May 2, 2023. The Defence Minister held discussions with the Foreign Minister of Maldives Abdulla Shahid. Issues of ongoing bilateral defence and infrastructural development cooperation in Maldives by India were discussed. Rajnath Singh also called on the President of Maldives Ibrahim Mohamed Solih.

CDS ATTENDS IAF COMMANDERS' CONFERENCE

The CDS, General Anil Chauhan attended the IAF Commanders' Conference (AFCC) at Air Headquarters (Vayu Bhavan) on April 20, 2023, where he was briefed about the operational readiness of the IAF. Later, speaking to the IAF Commanders present in the Conference, the CDS highlighted the need to chart a clear path towards fleet sustenance, while simultaneously taking steps towards increasing indigenisation. He also discussed the contours of enhancing integration amongst the three services and the benefits that would accrue from the same.

HAL'S THIRD LCA PRODUCTION LINE

Defence Secretary, Giridhar Aramane inaugurated the third LCA production line and also handed over 100th Sukhoi-30 MKI ROH aircraft to Air Vice Marshal Sarin, Assistant Chief of Air Staff (Eng A), Indian Air Force in a programme at HAL. The Defence Secretary lauded HAL's efforts in taking up the challenge of setting up an ROH facility for Su-30 MKI and also establishing a new production line for LCA manufacturing. He remarked that HAL has been fulfilling the needs of the country's security. He also urged HAL to take up new initiatives to aggressively compete in the defence market and look into new areas like unmanned vehicles as the country is in need of these advanced systems.

C.B.Ananthakrishnan, CMD, HAL said, "The new production line will enable the Company to enhance LCA MK1A production capacity from 16 to 24 aircraft per year." HAL has already set up two LCA manufacturing facilities in Bengaluru.

MAIDEN TEST OF INDIGENOUS AIR DROPPABLE CONTAINER 'ADC-150'

DRDO and Indian Navy conducted the successful maiden test trial of 'ADC-150' from IL-38SD aircraft off the coast of Goa on April 27, 2023. 'ADC-150' is an indigenously designed and developed Air Droppable Container with 150 kg payload capacity. The trial was conducted

APPOINTMENTS

AIR MARSHAL SAJU BALAKRISHNAN TAKES OVER ANDAMAN & NICOBAR COMMAND (CINCAN)

Air Marshal Saju Balakrishnan has taken over as the 17th Commander-in-Chief of the Andaman and Nicobar Command (CINCAN) on May 1, 2023. The Andaman and Nicobar Command (ANC) is the only Joint-services Command in India and serves as a model for the country's planned theaterisation of Army, Navy, and Air Force capabilities. Before assuming Command of ANC he was the Senior Air Staff Officer at the IAF Training Command at Bengaluru.

AIR MARSHAL BALAKRISHNAN MANIKANTAN TAKES OVER SOUTHERN AIR COMMAND

Air Marshal Balakrishnan Manikantan took over as Air Officer Commanding-in-Chief (AOC-in-C) of Southern Air Command on May 1, 2023. The Air Marshal has held the appointments of Senior Air and Administrative Staff Officer (SAASO) of HQ Maintenance Command and of ACIDS Int-C at HQ IDS, responsible for international defence cooperation. Prior to assuming the current appointment, he was the Senior Air Staff Officer at Eastern Air Command, handling air operations.

AIR MARSHAL NARMDESHWAR TIWARI TAKES OVER SOUTH WESTERN AIR COMMAND

Air Marshal Narmdeshwar Tiwari took over as Air Officer Commanding-in-Chief (AOC-in-C), South Western Air Command (SWAC) at Gandhinagar on May 1, 2023. He is a Qualified Flying Instructor as well as an Experimental Test Pilot. The Air Marshal has rich field experience which also includes operational testing of various weapons and systems, primarily on the Mirage 2000. He was actively involved in operations and took part in many important missions during the Kargil conflict. Prior to assuming charge as the AOC-in-C SWAC, the Air Marshal was Deputy Chief of the Air Staff at Air HQ (VB).

SPICEJET APPOINTS ARUN KASHYAP AS COO

SpiceJet announced the appointment of Arun Kashyap as its Chief Operating Officer. Arun will report to Ajay Singh, Chairman and Managing Director, SpiceJet in his new role. His appointment is effective June 12, 2023. Arun is an accomplished industry veteran with 25 years of experience and joins SpiceJet from Air India where he is the Chief Technical Officer.

to enhance the naval operational logistics capabilities by providing quick response to meet the requirement of critical engineering stores to ships (under distress), which are deployed more than 2,000 kms from the coast. It reduces the requirement of ships to come close to the coast to collect spares and stores. Secretary, Department of Defence R&D & Chairman DRDO has congratulated the scientists and the Indian Navy for the successful trial of ADC-150.

CHIEF OF THE AIR STAFF VISITS SRI LANKA

Air Chief Marshal V.R. Chaudhari, Chief of the Air Staff (CAS), embarked on a four-day official visit to Sri Lanka on May 1, 2023. During the visit, the CAS met the President of Sri Lanka, the Prime Minister of Sri Lanka, the State Minister of Defence, the Chief of the Defence Staff, the Commanders of Sri Lanka Air Force, Army & Navy, and the Defence Secretary.

The CAS visited Sri Lanka on the invitation of the Commander of Sri Lanka Air Force, Air Marshal S.K. Pathirana. During the visit the CAS shall also interact with student officers of the National Defence College, Sri Lanka and visit the Sri Lankan Air Force Academy.

IAI DELIVERS WINGS FOR USAF T-38 TRAINERS

Israel Aerospace Industries (IAI) has marked the delivery of the 100th IAI-produced T-38 wing to the United States Air Force, in a special ceremony held at the company's headquarters. This milestone demonstrates IAI's capabilities to produce aerostructures of the highest quality and its commitment to a long-term relationship with the United States Air Force.

The T-38 Talon is a twinjet supersonic jet trainer, developed for the United States Air Force, which has been operational since the 1960s. The T-38 Trainer is critical to the USAF pilot training programme and the IAI-produced T-38 wing sets are an important element that supports its availability. Additional tooling has, therefore, been added to IAI's T-38 wing production facility, to allow increased production rates to meet the urgent demand for new wings. IAI has orders for hundreds of additional wings, and will continue to meet the United States Air Force requirements for this important T-38 programme.

CIVIL

IBAC PARTNERS WITH ICAO IN SUSTAINABLE AVIATION FUEL INITIATIVE

IBAC has partnered with the International Civil Aviation Organisation (ICAO) in their Assistance, Capacity-building, and Training for Sustainable Aviation Fuels initiative (ICAO ACT-SAF). Kurt Edwards, IBAC Director General signed an ACT-SAF partnering agreement with ICAO's Secretary General, Juan Carlos Salazar on March 29, at ICAO headquarters. Sustainable Aviation Fuels (SAF) are a key component to meet the industry's collective goals towards NetZero carbon emissions by 2050, in line with Business Aviation's Commitment on Climate Change (BACCC).

Kurt Edwards commented, "The business aviation sector is known for innovation. We look forward to working with ICAO and other ACT-SAF participants to expand the development and use of SAF—a proven, cutting-edge technology—in greater quantities for use by all operators around the world." The ICAO ACT-SAF programme creates opportunities for States to develop their full potential in SAF development and deployment, in line with the ICAO's No Country Left Behind initiative, and the 2050 ICAO Vision for SAF. ●

EXERCISE COPE INDIA-2023

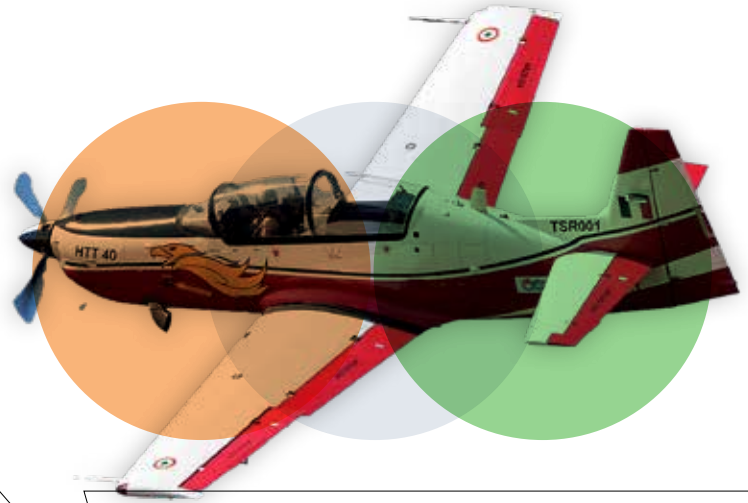
THE SIXTH EDITION OF COPE INDIA-2023, an Air Exercise between the Indian Air Force (IAF) and United States Air Force (USAF), conducted over the last two weeks at Air Force Stations Kalaikunda, Panagarh and Agra, culminated on April 24, 2023. The exercise involved participation of front-line IAF aircraft like Rafale, Tejas, Su-30 MKI, Jaguar, C-17 and C-130. The USAF in turn had fielded the F-15 'Strike Eagle' fighter, C-130, MC-130J, C-17 and the B1B, strategic bomber aircraft. Aircrew from the Japanese Air Self Defence Force also participated as observers. This joint exercise provided valuable opportunity for the participants of all countries to exchange ideas and imbibe best practices through interactions, exchanges & combined missions. SP

'EX KAVACH' CONCLUDES AT ANDAMAN AND NICOBAR COMMAND

ANDAMAN AND NICOBAR Command (ANC) conducted a large-scale Joint Military Exercise 'Ex KAVACH' involving the assets of the Army, Navy, Air Force and Coast Guard. The exercise, which began on February 23, 2023, concluded on April 7, 2023. The exercise was aimed at fine-tuning joint warfare capabilities & Standard Operating Procedures (SOPs) and enhancing interoperability and operational synergy between the forces.

'Exercise KAVACH' demonstrated the capabilities and preparedness of the Armed Forces to safeguard India's maritime interests and ensure the security of the Andaman and Nicobar Islands. The exercise effectively showcased the professionalism and synergy amongst the different components of ANC while conducting successful joint operations in a complex and dynamic environment. SP

HAL MUST STEP-UP



With the HTT-40 contract and the development of HJT-36 aircraft, HAL now carries a huge responsibility of providing basic and the intermediate trainers to the IAF that are on schedule and they meet international quality standards

By AIR VICE MARSHAL SANJAY BHATNAGAR (RETD)

TRAINER AIRCRAFT HAS BEEN A LONG OUTSTANDING CRITICAL requirement of the IAF. Signing of the much awaited contract for Basic Trainer Aircraft (BTA) by the Defence Ministry on March 7, 2023 with Hindustan Aeronautics Limited (HAL) for purchase of 70 HTT-40 at a cost of approx. ₹6,800 crore, has brought cheers for the IAF. The aircraft will be delivered over a period of six years, commencing possibly from end-2024 onwards.

THE HTT-40

HTT-40 is a turboprop aircraft possessing good low speed handling qualities and provides better training effectiveness. It can be used for basic flight training, instrument flying, close formation flying, night flying, pilot-navigation and other basic missions. The present deal includes associated equipment and training aids including simulators. Being an indigenous design, it is configurable for upgrades to incorporate the futuristic requirements of the IAF. It boasts of modern avionics and multifunction displays. Aircraft is to be powered by a Honeywell's TPE331-12B Turboprop engine, under a manufacturing and repair license agreement signed between HAL and Honeywell.

The HTT-40 has been designed by Aircraft Research & Design Centre (ARDC) of HAL. The development of the aircraft commenced in 2013 and the first prototype made its maiden flight in May 2016. First aircraft will be built at HAL Bengaluru. Later, HAL is likely to shift its production to its Nasik Division. HAL is targeting to produce 20 aircraft per year, thus it will be end-2027 by when the complete order will hopefully be delivered.

The HAL is showcasing it as an indigenous solution. The large percentage of components, including the aeroengine is going to be imported. Official Press release indicates that the HTT-40 contains approximately 56 per cent indigenous content which is to be progressively increased to over 60 per cent through indigenisation of major components and subsystems. This procurement has the potential to provide direct and indirect employment to thousands of people spread over more than 100 MSME.

IAF TRAINER AIRCRAFT REQUIREMENT

The IAF has a sanctioned strength and requirement of 181 BTA. 75 of the PC-7 MkII were purchased under a deal signed in 2012 with deliveries completed in November 2015. PC-7 MkII aircraft essentially operate in Air Force Academy (AFA) and a few aircraft at Flying Instructors School (FIS), Tambaram. Pilatus PC-7 MkII has an enviable safety record. Flying more than 25,000 flying hours per year, so far it has clocked more than two lakh accident free flying hours.

For the Stage-II flying training, Kiran aircraft offers a critical transitional step towards the next stage of pilot's training. The present fleet of Kiran IJT is facing obsolescence and host of other maintenance issues. HAL's efforts to design and develop the Intermediate Jet Trainer aircraft, HJT-36 under Project 'Sitara' is in the pipeline since last decade and a half, is yet to fructify. Six turn spin performance was successfully demonstrated on HJT-36 in January 2022. Spin was a critical safety feature that has been pending since 2016, necessitating certain critical changes in airframe design.

PATH AHEAD

In the past, due to shortages of BTAs and IJTs in the IAF, the training syllabus had to be juggled on various occasions, the IAF had to cut down flying time for rookie pilots, a most undesirable option for any Air Force. The IAF faces shortage of pilots close to 400 pilots, essentially due to shortages of aircraft. In order to meet the training flying requirements, the IAF has in the past has considered leasing some trainer aircraft from foreign countries or sending rookie pilots abroad, both of them are not desirable situation.

With the signing of the HTT-40 contract, the onus now is with the HAL to come true to the faith reposed on HAL by the Ministry of Defence and the IAF to produce an aircraft that meets the stringent safety standards required for training rookie pilots. At the price that is being paid for the HTT-40, HAL must ensure that the quality of the aircraft is atleast at par, if not better, than other competitors globally. Also, one of the major requirements of this project entails meeting the timelines, as a yawning gap already exists between the BTAs available and required for the IAF.

At the same time the HAL needs to give due focus on expediting project Sitara to arrest the looming shortages of IJTs due impending phasing out of Kiran aircraft over next two years.

Thus HAL needs to remove this bottleneck in the training of IAF future pilots. It has its task well laid out, to meet the timelines and standards of production for HTT-40 and Sitara HJT-36 aircraft. SP

PHOTOGRAPH: PIB

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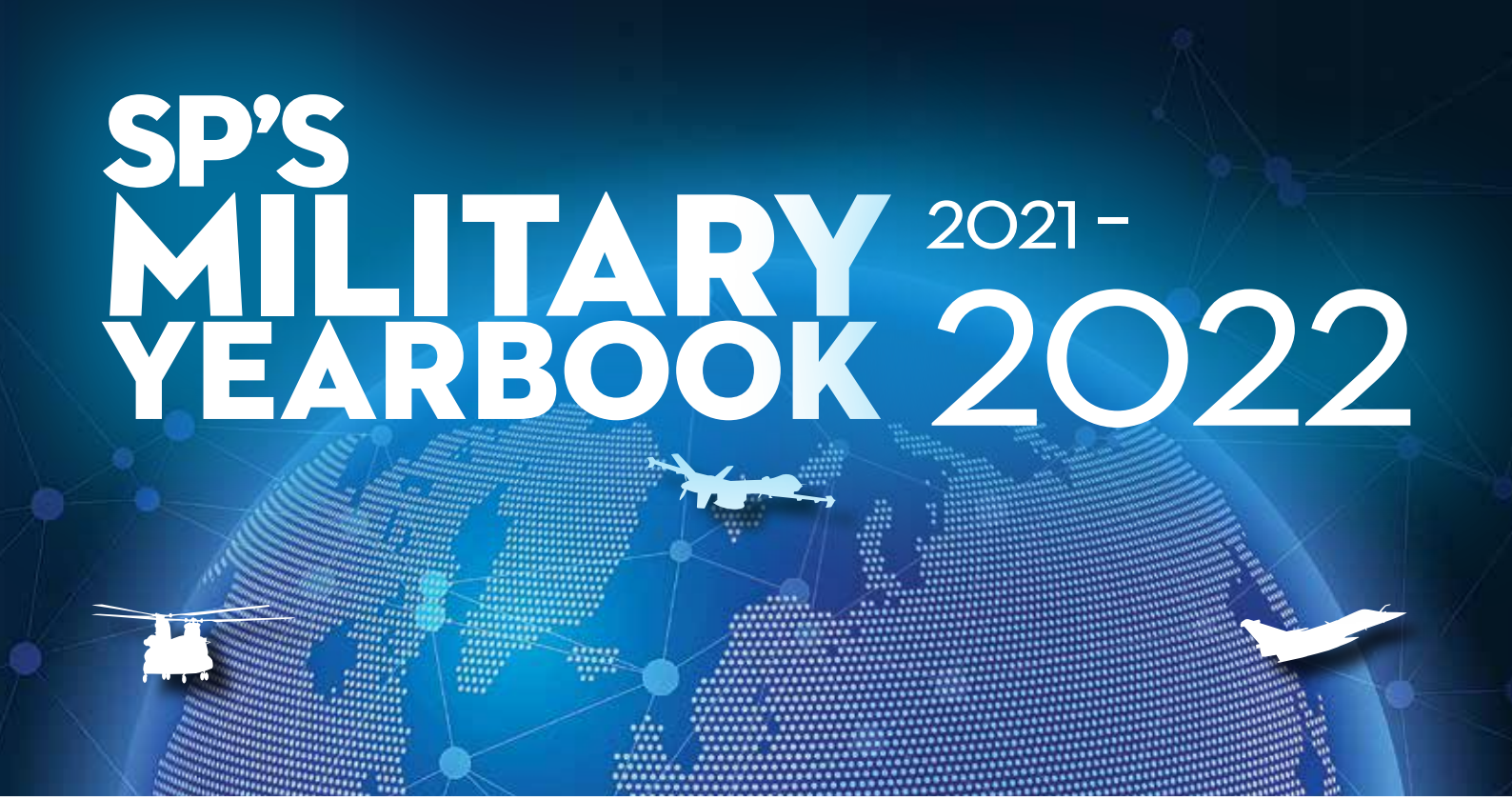

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