A SUPPLEMENT TO SP'S AVIATION

BIZAV INDIA

VOLUME 10 • ISSUE 1
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PC-24

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The world's first Smart and Versatile Business Jet, the 'Swiss Made' Pilatus PC-24, with an extended range and the capability to land on very short runways, offers a great solution for pan-India operations

Cover Photograph:
Pilatus

A SUPPLEMENT TO SP'S AVIATION 2024
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PUBLISHER AND EDITOR-IN-CHIEF
Jayant Baranwal

DEPUTY MANAGING EDITOR
Neetu Dhulia

PRINCIPAL CORRESPONDENT
Ayushee Chaudhary

BAOA MANAGEMENT
Harsh Vardhan Sharma
President, BAOA
Group Captain R.K. Bali (Retd),
Managing Director, BAOA

CHAIRMAN & MANAGING DIRECTOR
Jayant Baranwal

PLANNING & BUSINESS DEVELOPMENT
Executive Vice President: Rohit Goel

DESIGN TEAM
Senior Designer: Vimlesh Kumar Yadav,
Designer: Sonu Bisht

GROUP DIRECTOR - SALES & MARKETING
Neetu Dhulia

DIRECTOR - SALES
Rajeev Chugh

MANAGER - HR & ADMIN
Bharti Sharma

DEPUTY MANAGER - CIRCULATION
Rimpy Nischal

GROUP RESEARCH ASSOCIATE
Survi Massey

SP'S WEBSITES
Sr Web Developer: Shailendra P. Ashish
Web Developer: Ugrashen Vishwakarma

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ADVERTISING
neetu@spguidepublications.com
rajeev.chugh@spguidepublications.com

SP GUIDE PUBLICATIONS PVT LTD
A-133 Arjun Nagar,
(Opposite Defence Colony)
New Delhi 110003, India.
Tel: +91 (11) 24644693,
24644763, 24658322
Fax: +91 (11) 24647093
E-mail: info@spguidepublications.com

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1964-2024 YEARS OF SP'S

FROM THE EDITOR-IN-CHIEF

1964-2024 YEARS OF SP'S

SP Guide Publications takes flight in 2024, marking 60 years of shaping the aviation landscape! With unwavering passion, unrelenting vigour, and unwavering integrity, we pledge to continue serving the aviation sector with excellence, innovation, and a commitment to pushing boundaries.

Dear Reader,

In the latest issue of *BizAvIndia*, Harsh Vardhan Sharma, President of the Business Aircraft Operators Association (BAOA), reflects on the recent BizAvIndia conference, held earlier this year. Harsh Vardhan highlights the conference as a pivotal event where senior officials from ministries and regulatory authorities pledged their full support to foster an ecosystem conducive to optimal industry growth. Discussions on the future of the business aviation industry in India were incredibly encouraging, with presentations by OEMs and dynamic young entrepreneurs contributing valuable insights and fostering engaging dialogue.

A comprehensive report on the BizAvIndia conference is featured in this edition, emphasising the importance of informed decision-making and proactive engagement in overcoming hurdles and fostering a more efficient and competitive business aviation environment in India. The conference served as a platform to address the myriad challenges facing the GA/BA industry in India while critically evaluating potential solutions.

There was a spotlight on Advanced Air Mobility (AAM) at this year's Wings India show. Ayushee Chaudhary reports on the AAM Conference that has placed India as a potential global hub for AAM solutions, bringing together industry experts, policymakers, and innovators to explore cutting-edge aviation technologies.

Another highlight of Wings India 2024 was the participation of Swiss Company Pilatus who showcased their new and uniquely versatile PC-24 business jet for the first time in India. The new PC-24 is a super versatile aircraft with extended range and capable of operating from smaller airports. A fact file on the aircraft is included in this issue.

Swaati Ketkar's insightful report delves into the evolutionary journey of India's business aviation industry, highlighting the synergy between innovation, government policies, and market demand. As the sector looks towards the future, the coming decade is poised to be transformative, driven by sustained growth and emerging trends post-pandemic.

GAMA's recent report on General Aviation Aircraft Shipment and Billing for 2023 underscores the positive trajectory of the industry, with increased shipments and billings across all aircraft segments compared to the previous year. Rohit Goel's detailed report showcases a dynamic and evolving market landscape.

This edition of *BizAvIndia* also features a detailed report on Gulfstream's sustainability initiatives and achievements. Gulfstream's steadfast commitment to reducing its carbon footprint and pioneering innovative solutions underscores its leadership in environmental responsibility.

All this and more in this issue of *BizAvIndia*. Welcome aboard and we wish you many happy landings!

J. Baranwal
Editor-in-Chief

PRESIDENT

BUSINESS AIRCRAFT OPERATORS ASSOCIATION

Dear Members,

I am pleased to share insights from the recently concluded *BizAvIndia* 2024 held in Hyderabad on January 17th. The event attracted global participation from both general and business aviation professionals. Our discussions on the future of the business aviation industry in India were incredibly encouraging, with senior officials from ministries and regulatory authorities pledging their full support to cultivate an ecosystem that fosters optimal industry growth.

During the event, OEMs and dynamic young entrepreneurs delivered insightful presentations on future prospects and new developments, culminating in an engaging brainstorming session. We anticipate hosting another conference focused on safety later this year.

BAOA actively addressed concerns regarding additional restrictions on business aviation operations in Mumbai. Our persistent efforts with the ministry resulted in the withdrawal of these restrictions last month. We are diligently working towards ensuring equitable availability of airport infrastructure at the upcoming Navi Mumbai airport.

Regular quarterly meetings with DGCA to address regulatory matters, in accordance with the ministry's directives, have commenced. The last meeting took place in December 2023, and we are scheduled for the next in March 2024. Members' continued valuable inputs are crucial for making these sessions meaningful and collaborative. Our goal is to progress steadily towards streamlined regulations for business aviation, aligning with the best global practices.

BAOA is actively collaborating with the civil aviation ministry to advocate for zero import duty on NSOP, aligning with standard to be followed for all types of commercial air transport operations. Concurrently, we have taken up the issue of differential GST rates on pilgrim shuttles in Uttarakhand, and we remain optimistic about positive outcomes from these ongoing efforts.

Addressing the lingering concern of itemized Ground Handling charges for small aircraft, discussions were held during the December 2023 meeting, chaired by Minister of Civil Aviation. We expect AAI to soon publish itemised Ground Handling charges for aircraft below 5,700 kgs on its website.

The business aviation industry is poised for significant growth in the coming years, driven by high GDP growth. It is incumbent upon all of us to contribute our best efforts through well-informed and researched suggestions and proposals. Let's seize this opportunity and collectively ensure the robust development of the general and business aviation industry in our nation.

Jai Hind!

Harsh Vardhan Sharma
President, BAOA.

Business Aircraft Operators Association ★ New Delhi

FLAG BEARERS OF BUSINESS AVIATION AND GENERAL AVIATION IN INDIA CAME TOGETHER AT THE BIZAV CONFERENCE TO DISCUSS THE CHALLENGES FACING THE INDUSTRY AND EVALUATE POTENTIAL SOLUTIONS

Unlocking the Potential

Steps towards informed decision-making and proactive engagement are essential for overcoming the hurdles and fostering a more efficient and competitive Business Aviation environment in India

BY **AYUSHEE CHAUDHARY**

ON JANUARY 17, 2024, on the sidelines of Wings India 2024, Hyderabad played host to the eighth edition of the BizAvIndia conference. This gathering marked the evolution of the Business Aircraft Operators Association (BAOA), signaling its growing influence and organisational prowess, alongwith the growth of the industry.

As India's economy continues its upward trajectory, increasing attention is being sought to be directed towards the General Aviation (GA)/Business Aviation (BA) sectors for their indispensable contributions to the nation's development. Recognising this, the conference set out to address the myriad challenges facing the GA/BA industry in India while critically evaluating potential solutions. From discussions on safety and taxation to exploring avenues for fractional ownership and fostering the growth of GA/BA Maintenance, Repair, and Overhaul (MRO) facilities, the conference provided a comprehensive platform for industry experts, stakeholders, regulators, and government representatives to exchange ideas and insights. With a focus on fostering sustainable long-term growth, the event delved into new plans and innovative technologies aimed at enhancing the efficiency and expansion of the GA/BA industry in India.

PHOTOGRAPHS: BAOA

(TOP ROW FROM LEFT) HARSH VARDHAN SHARMA, PRESIDENT BAOA; GROUP CAPTION R.K. BALI, MANAGING DIRECTOR, BAOA; ASANGBA CHUBA AO, JOINT SECRETARY, MINISTRY OF CIVIL AVIATION; (ABOVE ROW FROM LEFT) SERDAR TAMER, DIRECTOR OF BUSINESS DEVELOPMENT, JET SUPPORT SERVICES, INC. (JSSI); ROHIT MATHUR, FOUNDER AND CEO OF HERITAGE AVIATION; AMAN KAPUR, SALES DIRECTOR FOR INDIA, JETHQ.

"I express our gratitude for the increased attention the government is giving to the GA/BA industry, recognising its essential role in the last mile connectivity and its contribution to the nation's economic growth. As the BAOA, we remain committed to playing a constructive and progressive role in ensuring the safe, efficient and optimal growth of the GA/BA industry in our country. The role of GA/BA has become even more crucial for our fast growing economy," said Harsh Vardhan Sharma, President BAOA. He added that at present, the GA/BA is driven by corporate charters, conventional and pilgrimage tourism and further highlighted the six crucial contributions it can further make.

- **Empowering Large Corporates:** Business Aviation provides essential power and mobility to large corporates, giving them a competitive edge in today's global economy. However, there's a pressing need to modernise the current fleet with more advanced aircraft to maintain this edge.
- **Last Mile Connectivity in Himalayan States:** Many Himalayan states are still lacking crucial last-mile connectivity. While the Ministry of Civil Aviation (MoCA) is working to address this issue, progress has been slow. Existing Non-Scheduled Operator (NSOP) operators in these regions are best positioned to meet the demand for improved connectivity.
- **Emergency Medical Services:** Business aviation can significantly contribute to providing emergency medical services, not only in difficult terrain but also in plains areas where access is limited.
- **Support for Aerial Work:** Suitable aircraft are needed for various aerial work tasks such as construction of roadways, power lines, and mapping. Due to the lack of suitable aircraft, foreign registered aircraft are temporarily imported under NSOP permits to carry out such projects.
- **Support for Defence and Paramilitary Forces:** Defence establishments and paramilitary forces regularly require helicopters to transport personnel, machinery, and goods. However, NSOP operations have struggled to meet these demands due to a lack of available aircraft.

JOINT SECRETARY, MINISTRY OF CIVIL AVIATION, ASANGBA CHUBA AO SAID, "WHILE THE COMMERCIAL AVIATION SECTOR CONTINUES TO SOAR, EFFORTS ARE UNDERWAY TO ENSURE THAT THE BENEFITS EXTEND TO ALL SEGMENTS."

- **Disaster Relief Support:** State governments often require helicopters for disaster relief operations to reach affected areas, saving lives, and providing relief material to those stranded. Business aviation can play a vital role in facilitating these relief efforts.

Adding regulator's perspective, Manish Kumar, Joint Director General of the Directorate General of Civil Aviation (DGCA), highlighted India's aviation sector's rapid growth, projecting it to become the third-largest passenger market by 2024. Emphasising safety as paramount, Kumar outlined DGCA's focus on safety in all aviation operations, supported by circular guidance materials and rigorous assessment processes for operational approvals. He addressed safety concerns in hill operations, emphasising the importance of skill and decision-making, with new training processes implemented. Kumar also noted safety challenges like runway incursions and loss of control, suggesting measures such as establishing committees for data collection at unlicensed airports and improving pilot preparation. He urged investment in competent safety managers to mitigate operational risks effectively, concluding with the critical importance of prioritising safety in aviation operations.

The helicopters sector under GA/BA has also been awaiting its due take-off in India ad holds immense scope and opportunities. Sunny Guglani, Head of Airbus Helicopters, Airbus India and South Asia & Chairman, FICCI Taskforce on Helicopter and General Aviation touched upon the helicopter industry. "As the South Asia Chairman of the FICCI Taskforce on Helicopter and General Aviation, I'm pleased to report significant progress in India's aviation industry. Despite challenges from the COVID-19 pandemic, both commercial and general aviation, including helicopters, are experiencing remarkable growth. MoCA's proactive initiatives have had a positive impact, particularly for helicopters. Airbus Helicopters has achieved significant milestones this year, including the selection of the H145 for offshore operations and the impending introduction of the H160 into the Indian market. Our ambition is to make helicopters more accessible to the masses, aligning with the vision of democratising air travel. Initiatives like Project Sajeevani aim to make helicopter services more accessible and affordable for medical emergencies," he said. There's also a growing need to utilise helicopters for law enforcement purposes to enhance public safety. Sustainability is a key focus area, with efforts underway to ensure helicopters can operate on sustainable aviation fuel by the end of the decade. Overall, prioritising accessibility, safety, and sustainability will enable the aviation industry to contribute to the growth and development of our nation.

Government's perspective was shared at the conference through Chief Guest, Joint Secretary, Ministry of Civil Aviation, Asangba Chuba Ao who remarked that in the dynamic landscape of India's aviation industry, we are witnessing promising days ahead, fueled by our nation's status as one of the fastest-growing aviation markets worldwide. From small aircraft to major players, the aviation domain encompasses a vast spectrum of operations. "I want to underscore the unwavering support of the MoCA for the GA/BA segment. While past support might have been lacking, the current trend indicates a positive trajectory, with a clear commitment to addressing industry needs. The Ministry's proactive engagement with stakeholders in recent years reflects a concerted effort to find solutions to even the most complex challenges. Every issue, no matter how daunting, is open for discussion and resolution," he said. He further assured that safety remains paramount, and efforts are underway to bolster the regulatory framework and workforce capacity to address the growing demands of the civil aviation sector. Despite constraints, significant strides have been made, with numerous appointments sanctioned to strengthen oversight in the GA/BA sector.

ROHIT KAPUR, PRESIDENT, JETHQ ASIA RAISING SOME PERTINENT ISSUES RELATED TO BUSINESS AVIATION IN INDIA

"I EXPRESS OUR GRATITUDE FOR THE INCREASED ATTENTION THE GOVERNMENT IS GIVING TO THE GA/BA INDUSTRY, RECOGNISING ITS ESSENTIAL ROLE IN THE LAST MILE CONNECTIVITY AND ITS CONTRIBUTION TO THE NATION'S ECONOMIC GROWTH," SAID HARSH VARDHAN SHARMA, PRESIDENT BAOA

The UDAN scheme stands as a testament to the government's commitment to fostering diversity and accessibility in aviation. This initiative has facilitated the introduction of various aircraft types into the Indian skies, catering to diverse needs across the country. Looking ahead, he acknowledged there are vast untapped opportunities in segments like helicopters and seaplanes, which have the potential to revolutionise transportation in

ASANGBA CHUBA AO, JOINT SECRETARY, MINISTRY OF CIVIL AVIATION, ADDRESSING DELEGATES AT THE BIZAVINDIA CONFERENCE

India. By expanding infrastructure and streamlining regulations, we can create an environment conducive to the growth of smaller aircraft operations.

"India's vast population presents immense opportunities for aviation growth, particularly in remote and underserved regions. While the commercial aviation sector continues to soar, efforts are underway to ensure that the benefits extend to all segments of the population. I urge stakeholders to seize the opportunities on the horizon and work collaboratively towards the advancement of India's aviation sector. Wings India serves as a platform to unite voices and foster business collaborations that will propel the industry forward," the Secretary concluded.

Sudhir Rajashirke, CEO JetClub, talked about making the best of the opportunities, stating that over the next decade, our main focus will be on analysing and developing the fixed-wing aircraft market, while recognising the significant growth potential of helicopters as a distinct segment. It's important to manage expectations regarding market penetration timelines, learning from past mistakes and adopting a strategic approach tailored to India's unique dynamics. Preparation efforts are underway within companies to align product offerings and operational frameworks with market requirements, emphasising the need for meticulous planning and understanding of customer preferences. Clear communication, transparent pricing, and robust back-end systems are essential for success, along with addressing taxation and legal considerations to ensure compliance and operational efficiency. By prioritising careful planning, communication, and adherence to regulatory standards, we can capitalise on opportunities and drive sustainable growth in the Indian business aviation industry.

Col Sanjay Julka - CEO - Technical, AR Airways threw the spotlight on the MRO situation in India. "As per the Director of McKenzie, India's prominence in aviation is not just limited to this decade but extends to the entire century. With the third-largest passenger traffic globally, there's a growing demand for MRO services from defence services. Despite invitations from defense officials to maintain their aircraft, the MRO sector faces challenges due to a disruption in demand. The imbalance between demand and supply is evident, primarily due to inadequate infrastructure and experience in the MRO industry. Only 1 per cent of the global MRO business is conducted in India, highlighting the need for improvement in infrastructure and regulatory frameworks. To address this:

- We need to enhance infrastructure through government schemes like Mudra and GIFT and align regulations with global standards.
- Additionally, encouraging OEMs to establish their presence in India can boost the MRO sector by training local manpower.
- Establishing a task force under MoCA and conducting micro-level studies are essential steps to drive industry growth.
- Collaborative efforts between industry associations and proactive measures are crucial to propel the MRO industry forward in India.

In the business aviation industry in India, several procedural challenges hinder the smooth execution of aircraft transactions. Aman Kapur, Sales Director, JetHQ, brought some of these key issues into focus. "Private category entities face delays in DGFT NOC approval due to infrequent meetings. Indian buyers encounter extended wait times for security clearances and banking approvals, putting them at a disadvantage compared to international buyers. RBI guidelines allow fund transfers, but using Escrow can cause delays as banks view it as a third party. Import restrictions on aircraft older than 18 years and complex processes for ferrying aircraft to India add further challenges. Recent DGCA guidelines also mandate additional documentation, complicating the registration process. Addressing these challenges is vital for a more efficient and competitive business aviation environment in India," he highlighted.

COL. SANJAY JULKA - CEO - TECHNICAL, AR AIRWAYS UNDERLINED THE IMBALANCE BETWEEN DEMAND AND SUPPLY, WHICH IS EVIDENT, PRIMARILY DUE TO INADEQUATE INFRASTRUCTURE AND EXPERIENCE IN THE MRO INDUSTRY

The deliberations converged that it is imperative for stakeholders within the business aviation industry in India to collaborate effectively with government bodies such as the Ministry and the DGCA to address the procedural challenges outlined. Informed decision-making and proactive engagement are essential for overcoming these hurdles and fostering a more efficient and competitive business aviation environment. By working together, industry professionals can contribute to the growth and development of business aviation in India, ensuring its continued success in the years to come. BAI

GOVERNMENT CAN FURTHER SUPPORT THE BUSINESS AVIATION INDUSTRY BY IMPLEMENTING SUPPORTIVE POLICIES AND REGULATORY FRAMEWORKS THAT STREAMLINE OPERATIONS, REDUCE BUREAUCRATIC HURDLES, AND FOSTER A CONDUCIVE BUSINESS ENVIRONMENT

Business Aviation Set to Soar, **But is Government Doing Enough?**

As India's business aviation industry embarks on its evolutionary journey, the synergy between innovation, government policies, and unwavering demand sets the stage for a transformative decade and beyond

BY **SWAATI KETKAR**

PHOTOGRAPH: SP Guide Pubns

THE BUSINESS AVIATION CRAZE mostly started post COVID-19 pandemic with cooped up people ready to splurge in luxury and keep their families safe from the potential infections by travelling in private jets. Companies also found it safer to send over their C-suite employees in private charters rather than take the risk of infection. But as COVID-19 pandemic died down, the business aviation market slowly settled down in its comfort zone with only its dedicated clients booking jets for business or personal travels. Or did it?

POST-PANDEMIC GROWTH IN BUSINESS AVIATION – MODEST OR HIGH?

Speaking on the post-pandemic demand of private charters, Rajan

Mehra, Chief Executive of Club One Air, goes on to explain that the demand has been exponential. "Most charter companies have clicked very impressive growth. We at Club One Air have seen an extremely encouraging growth of 75 per cent both on hours clocked and revenues," Mehra asserts.

"Once you start flying business, you rarely go back to economy provided you can afford it," says Colonel Sanjay Julka, Industry veteran and business aviation expert, Chief Executive, Technical at AR Airways. "During the pandemic, people were facing financial hardships. Those who migrated from First class to Private did so because they could afford it. Hence if affordability is not an issue, majority of these people, in fact 75-80 per cent of them will continue to fly business aviation charter planes," adds Julka.

Explaining the market dynamics Jaideep Mirchandani, Chairman Sky One, states:

- Firstly, the resumption of commercial flights has provided travellers with more options, impacting the exclusivity and perceived necessity of private charters.
- Secondly, economic uncertainties stemming from the pandemic have led to a cautious approach among businesses and individuals, influencing their travel preferences and budgets.

Going ahead, Mirchandani anticipates a gradual recovery and growth trajectory for the business aviation sector in India. "As the economy rebounds and travel restrictions ease further, we expect renewed interest and investment in private charters, especially for corporate travel and niche segments such as medical evacuations and luxury tourism," Mirchandani adds.

Moreover, strategic initiatives such as tailored marketing campaigns, innovative service offerings, and partnerships with hospitality and tourism stakeholders will be instrumental in stimulating demand and enhancing market penetration.

INDIAN 'EVENTS' LEADING UP TO BOOM IN BUSINESS AVIATION SECTOR

One most interesting part of the Cricket world cup 2023 hosted by India was the huge demand of private charters during some of the most important matches like the India-Pakistan or the India-Australia final match. On an average day, the Ahmedabad airport, run by the Adani Group, sees seven to eight arrivals and departures each handling a total of 16 private chartered flights. Just a month prior, on October 12-13 during the India-Pakistan match the airport recorded a whooping 30 departures and 29 arrivals.

Prior to the cricket world cup was the much-anticipated FIFA World Cup 2022 during which Indian soccer fans were in a frenzy to book private charters for their favourite game in UAE. The idea was to return after the match on the same day, thus saving time and hotel expenses.

Apart from cricket, the newly constructed Ayodhya airport handled about 101 charter flights in the two days leading up to the inauguration of the Ram Mandir ceremony with the airport handling over 39 private jets in less than 30 hours recording 350 VVIPs including Bollywood celebrities, business tycoons, artists, sports person etc. The rush was intense as the charters had to hover for over half an hour awaiting clearance.

After Cricket and religion comes weddings and the latest Ambani pre-wedding bash in Jamnagar broke all records of private charter moment in the small military airport of Jamnagar with the airport handling approximately over 400 charter flights in the weekend celebrations in the first week of March 2024.

Following wedding another theme that drives India is politics and as the final countdown to the 2024 Lok Sabha elections has kicked off, the private charter industry is bracing for a huge surge in demand for the upcoming rallies and political campaigns across the country. Charter companies are already facing multiple bookings

THE MIGRATION TO PRIVATE AVIATION, PARTICULARLY DURING THE PANDEMIC, HAS RESULTED IN AN INCREASED DEMAND FOR PRIVATE CHARTERS

PHOTOGRAPH: Air Charter Services

especially for twin-engine helicopters recording an almost 300 per cent surge as compared to the rest of the year.

Anticipating a further surge in private charter demand, Rajan Mehra calls the events as Bonanza for private jet companies. "The upcoming elections will further add to the profits of charter companies." Mehra adds.

Echoing Mehra's thoughts, Jaideep Mirchandani, Chairman Sky One called these events as catalysts for heightened demand as individuals and organisations seek efficient and exclusive travel solutions to attend these gatherings.

WHAT CAN THE GOVERNMENT CHANGE TO GROW BUSINESS AVIATION?

Sanjay Julka, CEO of AR Airways has highlighted certain policies that Indian government can amend to give a boost to Indian aviation industry. They are:

- Removing restriction of 18-year rule to import aircraft.
- Developed economies have no such restriction but in India, where the cost of money (bank rate of interest) is more than the west; having this rule inhibits growth of aviation.
- Removing requirement of flying 100 hours on type with an instructor, before being released as Captain. If we don't do it, we will fact an acute shortage of pilots in command, like it happened last year.
- Dual captaincy must be encouraged so that well experienced pilots are free to fly more than one type of aircraft at a time.
- Common ratings for engineers. Reducing number of categories will help improve overall availability of engineers.
- Government needs to immediately align our policies with the rest of the world in as far as leasing laws are concerned. We need to be full signatories of the Cape Town Convention and address the worries of Lessors especially on repossession of aircraft.
- Helicopters are not well exploited because of our archaic regulatory environment. Night operations are very restrictive in nature and as a result, we have had a very poor growth of helicopter industry in the country.
- Handling and maintaining of foreign aircraft need mutual validation of licenses. Mutual trust needs to be built up by high standard of engagement with regulators of other countries.
- Tax/ Royalty need to be at par with the neighbouring countries.

Mehra also throwed light on some of the government policies that needs attention like rationalising air turbine fuel tax which is very high at the moment and lowering of duty structures in import of business jets.

Governments hold the key to expansion of any critical sector and considerations must be given to the exploration of introducing tax incentives, which could encompass reduced corporate taxes or tax credits for both lessors and lessee airlines.

FRACTIONAL OWNERSHIP OF PRIVATE CHARTERS AND ITS IMPLICATIONS

Meanwhile the government is currently working on a policy for fractional ownership of private charters with an aim to boost the business aviation market in India. Fractional ownership as a concept has worked very well in the west with large number of business aviation aircraft. India is standing at a stage where there is a lot of demand, and this concept will help meet the rising demand is the common tone of the industry.

Hailing this move, Mehra says, "Club One Air was the pioneer of fractional ownership way back in 2006, but at that time Indian market was not ready for this type of hour-sharing concept." However, Mehra feels that since then India has come a long way and fractional ownership could actually be one of the successful moving ahead.

Echoing Mehra's thoughts, Mirchandani also feels that with aviation demand peaking, there is plenty of scope for finding solutions with fractional ownership. "This can keep the cost of maintenance low and will be a more sustainable solution in the long term."

However, Colonel Julka points out that even though the ministry is keen to implement it, they are unable to negotiate the issue of 'separate owners and operator.' Separate owner and operator is an essential concept for fractional ownership. It is followed worldwide and needs to be followed even in India. The industry has been in talks with the Government from past three years to implement fractional ownership.

Expressing his opinion, Julka says

- Present regulations are being perceived negatively by the government
- Fractional ownership would provide opportunity for people to own share of an aircraft enabling many individuals to invest in aviation by booking depreciation in their books
- Incentive to buy an aircraft.

PROACTIVE ADDRESSING OF CHALLENGES SUCH AS HIGH AIRPORT CHARGES, TALENT SHORTAGES, AND INFRASTRUCTURE DEFICIENCIES CAN UNLOCK THE FULL POTENTIAL OF THE BUSINESS AVIATION INDUSTRY IN INDIA

CHALLENGES FACING BUSINESS AVIATION

Another major pain point for business aviation in India is exorbitantly high airport charge. Industry experts have time and again voiced common opinion on the issue. Every cost can be a cause of distress and that is true across all business. The airport charges need to be monitored and rationalised by AERA (Airport Economic Regulatory Authority).

Some of the other challenges faced by business aviation in India apart from supply-demand of new aircraft is engineering challenges, talent shortage, and inadequate infrastructure. Mirchandani has given a few pointers to tackle these challenges:

- fostering partnerships with aircraft manufacturers to address supply-demand gaps,
- investing in advanced engineering capabilities and training programmes,
- collaborating with educational institutions to develop a skilled workforce,
- advocating for infrastructure improvements and regulatory reforms to support the growth of the sector.

"By addressing these challenges proactively, the business aviation industry in India can overcome barriers to growth and unlock its full potential," Mirchandani adds.

Meanwhile, it not just political parties that are interested in private charters, there is a steady stream of business class individuals,

AS INDIA'S ECONOMY CONTINUES ITS UPWARD TRAJECTORY, INCREASING ATTENTION IS BEING SOUGHT TOWARDS THE GENERAL AVIATION (GA)/BUSINESS AVIATION (BA) SECTORS FOR THEIR INDISPENSABLE CONTRIBUTIONS TO THE NATION'S DEVELOPMENT

families planning exotic vacations on charters and sports personnel wanting to take private charters, thus expanding the private charter market beyond capacity.

Government is playing its part by building more helipads and aerodromes in future to boost the business aviation sector. "The government is doing the best they can," says Mehra. "Infrastructure development was long overdue. Meanwhile the government has also encouraged airline and leasing companies to set up base in GIFT City which is benefiting the industry and saving foreign exchange," Mehra concludes.

While infrastructure development, such as building more helipads and aerodromes, is undoubtedly crucial for boosting the business aviation sector, it alone may not be sufficient to address all the challenges faced by existing and new players, feels Mirchandani. He further goes on to suggest that the government can further support the business aviation industry by implementing supportive policies and regulatory frameworks that streamline operations, reduce bureaucratic hurdles, and foster a conducive business environment. "Additionally, providing financial incentives or tax breaks for investments in the sector, promoting skill development initiatives to address talent shortages, and facilitating access to financing and insurance options can significantly benefit both existing and new players in business aviation," Mirchandani concludes.

Despite its immense potential, business aviation in India faces hurdles that hinder its rapid expansion. However, with concerted efforts from both the government and industry stakeholders to address these challenges, there is considerable scope for the business aviation sector to thrive and contribute significantly to the country's aviation landscape.

ILLUSTRATION: SP's Team

BUSINESS AVIATION IN INDIA – 10 YEARS FROM NOW

The coming decade is expected to be one of the most promising decades in business aviation. According to Mehra, "The next few years will see tremendous growth in business aviation along with commercial and scheduled airlines," Mehra adds.

Col Julka pins his hope that with the third strong Lok Sabha at the office, government will bring in more changes. He predicts that tax and regulatory environment would be made at par with the developed economies and neighbouring countries. He also paints an extremely hopeful picture of the future with new final assembly lines (FAL) being established in the country along with OEM approved MROs. "Big players like Tata, Adani, Ambani's will enter this sector. We will see a Wichita type city in the country," Julka adds.

Technological advancements, globalisation, and supportive government policies will play its part in the growth of business aviation in India. "With innovations in aircraft technology improving efficiency and safety, coupled with increasing demand from high-net-worth individuals and corporations, the sector is set to flourish," adds Mirchandani. "Despite potential challenges, such as economic fluctuations, the overall outlook for business aviation is highly favourable, making it one of the most promising periods yet for the industry," Mirchandani signs off.

India has 140 billionaires and around 175 business jets while US has 750 billionaires and over 10,000 business jets. Going ahead from here, business aviation in India will only see an upward trajectory not only in this decade but in this century. Quoting an unknown personality Julka says "It is not India's decade but it's India's century." BAI

Gulfstream's Eco-Conscious Initiatives

With a steadfast commitment to reducing its carbon footprint and pioneering innovative solutions, Gulfstream's initiatives for environmental responsibility are leading the industry towards a more sustainable future

BY **AYUSHEE CHAUDHARY**

GULFSTREAM SUCCESSFULLY COMPLETED THE WORLD'S FIRST TRANS-ATLANTIC FLIGHT USING 100 PER CENT SAF

PHOTOGRAPHS: Gulfstream

GULFSTREAM AEROSPACE, A TRAILBLAZER in the private jet industry, is spearheading sustainability that sets a new standard for environmental responsibility. Gulfstream significantly focuses on sustainability through aircraft, fuel, operations as well as culture. Since 2014, Gulfstream states it has reduced its operational emissions by 18 per cent while growing its facilities more than 30 per cent. It also boasts of its next-generation fleet as the most fuel-efficient in the industry.

Gulfstream's commitment to aircraft innovation drives the development of technologies aimed at reducing fuel consumption and minimising environmental impact. The company's dedication to excellence ensures the creation of high-performance, high-efficiency aircraft tailored to sustainability goals. From advanced avionics enhancing flight safety to state-of-the-art aerodynamics providing range and efficiency advantages, Gulfstream's innovations prioritise environmental sustainability.

"GULFSTREAM PRIDES ITSELF ON BEING A LEADER IN SUSTAINABILITY. THE RECENT G600 100% SAF FLIGHT WAS AN IMPORTANT STEP IN TESTING THE USE OF 100% SAF IN BOTH ENGINES IN SPECIFIC ENVIRONMENTAL CONDITIONS. THE BUSINESS AVIATION INDUSTRY AS A WHOLE BENEFITS FROM THESE TYPES OF MISSIONS WHICH ALSO SERVE TO BETTER EDUCATE THE PUBLIC ON THE IMPORTANT WORK WE ARE ALL DOING TO REACH THE INDUSTRY'S GOALS OF CARBON NEUTRALITY."
— MARK BURNS, PRESIDENT, GULFSTREAM

Not just technically but in the realm of interior design too, Gulfstream prioritises responsible choices, offering materials made from renewable resources and recycled content. Sustainable interior finishes include vegetable-dyed, humanely sourced leathers, natural fiber fabrics and carpets, countertops with recycled content, and elegant veneers meeting internationally recognised ecological, social, and ethical standards. Gulfstream's sustainability programme guides efficient operations, focusing on lowering waste and energy usage through employee engagement, production process improvements, and the adoption of hybrid, electric, and other low-emission vehicles.

Gulfstream continues to lead the way in sustainability, here's a look at some of its initiatives and achievements.

WORLD'S FIRST TRANS-ATLANTIC FLIGHT USING 100 PER CENT SAF

At the forefront of this endeavor is the recent completion of the world's first trans-Atlantic flight using 100 per cent sustainable aviation fuel (SAF). Towards the end of last year, Gulfstream Aerospace Corp. announced the successful completion of the world's first trans-Atlantic flight using 100 per cent SAF. Accomplished on November 19, the flight took place on a Gulfstream G600 aircraft, which departed the company's headquarters in Savannah and landed 6 hours, 56 minutes later at Farnborough Airport in England. Powered by Pratt & Whitney PW815GA engines, both using 100 per cent SAF, this mission showcased the potential for aviation's future use of renewable fuels, which feature lower carbon, sulfur and aromatics. The data collected from this endurance flight aims to help Gulfstream and its key suppliers gauge aircraft compatibility with future low-aromatic renewable fuels, particularly under cold temperatures for extended flight durations. The SAF used on the flight was produced by World Energy and delivered by World Fuel Services and comprised of 100 per cent Hydroprocessed Esters and Fatty Acids (neat HEFA), which has at least 70 per cent lower lifecycle CO_2 emissions than fossil-based jet fuel, helping to reduce aviation's impact on climate. Additionally, this zero added aromatics fuel has a reduced impact on local air quality and very low sulfur content, which can reduce non-CO_2 environmental impacts. Key partners such as Honeywell, Safran, and Eaton supported this milestone, reflecting Gulfstream's leadership in advancing sustainable aviation.

ADDING ACHIEVEMENTS AND ACCREDITATIONS

This trans-Atlantic groundbreaking flight is just one aspect of Gulfstream's multifaceted sustainability initiative. In 2023, Gulfstream also earned four National Business Aviation Association (NBAA) Sustainable Flight Department Accreditations in all four categories including flight, operations, ground support, and infrastructure, a testament to its leadership in sustainability. The NBAA programme, launched in 2022, recognises entities meeting exceptional environmental sustainability standards across flight, ground support, operations, and infrastructure. Gulfstream's culture of innovation drives sustainable practices through advanced aircraft technology, responsible operations, and investments in SAF.

SPEEDING UP TO SUSTAINABILITY

Last year, Gulfstream also achieved a speed record using SAF with the Gulfstream G700, flying from Savannah to Tokyo at an average speed of Mach 0.89 in 13 hours. This marked the G700's first visit to Japan and demonstrated Gulfstream's commitment to sustainability. Gulfstream has surpassed 2 million nautical miles (3.7 million kilometers) flown on SAF blends since 2016, demonstrating the company's commitment to reducing its carbon footprint. Gulfstream also received the Sustainability Leadership Award from the Business Intelligence Group for the second time, recognising its advocacy for renewable fuel, manufacturing efficiency improvements, and green facility certifications.

CONTINUED COMMITMENT

Additionally, Gulfstream conducted the first flight of the Gulfstream G800 powered by a SAF blend, further showcasing its commitment to advancing sustainable aviation technology. Furthermore, Gulfstream's Farnborough, England, customer support facility earned ISO 14001 certification for environmental management systems, further solidifying its dedication to environmental stewardship. Gulfstream underlines it uses internationally recognised environmental management systems such as ISO 14001 and considers key details, from incorporating advanced robotics into the production processes to drought-resistant landscaping and energy-saving light, heating, and cooling systems—all with the goal of making its global network of facilities the most energy-efficient in the industry.

FIRST BIZJET OEM TO SIGN CLEAN SKIES FOR TOMORROW 2030

In 2021, Gulfstream became the first business jet OEM to sign the World Economic Forum's Clean Skies for Tomorrow 2030 Ambition Statement. This statement outlines the industry's path to achieving net-zero emissions by 2050 and increasing SAF use. Moreover, Gulfstream demonstrated the performance capabilities of SAF with record-

GULFSTREAM SUSTAINABILITY

Our next-generation fleet is the most fuel-efficient in the industry.

AIRCRAFT INNOVATION

ENHANCED FLIGHT VISION SYSTEM

•

AERODYNAMIC WING

•

ADVANCED ENGINES

Up to
33% More
Fuel-Efficient
than predecessor models

SUSTAINABLE AVIATION FUEL (SAF)

First business jet OEM to fly on **100% SAF**

First business jet OEM to sign **SAF Supply Agreement**

2M + NM (3.7M+km) Flown on SAF blends

EFFICIENT OPERATIONS

2.2M + SQFT (200K + sq m)) LEED & BREEAM Buildings

4 NBAA Sustainable Flight Department Accreditations

ISO 14001 Environmental Management Systems

2019 & 2022 Business Intelligence Group Sustainability Leadership Award

Reduced Operational Emissions **18%** While Growing Facilities **30+%**

FUTURE FOCUSED

INDUSTRY GOAL

Net-Zero CO_2 Emission by
2050

GENERAL DYNAMICS GOAL

CO_2 Emission
↓ 40%
by 2034

GULFSTREAM OPERATIONS GOALS 2021-2025

Waste
↓ 25%
Energy
↓ 15%
Greenhouse Gas Emissions
↓ 15%
Water Usage
↓ 10%

Source: Gulfstream

setting flights by the Gulfstream G500, earning the first-ever Sustainable Wings certification from the National Aeronautic Association.

FIRST BUSINESS AIRCRAFT OEM TO FLY ON 100 PER CENT SAF

Additionally, the aerospace manufacturer was the first business aircraft original equipment manufacturer to fly on 100 per cent SAF. Additionally, Gulfstream's facilities encompass over 2.2 million square feet of green buildings in the US and the UK. With a focus on sustainability, the company has reduced greenhouse gas emissions by 18 per cent since 2014 while expanding facilities by 30 per cent.

Gulfstream is redefining private jet travel through its unwavering commitment to sustainability. From pioneering SAF-powered flights to earning prestigious sustainability accolades, leading the industry towards a greener, more sustainable future in aviation. Its evident that Gulfstream places sustainability at the core of its operations to address environmental concerns in the private jet industry.

"Gulfstream is innovating for a sustainable future," said Mark Burns, President, Gulfstream. "One of the keys to reaching business aviation's long-term decarbonisation goals is the broad use of SAF in place of fossil-based jet fuel. The completion of the flight helps to advance business aviation's overarching sustainability mission and create positive environmental impacts for future generations."

Gulfstream's holistic approach to sustainability extends beyond its operations and flight missions. The company's commitment to sustainability is evident in its carbon offset programmes, which allow operators to mitigate their flights' environmental impact through contributions to carbon reduction projects. Gulfstream's continuous improvement initiatives, transparent communication, and collaboration with stakeholders reinforce its dedication to sustainability as a continuous journey.

GULFSTREAM'S PILLARS OF SUSTAINABILITY

Gulfstream's sustainability strategy encompasses three pillars — energy and emissions; operations; and culture and learning — and supports industry goals established by the NBAA, the General Aviation Manufacturers Association (GAMA) and the International Business Aviation Council (IBAC). The goals are a 2 per cent improvement in fuel-efficiency per year from 2010 to 2020; carbon-neutral growth from 2020 onward; and net-zero carbon dioxide emissions by 2050.

SUSTAINABLE CHOICES BEYOND THE ENGINE

- **Energy and Emissions:** Gulfstream focuses on minimising environmental impact across all operational stages, emphasising aircraft design, fuel efficiency, and ground operations.
- **Aircraft Design:** Gulfstream prioritises fuel efficiency through advanced engine technologies and aerodynamic designs, reducing fuel consumption and emissions.
- **Flight Cycle Optimisation:** Collaborating with air traffic control, Gulfstream optimises flight paths and implements continuous improvement initiatives to enhance fuel efficiency.
- **Emission Reduction:** Gulfstream minimises emissions from ground operations by optimising handling procedures and transitioning to electric or hybrid ground service equipment.
- **Operations and Culture:** Gulfstream fosters an environmentally responsible culture internally, emphasising employee engagement, sustainable infrastructure, procurement practices, and low-emission transportation.
- **Learning:** Gulfstream promotes continuous learning and innovation through collaboration with stakeholders, open communication, and investment in research and development.
- **Embracing SAF:** Gulfstream actively promotes the adoption of SAF, participating in SAF-powered flights to showcase viability and support industry-wide initiatives. They have facilitated over 1.4 million gallons of SAF usage and flown more than 1.5 million nautical miles on SAF-powered flights since 2016.
- **Carbon Offset Programmes:** Gulfstream offers carbon offset programmes since 2019, allowing operators to offset their flights' carbon footprint through contributions to carbon reduction projects.

GULFSTREAM ALSO FLEW THE INDUSTRY'S FIRST 100 PER CENT SAF FLIGHT

GREEN BUILDINGS

Gulfstream's commitment to sustainability is further exemplified by its LEED and BREEAM certified green buildings, covering over 2.2 million square feet and decreasing environmental impact and resource consumption. In fueling cleaner flights, Gulfstream supports the development of SAF and regularly flies company and test aircraft on SAF blends. With over 2 million nautical miles flown on SAF blends, Gulfstream has demonstrated the potential to reduce net CO_2 emissions by nearly 80 per cent compared to conventional jet fuel.

Fostering a strong sustainability culture, Gulfstream leads with integrity, conserving energy and resources, and supporting local communities. The company continuously proves that it believes in responsible use of natural resources, supports local programmes, and invests in future leaders through student and internship programmes. Recognised with the Business Intelligence Group's Sustainability Leadership Awards in 2019 and 2022, Gulfstream continues to lead the way in sustainable practices and environmental stewardship. BAI

SWISS INGENUITY: NUMEROUS INTERIOR OPTIONS AND DESIGNS ALLOW YOU TO CREATE A UNIQUE PC-24 TO SATISFY YOUR OWN PERSONAL STYLE

The New Pilatus PC-24 is Here

At Wings India 2024 show, held in Hyderabad earlier this year, for the first time, Swiss company Pilatus showcased its recently introduced Business Jet PC-24 with more Range, more Payload, and even more Possibilities

BY **SP'S CORRESPONDENT**

PHOTOGRAPHS: Pilatus

BEGINNING WITH NEW AIRCRAFT deliveries in 2024, Pilatus has extended the payload-range capability of its Super Versatile Jet to achieve a maximum range with six passengers of 2,000 nautical miles (3,704 kilometers). The payload increase was achieved by refining both wing and fuselage structural elements to reduce the airframe empty weight while simultaneously increasing the maximum gross take-off weight limit. It's simply Swiss engineering at its best. The PC-24 now offers a full fuel payload of a single pilot plus 1,315 pounds (596 kg), and features a class-leading maximum payload capacity of 3,100 pounds (1,406 kg).

SWISS CRAFTMANSHIP: MANY COMPONENTS OF THE AIRCRAFT HAVE BEEN INGENUOUSLY OPTIMISED TO GIVE THE PC-24 INCREASED PERFORMANCE, RANGE AND PAYLOAD CAPABILITIES

The outstanding short-field performance of the PC-24 opens up an incredible level of mobility. The combination of short runway capability and certification for operation on grass, gravel, dirt, and snow offers a distinct advantage, giving you the ability to use hundreds of additional airports that traditional jets cannot. By accessing smaller airports closer to the destination, you'll waste far less time on ground transfers and lengthy airport delays.

There is plenty of room for your valuable belongings, carried in a heated and fully pressurized cabin section, which is accessible at any time during the flight. With the PC-24's best in class cargo capacity of 3,100 lbs (1,406 kg), you can bring it all. Numerous interior options and designs allow you to create a unique PC-24 to satisfy your own personal style. Upon boarding, you'll be impressed by the generous space and striking elegance of the PC-24's cabin, with comfort and ergonomics at the forefront.

All Pilatus aircraft are certified for single-pilot operation. And the PC-24 is no exception to this rule. The cockpit layout is efficient and intuitive. From the comfort of his or her seat, the pilot finds an environment that has been designed specifically to reduce workload and improve safety while providing full situational awareness under all circumstances. Simply put, the PC-24 is the perfect combination of single-pilot operational know-how, and state-of-the-art avionics technology. And of course the PC-24 can also be flown by two pilots.

Many components of the aircraft have been ingenuously optimised to give the PC-24 increased performance, range and payload capabilities. In their constant pursuit of perfection, Pilatus took something great and made it even greater. That's why the new PC-24 is a Super Versatile Jet - more runways, more space, more possibilities. BAI

PC-24 SPECIFICATIONS

Dimensions (Exterior)		
Wing span	55 ft 9 in	17.00 m
Length	55 ft 2 in	16.80 m
Height	17 ft 4 in	5.30 m
Horizontal tail span	22 ft 4 in	6.80 m
Dimensions (Interior)		
Cabin length (cockpit/cabin partition to aft pressure bulkhead)	23 ft 0 in	7.01 m
Cabin width	5 ft 7 in	1.69 m
Cabin floor width	3 ft 10 in	1.16 m
Cabin height (continuous flat floor)	5 ft 1 in	1.55 m
Cabin volume (cockpit/cabin partition to aft pressure bulkhead)	501 ft^3	14.20 m^3
Baggage compartment volume (aft partition in forward position)	90 ft^3	2.50 m^3
Baggage compartment volume (aft partition in aft position)	51 ft^3	1.40 m^3
Passenger door height	4 ft 5 in	1.34 m
Passenger door width	2 ft 0 in	0.60 m
Cargo door height	4 ft 3 in	1.30 m
Cargo door width	4 ft 1 in	1.25 m
Weights		
Maximum ramp weight	18,840 lb	8,545 kg
Maximum take-off weight	18,740 lb	8,500 kg
Maximum landing weight	17,340 lb	7,865 kg
Maximum zero fuel weight	14,660 lb	6,650 kg
Usable fuel (888.5 US gal/3363 l)	5,964 lb	2,705 kg
Maximum payload	3,100 lb	1,406 kg
Maximum payload with full fuel	1,314 lb	596 kg
Basic operating weight (executive configuration 6 seat, incl. one pilot)	11,559 lb	5,243 kg
Powerplant		
Manufacturer	Williams International	
Model	FJ44-4A QPM	
Normal take-off thrust (per engine)	3,420 lbf	1,551 kgf
Automatic thrust reserve allowing thrust increase to	3,600 lbf	1,633 kgf
Dual channel Full Authority Digital Engine Control (FADEC)		
Aircraft cooling or heating on the ground under own power (Quiet Power Mode)		
Time between overhaul	5,000 h	
Hot section inspection	2,500 h	
Scheduled inspection interval	600 h	
Performance		
Altitude		
Maximum certified altitude	45,000 ft	13,716 m
Single engine service ceiling	29,100 ft	8,870 m
Landing Distance		
Over 50 ft (15 m) obstacle (MLW, ISA, sea level, dry paved runway)	2,410 ft	734 m

Source: Pilatus

THE BUSINESS AND GENERAL AVIATION MARKET EXPERIENCED A REMARKABLE YEAR IN 2023, BUOYED BY AN INCREASING NUMBER OF HIGH-NET-WORTH INDIVIDUALS SEEKING PRIVATE AVIATION SOLUTIONS

Flying Forward

BY **ROHIT GOEL**

GAMA (General Aviation Manufacturers Association) recently released their General Aviation Aircraft Shipment and Billing 2023 year-end report, showing an increase in shipments and billings in all aircraft segments, compared to last year

PHOTOGRAPH: Dassault Aviation

BUOYED BY A POST-PANDEMIC surge in demand and fuelled by the increasing ranks of global affluence, the general aviation market witnessed a remarkable year in 2023. This growth was propelled by two key factors: pent-up demand from individuals eager to travel freely after pandemic restrictions and the rise of high-net-worth individuals (HNWIs) and ultra-high-net-worth individuals (UHNWIs) seeking private aviation solutions. As a consequence, the acquisition of helicopters and business jets saw a significant uptick, painting a positive outlook for the future of the industry.

"For the first time in more than a decade, the general aviation manufacturing industry has eclipsed 4,000 aircraft delivered. In addition

GENERAL AVIATION AIRCRAFT SHIPMENT REPORT – 2023

Aircraft Shipments by Type Manufactured Worldwide

	QI	QII	QIII	QIV	Year-To-Date
Single-Engine Piston and Electric	251	374	389	494	1,508
Multi-Engine Piston	39	45	38	52	174
Total Piston Airplanes	**290**	**419**	**427**	**546**	**1,682**
Single-Engine Turboprops	102	157	124	180	563
Multi-Engine Turboprops	15	16	25	19	75
Total Turboprop Airplanes	**117**	**173**	**149**	**199**	**638**
Business Jets	**117**	**179**	**159**	**275**	**730**
Total Turbine Airplanes	**234**	**352**	**308**	**474**	**1,368**
Grand Total Airplane Shipments	**524**	**771**	**735**	**1,020**	**3,050**
Grand Total Airplane Billings	**$3,69,32,45,713**	**$5,00,40,66,428**	**$5,22,59,17,335**	**$8,27,45,64,336**	**$23,37,77,93,812**
Piston Helicopters	56	56	46	51	209
Turbine Helicopters	153	186	130	284	753
Grand Total Helicopter Shipments	**209**	**242**	**176**	**335**	**962**
Grand Total Helicopter Billings	**$82,29,92,174**	**$1,04,36,94,837**	**$82,57,27,435**	**$1,70,88,69,616**	**$4,40,12,84,062**

Source: GAMA

to this strong showing, there are robust and growing order backlogs for all segments of aircraft. This is a testament to the resilience of our industry and the integral role that general and business aviation plays in our communities," said Pete Bunce, GAMA President and CEO.

2023 – CONFIRMATION OF GROWTH

According to GAMA report, airplane shipments in 2023, when compared to 2022, saw piston airplane deliveries increase 11.8 per cent from the same reporting companies, with 1,682 units; turboprop airplane deliveries increase 9.6 per cent, with 638 units; and business jet deliveries increase 2.5 per cent, with 730 units. The value of airplane deliveries for 2023 was $23.4 billion, an increase of approximately 2.2 per cent. Throughout the fiscal year, the aviation industry witnessed a notable trajectory in aircraft shipments, underscored by a consistent upward trend, with the fourth quarter (QIV) emerging as the zenith in terms of shipment volume. Noteworthy is the resilient growth in single-engine piston and electric aircraft shipments, which displayed a steady incline across all quarters, signifying a persistent demand for these aircraft types. Business jets, a pivotal segment in the aviation market, experienced remarkable expansion, particularly in QIV, accentuating their pivotal role in shaping market dynamics. Turboprop airplanes, encompassing both single and multi-engine variants, maintained a steady cadence of shipments, albeit amidst periodic fluctuations, showcasing a resilient market presence.

An intriguing facet of the analysis is the discernible surge in airplane billings as the fiscal year progressed, with QIV serving as the apex in terms of financial transactions. This surge in billings was largely propelled by the robust performance of business jets, characterised by their upscale price points and concomitant contribution to revenue generation. Furthermore, the substantial contribution of single-engine piston and electric airplanes to the overall billings underscored their economic significance within the aviation ecosystem, facilitated by their commendable shipment volumes.

THE GENERAL AVIATION MANUFACTURING INDUSTRY DELIVERED OVER 4,000 AIRCRAFT IN 2023, MARKING A SIGNIFICANT MILESTONE AND REFLECTING THE INDUSTRY'S RESILIENCE

Piston helicopter deliveries for 2023, when compared to 2022, saw an increase of 7.7 per cent, with 209 units; and preliminary civil-commercial turbine helicopter increase 10.4 per cent, with 753 units. The preliminary value of helicopter deliveries for 2023 was $4.4 billion, an increase of approximately 11.2 per cent. The analysis of helicopter shipments unveiled a landscape punctuated by fluctuations throughout the fiscal year, culminating in QIV emerging as the preeminent period in terms of shipment frequency. Notable is the consistent growth trajectory exhibited by turbine helicopters, outstripping their piston counterparts, thereby highlighting a discernible preference for high-performance aircraft within the market landscape.

AIRCRAFT SHIPMENTS & BILLINGS: COMPARISON OF LAST FIVE YEARS						
AIRPLANE SHIPMENTS	**2019**	**2020**	**2021**	**2022**	**2023**	**% CH. 22-23**
Piston Airplanes	1324	1331	1409	1505	1682	+11.8%
Turboprop Airplanes	525	443	527	582	638	+9.6%
Business Jets	809	644	710	712	730	+2.5%
AIRPLANE SHIPMENTS	**2,658**	**2,408**	**2,646**	**2,799**	**3,050**	**+9.0%**
AIRPLANE BILLINGS	**$23.5B**	**$20.0B**	**$21.6B**	**$22.9B**	**$23.4B**	**+2.2%**
HELICOPTER SHIPMENTS						
Piston Helicopters	179	142	181	194	209	+7.7%
Turbine Helicopters	698	567	679	782	753	+10.4%
HELICOPTER SHIPMENTS	**877**	**709**	**860**	**876**	**962**	**+9.8%**
HELICOPTER BILLINGS	**$3.8B**	**$3.4B**	**$4.2B**	**$4.0B**	**$4.4B**	**+11.2%**

Source: GAMA

Mirroring the trend observed in airplane billings, helicopter billings witnessed a commendable uptick over the fiscal year, with QIV marking the zenith in terms of financial transactions. Turbine helicopters, synonymous with elevated price points commensurate with their superior performance, emerged as a significant contributor to overall billings, underlining their pivotal role in shaping revenue dynamics within the helicopter segment.

TRENDS OVER PREVIOUS YEARS

The shipments of Piston Airplanes have shown a consistent upward trend from 2019 to 2023. In 2019, there were 1,324 units shipped, and this number steadily increased to 1,682 units by 2023, marking a cumulative increase of 358 units over the period. Notably, the growth rate was highest between 2022 and 2023, reaching 11.8 per cent. Although Turboprop Airplane shipments experienced fluctuations, the overall trend has been positive. From 2019 to 2023, the total number of shipments increased by 113 units. The highest growth rate of 9.6 per cent was observed between 2022 and 2023. Shipments of Business Jets have shown some variability over the years, yet there has been a slight overall increase. Between 2019 and 2023, the total number of shipments increased by 81 units. The highest growth rate of 2.5 per cent was observed between 2021 and 2022. The cumulative aircraft shipments increased steadily over the years, reaching 3,050 units in 2023. There was a notable increase of 351 units between 2022 and 2023, representing a growth rate of 9.0 per cent.

Billings for Piston Airplanes have demonstrated a consistent upward trajectory from 2019 to 2023. In 2023, the billings amounted to $23.4 billion, reflecting a slight increase of 2.2 per cent from the previous year. Billings for Turboprop Airplanes have followed a similar pattern to shipments, with a steady increase over the years. The highest growth rate of 6.6 per cent was observed between 2021 and 2022. While billings for Business Jets exhibited fluctuations, there was an overall positive trend. In 2023, the billings amounted to $22.9 billion, showing a modest increase of 2.5 per cent from the previous year. The total aircraft billings increased steadily over the years, reaching $23.4 billion in 2023. There was a notable increase of 2.2 per cent in billings from 2022 to 2023.

Shipments of Piston Helicopters have shown a steady increase over the years. The highest growth rate of 7.7 per cent was observed between 2022 and 2023. Turbine Helicopter shipments witnessed fluctuations, yet there is an overall increasing trend. The highest growth rate of 10.4 per cent was observed between 2021 and 2022. The total number of helicopter shipments increased steadily over the years, reaching 962 units in 2023. There was a notable increase of 86 units between 2022 and 2023, representing a growth rate of 9.8 per cent. Billings for Piston Helicopters have increased steadily over the years, reaching $4.4 billion in 2023. There was a notable increase of 11.2 per cent in billings from 2022 to 2023. Billings for Turbine Helicopters have followed a similar pattern to shipments, with a steady increase over the years. The highest growth rate of 10.4 per cent was observed between 2021 and 2022.

THERE IS A CLEAR TRAJECTORY OF POSITIVE GROWTH IN BOTH AIRPLANE AND HELICOPTER SHIPMENTS AND BILLINGS, WITH NORTH AMERICA AND EUROPE DEMONSTRATING STEADY GROWTH OR STABILITY, WHILE THE ASIA PACIFIC REGION PRESENTS SIGNIFICANT GROWTH POTENTIAL, PARTICULARLY IN TURBOPROPS

REGIONAL TRENDS BY AIRCRAFT TYPE

In North America, the market for general aviation aircraft shows steady growth across most aircraft types. For Piston Engine aircraft, there is a slight increase in shipments over the years, indicating a consistent demand. Turboprops exhibit some fluctuations but generally maintain a stable proportion of shipments. Business Jets consistently dominate the market, with high proportions of shipments each year, reflecting a strong demand for business aviation in the region.

GENERAL AVIATION AIRCRAFT SHIPMENT REPORT – BY DELIVERY REGION					
Year 2019	**North America**	**Europe**	**Asia Pacific**	**Latin America**	**Middle East & Africa**
Piston Engine	66.4%	11.2%	12.8%	4.4%	5.1%
Turboprops	50.3%	12.8%	14.6%	16.8%	5.4%
Business Jets	67.1%	14.3%	8.0%	5.9%	4.6%
Total Shipments in Region	**63.4%**	**12.6%**	**11.6%**	**7.4%**	**5.0%**
Year 2020					
Piston Engine	67.9%	10.4%	17.4%	2.1%	2.2%
Turboprops	54.9%	14.4%	14.0%	11.7%	5.0%
Business Jets	66.0%	16.7%	8.1%	7.2%	1.9%
Total Shipments in Region	**64.7%**	**13.1%**	**14.0%**	**5.5%**	**2.7%**
Year 2021					
Piston Engine	68.7%	11.5%	14.4%	3.0%	2.3%
Turboprops	52.6%	12.3%	13.1%	15.7%	6.3%
Business Jets	65.9%	18.0%	6.3%	5.9%	3.8%
Total Shipments in Region	**64.3%**	**13.6%**	**11.7%**	**6.7%**	**3.6%**
Year 2022					
Piston Engine	69.9%	11.8%	9.7%	5.7%	2.8%
Turboprops	55.7%	10.7%	9.6%	18.2%	5.8%
Business Jets	67.6%	16.3%	5.1%	6.2%	4.9%
Total Shipments in Region	**66.0%**	**12.8%**	**8.4%**	**8.7%**	**4.1%**
Year 2023					
Piston Engine	77.1%	9.5%	7.2%	4.1%	2.1%
Turboprops	53.6%	16.9%	6.6%	16.0%	6.9%
Business Jets	74.9%	12.1%	5.5%	4.8%	2.7%
Total Shipments in Region	**71.1%**	**11.9%**	**6.6%**	**7.0%**	**3.4%**

Source: GAMA

Similar to North America, Europe also demonstrates stable growth in general aviation aircraft shipments. Piston Engine aircraft show a slight increase in shipments, suggesting sustained demand in this market. Turboprops exhibit fluctuations but overall maintain a stable proportion of shipments. Business Jets show a clear growth trend, with increasing proportions of shipments over the years, indicating a rising demand for business travel in Europe.

The Asia Pacific region shows significant growth potential in the market for general aviation aircraft. While Piston Engine aircraft shipments remain relatively stable, Turboprops experience notable growth, especially from 2019 to 2022, indicating increasing demand for this type of aircraft in the region. Business Jets also show variability but with an overall increasing trend, suggesting a growing market for business aviation in Asia Pacific.

Latin America's market for general aviation aircraft presents mixed trends across different aircraft types. There is a decline in shipments for Piston Engine aircraft, indicating a diminishing demand. However, Turboprops show significant fluctuations but maintain a relatively high proportion of shipments, suggesting some growth potential in this segment. Business Jets exhibit variable trends but with a slight overall increase, indicating potential growth in the market for business aviation in Latin America.

The Middle East & Africa region shows a stable market for general aviation aircraft, with minimal fluctuations in shipments across aircraft types. Piston Engine aircraft shipments remain relatively stable, with a slight decline in recent years. Turboprops exhibit fluctuations but maintain overall stability. Business Jets show variability in shipments but without a clear trend, indicating a stable market without significant growth or decline in demand for business aviation in the region.

CONCLUSION

There is a clear trajectory of positive growth in both airplane and helicopter shipments and billings over the last year, underscored by the resilient performance of business jets and turbine helicopters. Overall, the trends in general aviation aircraft shipments reveal a dynamic and evolving market. While North America and Europe demonstrate steady growth or stability in shipments across all aircraft types, Asia Pacific presents significant growth potential, particularly in Turboprops. Latin America shows mixed trends, with declining shipments for Piston Engine aircraft but potential growth in Turboprops and Business Jets. The Middle East & Africa region appears to have a stable market without significant fluctuations in shipments across aircraft types. BAI

SEVERAL EVTOLS COMPANIES SHOWCASED THEIR IDEAS, PROTOTYPES AND EVEN MOCK UPS AT WINGS INDIA 2024 TO ATTRACT THE INDUSTRY, POTENTIAL INVESTORS AS WELL AS THE VISITORS TOWARDS THEIR ADVANCED TECHNOLOGY

Advancing Aviation Mobility

From eVTOL urban air taxis to hybrid-powered regional aircraft designs, aviation is set to be redefined and open untapped markets in the decades ahead

BY **AYUSHEE CHAUDHARY**

A MAJOR HIGHLIGHT AT this year's Wings India was the Advanced Air Mobility Conference.

A 'first of its kind' event in India, that became a dynamic platform for industry experts, innovators, policymakers, and influencers to convene and delve into the forefront of cutting-edge aviation technologies in India. Renowned speakers from top companies and organisations offered insights, shared experiences, and presented developments, offered a thorough comprehension of the opportunities and challenges on the horizon in the Indian aviation landscape.

Autonomous aviation is poised to reshape the future workforce, usher in new industries, and revolutionise communities and lifestyles. It is crucial for stakeholders to anticipate these changes, and optimise benefits while addressing potential drawbacks. India stands as a potential global hub for Advanced Air Mobility solutions. These range from electric VTOL (Vertical Take-Off & Landing) urban air taxis to hybrid-powered regional aircraft designs, promising to redefine aviation and open untapped markets in the decades ahead. India, with its vast potential, presents a fertile ground for the implementation of these cutting-edge technologies, offering solutions for regional connectivity between its burgeoning cities and addressing traffic congestion within urban centers.

At the recently concluded Dubai Air Show, Bengaluru emerged as a potential launchpad for the future of electric vertical takeoff and landing (eVTOL) aircraft, as Eve Air Mobility and Hunch Mobility collaborated to introduce electric commuter flights to the Indian subcontinent. InterGlobe Enterprises, the parent company of IndiGo, has inked a deal with Archer Aviation to explore the introduction

PHOTOGRAPHS: SP Guide Pubns

of eVTOL air taxi services in India. Hence, Advanced Air Mobility emerges as the frontier in the evolution of civil aviation.

This initiative during Wings India, laid the groundwork for the imminent transformation of regional connectivity, the functioning of vertiports and airports, and access to finance for infrastructure among others. The Aviation Innovation Zone at the Wings India Exhibition was an opportunity for Advanced Air Mobility companies and start-ups to showcase their solutions whether for Regional Air Mobility or Urban Air Mobility.

Several new eVTOLs companies showcased their ideas, prototypes and even mock ups to attract the industry, potential investors as well as the visitors towards their advanced technology. Companies like Nalwar, Airark, e-Plane were among those present. What was interesting to note was that many of the eVTOL start-ups at Wings India were fairly new, a couple of them as recent as established in 2023 and were still ready with their technologies or mock-ups and fairly optimistic to enter the extremely nascent industry. Some of these mock-ups were also at display and became major attractions for visitors from the industry as well as public.

The Advanced Air Mobility - India conference also featured deliberations on the ecosystem under the following subheads:

- **Revolutionising Transportation:** The Future of eVTOLS in India - building a case for localised manufacturing
- **Navigating the Skies:** Air Traffic Management for Advanced Air Mobility - ensure total deconfliction with the uninvolved
- **Regulating the Future:** Policy, Economics and Legal Considerations around AAM and the need to develop an India CONOPS
- **Keynote Addresses:** India's Ministry of Civil Aviation and the Directorate General of Civil Aviation.

An exciting roundtable on Advanced Air Mobility – India Conference discussed revolutionising transportation through localised eVTOL manufacturing, AAM infrastructure retrofitting, and addressing regulatory aspects.

Apart from drones and eVTOLs, there were also other interesting techologies that graced Wings India in the form of cabin advancements, engine technologies, seats, aircraft design and more that offered a glimpse into the future of advanced air mobility. For one instance, Lufthansa Technik displayed a physical model alongside a VR experience of their engine washing technology Cyclean that enables airlines to clean their engines quickly and very efficiently. Lufthansa Technik states that while results vary between operating conditions and engine types, experience shows that frequent washes produce a fuel flow reduction of up to 1 per cent. They also featured their coating technology, AeroSHARK that boasts of close to 5 million tonnes of kerosene per year fuel savings on the global fleet of aircraft.

A captivating roundtable explored the transformative impact of drone technology on various sectors. Worldwide, drones are becoming crucial tools, from aiding police stations to delivering crucial medicines. Drone technologies are uplifting lives in agriculture, healthcare, and beyond, making a tangible impact on the aviation landscape.

The Advanced Air Mobility – India Conference at Wings India 2024 featured panels on revolutionising transportation with localised eVTOL manufacturing, retrofitting cities with AAM infrastructure, ensuring air traffic management for AAM, and discussing regulatory aspects, including policy, economics, and legal considerations for developing an India CONOPS.

DRONE TECHNOLOGIES ARE UPLIFTING LIVES AND MAKING A TANGIBLE IMPACT ON THE AVIATION LANDSCAPE

Here are some key takeaways from the roundtable on "Drone Technology - Flight to the Future: Drones Revolutionising the Aviation Landscape" at the show:

- Worldwide, drones are transforming the way we work, serving as crucial tools in various applications.
- In regions like Arunachal Pradesh, drones are facilitating the delivery of medicines, bridging gaps in remote areas and ensuring healthcare accessibility.
- Drone technologies are uplifting the lives of farmers, introducing innovative approaches to cultivation and sustainability.
- The NAMO Drone Didi scheme empowers women, making them integral stakeholders in local farming supply chains.
- From aiding police stations to delivering crucial medicines, drones are making a tangible impact on various sectors.
- Drones will revolutionise cities, transport, and the environment. BAI

THE AVIATION INNOVATION ZONE AT THE WINGS INDIA EXHIBITION WAS AN OPPORTUNITY FOR ADVANCED AIR MOBILITY COMPANIES AND START-UPS TO SHOWCASE THEIR SOLUTIONS WHETHER FOR REGIONAL AIR MOBILITY OR URBAN AIR MOBILITY.

Gulfstream President Mark Burns Honored With Living Legends of Aviation Award

Mark Burns, President of Gulfstream Aerospace Corp., received the Lifetime Aviation Industry Leader Award during the 21st Annual Living Legends of Aviation Awards ceremony held, January 19, 2024.

The Living Legends of Aviation Awards, produced by Kiddie Hawk Air Academy, was established in 2003 to celebrate people who have made significant contributions to aviation, including entrepreneurs, innovators, industry leaders, astronauts, record breakers, pilots who have become celebrities and celebrities who have become pilots.

Burns joined Gulfstream in 1983 and worked in numerous areas across the company, before being named President in July 2015. In this role, Burns has led Gulfstream through a period of significant investment in innovation and growth and has been instrumental in the expansion of Gulfstream Customer Support, as well as the development and certification of Gulfstream's next-generation family of aircraft. BAI

First New South Wales Ambulance PC-24 in Service

The New South Wales Ambulance Fixed Wing Aeromedical Operations brought its first PC-24 into service, demonstrating how this aircraft continues to live up to its namesake as the world's only Super Versatile Jet.

In 2021, Australia's New South Wales Ambulance decided to purchase two state-of-the-art PC-24s to further increase the organisation's operational capabilities. The operator will use the PC-24 to provide aeromedical services to the people of New South Wales, covering an area of approximately 8,00,000 square kilometers. It is anticipated that the Super Versatile Jet will conduct around 800 flights, transferring approximately 6,500 patients, during its first year of service.

"The PC-24 is no stranger to the aeromedical space, it's a highly sought after platform for many of the top aeromedical organizations around the world. Like the aircraft, the aeromedical configuration has proven itself in some of the harshest operating conditions anywhere. We're extremely proud that the New South Wales Ambulance has chosen our aircraft to save lives and serve their community", said Pilatus Australia's CEO, Sebastian Lip. BAI

Embraer's Phenom 300 is the World's Best-selling Light Jet

Embraer announced its industry-leading Phenom 300 series has maintained its status as the world's best-selling light jet for 12 consecutive years, while also attaining the best-selling twin-jet for the fourth year running, according to data released by the General Aviation Manufacturers Association (GAMA). To achieve this distinction, the company delivered 63 Phenom 300 series aircraft throughout 2023.

Demonstrating Embraer's commitment to innovation and excellence, the Phenom 300 series is the most successful business jet of the past decade, having accrued more than 730 deliveries worldwide and operating in 40 countries. With over 2 million flight hours logged, the Phenom 300 recently became the most-flown aircraft in the United States, with more than 3,60,000 flights in a 12-month period.

"The Phenom 300 series continues to demonstrate Embraer's commitment to delivering the ultimate experience in business aviation," said Michael Amalfitano, President & CEO of Embraer Executive Jets. "For more than a decade, the aircraft has earned well-deserved recognition and continues to excel in terms of performance, technology, comfort, and support. With our ongoing dedication to our loyal customers, we will continue to develop the programme based on customer feedback, industry trends, and new technologies." BAI

PHOTOGRAPHS: Gulfstream, Pilatus, Embraer

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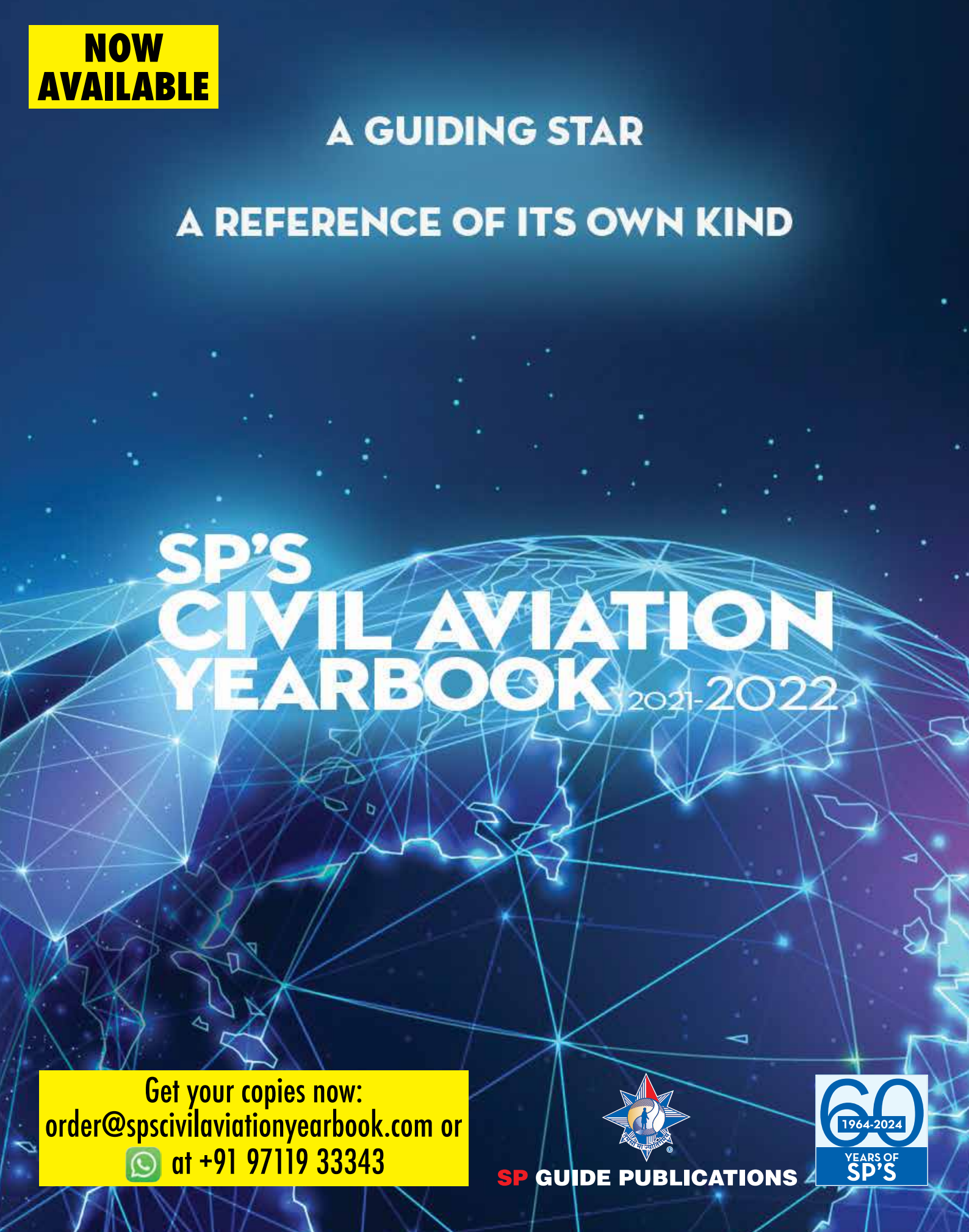

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