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Humongous Potential



FICCI-KPMG forecast India to be number one globally by 2030 in aviation

- The Asia Pacific region is expected to emerge as the largest aviation market by 2032
- Indian carriers plan to double their fleet size by 2020 to around 800 aircrafts
- Indian civil aviation industry is amongst the top 10 globally with a size of \$16 billion
- India's current MRO market size is estimated to be around \$700 million
- Total manpower requirement of airlines to rise from 62,000 in financial year 2011 to 1,17,000 by financial year 2017

BY R. CHANDRAKANTH

India has the potential to become the third largest aviation market by 2020 and the largest by 2030. There is large untapped potential for growth due to the fact that access to aviation is still a dream for nearly 99.5 per cent of its population, indicates the FICCI-KPMG 'India Aviation 2014-Enhancing Air Connectivity' report launched today at Hyderabad.

The Indian civil aviation industry is on a high growth trajectory, albeit with minor hiccups. The industry has ushered in a new wave of expansion driven by low-cost carriers (LCC), modern airports, foreign direct investments (FDI) in domestic airlines, cutting edge information technology (IT) interventions and a growing emphasis on no-frills airports (NFA) and regional connectivity.

The Indian civil aviation industry is amongst the top 10 in the world with a size of around USD 16 billion. This is a fraction of what it can actually achieve.

Sidharth Birla, President of FICCI said, "In view of the enormous growth prospects of air traffic and substantial investment projections, Indian aviation market offers significant long term opportunities for global aviation players. Indian Government and industry are already working together closely. I am confident, this partnership will be further strengthened and play a critical role in improving regional connectivity and promoting sustainable development of the civil aviation sector in the country."

REGIONAL AIRPORTS TO DRIVE GROWTH

The report notes that the next generation of aviation growth in India will be triggered by regional airports. At present, there are around 450 used/un-used/abandoned airports and airstrips spread all over the country. Many Indian states, especially in Eastern India, have started taking pro-active measures to promote air connectivity. These initiatives include reduction in sales tax on ATF, development of no-frills airports, promo-



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tion of aviation academies and supportive policies for airlines and tourism. West Bengal deserves a special mention as it is the first large state in the country to declare zero per cent sales tax on ATF at its regional airports and 15 per cent sales tax on ATF used by additional flights started at its metro airport in Kolkata.

A lot more needs to be done, as several Tier 2/3 cities are still unconnected or underserved. These involve relaxation on regulations, revising the security requirements, allowing domestic code sharing, providing free or discounted utilities and connecting infrastructure. The proposed Essential Air Services Fund (EASF) by Ministry of Civil Aviation (MoCA) needs to be set up immediately. All this will have a multiplier effect in terms of higher growth of local economic activities, tourism and employment.

"India is blessed with a great geographic location, a large upwardly mobile middle class and immense tourism opportunities. We have just touched the tip of the aviation iceberg. The beauty is that our challenges are primarily related to policies, procedures, regulations and taxes. These are all man-made problems and hence surmountable. The central government and the eastern states have brought in many reforms in the aviation policy, procedures and taxation. We hope this trend continues", said Amber Dubey, Partner and India Head of Aerospace and Defence, KPMG.

The report highlights the significant growth in the Indian aviation sector over the last decade. As per data from the Airports Authority of India (AAI), passenger throughput grew to 159 million (financial year 2013) and cargo throughput to 2.19 million MT (financial year 2013), registering an impressive growth of 13 per cent and 10 per cent CAGR respectively over the period financial year 2003-13.

On the global front, aircraft transported around 3.1 billion passengers and over 51.6 million tonnes of freight in 2013. The growth in passenger traffic has been led by the strong progress made by Middle East countries and supported by other emerging economies of Latin America, Africa and Asia-Pacific. However, developed economies of North America and Europe lagged behind in terms of growth in passenger traffic. The Asia Pacific region promises to emerge as the largest aviation market by 2032.

The most significant development in the Indian domestic market is the growing dominance of the low-cost carrier model, which in financial year 2013 accounted for almost 70 per cent of the domestic capacity. LCCs have driven the growth in aviation and tourism through low fares, introduction of regional routes and periodic discount offers. Full service carriers plan to shift more seats to their low cost offerings in line with market trends. Indian carriers plan to double their fleet size by 2020 to around 800 aircraft.

The FICCI-KPMG 'India Aviation 2014' report points out that development of air transportation services and socio-economic development are highly correlated. According to the International Civil Aviation Organisation (ICAO), an additional dollar invested in air transport leads to a benefit of around three dollars to the local economy. Moreover, every additional job created in the air transport results in creation of over six new jobs.

The growth in Indian aviation has created significant employment opportunities. With passengers and aircraft fleet likely to double by 2020, the need to strengthen the human resource development infrastructure is immediate. As per KPMG estimates, the total manpower requirement of airlines is estimated to rise from 62,000 in financial year 2011 to 117,000 by financial year 2017. It is estimated that the sector, overall, will need about 350,000 new employees to facilitate growth in the next decade. Shortfalls in skilled labour could create safety issues and may see staff salaries rise, hurting India's cost competitiveness.

It is a well known fact that the Indian aviation industry is overtaxed and this is being reflected in the industry's lack of competitiveness at the global level. It is important for India to acknowledge the devastating impact of high taxes. Some of the avoidable taxes/charges that need immediate attention are central and state taxes on ATF and MRO, service tax on air tickets, high airport charges etc.

India's current MRO market size is estimated to be around \$700 million. By 2020, the total Indian fleet would double in number, making it critical to have a strong domestic MRO industry. According to industry sources, merely five to 10 per cent of the MRO work for domestic scheduled carriers is carried out in India, while most of the maintenance activities are outsourced to third-party service providers outside the country. This is a classic case of scoring self-goals. An inter-ministerial task force on MRO needs to be formed immediately by the government to check the outflow of MRO revenue, foreign exchange and jobs.

Overall, in order to become a top aviation market, all round improvements are required – in airports, air navigation, cargo, MRO, general aviation and human resource development. India would need to broaden the base of domestic flyers. No-frills airports in Tier-II and Tier-III cities need to be developed and the proposed EASF needs to be activated to address financing challenges. Government policies, procedures and regulatory framework need to be futuristic, pro-active and aligned to stakeholder expectations.

The FICCI-KPMG 'India Aviation 2014-Enhancing Air Connectivity' report concludes that Indian aviation has a huge untapped potential – we need to recognise it and go for it. •

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Airbus estimates 1,290 new planes worth \$190 billion by 2032

Airbus today forecast that Indian carriers will require 1,290 new passenger aircraft valued at \$190 billion between now and 2032 to satisfy surging annual demand. Indian annual passenger traffic growth rates of 8.6 per cent are well above the regional Asia Pacific average growth rate of 6.1 per cent and the world average of 4.7 per cent.

Of this requirement of planes, some 73 per cent will be for growth and 27 per cent for replacement. The new passenger aircraft include 913 single aisles like the A320 and A320neo Family, 322 twin aisles like the A350 XWB and A330, and 56 very large aircraft such as the A380. By 2032, today's fleet of 343 aircraft will more than triple to some 1,233 aircraft.

By 2032, Airbus forecasts that 36 per cent of India's fleet will be wide-bodies, more than doubling today's level. This is a result of increased capacity of international as well domestic routes with larger aircraft like the A330 and A350s.

In passenger traffic terms, domestic India is the fastest growing flow increasing at almost 10 per cent per year to 2032 by which time the domestic traffic will be the world's third largest domestic market. In addition, five of the world's top 20 fastest growing flows, connect India. Today, one in 20 Indians travel by air and in 2032 this will increase five-fold to a quarter of the population taking at least one flight. Along with China, more people will experience



the benefits of aviation for the first time in India than anywhere else.

"By 2032, the number of Indian cities with more than a million passengers every month will have grown to 13 from today's two. This exponential growth will continue to drive the need for larger aircraft like the A3809 to operate in the country," said Dr Kiran Rao, Airbus, Executive Vice President, Strategy and Marketing. "As the people of India fly more and the number of first time flyers increases, demand for the latest generations of aircraft will also increase making India one of the largest and the most dynamic markets in the world."

According to Joost van der Heijden, Head of Marketing, Asia, there were 170 Airbus aircraft in operation in India and it was growing considerably, driven by healthy economic growth and a burgeoning middle class.

Srinivasan Dwarakanath, CEO of Airbus India, said Airbus India Operations had been created as to be a 'one-stop-shop' for the growing customer base in India. It was based on six pillars – engineering; training; aerostructure design and build; engineering and information services; research and technology; and other Airbus initiatives.

The turnover of works in 2013 in India was about \$300 million across the supply chain and this would grow. The A320 Family of planes is now partly 'Made in India'. •

Boeing pegs next 20 years demand at 1,600 new planes worth \$205 billion

Boeing projects demand for over 1,600 new airplanes in India over the next 20 years, valued at \$205 billion. The company briefed its 20-year market outlook for the country today at India Aviation 2014, forecasting India's commercial aviation fleet will grow more than five times in size.

"India's demographics are highly favorable to the growth of air transportation," said Dinesh Keskar, Senior Vice President of Sales, Asia-Pacific and India, Boeing Commercial Airplanes. "The share of India's large population entering the workforce is growing. India could have the world's fourth-largest economy if current trends continue helping drive demand for air travel."

Boeing projects that passenger airlines in India will rely primarily on single-aisle airplanes such as the Next-Generation 737 and the 737 MAX, a new-engine variant of the market-leading 737, to connect passengers. Single-aisle airplanes will represent 83 per cent of the new airplanes in the country.

For long-haul traffic, Boeing forecasts twin-aisle airplanes such as the 747-8 Intercontinental, 777 and the 787 Dreamliner will account for 15 per cent of new airplane deliveries. Boeing's recently launched 787-10 and 777X also will support the demand for fuel-efficient twin-aisle airplanes in India.

The 20-year forecast of airplane deliveries by airplane types is as follows:

INDIA NEW AIRPLANE DELIVERIES: 2013-2032

Airplane Type	Deliveries	Value (\$)
Single-aisle	1,330	\$132 billion
Twin-aisle	235	\$72 billion
Regional jets	35	\$1 billion

"India will continue to have one of the strongest, most vibrant aviation markets in the world over the next two decades," said Keskar. "While pas-



senger growth is recovering and we project a healthy aviation industry in the long term, adverse near-term trends of overcapacity, a weak rupee and high fuel prices will affect airline profitability in the near term."

Globally, Boeing projects a \$4.8 trillion market for 35,280 airplanes over the next 20 years, driven by an increase in deliveries from India, China and other emerging markets. That forecast represents the traffic growing at five per cent annual rate over the next 20 years and the world fleet is expected to double by 2032. •

Honeywell, Safran sign up GoAir for electric taxiing system

Honeywell and Safran have signed a memorandum of understanding (MoU) with GoAir, one of India's leading low-cost carriers, to support the advancement of the EGTS electric taxiing system, a technology that can save airlines up to four per cent block fuel consumption per flight.

GoAir becomes the fourth airline in the world after Air France, EasyJet, and TUIfly. Sasi Kancharla, Customer Business Leader, Air Transport and Regional Aerospace, India, Honeywell said, the system was likely to go to market in the next few years and would benefit single aisle, narrow body and regional aircraft.

EGTS uses electric motors on the main landing gear to enable the aircraft to push back autonomously and taxi without using its main engines to improve operational efficiency and reduce emissions. The news follows an agreement with Airbus in December to jointly evaluate EGTS as an option for the company's A320 family of airplanes.

"At GoAir, we are constantly looking for innovative ways to lower costs for our passengers while improving their flying experience at the same time," said Giorgio De Roni, CEO, GoAir. "This agreement allows us to actively participate in the system's development — a technology that we believe has the potential to not only save fuel and reduce costs, but also improve aircraft turnaround times and lower noise and emissions in the airport environment."

Under the agreement, GoAir will provide data on its taxiing operations to Honeywell and Safran to assist in maturing the system and to define the precise fuel and other operational benefits it would see by using the technology across its fleets. The agreement will also see GoAir assist in establishing the airline standard operational procedures for aircraft equipped with the system.

"Where EGTS comes into its own is in supporting high-volume, fast-turnaround, short-haul movements, where aircraft spend a large proportion of the day on the tarmac taxiing," said Brian Wenig, vice president EGTS Program, Honeywell Aerospace. "As the only electric taxiing system to receive support from a major OEM to date, EGTS represents an exciting, cost-effective



technology for airlines to lower their fuel burn and save money."

Since the technology's "first move" last April on board the joint venture's A320 test aircraft, EGTS has logged more than 200 kilometres of rolling tests, including various load configurations and runway conditions, complex maneuvers such as pushback, tight turns and U-turns, and varying specifications of acceleration and speed up to maximum takeoff weight.

"EGTS has a significant benefit over other systems in that it has a main-gear-based electric taxiing design," said Olivier Savin, vice president EGTS Program, Safran. "Consequently, EGTS is the only onboard system currently in development that can generate enough traction to mitigate the use of engines during taxiing in all weather conditions and at all airports." •

P.180 Avanti II, more than a unique design

BY R. CHANDRAKANTH

Italian designs stand out. At India Aviation, Hyderabad, among the two dozen aircraft on display, Piaggio Aero's P.180 Avanti II gets noticed for its unique design and styling. And the aircraft is just not all about its innovative design, but performance. Piaggio Aero is displaying the P.180 Avanti II executive aircraft belonging to Taj Air. There are five aircraft in India and the company is expecting for firm up two orders by the end of the year. Globally, 186 aircraft are flying.

Alfredo Nocera, P.180 Avanti II's International Sales Director, Asia, said that it is a combination of design and technology that gives the P.180 Avanti II an edge. It is the only business aircraft with the speed of a jet and the economics of a turboprop. The P.180 Avanti II combines elegant Made-in-Italy style, the quietness and comfort of a spacious cabin, and remarkable performance that is similar to (and in some cases exceeds) that of the most widely sold turbojet aircraft on the market. And all this comes with operating costs that are up to 40 per cent lower than jet aircraft of equivalent size.

The spacious cabin size, he points out, is larger than that of King Air; Citation CJ; Citation XLS; Phenom 100/300; Hawker400XP; and Learjet 40/45. It can seat up to 9 passengers and in different configurations. The aircraft can fly up to an altitude of 41,000 feet.

India, he adds, is an important market for the company and corporate have started seeing the value of the aircraft. The aircraft can fly up to UAE from Hyderabad or up to Bangkok, taking the passenger in utmost comfort. It is priced at \$ 7.5 million. In India, Taj Air besides flying P.180 Avanti II is also the company's representative here.

The aircraft, is the fastest and most advanced executive/multi-utility turboprop in the world - with a superior 'short runway performance'. Equipped with Rockwell Collins Pro-Line 21 avionics, the P.180 Avanti II has an endurance of over 1,500 nautical miles at a speed of 402 knots and a maximum cruising altitude of 41,000 feet. With its state-of-the art avionics (fully digital,



automatic flight control and the latest generation Rockwell Collins "Pro Line 21" avionics system), it provides the pilot with better situational awareness. The P.180 Avanti II is set apart from its competitors by its ability to achieve a high level of performance, with unrivalled fuel efficiency—that means low emissions and reduced operative costs. •

Rolls-Royce Trent technology to the fore



Rolls-Royce, the global provider of integrated power systems and services to the aerospace civil and defence, marine and energy markets, is showcasing a Trent 1000 scale model at India Aviation.

Kishore Jayaraman, President, Rolls-Royce India, said: "We are glad to be a part of India Aviation as it offers a great platform for Rolls-Royce to showcase its technology for the growing civil aviation market in India. With passenger numbers forecast to triple in the near future, wide-body aircraft could be a key solution to increase efficiency in passenger load and air traffic and we are the engine provider of choice in that market."

Capable of providing up to 78,000 lb thrust, the Trent 1000 engine is designed to power all members of the Boeing 787 Dreamliner family (787-8, 787-9 and 787-10 aircraft variants). The Trent family's unique three shaft design makes every Trent engine able to retain its performance advantage for longer, the equivalent of an additional fuel burn benefit of one per cent through life. To date, over 450 Trent 1000 powered Boeing 787 Dreamliner aircraft have been ordered by 25 customers.

Rolls-Royce has built a technology leadership position with its Trent family of engines, the latest of which, the Trent XWB, is the world's most efficient engine flying today. Rolls-Royce is continually innovating and, as part of that on-going process, is looking to build on the success of the Trent family of engines with two new generation engine designs – Advance & UltraFan. •

eConnect system from Emteq

BY VASUKI PRASAD

Emteq, Incorporated in 1996, supplies innovative products supporting both line-fit and aftermarket programs in the commercial, executive, VIP, and military aviation markets working with OEMs, operators, and integrators. At India Aviation 2014, Emteq is showcasing two product lines that cater to in-flight ambience, and entertainment, and aircraft exterior lighting solutions.

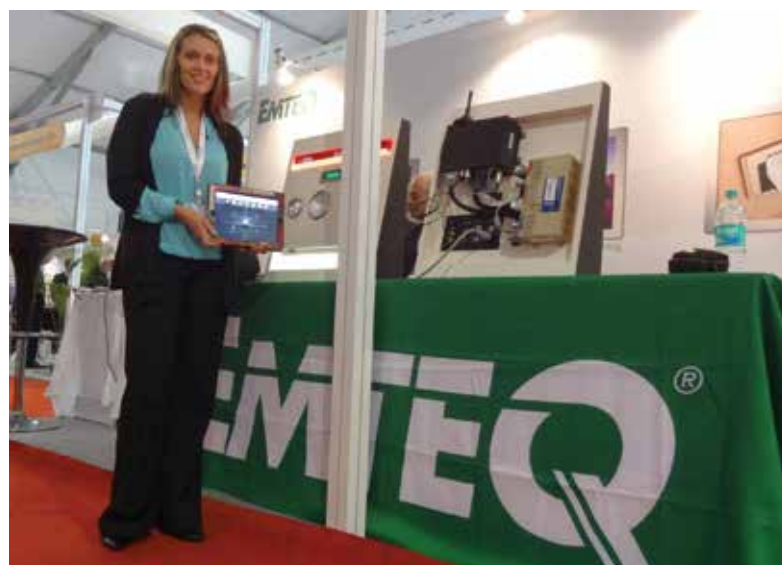
Emteq has signed an agreement with AirWorks to integrate the former's cabin products as part of cabin upgrades for executives and commercial operators throughout India. Emteq's products include its LED-based QUASAR full spectrum mood lighting, white wash, reading, dome, and accent lighting, all of which last long, offer unmatched user-configurable ambient colors, and the best part: be controlled by a smartphone or tablet via its eConnect system.

The eConnect system allows users to log onto either a secured or unsecured WiFi system that allows the smartphone/tablet user to control the cabin lights, window shutters, and stream high definition audio and video on demand (AVOD) to watch on a personal electronic device, as opposed to doing to a cabin-fitted interactive system.

eConnect supports upto 25 users at a time, and one eConnect system features sufficient range to cover the entire cabin of a Boeing 767 airliner. Multiple eConnect systems can support multiples of 25 users at a time, and the system appears seamless to the user.

eConnect integrates directly with existing CMS/IFE system, without the need for re-wiring. Also on showcase is Emteq's intelliOutlet and intelliUSB SR, which provide power for electronic devices, while meeting FAA and EASA's requirements for in-cabin power outlets. To support charging smaller personal electronic devices, the intelliUSB SR allows for fast and universal charging from a tiny USB footprint.

Also on showcase is some of Emteq's landing lights, intended for replacement on most business jets, airliners, and general aviation aircraft such as the Pilatus PC-12. The LED based exterior landing lights have a mean-time-between-failure (MTBF) of 15,000 hours, which is significantly higher than the typical life of an incandescent or halogen high intensity light: 50-100 hours,



based on the lamp's location and use. The LED lights, however, not only match the intensity of its PAR replacements, but exceed in visual performance: the cool white color, as opposed to the warm white from a conventional technology lamp, can highlight more details, making flight operations safer on two counts: greater reliability and better visibility in the dark, for pilots.

Emteq already has exterior LED lighting solutions, such as anti-collision lights, LED based beacons, and navigation lights for business airplane offerings such as Dassault's Falcon series: 900EX, 2000, and 7X.

Emteq's Rachel Bahr, director, business development & marketing, says that the reason Emteq has been able to achieve good LED performance and life is because of its innovative use of chip-on-board LED and heat dissipation methods that keep the LED temperatures within limits. •

Embraer predicts mild growth of business jets



Embraer Executive Jets has forecast that the business jet market would witness a mild growth in the next 10 years, putting the numbers at 9,250 private jets globally at \$250 billion.

The Vice President, Marketing and Sales, Executive Jets, Embraer, Jose Eduardo Costas, presented at India Aviation the market outlook for business aviation and said that in the last decade the number of jets sold was over 8,000, with the US accounting for nearly 50 per cent and Asia-Pacific at 20 per cent. In Asia-Pacific, half of the sales was in China. In APAC Embraer had a fleet of 69 jets, 19 being light jets and the rest large jets.

He said that 2013 had been good for Embraer with sales of 119 jets, thus going up in market share to 17.6 per cent behind Bombardier which was at 27 per cent.

Embraer had its first breakthrough six years back and it has sold till date 20 private jets, seven being light jets and 13 large. All the light jets are Phenoms, the latest one acquired by Joy Jets – the Phenom 300. He mentioned that Phenom 300 was the most sold plane last year with 60 units, indicating sale of more than one plane a week.

India is a unique market, he said and mentioned that it had customers in private, government, defence, etc. The drivers for business jets were rising numbers of high networth individuals and increasing value of jets as a business tool. While he agreed that there were issues relating to taxation, regulatory, infrastructure, he hoped that it would get sorted out and the business jet market would flourish in India. However, Embraer had no plans of setting up a manufacturing plant in India as it had done in China.

As regards approximate pricing, the Phenom 100E is \$4.6 million; Phenom 300 – \$9.5 million; Legacy 450 – \$16.9 million; Legacy 500 \$19.6 million; Legacy 650 \$31.6 million and Lineage 1000E – \$53 million. •

Gulfstream G650 sets speed record between New York and Mumbai

BY R. CHANDRAKANTH

Gulfstream Aerospace Corp's G650, the gold standard in business jets, has set another city-pair record, this time between White Plains, New York and Mumbai, India in 13 hours and 49 minutes, taking the tally of records to 42, according to Roger Sperry, Regional Senior Vice President, International Sales, Gulfstream.

The G650's ability to link these two key business destinations reinforces its utility as vital tool for corporations to advance their economic interests around the world," said Jason Akovenko, Regional Vice President, Sales, Asia-Pacific, Gulfstream. "This aircraft continues to dominate business aviation and proves to be a leader in getting passengers to their destinations in record time. The speed and range of the G650 are just two of the many reasons why this aircraft is in such high demand."

Giving details of G650 to *SP's ShowNews*, Sperry said that the aircraft was ideal for long range travel and could cover easily destinations such as Anchorage, Cape Town, Sydney, London, Melbourne etc from Hyderabad. The fuel-efficient G650 which entered service on December 20, 2012, in the following year circled the globe westbound in 41 hours and seven minutes, setting a world record. The aircraft features twin Rolls-Royce BR725 engines, produces fewer emissions, operates more quietly than many other business jet aircraft and has a high cruise altitude that allows it to fly above inclement weather and airline traffic.

He pointed out that the aircraft could max 51,000 feet from where one could see the curvature of the earth. It has a maximum range of 7000 nautical miles at Mach 0.85.

The purpose-built business jet had the range, the performance and the ultra luxury, catering to the demands of the highly discerning traveller. The G650 can sleep up to six passengers and is configured to seat 18 passengers. The highlight of the aircraft is that it is a fully digital aircraft and the passenger can control everything in the cabin with one-touch system, whether it is entertainment; calling the flight attendant; or operating the windows. One of the USPs of the aircraft was its windows which are quite big to give a clear picture of the horizon. •



Honeywell, Air India pact on runway safety



AN AIR INDIA DELEGATION LED BY A.K. MATTHEW, EXECUTIVE DIRECTOR OF ENGINEERING, MEETS WITH PRITAM BHAVNANI, PRESIDENT, HONEYWELL AEROSPACE INDIA AND TEAM TO SIGN AN MOU TO TRIAL HONEYWELL'S SMARTRUNWAY/SMARTLANDING

Honeywell Aerospace has signed a memorandum of understanding (MoU) with Air India enabling the airline to explore how Honeywell's SmartRunway/SmartLanding software upgrade can help it increase safety, improve pilot situational awareness and lower cockpit workload across its Boeing 777 fleet. The SmartRunway/SmartLanding upgrade helps mitigate runway accidents that cost the worldwide aviation industry \$1 billion annually for injuries, damage, repairs and inspections.

"At Air India we are constantly looking for innovative ways to bring our passengers new levels of safety and comfort when they fly with us," said A.K. Mathew, Executive Director of Engineering, Air India. "As we expand our network our pilots are required to fly into an ever-growing number of airports, many of which are continually changing in terms of layout. SmartRunway/SmartLanding could make it easier for our pilots to navigate these airports regardless of visibility, and extend passenger safety even further in the process."

Honeywell's SmartRunway/SmartLanding system uses GPS location information and airport and object data stored in Honeywell's enhanced ground proximity warning (EGPWS) database to determine if the aircraft is configured properly for landing, taxiing and take-off. This can dramatically reduce runway incursions, where collisions occur on the runway, or runway excursions, where aircraft accidentally leave the runway or enter a runway they are not approved for.

Under the terms of the agreement, Air India will trial SmartRunway/SmartLanding for six months and share operational data with Honeywell to enable the two companies to examine the potential safety gains the airline would see if it deployed the software across its entire EGPWS-equipped B777 fleet. The software upgrade reduces crew workload as pilots spend less time orientating themselves, even in low visibility or at night. This is especially

crucial as airlines grow their networks, train new pilots, ramp up traffic, and begin flying to new or rapidly developing airports.

Nearly 2,500 aircraft in service today already use Honeywell SmartRunway and SmartLanding systems (including those using Honeywell's Runway Awareness and Advisory System (RAAS) on which SmartRunway is based) to help reduce the risk of runway and landing incidents by monitoring for over 20 potential hazards. SmartLanding, which is primarily concerned with mitigating runway excursions, monitors for potentially unstable approaches, including if the aircraft is flying too high, too fast, has incorrect flap settings, long landings and accidental taxiway landings. SmartRunway mitigates runway incursions. It informs pilots which runway they are entering, confirms runway length, monitors for insufficient length remaining and can also perform flap checks to ensure proper aircraft configuration prior to take-off. Both support "heads-up" and "quiet cockpit" through aural and visual warnings.

"Air India is looking for new ways to maximize the safety of its passengers by taking advantage of the safety systems its fleet already has in place," said Pritam Bhavnani, President, Honeywell Aerospace India. "Because SmartRunway/SmartLanding is a software upgrade, airlines can cost-effectively add new functionality to their EGPWS with no additional weight and minimal aircraft downtime and in doing so make operations safer – even at new, unfamiliar airports and in low visibility."

Sasi Kancharla, Customer Business Leader, Air Transport and Regional Aerospace, India, said work on GBAS system was in progress at Chennai airport and it was likely to be commissioned this year. This would avoid holding time at airports and aircraft could take curved approach for landings. This system could be highly beneficial even in small airports as it ensured 'landing assurance'. •

Portable heliports by 365 Design

365 Design is showcasing portable heliports at India Aviation. The portable solution ensures safe helicopter operations in isolated and mountainous terrain. It is a strong, safe, reusable helicopter landing platform for unprepared areas, and terrain regions.

Portable heliports can be used on many missions and in all kinds of industry. Rescue missions to combat operations, high altitude landing zones to swamp and river bed landings. It comes in handy for Army, Navy, Coast Guard, Air force as well as private industries to operate in remote locations and terrain regions in their line of work. Portable heliports can be used in highways for emergency medical services. It is been supported by the International Road federation as part of road safety and economy solutions for countries like India, Middle east and other countries. •

OIS-Aerospace announces noise reduction technologies

OIS AeroSpace (OIS-AS) announces its strategic relationship with Gemelli of Italy for its industry leading noise control and self protecting technologies as its OEM in India. Commenting on the new ties, Sanjay Bhandari, CMD of OIS-AS, said "We are pleased to enter into this strategic collaboration. As an initial part of our relationship, OIS-AS will market, supply and maintain the communication equipment and systems for the Indian civil and military aerospace market, with a special focus on ground support applications".

"We are optimistic about our relationship with OIS AeroSpace to advance our world leading communication products across the civilian and military aviation sectors within India. We believe that given OIS-AS's team and technology capabilities we have forged a strategic collaboration that would service the growing Indian aerospace market," said Chiara Pavan, co-owner Gemelli, Italy. •

Pratt & Whitney to power Air Costa E-Jets

Pratt & Whitney will provide exclusive power for 50 firm Embraer E-Jets E2 aircraft, with an additional 50 purchase rights, for an order announced by Embraer and Air Costa at the recently concluded Singapore Airshow. Deliveries are scheduled to begin in 2018. The PurePower Geared Turbofan (GTF) engine family has more than 5,000 orders and commitments, including options. Pratt & Whitney is a division of United Technologies Corp.

"Our goal is to improve connectivity within India, more specifically, the secondary and tertiary cities," said Lingamaneni Ramesh, Chairman, Air Costa. "We believe that Embraer's E2 aircraft powered by Pratt & Whitney's PurePower engines will help us reach that goal."

"Pratt & Whitney is a key partner of the E-Jets E2 programme, supporting Embraer to deliver to the market the best aircraft in its category," said Paulo Cesar Silva, President & CEO, Embraer Commercial Aviation. "Our technological development plan focuses on investigating and developing solutions for upcoming industry challenges, and the GTF engine is helping us get to where we need to be with our E2 aircraft."

From light weight fan blades, cutting-edge materials and coatings, to advanced airfoil cooling, the suite of technologies in the GTF engine delivers the high efficiency with lower temperatures that drive improved durability with a lower overall cost of ownership.

"We are very proud that Air Costa has chosen to expand its fleet with PurePower engines on E-Jets E2 aircraft," said Dave Brantner, President, Pratt & Whitney Commercial Engines. "Already more than 50 customers from around the globe are showing their confidence in our PurePower engine technology, which has completed more than 7,600 hours of ground and flight testing."

Air Costa is an Indian regional airline based in Vijayawada, in the heart of the newly carved Seemandhra state. It is part of the LEPL Group and commenced scheduled operations in October 2013 using two Embraer E170 aircraft. Air Costa currently operates services with two-class E170 and E190 equipment on regional services through southern India.



LONG PARTNERSHIP

Pratt & Whitney has been partnering with Indian aviation for more than six decades. It has over 300 aircraft powered by Pratt & Whitney engines in India and over 16,000 large commercial engines around the globe. In India it started with the venerable Wasp engine in the 1940s. Pratt & Whitney ushered in the commercial jet age with the Boeing 707 powered by the JT3D.

The PurePower PW1000G engine, its latest offering, promises significant savings in fuel burn, noise, emission, and maintenance costs. •

IGRUA: Staying at the top in flying training

BY VASUKI PRASAD

Indira Gandhi Rashtriya Uran Akademi (IGRUA), the government supported flight school based at Fursatganj, Uttar Pradesh, at Rae Bareilly, is only getting better with time. With a stall at India Aviation 2014 at Hyderabad, the Director of the flight school, Air Marshal (Retd) V.K. Verma, is all upbeat about the school and the transformation it is undergoing.

In September 2013, the Lok Sabha passed the bill for the setup of a National Aviation University (NAU) in the name of Rajiv Gandhi National Aviation University at IGRUA. The National Aviation University aims to facilitate and promote aviation studies, teaching, training and research with focus on emerging areas of studies such as aviation maintenance, management, aviation regulation and policy, aviation history, aviation science and engineering, aviation law, aviation safety and security, aviation medicine, search and rescue, transportation of dangerous goods, environmental studies and other related fields, and also to achieve excellence in these and connected fields in emerging areas and such areas as deemed necessary. The University will also be a knowledge partner to safety and security regulators by providing required academic inputs to help them execute their enforcement responsibility better.

The University will be built up in steps, starting 2015. The flight school, which boasts of India's largest training fleet at 24 aircraft, comprising 13 Diamond DA40s, five Tridat TB20s, four Zlins, all single engine airplanes, and 2 Diamond DA42s, will grow its fleet by 12 aircraft this year, with 10 diesel engine DA40s and 2 helicopters.

Diesel engine airplanes run off Aircraft Turbine Fuel, which is easily available in India and costs ₹80 per litre. The petrol engines run off AVGAS, which

is always faced with availability issues, and costs ₹200 per litre. Eventually, the entire fleet will be replaced by diesel engine airplanes.

In addition, the school is the only one in India to have a very strict flight data monitoring practice, after the fatal crash involving one of its airplanes in December 2013. Flight data records of previous flights revealed other students indulging in "adventurous", and "indiscipline" flying, and have been suspended for a period of one year.

Such rates of indiscipline are very low, considering the school takes in 100 students per year. According to the director, Air Marshal (Retd) "Charly" Verma, "the strict system of filtering students ensure only the best get in, and those who don't get in to IGRUA land up at other schools".

The school, which is managed by the world leader in flight training solutions, CAE, conducts the CASS entrance test: CAE Air Crew Selection System. The significant independence of IGRUA, and the support from the Ministry of Civil Aviation (MoCA), ensures that IGRUA has the best facilities for flying training, including a fully sufficient airfield.

Discipline set by IGRUA is enforced by the staff, including ground and flight instructors, most of whom had served the Indian Air Force.

The school, at no additional cost to the students, offers MCC (multi crew coordination) and CRM (crew resource management) classes, conducted by retired Air India pilots. This is imparted on one of IGRUA's flight simulators. The institute has five flight simulators at its disposal.

A 1.5 year CPL course costs the student ₹33.4 lakh, which is a steal considering the facilities and quality of instructors.

And how is IGRUA able to stay at the top and still offer low training fees? "Training is subsidised by the Indian Government", says the Director. •

FSTC in expansion mode

Flight Simulator Training Centre (FSTC), established at Gurgaon, Haryana, is unique on a few fronts. CAE, the world leader in flight training solutions, has five establishments in India, and FSTC breaks the monopoly by introducing Boeing 737NG and Airbus A320 full flight Level D simulators from Lockheed Martin to customers in the region, with plans to cater to overseas clients as well.

Dilawar Singh Basraon, co-founder of FSTC, and former Indian Air Force and Kingfisher Airlines pilot, says that FSTC today supports the training needs of SpiceJet, IndiGo, and Jet Airways. "Each aircraft requires 10 pilots, and each pilot requires 8 hours of training per year, minimum. With a combined Boeing 737 and A320 fleet in India at close to 400 airplanes, this translates to a minimum 32,000 hours of training per year. In addition, training is also required for the upgrade of pilots: new pilots are employed, some go medically down, while others retire. Many leave India and fly for airlines abroad. The training requirement always exists."

And this makes for a compelling case to establish a full flight simulator facility in India, which FSTC has already done. FSTC will be adding one more simulator this year and four more by 2018, according to Capt. Sanjay Mandavia, Director, Flywings Aviation Pvt Ltd. The 737NG simulator had 100 per cent utilization, while the A320 simulator had utilization between 35 and 45 per cent.

India presently has 18 approved full flight simulators (FFS) catering to airlines: CAE-Indigo Delhi (2 A320), CAE Bangalore (2 A320, 1 B737NG), CTE Hyderabad (3 A320), FSTC Delhi (1 A320, 1 B737NG), Jet Airways Mumbai (2 B737NG, 1 A330, 1 B777), and Air India Mumbai (1 B737NG, 1 B747, 1 B777, 1 B787). Of these, only CAE Bangalore, CAE Delhi, and FSTC Gurgaon are open to use by all airlines. Each FFS can cater to 7,000 hours of training, per year, at full utilization.

Low-cost airlines such as SpiceJet, Indigo and Go Air do not run their own in-house flight simulators, unlike Jet Airways and Air India. "Airlines prefer to outsource training, as they are into the business of travel, not in the business of maintaining a simulator", says Basraon.

In addition, FSTC, which secured its TRTO (Type Rating Training Organization) approval in July last year, caters to CPL holders who seek a self-sponsored type rating either on the Boeing 737 or the Airbus A320, most of whom otherwise would have to go outside the country for their rating. This saves the individual the costs associated with international travel, hassles with visa, and in some cases, the costs associated with accommodation.

The same saving applies to airlines as well, which actually reap greater



benefits. Every time a simulator session is dry leased, the airline will have to send at least 3 pilots: one instructor, and two who are in need of a session. Taking 3 pilots out of the country, and wasting time associated with their travel to and from India only means that the crew is less efficiently utilized.

On top of that, says Basraon, using Lockheed Martin's simulators can allow FSTC to offer competitive rates. He says that unlike CAE's simulators which need spares to be procured via the company, Lockheed Martin's simulators use many commercial off the shelf components, which can be locally procured. With electro-pneumatic actuators and the light weight of the simulator, power consumption is lower, allowing the establishment to keep running costs low.

The establishment has 6 flight simulator bays, of which 2 are occupied, and has land for an additional 6, and is eyeing Air Costa, to partner with Embraer, and the airline, to establish an Embraer simulator that will cater to the regional airline's expansion plans.

LOCKHEED MARTIN TO SUPPORT TRAINING

The Chief Executive of Lockheed Martin, India, Phil Shaw said Lockheed Martin was highly supportive of the simulator training centre here as the demand was high for quick turnaround of professionals.

As regards Lockheed Martin's focus in India, Shaw said it would be exploring the opportunities in setting up an engine MRO as the company had considerable expertise. "Presently, aircraft from India are going overseas for heavy duty maintenance due to the taxation environment and other regulations. We expect changes and hope that it will open up the sector soon. •

Global Aviation upbeat about India market

US-based Global Aviation announced at India Aviation that it would open an office in India in 2014 to facilitate aircraft transactions, ferry services, aircraft spares and evaluations.

Talking to *SP's ShowNews*, Mike Higgins, Director of Sales and Karan Sidhu, President Global Aviation, said the market for such new and pre-owned aircraft transactions was growing considerably and the company provided expertise to customers to benefit from global transactions.

In 2013-14, Global Aviation closed seven transactions from India. "As of now, we are geared up to buy more aircraft from India," said Karan, indicating that some of the sales was happening due to the dollar appreciation and customers who had bought the aircraft sometime back were raking in good appreciation. As per a report of the Business Aviation Operators Association, 19 aircraft were sold out of India in the last one year, reflecting the trend. This accounts for about 36 per cent of the global aviation share in the market.

Karan, an NRI said: "There is a huge potential in the Indian aviation In-

dustry. So far the industry has grown on baby steps, big leaps are yet come for new and pre-owned aircraft and we are motivated to close maximum aircraft transactions in my home country India."

When asked about company's impressive aircraft transactions success rate, Karan said "providing the highest level of performance, integrity and transparency is the way we do Business. We have earned our impressive records by extending beneficial long term customer relationships."

Karan also confirmed that Global Aviation has plans for partnerships with all major maintenance companies in India for their pre-purchase formal aircraft inspections. He said the team of Global Aviation is to stay in India longer to visit aircraft owners (sellers) in India as scheduled in advance for aircraft inspections and negotiations.

The company has a Representative in India, providing necessary sales support. Before leaving for India, the Company successfully closed on a portfolio of six Helicopters to Iraq. •

Elite helicopter simulators lead



Elite Simulation Solutions, one of the world's leading designers and manufacturers of advanced PC driven flight simulators for single/multi engine aircraft and helicopter is showcasing its products at India Aviation.

Since the early 1990's Elite has built its portfolio, expanding into manufacturing of modular flight and navigation procedure trainers that meet the regulations of the Directorate General of Civil Aviation (DGCA); EASA (Europe), FAA (USA) and CASA (Australia) which aid flight training organizations to log credits on their flight training devices.

Elite has a variety of simulators ranging from desktop trainer to multi crew cooperation (MCC) trainer. It also provides simulators with original Garmin 1000 avionics which is specifically developed for Cessna 172, Diamond 40, DA 42, Beech Baron, Bonanza, etc.

Elite has appointed SRK Aviacom (I) Pvt Ltd as its dealer in India to address the needs of Asian customers. Capt. Sanjay, Executive Director of SRK, said: "With a very close understanding of customer's requirements, we intend to develop and establish Elite's brand in Asia". The DGCA has certified the simulators installed in India.

Elite has also developed low cost very effective, accurate and certified simulator for Rotary wing and fixed wing which can be utilized for civil and military. At India Aviation 2014, Elite has on show a new 'entry level' helicopter training device Elite TH-100 to satisfy rotary wing customers on low budgets yet who want access to a specific helicopter based training device to meet their IFR training requirements. It is configured for EXTVS (external Visual System), and PI 100 for fixed wing. •

OIS-Aerospace announces strategic relationship



OIS AeroSpace (OIS-AS) recently announced its strategic relationship with Magnaghi Aeronautica of Italy for the SkyArrow platform and other aviation products as its OEM in India.

Commenting on the new ties, Sanjay Bhandari, Chairman & Managing Director of OIS AeroSpace said "We are honoured that Magnaghi Aeronautica, Italy has chosen to enter into a relationship with OIS AeroSpace whereby we market, supply and maintain SkyArrow Aircraft Platforms for the Indian market, with a special focus on Homeland Security".

"We are extremely pleased and optimistic about our relationship with OIS-AS to advance our technology franchise across various sectors in India. We believe that given OIS-AS's team and technology capabilities we have forged a win-win cooperation that would efficiently service the growing Indian market including defence offsets," said Vincenzo Damiano, Strategic Marketing Sales & Procurement Director, Magnaghi Aeronautica, Italy. •

PPG Aerospace innovative cockpit windows for Falcon 5X jet

PPG Industries' aerospace transparencies group has designed uniquely shaped, lightweight glass windshields and side cockpit windows for the new Dassault Falcon 5X business jet that accentuate the cockpit's aerodynamics and afford expansive visibility.

According to Mark Hood, PPG global market director for general aviation transparencies, PPG is under Contract With Dassault Aviation to provide production and spare windshields and side cockpit windows, which are the largest for a Falcon jet. "Dassault Aviation wanted curved glass transparencies having the lightest weight possible, and our unique bending and materials expertise enabled us to propose designs exceeding their expectations," Hood said.

"We are proud we were selected and look forward to growing our relationship with Dassault Aviation." Arthur C. Scott, PPG global market director for commercial transparencies, had been in Hood's Current Role When



PPG secured the business. Scott said, "This is the first Dassault airplane for which we will supply production cockpit windows, and we are pleased we will be able to join Dassault in creating a great new aircraft."

The windshields and side cockpit windows are designed with three plies of Herculite II chemically strengthened glass to be strong and lightweight and resist impact by a 4-pound bird at 350 knots. The aircraft will not have windshield wipers, so the windshields and windows have Surface Sea coating to enhance water shedding for visibility. The heating system has been designed to meet challenging requirements including aesthetics and visibility. Hood said PPG has completed qualification testing for Safety of

Flight and is ready to begin production to support the programme schedule as directed by Dassault. The windshields and windows will be made at PPG's Huntsville, Alabama, plant. •



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