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VOL 19 ISSUE 10 • OCTOBER • 2016

BUSINESS AVIATION 2017
MAY BE A BETTER YEAR

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Narendra Modi, Hon'ble Prime Minister of India (*message received in 2014)

SP GUIDE PUBLICATIONS

OVER 5 DECADES SINCE 1964

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Cover images by: Dassault Aviation

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LEAD STORY

2017 MAY TURN OUT TO BE GOOD

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REGIONAL CONNECTIVITY SCHEME (RCS) OR 'UDAN' IS A LANDMARK POLICY AND ITS VISION IS EXPLAINED IN THE ACRONYM WHEREIN IT MEANS *UDE DESH KA AAM NAAGRIK* (THE COMMON MAN OF THE COUNTRY WILL FLY)

IT IS APTLY CALLED 'UDAN', meaning flight. The recently announced Regional Connectivity Scheme (RCS) or UDAN is all set to give wings to India's aviation dreams, dreams of becoming one of the top three aviation markets in the world by 2030. UDAN is a landmark policy and its vision is explained in the acronym wherein it means *Ude Desh ka Aam Naagrik* (the common man of the country will fly). The policy will most probably come into effect in January 2017 and will pave the way for transformational changes in India's aviation landscape, with the hinterland getting connected to the burgeoning metros.

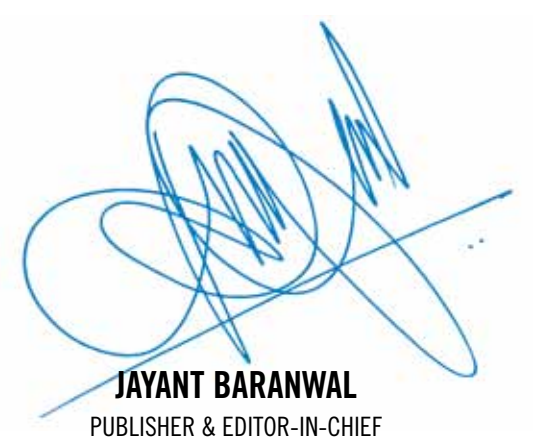
The Minister of Civil Aviation, P. Ashok Gajapathi Raju, and his team at the Ministry deserve all the praise for their efforts in creating an enabling environment for the sector to flourish. The Minister has tweeted how the growth rates in civil aviation were encouraging and plans were afoot to keep the momentum going. RCS as well as the earlier announced National Civil Aviation Policy 2016 would eventually promote significant growth of the civil aviation sector first and also India's economy. In line with this development, OEMs are already positioning themselves to tap the almost virgin markets. One of them is the Viking DHC-6 Twin Otter Series aircraft which is unmatched for its dependability and versatility and suitable to connect remote and regional areas of the country.

As mentioned the ecosystem is falling in place. The business aviation segment too will gain from this development. In 2016 year-to-date, business aviation shipments have been more or less flat, in case of turboprops and piston engines it was down, the hope is that in 2017 it would gradually pick up, driven by emerging markets and also some pro-business aviation decisions in the United States, the largest market for business aviation. To grow this segment, there has been a spurt of aviation consultancy firms and we have an interaction with a leading firm in India on how the concept is working in a challenging atmosphere. We have two OEMs, Gulfstream and Embraer, both making a case for expansion of the corporate jet market in India in the light of the policy changes that are taking place here and also the general 'feel good' economic environment. Embraer's Claudio Camelier makes a pitch on the theme "No Plane, No Gain" while Gulfstream's Jason Akovenko states that the policy changes in India will not have an immediate effect on business aviation, but as the airline passengers growth increases, then the appeal of private aviation will grow too.

Coming to military, we have extensive coverage of the 84th anniversary celebrations of the Indian Air Force (IAF) which is a force to reckon with. Air Marshal B.K. Pandey (Retd) outlines the capabilities of the IAF and how the modernisation of the force is taking place. The speech of the IAF Chief on the occasion is truly inspiring and confidence-building among the forces.

In this issue, we have profiled Dr. Vivek Lall who has done us all proud by being one of the senior most people of Indian origin in the US to be holding a senior position in an aerospace and defence entity – General Atomics.

All this and more in this issue of *SP's Aviation*. Happy reading!



JAYANT BARANWAL
PUBLISHER & EDITOR-IN-CHIEF

NEWS:

GLOBAL AEROSPACE FIRMS TO SET-UP ASSEMBLY LINE IN INDIA

Competition has begun behind the scene among the world's top aviation firms to convince the Government of India about the superiority of their fighter jets as the Indian Ministry of Defence explores the possibility of setting up an assembly line in India with transfer of technology for the production of combat aircraft. An indication came from Air Chief Marshal Arup Raha, Chief of the Air Staff, Indian Air Force (IAF) during media interaction prior to Air Force Day when he said: "The offers are on the table and we will have to see who gives us the best deal." In the first week of October this year, the government had written to some of the global aerospace majors seeking their views on relocating their assembly lines to India. The exact nature of the communication, however, remains unknown.

VIEWS:

AS THINGS STAND, THE fleet of combat aircraft in the IAF today has plummeted to just 33 squadrons as against the newly authorised strength of 42. In terms of numbers, it means that the IAF is currently short of around 180 to 200 fighter jets. With some variants of the older fleets of MiG-21 and MiG-27 aircraft that have been overtaken by obsolescence and are somewhat overdue for retirement from service, the IAF will lose another 100 or so combat platforms by the end of the decade. The strength of the fleet of combat jets will thus reduce further to 28 squadrons. This means that the combat fleet will effectively be down to 66 per cent of its authorised strength. There is a possibility of partial relief in the event that the Indian aerospace industry is able to provide the IAF with six squadrons worth of the light combat aircraft (LCA) Tejas by the year 2017 as planned. However, the LCA Tejas is still to be granted final-operational clearance and hence it may not be prudent for the IAF to place total reliance at this juncture on this aircraft to revitalise its operational potential. The IAF may therefore prefer to have options that provide better levels of certainty in the fructification of plans for induction of modern combat aircraft.

Given the evolving geopolitical situation in the region and the increasing belligerence on the part of Pakistan and China, the challenges to national security that the Indian armed forces will be called upon to contend with will certainly be quite formidable especially in the event of a two-front war. For the IAF, the dwindling fleet of combat aircraft has therefore become a matter of serious concern as efforts by the organisation to induct fourth-generation combat aircraft in the numbers required, have only been partially successful. The LCA Tejas may not be able to provide the long-range offensive capability that the IAF badly needs to be ready for the next air war.

In this context, there is no solution other than to explore options to procure combat platforms from foreign sources and that is precisely what the government seems to have opted to do, that is to identify a proven combat aircraft of the latest generation and get the global aerospace major responsible for its production to manufacture the aircraft in India under the 'Make in India' scheme. It goes without saying that in conformity with the philosophy of 'Make in India', the global aerospace major selected to set up facilities in the country to manufacture combat aircraft will be free to exploit the markets outside India as well. The proposal to transfer the production line to manufacture combat aircraft in India is likely to be appealing to global aerospace majors as India is on the road to becoming a major global aerospace hub. Also, the low cost of labour coupled with better technological capabilities especially in the private segment of the Indian aerospace industry are factors that a global aerospace major would like to benefit from by the transfer production line to India for the unfettered production of combat aircraft in India.

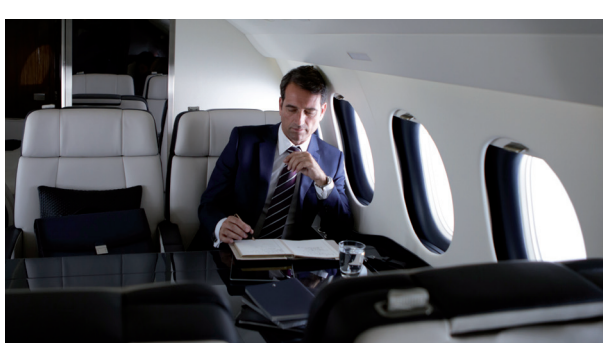
There has already been considerable forward movement in respect of global aerospace majors collaborating with budding Indian firms for the manufacture of components and aerostructures. In the rotary-wing regime, Sikorsky in collaboration with Tata Advanced Systems Limited (TASL) has been manufacturing cabins for the S-92 helicopter in Hyderabad. Boeing has been working with Dynamatic Technologies on the P-8I since 2010 and now has included manufacture of parts for the CH-47 Chinook. Boeing has also signed an agreement with TASL to manufacture aero-structures for the AH-64 Apache helicopter. Airbus Industries has inked up with Mahindra Defence to manufacture helicopters in India and will collaborate with TASL to produce the Airbus C295 transport aircraft for the IAF

The Minister of Defence has stated in the recent past that the government will select one or two fighter aircraft for production in India. As per information available in the public domain, there are three options, the F-16 from Lockheed Martin, the F/A-18 from Boeing – both from the US — and the Gripen from Saab of Sweden. Each of these platforms has its set of advantages and disadvantages. As the Chief of the Air Staff has stated, the government is evaluating proposals and will go for the "best deal". The F/A-18 being a twin-engine platform fits in well with the staff qualitative requirements projected initially by the IAF for a medium multi-role combat aircraft. Besides, this platform can also be inducted into the Indian Navy for carrier-borne operations. The IAF can now look forward to better days ahead! SP

—By Air Marshal B.K. Pandey (Retd)

PHOTOGRAPH: LOCKHEED MARTIN

SO QUIET INSIDE YOU CAN ACTUALLY HEAR YOURSELF THINK.



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DISPLAY OF INTENSE COMMITMENT: (TOP, L-R) CHIEF OF THE AIR STAFF AIR CHIEF MARSHAL ARUP RAHA INSPECTS THE PARADE DURING THE AIR FORCE DAY CELEBRATIONS; THE IAF COLOURS NISHAN TOLI MARCHES PAST; (ABOVE, L-R) LCA TEJAS FIGHTER STOLE THE SHOW, LEAVING SPECTATORS ENTHRALLED WITH ITS AEROBATIC DISPLAY; PILATUS PC-7 MK II BASIC TRAINER PERFORMING OVER HINDON AIRBASE

PHOTOGRAPHS: WG CDR RS CHAUHAN (RETD) AND CAPT ADITYA SINGH CHAUHAN, RED ARROWS TWITTER HANDLE

IAF CELEBRATES 84TH ANNIVERSARY

The high point of these celebrations was the Air Force Day parade and the enthralling aerial display put up by aircraft of the IAF at Air Force Station, Hindon

BY AIR MARSHAL B.K. PANDEY (RETD)

ON SATURDAY, OCTOBER 8 this year, the Indian Air Force (IAF) celebrated its 84th anniversary countrywide with great enthusiasm and fervour. The high point of these celebrations was the Air Force Day parade and the enthralling aerial display put up by aircraft of the IAF at Air Force Station, Hindon, near Ghaziabad. One notable feature of the anniversary celebrations this year was that it was held amidst the escalating tension on the western borders following the surgical strike on September 29, 2016, by the Indian Special Forces across the line of control in the Kashmir Valley. Since then, the security forces of India have been on a state of high alert and so it is with the IAF too.

COLOUR IN THE SKY: (TOP) SURYA KIRAN AEROBATIC TEAM (SKAT) WRAPPED UP THE AIR DISPLAY WITH A VARIETY OF FORMATIONS (ABOVE) RED ARROWS AND SURYA KIRAN TEAM. THE HIGHLIGHT OF THE DAY WAS A SCINTILLATING AERIAL DISPLAY BY THE RED ARROWS AEROBATICS DISPLAY TEAM WHO WERE ON A WORLD TOUR AND PERFORMED AT AROUND 12 NOON AT THE HINDON AIRBASE

The parade was reviewed by Air Chief Marshal Arup Raha, Chief of the Air Staff (CAS) and Chairman, Chiefs of Staff Committee. Also present were General Dalbir Singh Suhag, Chief of the Army Staff, and Admiral Sunil Lanba, Chief of the Naval Staff. Amongst the invitees were the former Chiefs of the Air Staff, defence attachés as well as several other dignitaries, both civil and military, serving and retired. A special guest of honour at the event was the former national level cricketing icon Sachin Tendulkar who has been conferred with the honorary rank of Group Captain.

Established on October 8, 1932, the IAF has a glorious record of performance and achievements in its 84-year-long history. Initially christened as the Royal Indian Air Force (RIAF), it played a stellar role in World War II, thwarting the advance of the Japanese Army in Burma. After the nation became a Republic in 1950, the prefix "Royal" was dropped. Since its inception, the IAF has ensured the security of the Indian air space with great diligence and dedication. Apart from participating in the four violent conflicts with Pakistan, the IAF has undertaken a number of other operations which include Operation Vijay to claim Goa, Operation Meghdoot to establish control over the Siachen Glacier, Operation Cactus that was India's intervention in the Maldives and Operation Poomalai to airdrop supplies over the besieged town of Jaffna in Sri Lanka. In addition, the IAF has always been in the forefront to undertake humanitarian assistance and disaster relief (HADR) operations both within the country and across the globe. These operations have included evacuation of Indian nationals as well as others stranded in foreign lands owing to turmoil and strife in those countries. The IAF has been a participant in several United Nations peacekeeping missions as well.

FELICITATIONS FROM HIGHER ECHELONS

On the occasion of the 84th anniversary of the IAF, the President of India Pranab Mukherjee lauded the highly professional service through a message, "The IAF has achieved distinction in defending our skies and delivering vital humanitarian aid and disaster relief. Over the last eight decades, the IAF has emerged as an immensely professional and combat-ready force. The nation is proud of the capability and competence of the IAF. Greetings and felicitations to all personnel of the IAF on the 84th anniversary." Prime Minister Narendra Modi too offered his greetings on the occasion to all personnel of the IAF and their families. In a message on Twitter, the Prime Minister said, "Saluting all air-warriors and their families on Air Force Day. Thank you for protecting our skies. Your courage makes India proud". The Minister of Defence Manohar Parrikar also greeted the IAF on the occasion as he tweeted, "Our Air Force plays a vital role in strengthening our national security. I humbly salute its members and their families on Air Force Day."

THE PARADE

The events of the day began with flag-bearing skydivers of the famous Akash Ganga Team of the IAF jumping out of An-32 aircraft with their colourful parachute canopies and performing a series of manoeuvres during their descent to the ground before the spectators. On the tarmac of Air Force Station, Hindon, the entire range of aircraft on the inventory of the IAF was on static display with combat platforms in battle-ready condition. Heralded by the bugle, the contingent on parade consisting of four squadrons with two flights each, marched in smartly to the tune of the No. 1 Air Force Band and took position. The parade was commanded by Group Captain Neeraj Choubey and one of the squadrons was led by a lady officer. In the middle of the parade was the "Nishan Toli" carried by an officer of the rank of Flight Lieutenant escorted by air-warriors. The Nishan Toli is a flag which symbolises the bravery, valour and commitment to mission, integrity and excellence of the IAF. It was presented to the IAF by Dr Rajendra Prasad, the first President of the nation, on April 1, 1954. Since then, this most revered flag is hoisted on important occasions.

Inspection of the parade by the CAS was followed by the march past during which three Mi-35 attack helicopters of the IAF flew past. The march past was followed by presentation of awards. The chief guest and reviewing officer, Air Chief Marshal Arup Raha, then conferred the awards of Vayu Sena Medal, Vayu Sena Medal (Gallantry) and Vishist Seva Medal to individuals selected to receive these. The CAS also presented Unit Citation Awards to three premier units of the IAF for outstanding performance and valuable contribution to the IAF. These units are the Tactics and Air Combat Development Establishment (TACDE), No. 31 Squadron now equipped with the Su-30MKI combat aircraft and No. 152 Helicopter Unit that has on its inventory the Mi-17V5 medium-lift helicopters, the latest acquisition by the IAF. The presentation of awards was followed by address by the CAS in which he highlighted the grave security situation the country is currently faced with, the challenges before the IAF and the resolve to confront these with determination and unflinching zeal. The address was inspiring to one and all. The parade was then permitted by the chief guest to march off the parade ground.

What followed was a stunning display of precision and coordination in rifle drill by the Air-Warrior Drill Team of the IAF. In conformity with the motto of the team which is "Drill to Thrill", members of the Air-Warrior Drill Team displayed a complex sequence of foot and rifle movements through nine different formations.

THE AERIAL DISPLAY

The aerial display commenced with vintage aircraft, the Tiger Moth biplane, the erstwhile basic trainer aircraft and the Harvard piston engine intermediate trainer aircraft that were in use in the 1950s and the 1960s. These two aircraft that were pulled out of the museum to participate in the aerial display, revived nostalgic memories amongst the veterans who had trained on these platforms. These vintage machines were followed by aircraft that are currently operational in the IAF. Leading the pack were three Lockheed Martin C-130J Super Hercules in vic formation followed by one C-17 Globemaster III, the latest acquisition from Boeing, escorted by two Su-30MKI air dominance fighters. A formation of three Jaguars followed next firing flares as they flew past and broke formation over the spectators. Then came three MiG-21 Bisons followed by the MiG-29 air defence fighters. A formation of three Mirage 2000 followed next with the formation peeling off and discharging flares as they flew past. A formation of three Su-30MKIs followed the Mirage formation and in their wake came a single Su-30MKI that offered a salute to the reviewing officer by way of a Vertical Charlie manoeuvre, spiralling upwards symbolising the motto of the IAF to "Touch the Sky With Glory"!

The high point of the aerial display was the debut by the light combat aircraft Tejas of the recently raised No. 45 Squadron Flying Daggers. A single Tejas piloted personally by the Commanding Officer of the Squadron, Group Captain Madhav Rangachari, staged a good ten-minute display, putting the Tejas through its paces before an appreciative audience. This was followed by the well-known Sarang, the helicopter display team of the IAF that has been participating regularly in local and international air shows. As usual, the Sarang team captivated the spectators with some heart-stopping manoeuvres especially the high speed cross over a few hundred feet above the ground right in front of the spectators. The Pilatus PC-7 Mk II single-engine turbo-trainer followed next. This platform was acquired beginning in 2013 following the premature grounding in 2009 of the basic trainer HPT-32. With its impressive operating envelope, the Pilatus PC-7 Mk II is being employed for both basic and intermediate stages of flying training. The final act in the air show the resurrection of the Surya Kiran Aerobatic Team (SKAT) now re-equipped with the Hawk 132 advanced jet trainer. This newly constituted six aircraft team wrapped up the air display with a variety of formations.

The highlight of the day was a scintillating aerial display by the Red Arrows aerobatics display team. The world-renowned aerobatics display team of RAF, who were on a world tour, performed at around 12 p.m. at the Hindon airbase. The Red Arrows fly the famous Hawk jets, the advanced jet trainer made by the British BAE systems and have become a symbol of not just British excellence but also Indian manufacturing and technical development.

Apart from being a routine annual event, the anniversary celebrations help rejuvenate confidence in the capability of the IAF. With the formal event behind it, the IAF will now go back to the more challenging task of preparing to contend with the emerging threats to national security! SP

DISPLAY DETAILS

STATIC DISPLAY

- C-17 Globemaster III
- Mi-17V5
- Hawk 132 AJT
- LCA Tejas
- Jaguar
- Mirage 2000
- MiG-21 Bison
- MiG-29
- Su-30MKI
- Indra Radar
- Rohini Radar
- ALH

FLYING DISPLAY

- Tiger Moth
- Harvard
- C-130J Super Hercules
- C-17 Globemaster III
- Jaguar
- MiG-21 Bison
- MiG-29
- Mirage 2000
- Su-30MKI
- LCA Tejas
- ALH Dhruv in Sarang Team
- Pilatus PC-7 Mk II
- Hawk 132 AJT

Source: IAF PRO, Palam

PHOTOGRAPH: NEETU DHULIA

CONFRONTING CHALLENGES

The IAF stands today at the threshold of acquiring multi-spectrum strategic capabilities, synonymous with India's growing regional stature and expanding national interests

ON THE OCCASION OF the 84th anniversary of the Indian Air Force (IAF), I extend my warm felicitations to all air-warriors, NCs (E), DSC personnel, civilians and their families. My special greetings to our esteemed air veterans and their families. The Air Force Day is a momentous occasion as we look back on our rich past with a deep sense of pride on our achievements over the last eight decades. The IAF stands today at the threshold of acquiring multi-spectrum strategic capabilities, synonymous with India's growing regional stature and expanding national interests.

In the year gone by, the IAF has continued to grow from strength to strength. The flying effort of the IAF of more than 2,70,000 hours during the year gone by, is the highest in decades. The IAF not only flew 40,000 hours more than the average over the last ten years, it also recorded the second lowest ever accident rate of 0.22. However, the tragic loss of 29 personnel onboard the missing An-32 aircraft reminds us of the inherent risks and challenges of military aviation. Our thoughts and prayers are with the families of the personnel who were onboard the An-32 aircraft. The IAF achieved a number of operational milestones during the year. The successful conduct of Exercise Live Wire, an Air Force level exercise and the Fire Power Demonstration, Exercise Iron Fist-16 at Pokhran range, aptly showcased the operational capability and readiness of

the IAF. Participation by the IAF in international exercises like the recently completed deployment to Alaska for Exercise Red Flag and the exercise on the return with the UAE Air Force, demonstrated our growing strategic reach and power projection capabilities. Continual air logistics missions flown for the police forces towards Operation Triveni and air maintenance of the Indian Army in one of the most challenging terrain and weather conditions in the world, have been noteworthy.

The IAF excelled in the execution of its operational tasks, as also in rendering assistance during various contingencies and in aid of civil authorities, both within the country and abroad. Our nation reposes a high degree of trust in our capabilities to respond promptly and effectively to any contingency and being the first responder, the IAF with its reach, response and proactive approach, led from the front. The IAF's swift and prompt response during the agitation in Haryana, floods in Chennai, suppressing forest fires in Kollam and Uttarakhand, airlift of relief material to Fiji and Sri Lanka and evacuation of our stranded diaspora from south Sudan, was indicative of its humanitarian assistance and disaster relief (HADR) capabilities in out of area contingencies. Without regard for personal comfort and safety, our air-warriors braved daunting challenges and saved precious lives.

CAS HONOURING THE AWARDEES ON 84TH AIR FORCE DAY

This year is historic as for the first time, three women officers have been inducted as fighter pilots in the IAF. Accomplishment of tasks allotted to the IAF in a safe and timely manner, speaks volumes of the professionalism and operational capability of our air-warriors. It is indeed noteworthy that our squadrons, units and stations worked tirelessly to sustain high levels of combat potential. My compliments to all air-warriors for their dedication. I urge each one of you to remain anchored to our core values and continue honing your skills with single-minded devotion.

While we must justifiably feel proud of our achievements, we need to continue to evolve as a potent fighting force. The recent terrorist attacks on our Army and airbases, are stark reminders of the troubled times we live in. The IAF remains ever-ready to undertake operations to defend our nation's sovereignty and achieve the objectives set by our political leadership to deter and respond to such hostile acts by our adversaries. The challenges of capability development in terms of meeting conventional, subconventional and non-conventional threats by induction and expeditious operationalisation of weapon systems, creation of appropriate infrastructure, training of air-warriors in absorbing high-end technology, need to be met through detailed planning and timely execution of projects and work services. We also need to train extensively so as to exploit these capabilities effectively.

In consonance with the 'Make in India' initiative, the IAF has taken an important step in its quest of reducing its reliance on foreign weapons systems and platforms with the induction of the light combat aircraft Tejas. The induction of advanced light helicopter, Akash surface-to-air guided weapon, air-to-air Astra missile, IACCS, air defence radars, AEW&C platforms and BrahMos surface-to-surface and air-to-surface missiles in the IAF are some of the other success stories of our indigenisation effort. To enhance our operational capability, 36 Rafale aircraft are being acquired while the midlife upgrade of MiG-29, Mirage 2000 and Jaguar fleets is already underway. Induction of Apache attack helicopters, Chinook heavy-lift helicopters and air defence radars along with upgrading of airfield infrastructure and communications network will provide unprecedented operational capabilities to the IAF.

As we invest in new capabilities, protection of these valuable assets and resources and of our invaluable air-warriors and their families, is a high priority task. The security environment in the neighbourhood and beyond continues to be fragile and poses several challenges. New security measures have been instituted and standard operating procedures have been revised to counter any kind of threat to our bases. The boot camp at Naliya, the QRT and Young Officers Course at Bhatinda have been initiated with an aim of increasing security training and consciousness, physical fitness and combat efficiency of our personnel. Procurement of state-of-the-art equipment is also being processed and would further bolster our capability to safeguard national security.

In line with the IAF's vision of 'People First, Mission Always', the welfare and well-being of our personnel and their families is of utmost importance. I assure you of the IAF's commitment to improve the quality of life and enhance productivity at workplace. Creation and upgrade of infrastructure for sports and games, living accommodation, shopping complexes, schools and auditoriums, have enhanced the quality of life and standards of living of our personnel. These efforts have served to enhance the morale of our personnel. As we rededicate ourselves to our mission on this special day, we take the opportunity to pay tribute to our veterans and acknowledge their outstanding contribution. We are immensely indebted to our brave pioneers who endured tremendous hardship during the formative years of the IAF. On behalf of all serving air-warriors, I salute their tenacity and leadership. Their vision will always serve as a beacon and will guide us in the completion of our mission with honour and pride. The times ahead will test our calibre, competence and resolve. For all of us who don the blue uniform, it becomes our sacred responsibility to follow the core values of 'Mission, Integrity and Excellence' so that we can continue to 'Touch the Sky with Glory'. My wife Lily and I convey our greetings to all air-warriors, NCs(E), DSC personnel, civilians, esteemed air veterans and families and wish you continued success in all future endeavours. Jai Hind! SP

PHOTOGRAPH: WG CDR RS CHAUHAN (RETD) AND CAPT ADITYA SINGH CHAUHAN

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'UDAN' LAUNCHED

The primary objective of RCS is to facilitate / stimulate regional air connectivity by making it affordable

BY R. CHANDRAKANTH

ILLUSTRATION: MOCA

THE INDIAN CIVIL AVIATION landscape is in the process of major transformation and the Ministry of Civil Aviation took another giant leap towards that – by launching the Regional Connectivity Scheme under the name of 'UDAN' which means flight. UDAN seeks to get more people to fly from smaller towns and cities, from unserved and underserved areas to the metros, connecting India like never before. Launching UDAN, the Minister of Civil Aviation, P. Ashok Gajapathy Raju, said: We will target the first flights under UDAN to take off by January 2017." The crux of the scheme' is to make flying accessible and affordable to the vast majority of people living in the hinterland. UDAN (flight) is also an acronym in Hindi 'Ude Desh ka Aam Nagrik' (the common man of the country will fly).

Echoing this view, the Minister of State, Jayant Sinha said the scheme is 'to get those wearing hawai chappals on to an aircraft. We have tried to make costs of flying lower to serve

underserved and other routes." 'Udan' is said to be the first of its kind globally wherein it would jumpstart the regional aviation segment in India. "We are very hopeful of a positive response from the industry but our thinking is that with the scheme, we will in fact be jump-starting regional aviation," Sinha said while exuding confidence that the scheme would be "quite attractive" for consumers, carriers, small and regional airlines, lessors and other players in the ecosystem. The government would create a new category of scheduled commuter operators to enable people to enter and get started in the regional space, he added.

The Civil Aviation Minister tweeted "Growth rates in civil aviation encouraging; intend to keep the momentum." RCS is one of the key elements of NCAP 2016, which envisions domestic ticketing of 30 crores by 2022 and 50 crores by 2027. RCS as well as NCAP 2016 would eventually promote growth of the entire civil aviation sector.

The objectives, he said, were to

- **Affordability –** take flying to the masses.
- **Connectivity –** revive more than 50 underserved and unserved airports in small and medium cities.
- **Growth –** to promote tourism, encourage balanced growth and increase employment opportunities in the hinterland.

The Civil Aviation Secretary R.N. Choubey said that it was unfortunate that in a country of 1.3 billion people domestic ticketing stands at 80 million. "We hope to have flights to 50 more airports in the next four years through the Regional Connectivity Scheme. Under the scheme, airlines will have complete freedom to enter into code sharing with larger airlines for connectivity." Also, regional connectivity flights will be exempted from various airport charges. Airlines will get exclusive rights for three years to fly on a particular regional route. Airfares will be capped at ₹2,500 for an hour's flight for regional flights under the scheme. "We want to make sure entry and exit barriers are kept reasonably low. Airline can withdraw from the scheme after one year," the Aviation Secretary said.

VIABILITY GAP FUNDING

Choubey said Viability Gap Funding (VGF) will be provided to airlines for three years under the UDAN scheme. The bidding for airlines to get subsidy under the scheme will take place twice a year beginning today. The government has appointed MSTC Limited to carry out reverse auction (airlines asking for lowest subsidy amount wins).

WE WILL TARGET THE FIRST FLIGHTS UNDER 'UDAN' TO TAKE OFF BY JANUARY 2017.

— ASHOK GAJAPATHY RAJU, MINISTER OF CIVIL AVIATION

WE ARE VERY HOPEFUL OF A POSITIVE RESPONSE FROM THE INDUSTRY BUT OUR THINKING IS THAT WITH THE SCHEME, WE WILL IN FACT BE JUMP-STARTING REGIONAL AVIATION.

— JAYANT SINHA, MINISTER OF STATE MOCA

SO WE LOOKED AT THESE VISIBLE BUSINESS MODELS AROUND THE WORLD AND WE HAVE DONE VERY VERY DETAILED CALCULATION WITH VARIOUS DIFFERENT OPERATORS GETTING THEIR ACTUAL NUMBERS IN INDIA AS WELL AS WITH OEMS AS WELL AS WITH EXPERTS AND CONSULTANTS.

— R.N. CHOUBEY, SECRETARY, MINISTRY OF CIVIL AVIATION

"We don't agree with airlines' opposition to put a levy on them to fund the scheme," according to Choubey. The new levy on airlines will be announced by October 31, he added. VGF will be provided for RCS flights for a period of three years from the date of commencement of operations of such RCS flights (tenure of VGF support).

It may be recalled that earlier this year the Ministry of Civil Aviation had released the National Civil Aviation Policy (NCAP) 2016. One of the objectives of NCAP 2016 is to "enhance regional connectivity through fiscal support and infrastructure development."

As per an ICAO study "Economic benefits of civil aviation: ripples of prosperity", the output and employment multipliers of aviation are 3.25 and 6.10 respectively. This implies that every 100 rupees spent on air transport contributes to 325 rupees worth of benefits, and every 100 direct jobs in air transport result in 610 jobs in the economy as a whole. In fact, the study attributes over 4.5 per cent of the global gross domestic Product (GDP) to civil air transport.

As the Indian economy grows, consumption-led growth in populated metros is expected to spill over to hinterland areas. This is also expected to be on account of factors of production (land, labour, etc.) becoming costlier in the densely populated metro cities. In this scenario, air connectivity can provide required impetus to the economic growth of regional centres (towns / cities). In this context, one of the key objectives of NCAP 2016 is to "establish an integrated eco-system which will lead to significant growth of civil aviation sector, which in turn would promote tourism, increase employment and lead to a balanced regional growth."

SCHEME OBJECTIVE

The primary objective of RCS is to facilitate / stimulate regional air connectivity by making it affordable. Promoting affordability of regional air connectivity is envisioned under RCS by supporting airline operators through (1) concessions by Central Government, state governments (reference deemed to include union territories as well, unless explicitly specified otherwise) and airport operators to reduce the cost of airline operations on regional routes / other support measures and (2) financial (Viability Gap Funding) support to meet the gap, if any, between the cost of airline operations and expected revenues on such routes.

STATE GOVERNMENT CONCESSIONS

The state governments' buy-in and support to determine eligibility: To minimise the cost of operations for air transport opera-

tors to the extent possible through concessions from state governments.

OPERATIONAL ONLY IN STATES WHICH SUPPORT

RCS is accordingly to be made operational only in states and at airports / helipads (irrespective of ownership by AAI / state governments / private entities / Ministry of Defence) which demonstrate their commitment and support to regional air transport operations by providing concessions / support as required under the scheme.

The RCS has listed out the concessions / support that need to be offered by the respective state governments at RCS airports within their States:

- Reduction of VAT to 1 per cent or less on aviation turbine fuel (ATF) at RCS airports located within the state for a period of ten years from the date of notification of this Scheme. Upon transition to the Goods and Services Tax (GST), rates will be applicable as determined under GST and exemptions / concessions shall be given as permissible so that such a reduced level of taxation could ideally be continued.
- Coordinating with oil marketing companies for provision of fuelling infrastructure on best effort basis.
- Provision of minimum land, if required, free of cost and free from all encumbrances for development of RCS airports and also provide multi-modal hinterland connectivity (road, rail, metro, waterways, etc.) as required;
- Provision of security and fire services free of cost at RCS airports through appropriately trained personnel and appropriate equipment as per applicable standards and guidelines by relevant agencies;
- Provision of, directly or through appropriate means, electricity, water and other utility services at substantially concessional rates at RCS airports;
- Provision of a certain share (20 per cent) towards VGF for respective RCS routes (pertaining to the state), provided the share of states in the north-eastern region of India and union territories would be (10 per cent).

Concessions to offered by the airport operators:

- Airport operators (whether under the ownership of the AAI, state governments, private entities or the Ministry of Defence) shall not levy landing charges and parking charges or any other charge subsuming a charge for such aspects in future on RCS Flights.
- Selected airline operators shall be allowed to undertake ground handling for their RCS flights at all airports.
- AAI shall not levy any terminal navigation landing charges (TNLC) on RCS flights.
- Route navigation and facilitation charges (RNFC) will be levied by AAI on a discounted basis @ 42.50 per cent of normal rates on RCS flights. Normal rates refer to applicable rates specified by the AAI on its website from time to time without any discounts or concessions.

As provided for in NCAP 2016, air freighter operations at RCS airports shall be entitled to the following under the Scheme for a period of up to 10 years from the date of notification of this scheme. The excise duty at the rate of 2 per cent shall be levied on ATF drawn for air freighter operations at RCS airports for a period of three years from the date of notification of this scheme. Upon transition to GST, rates will be applicable as determined under GST and exemptions/ concessions shall be given as Page 12 of 46 permissible so that such a reduced level of taxation could ideally be continued. There are other concessions too but VGF support shall not be provided for cargo operations. SP

AIRFARE CAP UNDER RCS

Airfare cap to be considered for respective stage lengths / flight duration are as follows:

AIRFARE CAP FOR FIXED WING AIRCRAFT

Stage length (in km)	Airfare cap per RCS seat (in ₹)
151-175	1420
176-200	1500
201-225	1580
226-250	1670
251-275	1750
276-300	1830
301-325	1920
326-350	2000
351-375	2080
376-400	2170
401-425	2250
426-450	2330
451-475	2420
476-500	2500
501-525	2500
526-550	2590
551-575	2680
576-600	2770
601-625	2860
626-650	2950
651-675	3050
676-700	3140
701-725	3230
726-750	3320
751-775	3410
775-800	3500
>800	3500

AIRFARE CAP FOR HELICOPTERS

Flight Duration (in minutes)	Airfare cap per RCS Seat (in ₹)
00-30	2,500
31-35	2,900
36-40	3,350
41-45	3,750
46-50	4,150
51-55	4,600
56-60	5,000

Source: Ministry of Civil Aviation

A POSITIVE MOVE BUT IMPLEMENTATION IS THE KEY

The thrust on regional connectivity is in the best interest of the Indian airlines industry, but the implementation of the RCS will be no easy task

BY AIR MARSHAL B.K. PANDEY (RETD)

ILLUSTRAITON: ANOOP KAMATH

ON JUNE 15 THIS year, the Minister of Civil Aviation P. Ashok Gajapathi Raju released the National Civil Aviation Policy (NCAP) 2016 in New Delhi. The event was regarded as unique in a way as it was for the first time in the history of Indian civil aviation since independence that an integrated civil aviation policy was brought out by the Ministry of Civil Aviation.

While the policy document covered 22 different areas of the civil aviation sector and was generally described as "very comprehensive", its major focus was on regional aviation and rightly so as this is the segment of the Indian airline industry that is currently neglected and underexploited; but has the potential to provide the impetus required for the next phase of growth for

the Indian civil aviation industry. Speaking on the occasion of unveiling of the policy document, the Minister of Civil Aviation said that the thrust on regional aviation in the NCAP 2016 was "To take flying to the masses by making it affordable and convenient for them, establish an integrated ecosystem which will lead to significant growth of the civil aviation sector to promote tourism, employment and balanced regional growth, enhance regional connectivity through fiscal support and infrastructure development as well as enhance ease of doing business through deregulation, simplified procedures and e-governance."

To achieve this objective, the NCAP 2016 enshrined the Regional Connectivity Scheme (RCS) as the primary theme which while facilitating air travel for the masses was also designed to provide incentives to airlines to operate to regional airports that are located in remote and inaccessible areas of the country where traffic density was expected to be low and hence unprofitable for the airlines as well as airport operators at least during the initial years of the implementation of the scheme. To compensate for the losses suffered by airlines, the policy has a provision for a form of subsidy for the airlines through what is referred to as Viability Gap Funding (VGF). Under this scheme, the government would be providing financial assistance to carriers operating under the RCS and the required resources for VGF would be raised by imposing an additional levy on airfares for flights on non-regional routes. The Central Government would bear 80 per cent of the liability leaving 20 per cent for the state governments to bear. "We will do handholding for a limited period of time and the civil aviation industry should benefit the economy," Gajapathi Raju had said at the time of releasing the draft RCS.

A little over four months after the release of NCAP 2016, the government formally kick-started the RCS, giving it a very imaginative nomenclature UDAN in Hindi the expanded form of which is *Ude Desh ka Aam Naagrik* or "Let the common man of the country fly". In a media briefing by Gajapathi Raju accompanied by Jayant Sinha, Minister of State for Civil Aviation, and R.N. Choubey, Secretary, Ministry of Civil Aviation, in the presence of all stakeholders of the Indian civil aviation industry, the operators were invited to submit initial proposals to fly to airports that do not have regular flights at present. The airlines have been given six weeks time, i.e. up to December 2, 2016, to submit their initial proposals. The government will take two to three days to scrutinise the proposals and the entire process is likely to take up to ten weeks to complete. The first flight under RCS is expected in January of the new year. "The idea of the scheme is to get those who wear *hawai chappals* on to *hawai jahaj* [aeroplane]," said Jayant Sinha.

RESPONSE FROM AIRLINES

In their response to the proposals, several of the existing private carriers did not display much enthusiasm. Chief Executive Officer of Vistara Airlines, Phee Teik, reserved his comments and said: "The airline will be able to comment on whether the policy was good or bad only after going through it." Chairman SpiceJet, Ajay Singh, felt that there were some issues with the scheme which they will raise with the government and hoped that these could be resolved. As per Ajay Singh, there was a problem with availability of operating slots at the metros and other large airports for carriers operating flights under RCS. Thus regional carriers could find it difficult to connect the smaller airports with those at Mumbai, Delhi, Bengaluru, Chennai and Hyderabad. Large airports operated by private parties are particularly difficult to handle in this regard. For effective implementation of the scheme, it would be necessary to ensure that there are a few slots reserved at the major airports for aircraft operating under RCS. The hub-and-spoke model on which the RCS is founded is unlikely to succeed unless this is done.

Ajay Singh was also of the view that imposing a levy on airfares on non-regional routes is not welcome news especially for regular flyers on those routes. There is no justification for imposing financial burden on air passengers that fly non-regional routes for the financial well-being of regional aviation. As the scheme is of national importance and concern, the government ought to make budgetary allocations from the existing central resources, i.e. the Consolidated Fund of India, to provide subsidy to regional carriers operating under RCS.

For airlines that are equipped with aircraft such as the Airbus A320 or Boeing 737 and would like to venture into regional aviation, it would require induction of a fleet of smaller aircraft such as those from ATR, Bombardier or Embraer to operate short haul flights from perhaps runways of smaller size make operations to regional destinations financially viable. Consequently, these carriers would then have to cope with problems associated with multiplicity of types on their inventory. Airlines have also requested the Ministry of Civil Aviation to provide them subsidy beyond the three years stipulated in the draft RCS.

FOR AIRLINES THAT ARE EQUIPPED WITH BIGGER AIRCRAFT (A320 OR BOEING 737) AND WOULD LIKE TO VENTURE INTO REGIONAL AVIATION, THEY WOULD NEED TO INDUCT A FLEET OF SMALLER AIRCRAFT

POSSIBLE LEGAL IMPEDIMENTS

The Federation of Indian Airlines (FIA), whose members are IndiGo Airlines, Jet Airways, SpiceJet and GoAir, is of the view that the proposal to impose a levy on airfares for flights on non-regional routes to provide subsidy to carriers operating on regional routes, is in contravention to the Aircraft Act of 1934 and hence is unconstitutional and illegal. The FIA believes that the imposition of a regional connectivity levy would require amendment to the Aircraft Act, 1934 and not the rule. Until this is done, the draft rules would be beyond the authority of law. This has been conveyed in writing by the FIA to the Ministry of Civil Aviation. The FIA has said in a letter to the Ministry of Civil Aviation that a levy in the nature of tax can only be levied having regard to the provisions contained in the Article 265 of the Constitution of India, i.e. by authority of law. The Ministry of Civil Aviation on the other hand has obtained due clearance from the Ministry of Law in this regard and in spite of the stiff opposition from the FIA, is determined to go ahead with the imposition of the proposed levy to raise the resources required for VGF.

While the thrust on regional connectivity is a positive move by the Ministry of Civil Aviation and is in the best interest of the Indian airlines industry, by the stance adopted by some of the major stakeholders; it appears that the implementation of the RCS will be no easy task. SP

VERSATILITY & PERFORMANCE

Combining a proven design with modern technology, the Viking DHC-6 Twin Otter Series 400 provides the best-selling 19 passenger aircraft of all time, unmatched for its dependability and versatility

BY ROHIT GOEL




(CLOCKWISE FROM TOP LEFT): ROHIT KAPUR, MANAGING DIRECTOR, ARROW AIRCRAFT; DAN THARP, CHIEF OPERATING OFFICER, VIKING AEROSPACE; GARETT W. JERDE, MANAGING DIRECTOR, JETHQ; TED FARID, CHAIRMAN, JETHQ

PHOTOGRAPHS: SP GUIDE PUBNS

THE PRESENT ENVIRONMENT IS THE MOST EXCITING TIME THAT I HAVE SEEN IN THE LAST ONE DECADE IN CIVIL AVIATION SECTOR. WE HAVE A GOVERNMENT THAT IS FULLY FOCUSED ON MAKING AIR CONNECTIVITY DREAM A REALITY AND GETTING INTO THE REMOTE AREAS. THERE IS A VERY STRONG CASE FOR 19-SEAT OR LESS AIRCRAFT FOR REGIONAL AND REMOTE CONNECTIVITY.

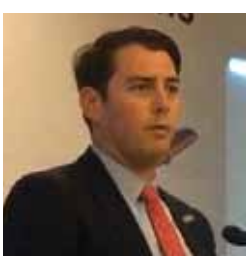
— ROHIT KAPUR, MANAGING DIRECTOR, ARROW AIRCRAFT

THE VIBE HERE IN INDIA NOW IS UNLIKE ANYTHING THAT I HAVE SEEN OVER THE LAST 5 YEARS. IT IS A GREAT THING TO SEE THE CONNECTIVITY THAT IS GOING ON IN THIS COUNTRY. IT IS GOING TO BRING MUCH NEEDED SERVICES TO REMOTE AREAS ALL ACROSS THE COUNTRY WHICH IS A GREAT CAUSE TO BE INVOLVED IN.

— DAN THARP,
COO, VIKING AEROSPACE

THE TWIN OTTER IS VERY UNIQUE, VERY VERSATILE AIRPLANE AND IS IDEALLY SUITED FOR CERTAIN MISSIONS. BOTH THE LAND AND THE SEA VERSION CAN BE USED IN THIS MARKET, PARTICULARLY NOW WITH THE PRIME MINISTER MODI'S FOCUS ON PROMOTING REGIONAL AND REMOTE CONNECTIVITY.

— TED FARID,
CHAIRMAN, JETHQ



WE ARE REALLY, REALLY EXCITED ABOUT INDIA. THERE IS A BUZZ, EVERYBODY IS TALKING ABOUT REMOTE CONNECTIVITY. WE FEEL, AS REPRESENTATIVES OF VIKING AEROSPACE, THAT WE HAVE A SPECIAL PRODUCT FOR INDIA TO BRING TO THIS COUNTRY TO SERVE, WHICH IS IDEALLY SUITED FOR THE PRIME MINISTER MODI'S IDEA OF CONNECTING THE COUNTRY.

— GARETT W. JERDE,
MANAGING DIRECTOR, JETHQ

THINGS ARE HAPPENING in the Indian aviation sector. With the launch of 'UDAN', the regional connectivity scheme, a Ministry of Civil Aviation initiative to connect smaller cities in India and to get more and more people to fly from Tier-II and Tier-III cities, the government has shown its seriousness about promoting the aviation sector in India. This is giving the necessary impetus to many foreign aviation companies to look at India as a serious and highly potential market for themselves.

One such company who has decided to come back to India is Viking Air, the manufacturers of the legendary "Twin Otter" series of small aircraft. Viking is offering their well-known DHC-6 Series 400 Twin Otter aircraft through JetHQ and Arrow Aircraft, their distributors for India, for connecting India's unserved and underserved cities. Announcing their comeback, top officials from Viking Aerospace, JetHQ and Arrow Aircraft met with government officials, operators and other stakeholders to highlight the features and versatility of Series 400 Twin Otter.

Welcoming Viking Aerospace to India, Rohit Kapur, Managing Director of Arrow Aircraft, said: "We thought it was a very good time to present this product to the stakeholders. The present environment is the most exciting time that I have seen in the last one decade in civil aviation sector. We have a government that is fully focused on making air connectivity dream a reality and getting into the remote areas. There is a very strong case for 19-seat or less aircraft for regional and remote connectivity. In time as the market develops, the routes will open up and you will require larger capacity aircraft but initially, this is the way to go, especially for the remote areas. Also, sea plane is the way to go in India. Vast coastlines, islands which are remotely connected, constraints on land for making airports, there is a huge potential."

Ted Farid, Chairman, JetHQ and an aviation industry veteran related to his association with Viking. "Almost two years ago, we had the opportunity to talk to Viking Air to represent them here for the Indian subcontinent. The Twin Otter is very unique, very versatile airplane and is ideally suited for certain missions. Both the land and the sea version can be used in this market, particularly now with the Prime Minister Modi's focus on promoting regional and remote connectivity."

THE LEGACY

In 1965, de Havilland Canada developed the DHC-6 Twin Otter aircraft – a high winged, un-pressurised twin-engine turbine powered aircraft with fixed tricycle land gear. Designed as a rugged short take-off and landing (STOL) commuter, the Twin Otter was capable of carrying passengers and cargo to remote unimproved locations, including ski and water-based operations. The aircraft were sold around the world to customers operating in the harshest environments. A testimony to its rugged construction and incredible STOL performance, the Twin Otter became the best-selling 19 passenger aircraft of all time, unmatched for its dependability and versatility.

In 2005, Viking purchased the Type Certificates for all of the out-of-production de Havilland aircraft (DHC-1 through DHC-7), including the Twin Otter. It was determined that an overwhelming demand for the Twin Otter existed and thus the Viking Series 400 Twin Otter Production Program was announced in 2007. The first production aircraft was delivered in 2010 and by mid-2015, 75 of the new series had been delivered.

DHC-6 SERIES 400 TWIN OTTER

The Series 400 Twin Otter picks up with an upgraded Pratt & Whitney PT6A-34 engines, fully integrated Honeywell Primus Apex digital avionics suite, internal and external LED lighting, and approximately 800 other modifications incorporated to improve upon the original production model. One of the biggest changes from the series 300 to the Twin Otter Series 400 is the avionics.

Available on standard land gear, optional straight or

amphibious floats, skis, wheel skis, or intermediate flotation gear (IFG), with multiple quick-change interior configurations available, the Series 400 Twin Otter is a versatile aircraft that can be utilised for multiple roles, such as regional commuter, environmental monitoring, parachute operations, cargo and infrastructure support, corporate shuttle, and personal use.

A Special Missions variant of the Series 400, the Twin Otter Guardian 400, has also been developed for ISR operations. Offered as a versatile airframe that can be customised for unique configuration requirements, the Guardian 400 allows operators to mix and match sensors and interior layouts to meet their specific mission profiles.

Presenting the features and versatility of DHC-6 Twin Otter Series 400, Garett W. Jerde, Managing Director of JetHQ, mentioned, "We are really, really excited about India. There is a buzz, everybody is talking about remote connectivity. We are getting to know more about regional connectivity, remote connectivity. We feel, as representatives of Viking Aerospace, that we have a special product for India to bring to this country to serve, which is ideally suited for the Prime Minister Modi's idea of connecting the country." Elaborating on the current status, he added, "We met with the DGCA and we are under the process of certifying the platform in India and we should have that by the end of the year."

Sanjeev Choudhary, President – Business Development at Arrow Aircraft, shared different cases with direct operating costs on various unserved or underserved routes with different passenger loads depending upon the landing gear used on the Twin Otter. This gave the operators present a very good idea on the cost-effectiveness of the aircraft and how they could use them to operate on these sectors profitably. He said, "We have a policy and we have a need. We have an aircraft that can land on table-top, short airstrip, which can land on the beach, which can land on a ploughed field but we need to look at the economics of it."

SERVICE AND SUPPORT

One of the reasons for the success and long-life of Viking planes around the world is because they work very closely with their customers, no matter where they are located. Viking is extending all possible support to operators in India including putting them in touch with operators around the globe so that they can learn from the experience of others and incorporate "best practices" into their operations. Full training, technical support, MRO and spares support is also provided.

Reaching out to the operators, Dan Tharp, COO, Viking Aerospace, said, "In the last five years the total number of staff employed by Viking in their manufacturing facilities has gone up from 60 to 600 people with 12 service centres located around the world. We have spent great amount of time developing remote routes throughout the world. We have done this project on a grand scale several times around the world now. We have the expertise and are happy to send our staff over to help you put together your business plan."

OUTLOOK FOR INDIA

According to Dan Tharp, "I have been to India about five times over the last four years. The vibe here in India now is unlike anything that I have seen over the last five years. It is a great thing to see the connectivity that is going on in this country. It is going to bring much needed services to remote areas all across the country which is a great cause to be involved in."

"It seems that the stars are aligning for our re-entry into the Indian market. The new government in India has clearly shown interest in developing the aviation sector in India, the new Regional Connectivity Scheme has been launched and Viking Twin Otter is the best aircraft in the world to operate economically, safely and reliably from remote and unimproved airfields," said Peter Walker, Regional Sales Director of Viking. "We are very optimistic about the Indian market as the Twin Otter is a proven and dependable aircraft. We are looking at having at least 100 of them in India by 2020."

Viking might be looking at an optimistic target for DHC-6 Series 400 Twin Otter in India, but given the versatility of the aircraft and the minimal infrastructure required to operate, it just might take-off as the RCS gains traction in India. SP

RIGHT TIMING: VIKING DHC-6 SERIES 400 TWIN OTTER (STANDARD LANDING GEAR AND FLOATS)

PHOTOGRAPH: JETHQ

TRULY GLOBAL INDIAN

AT A GLANCE

- CHIEF EXECUTIVE: US & INTERNATIONAL STRATEGIC DEVELOPMENT, GENERAL ATOMICS
- ENGINEERING EXPERTISE
- PHD IN AEROSPACE ENGINEERING & MBA
- FIRM BELIEVER OF R&D
- FOUNDING CO-CHAIR OF THE US-INDIA AVIATION COOPERATION PROGRAMME
- LED TEAM THAT CLINCHED PATH-BREAKING INDO-US DEFENCE DEALS
- WINNER OF 2008 OCA NATIONAL ASIAN PACIFIC AMERICAN CORPORATE ACHIEVEMENT AWARD
- CAMBRIDGE (UK) LISTED HIM AS ONE OF ONLY 2,000 OUTSTANDING SCIENTISTS OF THE TWENTIETH CENTURY
- FORMER PRESIDENT OF THE MATHEMATICAL ASSOCIATION OF AMERICA
- TRAINED AS A PRIVATE PILOT

PHOTOGRAPHS: VIVEK

- An Introvert Person
- An Evolving Person
- A Humble Yet Firm Leader
- A Globally Respected Professional

BY R. CHANDRAKANTH

IN THE GLOBAL CORPORATE world, quite a few Indians are leading from the front and that certainly warms the cockles of heart of us Indians. One such Indian who does us proud is in the realm of aerospace and defence. That is 47-year-old Dr. Vivek Lall, Chief Executive in charge of US and International Strategic Development at General Atomics, perhaps the largest privately held defence and nuclear company in the world. He is one of the senior most Indian origin persons in the United States to lead aerospace and defence organisation at a global level including United States. Dr. Lall was appointed in August 2014 and he is based in San Diego, California.

US-India defence relations in the last decade. He continues to do with greater fervour as he believes that India has the wherewithal to become a top aerospace and defence country. Aptly so, he finds the stellar leadership of the Prime Minister Narendra Modi as the right ingredient for the country to accelerate its superpower capabilities. Personally, he is inspired by the life of Prime Minister Modi while his parents have been his best friends and mentor who encouraged him to pursue his dreams no matter what the field was.

Dr. Lall did his O levels and A levels through the University of London, UK (equivalent of 10th and 12th grade). Indeed,

WITH HEADS OF STATE:
BARACK OBAMA, US PRESIDENT; SHINZO ABE, JAPANESE PREMIER; NARENDRA MODI, PRIME MINISTER OF INDIA

The ladder of leadership and success continues for Dr. Vivek Lall as he has age on his side. His leadership traits are borne from the fact that he has a firm footing in research and development and management. His foundational research efforts at the NASA Ames Research Center in various multi-disciplinary engineering fields have catapulted him to the top from one organisation to another – Raytheon, Boeing, Reliance and now General Atomics. He is a firm believer in R&D and innovation which he argues is the fuel for growth for any company or country to stay ahead of the curve...the rest including manufacturing follows.

Though an American citizen, Dr. Lall is a true global citizen having grown up around the world. After being born in Jakarta, Indonesia, he has traversed the world living in Austria, Tanzania, UK and Canada. But he firmly believes in Indian values and the growth story of India and is one of the persons who have been instrumental in integrating

THOUGH AN AMERICAN CITIZEN, HE IS A TRUE GLOBAL CITIZEN HAVING GROWN UP AROUND THE WORLD...FIRMLY BELIEVES IN INDIAN VALUES, GROWTH STORY OF INDIA...ONE OF THE PERSONS INSTRUMENTAL IN INTEGRATING US-INDIA DEFENCE RELATIONS IN THE LAST DECADE.

he chose aerospace and defence, having completed bachelor of mechanical engineering degree at a very young age of 19 years from Carleton University in Canada with his thesis being on 'Aircraft Performance', a starting point for his interest in aerospace. Subsequently, he completed his masters in aeronautical engineering from Embry-Riddle Aeronautical University in Florida. He also has

a PhD in Aerospace Engineering from Wichita State University in Kansas and MBA from the City University in Seattle. He also completed management and executive courses at the American Management Association in Washington DC and the Boeing Leadership Center in St. Louis. This educational depth has helped him stay ahead of the learning and leadership curve. He was so much into circuits that his Dean at the University told him to "get a social life".

But Lall continued to delve deep into research and worked on single-engine blades for Canada's National Aeronautical Establishment. With his father, a career diplomat, posted to Panama during Noriega's time, he moved to Florida's Embry-Riddle Aeronautical University. During his master's work, he took up a summer job with Eastern Airlines for a short stint as the airline soon packed up.

LALL CONTINUED TO DELVE DEEP INTO RESEARCH AND WORKED ON SINGLE-ENGINE BLADES FOR CANADA'S NATIONAL AERONAUTICAL ESTABLISHMENT... DURING HIS MASTER'S WORK, HE TOOK UP A SUMMER JOB WITH EASTERN AIRLINES FOR A SHORT STINT AS THE AIRLINE SOON PACKED UP

At Raytheon, also at Wichita, he worked on the Joint Primary Aircraft Training System (JPATS) Beechcraft T-6 Texan II and once had to sit, shivering, in a green King Air aircraft, holding up two mikes for acoustic profiling. He joined Boeing on September 17, 1996. He worked on computational fluid dynamics and air elasticity and loads and dynamics for the 757-300 aircraft. He moved from engineering to management and later, the then CEO of Boeing Commercial Aircraft (BCA) Allan Mullaly, put him on his seven-member Technical Excellence Team.

His work at Boeing in the Airplane Performance and Propulsion group has been acknowledged as pioneering. He also worked as an adjunct faculty member at Embry-Riddle, McConnell Air Force Base, besides being co-chair of the US-India Aviation Cooperation Programme launched by Norman Mineta in 2005. He was appointed as Vice President and Country Head, Boeing Defense Space & Security in May 2007, when he led a team to conclude the path-breaking and largest ever US-India defence deals for C-17 Globemaster, P-8I anti-submarine warfare aircraft and Harpoon missiles.

It was in 2003 that Lall was appointed Managing Director of Boeing Commercial Airplanes and the team had a successful business run with major deals being struck with India. He was one of the few Boeing employees to have worked for both the commercial and defence units.

Dr. Vivek Lall in his illustrious career has travelled to many countries including Japan, Saudi Arabia, Indonesia, Canada and the U.K. He, along with the Japanese Prime Minister are on an advisory Board to see development and progress for India and Japan. Japanese senior officials have often called him the "most powerful Asian-American in the US defence industry". Quite remarkably, Dr. Lall has been recognised for his service to the nation at different points by US Presidents George Bush and Barack Obama, Secretary Mineta and Secretary Locke. He is known personally to and is respected by many Heads of State around the world.

WITH GLOBAL LEADERS: NAJIB RAZAK, THE MALAYSIAN PRIME MINISTER; HILLARY CLINTON, THE FRONT-RUNNER FOR US PRESIDENTIAL ELECTIONS; KHALID AL-ATTIYAH, QATAR'S DEFENCE MINISTER

Dr. Lall has been the recipient of several honours including the 2008 OCA National Asian Pacific American Corporate Achievement Award in the US. In the year 2000, Cambridge (UK) listed him as one of only 2,000 Outstanding Scientists of the Twentieth Century, a coveted distinction. He is in the Signma Gamma Tau Aerospace Honor Society as well as the Pi Mu Epsilon Mathematics Honor Society. He was also the President of the Mathematical Association of America. He is not only conversant with mathematics, aerospace engineering and management but also with five different languages – English, Hindi, French, German and Swalihi.

JAPANESE SENIOR OFFICIALS HAVE OFTEN CALLED HIM THE "MOST POWERFUL ASIAN-AMERICAN IN THE US DEFENCE INDUSTRY"

He is a trained private pilot having gone to the Phoenix International Flight Training Center in Florida and that explains his desire to keep 'flying high' and his obsession to contribute as enormous as possible in the aerospace sector. SP

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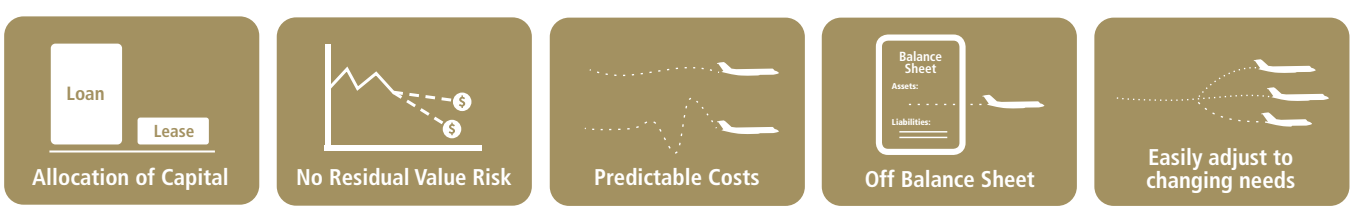

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OPTIMISM PREVAILING:
THE GOOD NEWS AMID THIS DEPRESSING MARKET TREND HAS BEEN THAT THE BUSINESS AIRCRAFT MANUFACTURERS ARE BUOYED BY THE PROSPECTS OF THE MARKET IMPROVING AND ARE SHOWING BETTER SECOND QUARTER RESULTS COMPARED TO THE SAME PERIOD LAST YEAR.

PHOTOGRAPH: EMBRAER

2017 MAY TURN OUT TO BE GOOD

In the past few years, the not-so-impressive numbers overall is attributed to the energy sector and the current global geopolitical and economic insecurity

BY R. CHANDRAKANTH

THE MARKET FOR BUSINESS AIRCRAFT is at an interesting point. There is a slow but continued downward trend for the jet and turboprop segments, though the light jet market seems to be an exception. This notable exception could in fact bring about cheer in 2017 and beyond and the General Aviation Manufacturers Association (GAMA) is willing to predict that the jet market may return to the 800 range for annual deliveries.

As we head to the National Business Aviation Association (NBAA) event at Orlando, Florida, from November 1 to 3 and as the US gets totally seized of the presidential elections, there appears to be hectic activity in the sphere of business aviation. Shipment wise, however, GAMA has said there were possibilities of the market gaining ground during the latter half of 2016 with the US Government allowing "100 per cent expensing tax provision" that gets tax relief on purchase of new aircraft.

The second half of 2016 should be good, though in the first half industry airplane shipments declined 4.5 per cent to 970 units, and airplane billings fell 11 per cent from $10.4 billion to $9.3 billion. Rotorcraft shipments also dropped 16.1 per cent from 467 units during the same period a year ago to 392 units in 2016. Billings for rotorcraft fell 32.5 per cent from $2.1 billion to $1.4 billion.

Piston airplane deliveries were down 4.5 per cent, from 464 units to 443 units. Turboprop shipments declined 4.9 per cent, from 247 units to 235 units. Additionally, 292 business jet airplanes were shipped in the first half of 2016, a 4.3 per cent dip from the 305 units shipped during the same period last year. Piston rotorcraft fell 10.1 per cent, from 129 units to 116 units, and turbine shipments were down 18.3 per cent, from 338 units in 2015 to 276 units in the first six months of this year. "In a challenging global climate, every segment of the fixed-wing and rotorcraft market showed declines for the first half of 2016," GAMA President and CEO Pete Bunce said.

The good news amid this depressing market trend has been that the business aircraft manufacturers are buoyed by the prospects of the market improving and are showing better second quarter results compared to the same period last year. The graph has been inching up painfully slow.

EMBRAER'S LARGE BUSINESS JETS PICKS UP STEAM

The Brazilian aerospace major Embraer which took the fourth spot in the first half having delivered 26 in second half and 49 year to date, has shown a 33 per cent increase in deliveries of its large-cabin class business jets in the third quarter. However, from its array of executive aircraft its performance was not that impressive. Embraer shipped 25 business jets for the third quarter with the break-up being 12 Phenom 300; one Phenom 100E; six Legacy 450; four Legacy 500 and two Legacy 650 and has order backlog of $21.4 billion. The delivery figure is down by five jets from the third quarter results of 2015 when it shipped 30 aircraft.

CESSNA TOPS IN LIGHT JETS

Heralding a fairly good performance was Cessna of Textron Aviation. With its line of Citation jets, Caravan turboprops and classic piston aircraft they have started dominating the skies. This year, so far, it has had a good run having notched up jet deliveries of 79 in the first half (second quarter it delivered 45 jets). However, in the single-engine turboprops the company was not doing as well as it did last year, reporting 10 deliveries less from last year to this year's 32 year-to-date.

Canadian manufacturer Bombardier trailed with 73 units. The small aircraft market is the first to show signs of recovery, driven by new entrants in the high net worth individual bracket who maybe comfortable beginning with acquisition of light jets. Somehow, the Canadian manufacturer has been having distraught years, seeing substantial nosedive in deliveries, down 73 from 92 in 2015. Bombardier's billings too slipped to $2.81 billion from $3.50 billion for the first half of 2015.

(LEFT) CITATION LATITUDE (RIGHT) PILATUS PC-12 NG

GULFSTREAM AND DASSAULT

Ranked third was Savannah-based Gulfstream. Though Gulfstream did not do well this year compared to the previous year, in terms of billings it has taken top spot. The billings totalled $3.27 billion for first half of 2016, although it was lower than the reported 2015 figures of $3.97 billion.

Dassault Falcon had 15 deliveries at second half of 2016, down from 18 during the same period last year. Honda has had 10 deliveries this year. The total jet market deliveries this year to date has been on an unlucky number of 13 deliveries less compared to the 2015 performance. As GAMA would be reporting the third quarter results soon, it will be known whether there has been an upward trend which many experts feel so.

PILATUS HAS A GOOD YEAR

The turboprop segment was down to 235 units this year to date compared to 247 delivered last year for the same period. Textron Aviation's Beechcraft, twin-engine turboprops, was down by six deliveries this year compared to last year – 49 to 55. As regards single-engine turboprop deliveries Pilatus has had an excellent run till date this year, having notched up sales of 41 this year to date, compared to 19 it did last year. The PC-12 is the backbone of Pilatus general aviation business. This year it delivered the 1,400 PC-12 to a customer in the US, marking a major delivery milestone. Pilatus had excellent sales revenue figures of 1.1 billion Swiss francs. It was continuation of 2015 which was another exceptionally successful business year for Pilatus. The sales include both civilian versions and trainer aircraft. Daher had 18 deliveries, followed by Quest with 16, Piper had eight deliveries and Pacific Aerospace had three.

Piston engine aircraft are mostly lightweight aircraft which have one or more piston powered engines which are connected to the propellers. The piston engine aircraft fly usually at altitudes below 15,000 feet and carry a maximum of six passengers. Such aircraft due to their low cost and ease of usage are very popular even among individuals who wish to use it for personal purposes. North America and Europe contains the largest number of individual users of such type of aircraft due to presence of infrastructure required for such type of airplanes. Small aircraft such as these use small airfields, such airfields are in very short supply outside of North America and Europe, hence this factor greatly reduces the demand of such type of aircraft outside the Europe and North America.

PISTON ENGINES SPIRALLING DOWN

The sales of piston engine aircraft which had reached a high of 2,755 units in 2006 has come down significantly since then and fell to just 898 units in 2011. This was majorly because of the after-effect of the 2008 crisis, which had affected North America and Europe, the most severely. Though North America has recovered significantly since then, the crisis in Europe has deepened and that is one of the reasons that the sales of aircraft have not picked up significantly since then. Also North America market where the bulk of the sales of such aircraft happen has become saturated now, and many current users are moving onto bigger aircraft, which is limiting the sales of piston engine aircraft worldwide.

In the piston engine segment, Cirrus is holding its forte and was able to sell 160 units of Cirrus SR22T in 2014 showing a massive jump from 132 units in 2013. In 2015, new aircraft shipments exceeded 300 for the second year in a row as the Cirrus SR22 maintained its position as the best-selling airplane in its segment for the 13th consecutive year. New unit deliveries for 2015 totalled 301 while the global Cirrus fleet surpassed 6,200 total SR aircraft and amassed over seven million flight hours.

According to estimates, the total market for piston engine aircraft stood at $635 million in 2014, and is expected to reach a size of $957 million by 2020, growing at a CAGR of 7.07 per cent.

Not all of them are doing well like Cirrus. About eight of them of the 13 single-engine piston manufacturers are said to be in doldrums. Following Cirrus in the piston market is Textron's Cessna unit with 38 deliveries for Q2 and 65 year-to-date which is disappointing. Tecnam, Diamond and Piper were in that order in terms of deliveries. In the piston twin market Diamond, Tecnam, Beechcraft and Piper reported total deliveries of 66 units for the first half of 2016, up from 54 last year.

The not-so-impressive numbers overall is attributed to the energy sector and the current global geopolitical and economic insecurity. SP

PHOTOGRAPHS: TEXTRON AVIATION, PILATUS

VINOD SINGEL, MANAGING DIRECTOR AND FOUNDER OF AEROSOURCE INDIA

FACILITATING PRIVATE AIRCRAFT ACQUISITIONS

In countries where bureaucracy plays havoc and rules and regulations are aplenty, aircraft acquisitions could be 'nightmarish'

BY R. CHANDRAKANTH

PHOTOGRAPH: AEROSOURCE

FROM ONE COUNTRY TO another, laws differ with regard to aircraft acquisitions, some are liberal while others are rigid. Going through the quagmire of rules and regulations can be an unnerving experience and the faint-hearted are likely to give up the pursuit of aviation. The West with its capitalistic and liberal outlook has shown the way on how user-friendly laws can benefit the community at large. The United States, it is reported, alone accounted for 67 per cent of business jets and 63 per cent of the global fleet. In 2014, it was estimated that the US, ranked number one, had a fleet of 12,051 private jets, whereas the second ranked Brazil was way behind at 764, followed by Mexico at 704. India was placed at 14th spot with 140 jets.

That the US is a mature market is to state the obvious. How has this come about, besides the liberal laws? One thing for sure, aviation consultancy firms have helped accelerate the growth of the segment. But in countries where bureaucracy plays havoc and rules and regulations are aplenty, aircraft acquisitions could be 'nightmarish'. In India, there have been instances of individuals waiting for their private aircraft to arrive for couple of years.

It is in this background, the concept of 'aviation consulting' took birth but there is no date indicating the same. However, aviation consultants assist intending aircraft owners to source aircraft, pricing, maintenance services, interior and other services including pilot and other crew appointments. Importantly, they help in navigating through the acquisition and registration processes in that particular country. We find out what aviation consulting is all about from a player who has been in this business for over 15 years. In an interview to ***SP's Aviation***, **Vinod Singel,** Managing Director and founder of Aerosource India, talks about the concept and the challenges. Excerpts of the interview:

SP's Aviation **(SP's): The concept of 'aviation consulting' is fairly nascent. What are the challenges that you face in the aviation industry?**
Vinod Singel (Singel): Aviation consulting is not really nascent. We started way back in 2000 and at that time I would say probably that in India no one had started a professional end to end service in this segment. I was already very involved in the aviation sector with several years of experience under my belt and advising my clients on select segments that fell under our scope of work within the job that I was at. The idea of helping corporates in the process of buying aircraft came across my mind during my interactions with them. While maintaining and servicing an aircraft can be done, the right buy can give an owner immense pleasure. A right buy is when it is suited to their lifestyle, requirements and budget as for most it is a one-time buy, to start with.

The biggest challenge is lack of knowledge about this sector in the corporate vertical. The information regarding the right procedure of buying to what specifications to look at to where to procure it from to the licences that one requires to operate a business aircraft was and is still missing. Educating the clients became a primary and uphill task before taking up the consulting role in helping them buy one.

When we started this it was a new thing in the market, so getting business was difficult in this niche segment. In 2004-05, things changed for us in a positive way and in 2006 we were working on some exciting projects at full capacity. From 2006 to 2008 it got busy and in 2009-10 we became business aviation specialists wherein corporates and HNIs (high net worth individuals) bought business aircraft. In 2006-07 we certainly saw many companies like Sun TV, Usha Martin and Bajaj Auto to name a few venture into this segment through us. We have also paved the way for the industry to grow as a whole making it easier for other companies to enter market and offer consulting services.

One of the biggest challenges that we face is bureaucracy and red tapism. Add to this the vagueness in the rules laid out or rather not laid out for this segment. There is no clear path to procure a plane. Yet, enough to land one into trouble if not done properly. Today, if someone wants to buy a plane they have to start to at least a year in advance.The government so far has ignored business aviation as a segment and there are no clear policies to govern it. That poses a unique challenge in itself. A lot more can be done in this segment if there are more friendly policies or a clear road map to it.

Corruption has scared a lot of corporates in the past giving them the impression that this is a no-go area. About a year ago if you wanted to buy a local plane based and registered in India, you could probably send money to the company and take over the plane and change the certificate of registration or make a title transfer. It was just a few days job, but today it is impossible.

SP's: Acquisition of aircraft is said to be very cumbersome. Is that one of the reasons for birth of 'aviation consulting'?
Singel: Yes, the cumbersome effect of aircraft acquisition is one of the reasons for birth of aviation consultancy. Let's take an example of America, where they have 100 times more planes than India, the consultant or broker owns a plane, and they just get into the cockpit and fly off, but in India it's impossible as we need to have a pilot. In those countries also if somebody needs to buy a plane, they will hire a broker or consultant, then a lawyer who will get all the approvals and they formalise the deal. But in India there is humongous amount of extra work like - import permission, follow up, file application, follow up and do the rounds of the Directorate General of Civil Aviation (DGCA) which the owners would not want to do.

In such a scenario companies such as Aerosource India play a crucial role, getting involved in the acquisition and registration process till it is delivered to the end customer. This includes finding the right aircraft (pre-owned or new), getting all permissions, paperwork, legal work, international air purchase agreement, letter of intent, meetings, etc.

We have legal consultants in international markets like United States and UK. After the purchase, we help the client find a pilot and a co-pilot and also the cabin staff which is not an easy task.

IN INDIA THERE IS HUMONGOUS AMOUNT OF EXTRA WORK LIKE - IMPORT PERMISSION, FOLLOW UP, FILE APPLICATION, FOLLOW UP AND DO THE ROUNDS OF DIRECTORATE GENERAL OF CIVIL AVIATION (DGCA) WHICH THE OWNERS WOULD NOT WANT TO DO

SP's: You claim to be the largest aviation consultancy services provider in India, could you substantiate the same? How many aircraft (fixed and rotary) deals have you been able to close in India since inception?
Singel: Yes, that is true, Just by the sheer number of years in the business we are the oldest and the number of clients we have on our roster make us the largest. Till date we have closed 37 aircraft induction projects. Some 40 more are in the process of closing.

SP's: Do you think business aviation aircraft sales will pick up in India, considering the aviation friendly policies of the government such as NCAP and RCS?
Singel: Yes, business aircraft sales will pick up in India and we hope the concerns of customs duties are addressed.

SP's: The number of high net worth individuals in India is increasing, does that reflect in buying of aircraft or are these HNIs cautious?
Singel: HNIs are cautious as they invest into charter categories. At this point we are noticing that the charter industry is taking a lead now.

SP's: What is the trend of buying in terms of aircraft – is it very light jets, mid-size or large?
Singel: The trend is changing and we have moved one step up. Few years back the trend was for turboprop aircraft but with changing times, people have upgraded to small jets and also mid-size and super mid-size. SP

There is excitement in the air in India, thanks to the many government initiatives. The National Civil Aviation Policy and the proposed Regional Connectivity Scheme are going to prop up the aviation sector in an unprecedented manner, if not in the near term but medium term for sure. The creation of airport infrastructure across the country is going to have widespread benefits, touching all segments of aviation. The general aviation/business aviation segment sees new opportunities opening up in India and the original equipment manufacturers (OEMs) are positioning themselves to benefit from this. In the forefront is Gulfstream for which India is a 'consistent' market. Explaining this in an interview to ***SP's Aviation*** is **Jason Akovenko**, Regional Vice President (Asia-Pacific), Gulfstream Aerospace.

"GULFSTREAM AIRCRAFT ARE TIME MACHINES"

SP's Aviation **(SP's): The recent policy announcements by the Indian Government with emphasis on enhancing 'regional and remote area connectivity' is expected to boost business aircraft movement. Can we expect a spurt of business aircraft activity in the short and medium term?**
Jason Akovenko (Jason): We believe that in the long-term private aviation will benefit from the recent changes to the country's civil aviation policy. The changes, which include eliminating the 5/20 rule in favour of the 0/20 rule and reviving older airstrips and airports, will contribute to the country's overall aviation growth and support increased economic growth. This, in turn, should increase the aviation infrastructure and resources within the country, which would benefit not just commercial aviation but general/private aviation as well.

We do not anticipate that these changes will have an immediate effect on business aviation; however, as the number of airline passengers within India grows, so too will the appeal of private aviation, which eliminates many of the challenges commercial travellers experience, including long security lines, rigid schedules and a complicated and lengthy baggage collection process. Likewise, as Indian businesses continue to expand globally, the competitive advantages of business and private aviation will become increasingly apparent in the success of those Indian companies that have pioneered the use of aircraft in their operations.

SP's: In such a scenario, where business aircraft can be deployed under the Regional Connectivity Scheme, is there any strategy of Gulfstream to help operators address this market, develop this market?
Jason: Gulfstream will continue to focus on its core business of making state-of-the-art aircraft available to end-users, most of whom are public, private and Fortune 500 companies but also to individuals whose businesses necessitate reliabile and efficient on-demand transportation. While charter and fractional services are a small portion of our overall customer base, they are growing and we could see additional opportunities in this area as a result of the regional connectivity plan.

PHOTOGRAPHS: GULFSTREAM

SP's: What is your current market share in India and in which category (small, medium or large) do you command market leadership?

Jason: Over the past several decades, Gulfstream has established itself as the pre-eminent worldwide brand in private and business aviation with products that were traditionally in the large-cabin category. We expanded into the mid-size category in 2001 through product line additions. In every market space in which we compete, Gulfstream brings a premium product and superior service. Buyers have responded positively to this by granting us a leading position. Now, as always, every team member at Gulfstream is focused every day on our customers in order to maintain that leadership.

SP's: How do you perceive the market for in the Asia-Pacific region to be in the next 20 years with specific reference to India and China?

Jason: Asia-Pacific is Gulfstream's largest international market, with 11 per cent of Gulfstream's more than 2,500 worldwide fleet of aircraft based there. Both China and India have been consistent markets for Gulfstream. The company looks to these countries for sustained long-term growth because of their expanding economies, business interests and renewed confidence by business leaders. Both India and China are influential players in the worldwide economy, and the need for private aviation becomes ever so important to enhance business efficiency and increased productivity.

"BOTH INDIA AND CHINA ARE INFLUENTIAL PLAYERS IN THE WORLDWIDE ECONOMY, AND THE NEED FOR PRIVATE AVIATION BECOMES EVER SO IMPORTANT TO ENHANCE BUSINESS EFFICIENCY AND INCREASED PRODUCTIVITY."

SP's: Can you elaborate on the differences between G600 and G650 and when is the former going to have its first flight?

Jason: The Gulfstream G500 and G600 share some similarities with the Gulfstream G650, specifically, the windows (size and location), the cabin altitude and the top speed of Mach 0.925. In the case of the G600, the cabin living area length is the same as the G650, as well. In terms of differences among the three, the G500 and G600 have a different wing, tail, fuselage, engine and avionics from the G650.

The G600 is slated to have its first flight later this year or early next year.

SP's: The mid-cabin market seems to have been hit where your products G150 and G280 are, understandably, po-

OPTIMAL BALANCE OF SPEED, MANOEUVRABILITY AND COMFORT:
G500 – THE FIRST TO BE OUTFITTED WITH A FULL INTERIOR – RECENTLY HAD ITS FIRST FLIGHT, TAKING TO THE SKY FOR 4 HOURS AND 5 MINUTES

sitioned. What has been the marketing strategy for this segment?
Jason: We continue to focus on the strengths of these aircraft. The G280, for example, offers large-cabin features in a super mid-size package (and price point). These features include excellent range, a vacuum lavatory, auto throttles, auto braking and enhanced vision. In addition to having best-in-class fuel efficiency, the G280 is also the only super mid-sized aircraft capable of flying from London to New York at any time during the year. It can also travel from Mumbai to Moscow non-stop at Mach 0.80.

SP's: Which type of aircraft that Gulfstream is currently focused on and why?
Jason: We are focused on our full range of aircraft, because each one offers a unique performance and price point for our customers.

That said, the flight test programme for the Gulfstream G500 and the development programme for the G600 are extremely important to us. The first G500 production aircraft – the first to be outfitted with a full interior – recently had its first flight, taking to the sky for 4 hours and 5 minutes. The aircraft is testing the complete passenger experience for form, fit, function, noise and comfort, as well as the passenger interface with various cabin elements. Tests will include repetitive operations of all systems during many different phases of flight. The test aircraft will also be taken through a variety of missions, including overnight trips, hot and cold weather scenarios and turbulence. Overall, the G500 flight test programme has accomplished more than 1,300 hours of testing on more than 320 flights.

The G600 flight test aircraft are in production, with the first flight test article being turned over to flight test for instrumentation. Laboratory testing for both programmes has surpassed a cumulative 50,000 hours, with the G600 integration test facility and iron bird now operational.

"GULFSTREAM CONTINUES TO MAINTAIN THE LARGEST COMPANY-OWNED PRODUCT SUPPORT NETWORK FOR BUSINESS JETS, WITH APPROXIMATELY 4,000 PROFESSIONALS OPERATING A 24-HOUR-PER-DAY/365-DAY-A-YEAR CUSTOMER CONTACT CENTRE, A REPAIR CENTRE EXCLUSIVELY FOR COMPONENTS, AND 11 COMPANY-OWNED SERVICE CENTRES WORLDWIDE WITH A COMBINED AREA OF MORE THAN 5 MILLION SQUARE FEET."

SP's: What are the significant efforts being undertaken by Gulfstream in the use of biofuels or alternative fuels?
Jason: In 2015, Gulfstream established a three-year agreement with its fuel supplier, World Fuel Services, for a consistent supply of renewable fuels for daily flight operations in Savannah. The fuel, produced by AltAir, is a blend of low-carbon, drop-in renewable fuel and Jet-A. It provides the same performance as conventional, petroleum-based jet fuel and does not require any changes to factory-standard engines or aircraft. Each gallon of renewable fuel burned is expected to achieve a more than 50 per cent reduction in greenhouse gas emissions compared to petroleum-based jet fuel, on a life-cycle basis.

Our Savannah-based demonstration aircraft, the G500 test fleet and our Airborne Product Support aircraft have all flown on the renewable fuel blend.

SP's: If we speak about return on investment (ROI), how would you advocate your aircraft on this front for your potential clients?
Jason: Gulfstream aircraft are time machines, providing safe, reliable, flexible transportation anywhere in the world. In fact, flying at Mach 0.90 vs. Mach 0.80 saves passengers more than 50 hours of time annually. Now, add in the time you don't have to spend waiting in long security lines, or waiting to pick up your luggage, or waiting for the designated time that the aircraft is scheduled to depart and you'll see how significant the time savings can be. In a world where time is of the essence, Gulfstream aircraft are essential.

SP's: What kind of after-sales support network is being ensured by Gulfstream these days? Can you elaborate on the same?
Jason: Gulfstream continues to maintain the largest company-owned product support network for business jets, with approximately 4,000 professionals operating a 24-hour-per-day/365-day-a-year Customer Contact Centre, a repair centre exclusively for components, and 11 company-owned service centres worldwide with a combined area of more than 5 million square feet. In concert with business aviation services companies such as Jet Aviation and ExecuJet, Gulfstream has more than 20 factory-authorised service centres and authorised warranty facilities on six continents, including Air Works in India. Gulfstream also has more than $1.6 billion worth of parts and materials available through distribution points around the world. Its team of more than 50 field service representatives – including a dedicated field service representative in India – provides technical support to operators and serves as their liaison to Gulfstream at strategic locations worldwide.

SP's: Which aircraft is the best-selling aircraft in the world from the kitty of Gulfstream? And why?
Jason: Throughout 2015, Gulfstream received orders for all in-production aircraft. In fact, there were more orders for in-production aircraft in 2015 than there were in 2014. That said, we have seen particularly strong demand for the Gulfstream G650 and G650ER, which offer unsurpassed speed and range.

SP's: There is the usual perception in the government that the business aircraft is a rich man's toy not just here but also in the US which is the largest business aircraft market in the world. This factor clearly reflects on the slogan being pushed by NBAA (National Business Aviation Association) which is: "No Plane, No Gain". How do you at Gulfstream perceive this?
Jason: Gulfstream has always viewed its aircraft as vital business tools. In fact, the majority of Gulfstream customers are publicly/privately held and Fortune 500 companies, because their needs align with the capabilities business aviation provides: safe, reliable, flexible transportation almost anywhere in the world. So, we fully support the efforts of the NBAA to promote the strategic value of business aviation. SP

CLAUDIO CAMELIER

"NO PLANE, NO GAIN" A CASE FOR GREATER SUPPORT FOR BUSINESS AVIATION IN INDIA?

We support and applaud the efforts that India's BAOA has undertaken and hope that business aviation in India will flourish

THE INDIAN GOVERNMENT'S REGIONAL Connectivity Scheme (RCS) has created a lot of buzz in the news. Certainly, this plan has the opportunity to connect more of India's population via air transport. At the same time, there has to be a growing recognition that business aviation is a key tool to enhance business productivity and thereby contributing to the country's economy.

This debate about the importance of business aviation, championed largely by India's Business Aircraft Operators Association (BAOA), is not unique to the country. Even in the United States, the world's largest and most mature market for business jets, the National Business Aviation Association (NBAA) has to continuously lobby for the business aviation cause. The slogan they use is "No Plane, No Gain."

THE US CASE

To fully appreciate business aviation's contribution to the US economy and its industrial might, it is important to appreciate the intrinsic role of the NBAA, a strong and vocal advocate for the community that continues to champion the sector's vitality.

As a member of the NBAA, Embraer is supportive of the association's efforts as they retain a central focus for the broader business aviation community as well as raising the sector's profile within local and national governments. It is that support for the aircraft owners and operators that is so fundamental to business aviation's symbiotic relationship with US industry and how the sector has become a core element to success for businesses both large and small across the entire nation.

To comprehend the success of business aviation in the US aviation, it is crucial to understand the core community. While the common perception is that the demand for business aircraft stems from high-net-worth individuals, celebrities and large conglomerates, the actual fact is the highest demand comes from small and medium businesses, most of which own their own aircraft. Of the 15,000 business aircraft currently flying in the US, the average seats six passengers, and each journey is normally less than 1,600 km. According to a *Business Jet Traveler* magazine report, flight manifests are dominated by middle managers and not executive from the corporate suites.

Almost all of the 5,000 general aviation airports serve remote communities that are not supported by commercial aviation, a benefit that observers in India can readily appreciate. However, the success of business aviation in the US can be attributed to concerted effort to ensure regulators were made fully aware of the myriad benefits of general aviation.

According to the NBAA, business aviation contributes more than $150 billion to the US economy each year, has a positive effect on the balance of trade and supports 1.2 million manufacturing and service jobs.

For individual businesses, the sector's effect is more direct. Because of the agility and flexibility of the country's general aviation fleet, companies can access markets that would be difficult and costly – if not impossible – to access through commercial travel. Not only does this facilitate sales and preserve customer relations, many companies now provide near-time services to their customers that can only be possible with the support of the quickest, most flexible and secure form of transportation.

That security also extends to the cabin of every business aircraft, an environment that allows passengers to work freely on important and sensitive material without the necessary constraints imposed on employees using commercial airline service. Other studies have demonstrated that business aircraft users mention they are more productive inflight than peers travelling commercially. Employees using business aircraft also spend less time on the road, providing a healthy work-life balance while also controlling travel costs.

INDIA

Embraer has more than 20 business jets in India and we keep hearing from our customers how worthwhile a business jet has been to facilitate their business productivity – getting them to places they need to be, at their desired time, and with whom they want to travel with.

It has taken the United States business aviation industry many years to get to where they are and we see the potential that the growth of business aviation will bring to India. We support and applaud the efforts that India's BAOA has undertaken and hope that business aviation in India will flourish. SP

—By Claudio Camelier, Vice President, Sales in Asia-Pacific and the Middle East, Embraer Executive Jets

PHOTOGRAPH: EMBRAER

EMBRAER PEGS EUROPE & CIS MARKETS AT 1,540 AIRCRAFT

The focus on long-haul business passengers is now close to absolute. This, in turn, reinforces the importance of jets in the 70- to 130-seat segment to feed international flights

BY R. CHANDRAKANTH

PHOTOGRAPH: EMBRAER

ON OCTOBER 12 THIS year, the Brazilian aerospace major Embraer forecast a market demand of 1,540 new aircraft in the 70- to 130-seat jet segment (valued at $80 billion at list price) in Europe and the CIS (Commonwealth of Independent States) over the next 20 years. Currently, there are 29 airlines operating Embraer jets in both regions. Last year, around the same time, Embraer had announced same projections but with valuation of $72 billion. The break-up is Europe 1,160 aircraft that is an increase of 18 per cent and CIS 380 (6 per cent increase).

According to the International Air Transport Association (IATA), the total traffic of European carriers increased by 3.5 per cent, while load factor climbed to 81.9 per cent in the first eight months of 2016. Air transport demand growth continues to face a number of headwinds, including terrorist attacks and political instability in parts of the region. However, the capacity/demand balance has been sustained by keen price competition. Yields have been decreasing 2 per cent per annum for the past five years. Despite the region's wealth, high propensity for air travel and high load factors, Europe's perennial woes are attributed to the weak revenue environment, resulting from a savagely competitive aviation market.

Embraer said that airlines are already questioning the sustainability of the current scenario as they need to operate in an environment that demands ever more effectiveness and agility. Traditional full-service carriers restructured in order to improve efficiency, reduce costs and secure profitability. The focus on long-haul business passengers is now close to absolute. This, in turn, has reinforced the importance of jets in the 70- to 130-seat segment to feed international flights. Hub efficiency is critically important and 70- to 130-seat jet aircraft play a key role feeding those hubs. The segment provides global and intra-region connectivity with ideal capacity to support regular frequencies at Europe's key hubs.

Smaller jets fly around 40 per cent of the total traffic to or from Paris CDG, Amsterdam, Frankfurt and Munich. Connecting traffic, which now represents 65 per cent of total passengers flying an E-Jet aircraft, will largely remain the core business of the major international airlines.

SECOND LARGEST MARKET

Europe and CIS regions form the second largest market worldwide for the segment with a fleet growing from 740 to 1,560 units by 2034. In parallel, some LCCs (low-cost carriers) are reaching the limit of growth in trunk routes. As opportunities to explore trunk routes are limited, low density markets are becoming more relevant in their networks. The imbalance between aircraft capacity and demand has led to an increase in the number of service cancellations — carriers withdrew from 460 markets in 2014 compared to 370 just three years before. High LCC growth rates cannot be maintained indefinitely. There is one market cancelled for each market opened, down from 2007 when LCCs opened seven times more markets than they cancelled.

CIS INTRA-REGIONAL GROWING FAST

In another development stage, intra-regional aviation in the CIS has been the fastest growing mode of transport as a key to improve links between cities. To support that growth, countries have changed their transport strategy and focused on the domestic market, making air travel more accessible to more people and providing global connections. Those changes include air transport liberalisation and investments in the aerospace industry. New 70- to 130-seat aircraft are able to better match seat capacity to variations in demand and offer more connectivity by increasing frequencies and opening new markets.

Ten ERA (European Regional Association) member airlines operate Embraer aircraft on a network that spans Europe from Portugal to Belarus. Europe now has 30 airlines from 21 countries flying more than 300 Embraer aircraft. The ERJ 145 family accounts for 60 units, while there are 245 E-Jets in operation. Five ERA member airlines fly the ERJ 145 family of regional jets, while six member carriers operate E-Jets.

VASTNESS OF CIS

The vastness of the CIS hampers regional integration and the implementation of common economic and trade policies and legislation among member states. Consequently, intra-regional aviation, the fastest growing mode of transport, is key to improving links between CIS cities. Air transport liberalisation will be one of the main engines of growth over the next years and is projected to grow demand 4.8 per cent over the next 20 years, slightly below the world average.

To support that growth, CIS countries have changed their transport strategy and focused on the domestic market to strengthen ties within the region, to make air travel more accessible to more people and to provide global connections. Those changes include air transport liberalisation and investments in the aerospace industry, including replacement of the current fleet which is composed mainly of inefficient and old technology aircraft. New 70- to 130-seat aircraft are able to better match seat capacity to variations in demand and offer more connectivity by increasing frequencies and opening new markets.

Europe has been a top risk for the world economy for years. The economic backdrop was sluggish in 2014 and fragile in 2015. The region's economy is projected to grow 1.8 per cent annually over the next 20 years. Despite the relentless headlines about sluggish economic performance, debt crises, bailouts, unemployment, deflation and recession, the region's airline industry remains strong. Margins for European airlines have been under-performing relative to other sectors.

GLOBAL DEMAND

Globally, Embraer foresees demand for 6,350 new jets in the 70- to 130-seat segment over the next 20 years, representing a total market value of $300 billion. By 2034, 61 per cent of projected deliveries will support market growth and the remaining 39 per cent will replace ageing equipment. Also by 2034, 2,250 70- to 90-seat jets will be delivered worldwide to sustain hub-and-spoke efficiency as those aircraft have the capability to link many lower-density markets to major hubs and to develop regional aviation in emerging countries. The 90- to 130-seat jet segment provides the opportunity to complement current narrow-body operations and to develop new markets with lower risk. Some 4,100 aircraft in the 90- to 130-seat jet segment will be delivered in the next 20 years.

Despite multiple divergent trends, the global economy is set to speed up in the few next years. Falling oil prices and more stimulus from key central banks will boost global real GDP growth from 2.7 per cent in 2014 to 2.8 per cent in 2015 and 3.3 per cent in 2016. The global economy is projected to grow 3.1 per cent annually over the next 20 years, doubling in size by 2034. Continued economic recovery is expected in North America and Europe, averaging 2.5 per cent and 1.8 per cent, respectively. Despite slower momentum, growth in emerging markets will continuously outpace those in advanced economies. SP

EMBRAER E-JETS CUSTOMER SUPPORT IN THE DIGITAL ERA

Determined to offer increasingly better products and services, Embraer continuously researches new technologies and methodologies, adding to these studies the accumulated experience of more than 15 million flight hours from more than 1,200 E-Jets of the generation currently in operation

IT WAS AT THE Paris Air Show in 2013 that Embraer launched its latest offering in commercial aviation – the Embraer E-Jets E2, a family of three variants. From then to now, there has been steady progress and the E190-E2 took its first flight on May 23, 2016. The first of the E-Jets E2 is set for deliveries in 2018. Meanwhile, the Brazilian aerospace major is making substantial headway in listening to the customer and trying to address the customer needs.

In this era of digitisation, Embraer is ahead of the learning curve, offering its customers technology, connectivity and data to enhance the aircraft experience. Embraer is developing solutions that will enable operators to anticipate aircraft issues and customer needs with the aim of increasing operational efficiency and aircraft availability. Basically it is aimed at helping the operator get the most out of their assets. The company has been investing in eSolutions tools, available on the FlyEmbraer website, where customers can find a digital portfolio of services at any time, on any device, such as tablets and smartphones. These tools are applicable for the current generation E-Jets as well as the E-Jets E2.

One such tool is AHEAD-PRO (Aircraft Health Analysis and Diagnosis), a system for monitoring jet performance in real time. "If compared to a human body, it would be like a doctor monitoring a patient while exercising, analysing its vital signs, to recommend some type of action during physical activity," says Johann Bordais, Services and Support Vice President, Embraer Commercial Aviation.

The eSolutions tools incorporate resources that will improve aircraft availability and perform preventive and corrective maintenance, reducing unnecessary operating costs. As a result of this, the E-Jets E2 will offer up to a 25 per cent lower airframe maintenance cost, per seat, when compared to aircraft from the current generation of E-Jets.

Another example is the eSRM, a web application based on SRM (structural repair maintenance) approved data where operators can assess data with more precision; perform traceability more quickly, and reduce costs related to repair time. Embraer is also studying the development of structural sensors for maintenance in real time, which will help identify damaged areas during a maintenance check due issues like fatigue and corrosion.

In the medium-term, Embraer will also equip the E-Jets E2 with sensors that will collect data on health conditions of aircraft systems and are supported by algorithms that are capable of indicating when a potential failure will appear on a given component. This will prevent the degradation of the relevant parameters until the component fails. This will help airline companies to deploy preventive maintenance and help the airline to enjoy minimal disruption to their daily operations.

In addition to these systems, Embraer is constantly studying new technologies and methodologies to improve the reliability and performance of E-Jets, including big data analytics, VR glasses and augmented reality that promised to bring additional value to maintenance training and even for maintenance itself.

LEARNING FROM THE BEST: FUJI DREAM AIRLINES

Embraer has given the example of Fuji Dream Airlines (FDA) which has attained highest service reliability average over the past 12 months among all E170 / E175 operators at 99.83 per cent. The recipe for their success has been "Close collaboration between flight operation and maintenance, following PDCA cycle for our manuals, and experience gathered from our and other operators working on E-Jets over the years," said Kentaro Nagano, Manager of FDA's Maintenance Engineering Group. The FDA team also applauded Embraer for its excellent support and eagerness to receive feedback. The airline is working towards raising the reliability to 99.9 per cent in three years time.

Fuji Dream Airlines is a Nagoya-based regional airline that has been an E-Jets operator since its inception in 2009. It now operates a fleet of 11 E170 and E175 E-Jets and their aircraft are instantly recognised by passengers and aircraft spotters because of its bright multi-colours such as green, pink, yellow and purple. SP

—By R. Chandrakanth

PHOTOGRAPH: EMBRAER

MOST PIONEER AVIATORS WERE a daredevil lot. Perhaps that is why they chose to engage in an occupation where death might come calling at any time, and often did. The women too were usually those who were not deterred by social opprobrium or being called "unladylike". Pancho Barnes epitomised the type. She was a colourful character who positively despised convention. She didn't do anything in a predictable way or conform to what others expected.

Her language rivalled that of a drunken sailor. But her courage too was quite extraordinary and her aviation skill kept her going through years of barnstorming, breath-taking aerial stunts for the movies, record setting and inevitable crashes.

Florence Lowe 'Pancho' Barnes was born on July 22, 1901, in Pasadena, California. She was brought up more like a son than a daughter and could outrun, outswear and outpunch most boys. Her grandfather, Thaddeus Lowe, was a pioneer balloonist and the first person to take reconnaissance photographs from a balloon. He had been the Commander of the US Army's Aeronautic Corps during the Civil War and the US Air Force sometimes traces its roots back to him. In 1910, Thaddeus Lowe took his nine-year-old granddaughter to the first American aviation exhibition near Long Beach. She was hooked for life.

As a teenager though, her exploits grew increasingly wild and she was married off to C. Rankin Barnes, a clergyman, in the vain hope that he might help her "settle down". However, even the birth of a son failed to tame Florence's carefree spirit. In 1928, when some of her male friends decided to get hired on a banana boat bound for South America, she joined them dressed like a man and going by the name of Jacob Crane. However, it turned out that their innocuous looking vessel was secretly running guns to the Mexican revolutionaries. The crew were promptly arrested by the Mexican authorities and thrown into jail. Florence and another crewmember managed to escape and slowly made their long way back to America on foot. Her companion wanted to call her Sancho Panza (after the epic character of the same name in *Don Quixote*) but he mistakenly said 'Pancho' and the name stuck to her for life.

Finally back home, it might reasonably have been assumed that she had had her fill of adventure and would now settle for something quieter. Not Pancho! Tiring of staid domesticity all over again, she decided to learn to fly. She managed to convince Ben Caitlin, a World War I veteran, to teach her and went solo after just six hours of instruction. She was among the first women in the US to gain a pilot's licence. She bought her own biplane and took to the wandering life of a freelance aviator like a natural. She enjoyed one thrill after another as she put on a series of barnstorming shows, undeterred by the constant danger. The male pilots, otherwise wary of "females who thought they could fly", were more willing to accept this outspoken woman who could fly dangerously, tell aviation yarns, smoke cigars and drink quite like them.

PANCHO BARNES (1901-75)

In 1929, Pancho Barnes became the first woman pilot of the movie industry, flying aerial stunts for the war film, *Hell's Angels* based on World War I

In August 1929, Pancho Barnes entered the first Women's Transcontinental Air Derby, a cross-country race from Santa Monica, California, to Cleveland, Ohio, that one humourist dubbed the "Powder Puff Derby". She didn't cover herself with glory, first getting lost and drifting into Mexico and later colliding with a truck that had strayed onto the runway just before she landed. However, when she next participated in the same race – this time sponsored by the Union Oil Company – she not only won but broke Amelia Earhart's world women's speed record with an average speed of 315.7 km per hour. She was flying a Travel Air Type R Mystery Ship, a compact and light aeroplane built around a 400-horsepower Wright Whirlwind engine that was one of the fastest machines of the period.

Also in 1929, Pancho Barnes became the first woman pilot of the movie industry, flying aerial stunts for the war film, *Hell's Angels* based on World War I. The intrepid celluloid pilots were almost as much at risk as the military aviators of the War. During the production, three aviators and a mechanic lost their lives and even the producer Howard Hughes was seriously injured. Later, Pancho got together a group of stunt enthusiasts and founded the Association of Motion Picture Pilots in an effort to receive fair remuneration for the tremendous risks they had to face. The association also sought to increase the safety of aerial stunts and tried to introduce insurance for medical emergencies and deaths caused by flying accidents, in what was an extremely hazardous profession.

Even after she stopped flying Pancho's association with aviation continued. In March 1935 she bought a large piece of land in the Mojave Desert, adjacent to what later became Edwards Air Force Base, site of the US Air Force's Test Pilot School, and its foremost experimental flight testing centre. There she built the Happy Bottom Riding Club, a wild and boisterous fly-in ranch, bar and restaurant that attracted scores of test pilots as well as some of her old Hollywood friends. Most of the famous American aviators of the era including Jimmy Doolittle, Buzz Aldrin and Chuck Yeager were frequent visitors. Chuck Yeager, the first person to break the sound barrier, became her lifelong friend. Pancho Barnes died on March 29, 1975, in Boron, California. At her memorial one of California's aviation icons, Jimmy Doolittle, said, "In a few words, she put great store by courage, honour and integrity. She despised dishonesty and cowardice.... She said exactly what she thought and believed." SP

— Joseph Noronha

MILITARY

ASIA-PACIFIC

DEFENCE MINISTER INAUGURATES HAL-SAFRAN JV FOR HELICOPTER ENGINES

Minister of Defence Manohar Parrikar inaugurated Helicopter Engines Maintenance, Repair and Overhaul (MRO) Pvt Limited (HE-MRO), a joint venture of HAL and Safran Helicopter Engines (SafranHE), France, at Sattari district, north Goa, on October 23. The JV will provide MRO services for Safran TM333 2B2 and HAL Shakti engines installed on HAL-built helicopters operated by the Indian armed forces. Speaking on the occasion, the Minister of Defence said "This is a step towards creating employment opportunities with corresponding boost to the economic activities in Goa". Elaborating on the project, Chairman and Managing Director of HAL T. Suvarna Raju said: "The JV reflects the long-standing relationship between HAL and Safran Helicopter Engines. The JV brings about synergy of the expertise from HAL and SafranHE in the field of repair and overhaul of Safran family of engines. The MRO Centre plans to progressively support engines of international operators and other engines as mutually agreed between the partners. In addition to carrying out overhaul activities at Goa, the JV will also provide support through certified maintenance centres located centrally at customer bases." CEO Safran Helicopter Engines Bruno Even said: "HE-MRO marks a new step in the long-lasting and fruitful partnership between Safran and HAL." With a fleet of over 1,000 engines, including 250 TM333 and 250 Shakti, the Indian armed forces are one of the largest operators of Safran-designed helicopter engines.

INDIA LAUNCHES RACE TO BUILD FIGHTER JET

The media has widely reported that India again decided to carry out its quest for fighter aircraft by approaching global aerospace companies to partner Indian companies to build single-engine fighter jets for the Indian Air Force. A letter was sent via Indian embassies to both Saab of Sweden and Lockheed Martin of the US, while it is learnt that letters were also received by Germany, Italy and Russia; but the content is not certain. Randall Howard, Director of the Integrated Fighter Group at Lockheed Martin, said: "There is a sense of urgency from the Indian Air Force because its need is so great. This would be one of the largest fighter jet orders ever placed." He added: "We received the letter a few days ago and we have started dialogue with the Indian Air Force to find out as to what they are looking for and what their requirements are."

LIKELY REDUCTION IN THE PRICE OF US-2 AMPHIBIOUS AIRCRAFT

It has been reported that the deal between India and Japan has seen forward movement after Japan has offered some piece concessions. The deal for 12 US-2 amphibious aircraft has been on the anvil for a couple of years and it is the first defence deal of India with Japan. The price reduction may be more than ten per cent. Earlier, one of the advisers to Japan's Prime Minister Shinzo Abe, had said that the only way to go forward on the US-2 deal is to sit across the table and talk. The aircraft is made by Shin-Maywa of Japan.

INDIA TO BUY S-400 AIR DEFENCE SYSTEM FROM RUSSIA

India announced on October 15, 2016 that it will buy the S-400 Triumf Air Defence systems from Russia, worth over $5 billion. The most strategically important decision is the inter-governmental agreement for the purchase of S-400 'Triumf' long-range air defence missile system which has the capability to destroy incoming hostile aircraft, missiles and even drones at ranges of up to 400 km. India and Russia have been in talks for over a year for the purchase of at least five systems of S-400 that will be a game changer in the region. The system is capable of firing three types of missiles, creating a layered defence and simultaneously engaging 36 targets. India would be the second customer of the prized missile system after China which had concluded a $3-billion contract last year. The contract is likely to be signed by the middle of 2017. Russian Television reported the delivery of S-400 Triumf to India could begin as early as 2020. "An inter-governmental agreement has been signed under which Russia has undertaken to deliver S-400 to India," Sergey Chemezov, head of the Russian

QUICKROUNDUP

AIRBUS

On October 14, 2016, Airbus celebrated the delivery of its 10,000th aircraft – an A350-900 to Singapore Airlines. The milestone event was marked by a special ceremony in Toulouse hosted by Airbus Group CEO Tom Enders and attended by Goh Choon Phong, CEO of Singapore Airlines. An enhanced production version of the Airbus A330-200-based multi-role tanker transport (MRTT) has made its maiden flight in Spain. Manufacturer Airbus stated the aircraft – already carrying its advanced refuelling boom system and under-wing hose and drogue pods – "performed in line with expectations".

BOEING

Boeing has revealed some of the potential upgrades offered to Japan's fleet of F-15J aircraft. The company's defence head in Japan announced that AESA radars, a new mission computer, a new electronic warfare suite, conformal fuel tanks and additional missiles would all be included as part of any deal.

BOMBARDIER

Bombardier Commercial Aircraft has announced that Philippine Airlines Inc, flag carrier of the Philippines, has signed a letter of intent to acquire up to 12 Q400 aircraft.

DGA

The French defence procurement agency, the Direction Générale pour l'Armement (DGA) has awarded the contract for the midlife upgrade of the 55 Mirage 2000D fighters to Dassault Aviation and MBDA in order to operate in support of the Rafale beyond 2030.

INDIAN AIR FORCE

Talks for procurement of 48 Mi-17 V5 medium-lift transport helicopters for the Indian Air Force are underway. India has been relying extensively on the Mi-17 for its transport helicopter fleet.

LOCKHEED MARTIN

Lockheed Martin President Marillyn Hewson said in an interview at the Japan Aerospace 2016 trade show that they have proposed developing a new Japanese stealth fighter with Mitsubishi Heavy Industries to replace Japan's ageing fleet of around 90 F-2 fighters.

NORTHROP GRUMMAN

Northrop Grumman Systems Corp, California, has been awarded $4,94,00,000 for fixed-price incentive (firm target) modification to a previously awarded fixed-price-incentive contract for the procurement of long lead components, materials, parts and associated efforts in support of the MQ-4C Triton LRIP 2 unmanned aircraft. Work is expected to be completed in September 2017.

NORWAY

Twelve additional F-35A fighters have been requested for by the Norwegian Government. The proposal, if approved,

QUICKROUNDUP

would raise the total number of authorised F-35A purchases to 40 aircraft allowing Norway to participate in a proposed "block buy" for the F-35's US and international partners.

PAKISTAN

According to the Chairman of the Pakistani Senate's Standing Committee on Defence, Lt General Abdul Qayyum (Retd), the Pakistan Aeronautical Complex will export 100 Super Mushshak trainers to Turkey. The MFI-395 is an upgraded and locally manufactured variant of the MFI-17 Mushshak, which was a locally assembled version of the Saab Supporter.

RPAS

A collaboration between Leonardo-Finmeccinca, Dassault Aviation and Airbus Defence has launched the European Medium Altitude Long Endurance Remotely Piloted Aircraft System (RPAS) programme. The project will facilitate the creation of new remotely piloted aircraft systems to support European intelligence-gathering missions, with all three companies to first conduct definition studies to support the programme. In addition to intelligence gathering, the drones will be used for infrastructure surveillance, firefighting, border control and disaster relief.

REPUBLIC OF KOREA AIR FORCE

The Chief of the Republic of Korea Air Force is to visit the US to help promote the T-50A bid by Korea Aerospace Industries and Lockheed Martin. Gen Jeong Kyeong-doo is scheduled to meet his US counterpart during the trip. Washington is expected to begin its selection process for 350 advanced jet trainers next year which could reach $20 billion in value.

RUSSIA

Russia's Aerospace Force is planning to receive the first five fifth-generation T-50 PAK FA fighter jets in 2017. It will also receive about 20 Sukhoi Su-30SM (NATO reporting name: Flanker-C) multi-purpose fighter jets annually for the next 10-15 years.

SAAB

Saab has offered to share their AESA radar with Gallium Nitride technology with India if they select the Gripen fighter. The other offers include the previous offer of co-developing India's indigenously manufactured fighter aircraft Tejas MK 1A by setting up a production line in India under the 'Make in India' scheme. Company officials said that both the LCA and the Gripen are of similar class and also share the same General Electric engine citing commonality in maintenance and operation.

SAUDI ARABIA

Saudi Arabia is set to buy a further eight UH-60M Black Hawks in a $91-million US Army contract. The FMS will see Sikorsky provide the medium-lift utility helicopters by December 2017. Back in February, Sikorsky and Saudi Arabian state-owned defence and technology giant Rostec, told reporters on the sidelines of the BRICS summit on October 15.

200 KAMOV 226T HELICOPTERS

The signing of the agreement on creation of a joint venture for production of 200 Kamov 226T helicopters in India under an approximately $1-billion deal to replace the country's ageing Cheetah and Chetak helicopters is yet another important defence deal between Russia and India. Kamov 226T is a light multi-purpose helicopter, which is designed to work in tough conditions of high mountains, hot-arid climate and marine-oceanic areas. Under the terms of the inter-governmental agreement, the joint venture between Russian-Indian enterprise created by Russian Helicopters, JSC Rosoboronexport and India's HAL must arrange the localisation of production and supply of 200 light multirole Ka-226T for nine years. The first 60 helicopters will be produced in Russia, and the remaining 140 helicopters will be produced in India. In addition to the assembly, the agreement provides for maintenance, operation, repairs and technical support cooperation. In all, the Army and the IAF need 384 light-utility helicopters.

FIFTH-GENERATION FIGHTER AIRCRAFT (FGFA)

Russia is hopeful that another big ticket agreement on FGFA will be inked by year-end.Sergei Chemezov, CEO of Rostec State Corporation, has said: "The agreement had been completed on our end, we are ready to sign it. It is now up to the Indian side. There are some formalities to be completed, but I think it will be signed by the end of this year." After a gap of about a year, India and Russia had in February 2016 revived talks on the much delayed FGFA project after a clearance from Defence Minister Manohar Parrikar. Since then, a lot of issues related to work share, intellectual property rights, technology transfer and monetary commitments have been sorted out between the two sides. Under the new offer, India will have to pay

APPOINTMENTS

MTU MAINTENANCE CANADA

At the beginning of September 2016, Helmut Neupertook took over the role of President and CEO of MTU Maintenance Canada.

BOEING

On October 14, 2016, Boeing announced the appointment of Ihssane Mounir as the new Vice President of Sales and Marketing for Commercial Airplanes. Effective October 21, 2016, Boeing veteran Jim Chilton succeeded Craig R. Cooning as President of the company's Network & Space Systems businesses.

ATR

In October this year, ATR's shareholders Airbus Group and Leonardo-Finmeccanica appointed Christian Scherer as Chief Executive Officer of ATR.

GULFSTREAM

Gulfstream Aerospace Corporation recently appointed Matthew Murphy as Regional Vice President of Sales for Mexico and Central America.

On August 29, 2016, Gulfstream Aerospace Corporation announced the appointment of Jeannine Haas to the newly created role of Chief Marketing Officer (CMO).

ASIA AVIATION CAPITAL

AirAsia Berhad's aircraft leasing unit Asia Aviation Capital Ltd has announced the appointment of Stéphane Daillencourt as its President and Chief Executive Officer effective November 1, 2016.

AIR BP

Effective October 1, 2016, Jon Platt took over as the Chief Executive of Air BP, the oil company BP's global aviation business.

RAYTHEON

The Board of Directors of Raytheon Company elected Dinesh Paliwal as a Director, effective end September 2016.

BOMBARDIER BUSINESS AIRCRAFT

On September 20, 2016, Bombardier Business Aircraft announced Jean-Christophe Gallagher as Vice President and General Manager of the customer experience team, Andy Nureddin Vice President, Customer Support and Training and Peter Likoray named Senior Vice President, Sales and Marketing.

SHOW CALENDAR

1–3 November
NBAA-BACE
Orange County Convention Center, Florida, USA
www.nbaa.org/events/bace/2016

1–6 November
AIRSHOW CHINA
Zhuhai, Guangdong, China
www.airshow.com.cn/en

2–5 November
INDO AEROSPACE 2016 EXPO & FORUM
JIExpo Kemayoran Jakarta, Indonesia
www.indoaerospace.com

6–8 December
MEBAA SHOW
Dubai World Central (DWC), Dubai
www.mebaa.aero

about $3.7 billion, instead of $6 billion, for the technological know-how and three prototypes of the aircraft.

RUSSIA'S UEC DELIVERS RD-33MK AIRCRAFT ENGINES TO INDIAN NAVY

Russia's United Engine Corporation (UEC) has stated that more than 100 Russian-made RD-33MK turbojet engines have been delivered to the Indian Navy. The engines were manufactured by the Chernyshev Machine-Building Enterprise, a subsidiary of the United Engine Corporation within Russia's state high-tech corporation Rostec. In particular, the RD-33MK engine is mounted on the Mikoyan MiG-29K/KUB (NATO reporting name: Fulcrum-D) shipborne fighter jet. Each fighter jet is powered by two engines.

STRATEGIC PARTNERSHIP BETWEEN DASSAULT AVIATION AND RELIANCE AEROSPACE

Dassault Aviation Chairman and CEO Eric Trappier and Reliance Group Chairman Anil Dhirubhai Ambani have announced the creation of a joint venture (JV) in India. This JV is called "Dassault Reliance Aerospace" and will support Prime Minister Modi's 'Make in India' and 'Skill India' policies and develop major Indian programmes with high levels of technology transfer to benefit the entire aerospace sector. The proposed strategic partnership between Dassault and Reliance will also focus on promoting research and development projects under the indigenously designed, developed and manufactured (IDDM) programme, a new initiative by Defence Minister Manohar Parrikar. The Dassault Reliance Aerospace JV will be a key player in the execution of offset obligations as a part of the 36 Rafale fighter jet purchase agreement.The agreement includes a 50 per cent offset obligation which is the largest ever offset contract in the history of India. "The formation of this JV with Reliance Aerospace led by Anil Ambani's Reliance Group illustrates our strong commitment to establish ourselves in India and to develop strategic industrial partnerships under the 'Make in India' policy promoted by the Indian Government," declared Eric Trappier.

MAIDEN FLIGHT BY UPGRADED MI-28N ATTACK HELICOPTER

Upgraded Mi-28N attack helicopter made its first test flight on October 13 while its first hovering was completed on September 9 of this year. The flight was successful and the upgraded attack helicopter has significant improvements. The upgraded Mi-28N is a highly effective attack helicopter which is able to perform a wide range of tasks from aerial reconnaissance and target designation to destruction of diverse array of ground and air targets. The helicopter is also equipped with a new guidance, navigation and flight control system and the crew cabin is armoured and protects against armour-piercing bullets and projectiles with a calibre up to 20mm.

SHORT-TERM GROWTH FOR LIGHT MILITARY ROTORCRAFT MARKET

In a newly released analysis, "The Market for Light Military Rotorcraft," Forecast International projects that a total of 1,241 light military rotorcraft will be produced from 2016 through 2025 with a estimated value of $19.7 billion. Over the next 10 years, customers in Asia will account for an increasing share of the global market. Airbus Helicopters is forecast to lead the market in unit production, producing 316 light military helicopters for a 25.5 per cent market share. Bell Helicopter is projected to be second, with production of 226 helicopters for an 18.2 per cent share.

QUICKROUNDUP

firm Taqnia Aeronautics began investigating the possibilities of producing Black Hawks in the kingdom as part of efforts to diversify their economy amid dropping oil prices.

SIKORSKY

Sikorsky has delivered the 1,000th H-60M Black Hawk helicopter to the US Army on October 13, in a ceremony held in Stratford, Connecticut. The event was attended by distinguished guests from the US Army, government officials, the Defense Contracting Management Agency, industry suppliers, and Lockheed Martin employees.

TAURUS SYSTEMS

Taurus Systems GmbH, a joint venture of MBDA Deutschland GmbH and SAAB Dynamics AB, has handed over the first lot of Taurus KEPD 350K stand–off missiles to the Republic of Korea Air Force. This is a modular stand-off missile system for precision strike.

THALES

The new-generation Targeting Long-range Identification Optronic System (TALIOS) laser targeting pod has successfully completed its first flight on a Rafale fghter jet. Designed by Thales, TALIOS is the first optronic targeting pod to cover the entire decision chain, from intelligence gathering through to neutralisation.

SPACE

ASIA-PACIFIC

CHINA'S ENHANCED CAPABILITIES WITH LAUNCH OF SHENZHOU-11

Successful launch of the Shenzhou-11 spacecraft is another step forward to put China among leading players in space technology. The craft with two astronauts aboard is planned to dock with China's second experimental space lab Tiangong-2 launched in mid-September. The move marked China's latest effort in a couple of months towards being a space power, after successes of the maiden flight of its new generation carrier rocket Long March-7 in June and the launch of the world's first quantum satellite Micius in August, among other developments. China's achievements and programmes in space missions, in particular the lunar exploration programme that is well planned and steadily advanced with achievable goals. ●

ABSTAIN FROM OBSTRUCTING MODERNISATION

IN SEPTEMBER 2016, A deal for the purchase of three Embraer EMB 145 twin-engine regional jet aircraft for the Indian Air Force (IAF) came under the scanner of the US authorities over allegations of kickbacks paid by the original equipment manufacturer (OEM) to secure the contract. These three aircraft were to be modified by the Defence Research and Development Organisation (DRDO) as airborne early warning and control platforms for operational deployment by the IAF. The contract was signed in 2008 between Embraer and the DRDO. Embraer has been under investigation by the US Justice Department since 2010 when a contract with the Dominican Republic raised America's suspicions. The probe being conducted by Brazilian and US authorities has been extended to the deal with DRDO. Unfortunately, there were insinuations of the involvement of a former Chief of the Air Staff (CAS) of the IAF who apparently had selected the platform.

The allegations of misdemeanour in the procurement of this high value military hardware comes soon after the episode related to the procurement of 12 AgustaWestland AW101 helicopters for the IAF for VVIP travel. Here too the needle of suspicion for wrongdoing pointed at a former CAS who was said to be responsible for the selection of the platform. The allegations in both these cases have been that the selection was made in a manner so as to favour a particular firm for monetary gain. The effort to procure 197 helicopters for the Indian Army and the IAF ran aground after the tender was cancelled a second time on account of allegations of misdemeanour in the process of selection. The menace of scams in the procurement of military hardware has not been exclusive to the IAF. The Indian Army has been rattled by a number of such episodes since independence, the most voluble of these being the procurement of artillery guns from Bofors. The effort by the Indian Navy to procure eight mine countermeasure vessels from South Korea for ₹2,300 crore had run aground in 2014 on account of irregularities observed by the Ministry of Defence (MoD).

In many of the so-called scams in the procurement of military hardware, the problem is created by false, baseless or motivated allegations by rival firms that could not win the contract. Sometimes, political or business rivalry in the country of the OEM finally has an adverse impact on the execution of the contract. There is also a possibility that political rivalry in the country importing the equipment could have the potential to vitiate the whole process. In the bargain, apart from the unwarranted damage to the OEM, the reputation of senior functionaries, both military and civil, is often tarnished or demolished.

While it is gratifying to note that the investigating agencies have not been able to find any proof to substantiate the allegations of kickbacks, these episodes have left a debilitating impact on the process of decision making by the political, civil and military leadership. This will certainly impinge on the confidence with which future contracts for high value military hardware will be handled by service headquarters. If the process of procurement of military hardware remains easily vulnerable to allegations of wrongdoing, it will ultimately impede the acquisition process. The unfortunate consequence for a country like India that depends heavily of foreign sources for the procurement of defence equipment would be that the operational capability of its armed forces will progressively erode and they will no longer be in a state of preparedness to fight a war especially on two fronts simultaneously, a possibility that is beginning to appear to be real.

Another bane of defence procurement has been the phenomenon of 'blacklisting' companies based on mere allegations of wrongdoing, without even the charges being actually proved. As per the list drawn up by the MoD, in 2006, there were a total of 118 firms were banned from doing any business in India on the basis of allegations of impropriety. The list included foreign OEMs and Indian vendors. In 2012, the MoD blacklisted six companies including Singapore Technologies, Israeli Military Industry and Rheinmetall Air Defence of Germany for ten years for their alleged role in ordnance factory scam. This practice was a major impediment in the modernisation plan of the Indian armed forces and thus was akin to 'shooting oneself in the foot'. Fortunately, there is a move to review this self-defeating practice and introduce policy changes.

Unless the government carries out a comprehensive review of the existing policies related to defence procurement and makes it less vulnerable to the self-defeating practices of cancellation of contracts and blacklisting of companies, modernisation plans of the Indian armed forces may continue to remain a distant dream! SP

In some cases of procurement of military hardware, the so-called scams are created by false, baseless or motivated allegations by rival firms that could not win the contract

—By Air Marshal B.K. Pandey (Retd)

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