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AERO INDIA 2013
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[inside]

Aerospace Sector
KEY ENABLER OF ECONOMIC GROWTH

RED BULLS AEROBATIC DISPLAY

BY **SP'S SPECIAL CORRESPONDENT**

As Aero India 2013 dawns, there is a general sense that the tumult and buzz of the show's last two iterations just won't be there. This would perhaps be true if the only indication of a show's success was the number of fighter jet types participating. Fighters aside, we are looking at the entire gamut of aerospace and defence acquisitions and developments and the story is not only unfolding rapidly but also has become key enablers of economic growth.

During the last two shows, the monumental medium multi-role combat aircraft (MMRCA) didn't have a winner yet, and several other big-ticket aerospace acquisitions revolved around it like smaller satellites, also waiting for clarity and a verdict. Aero India 2013 takes place a year after MMRCA decision-makers chose the Dassault Rafale as the lowest compliant bidder, ousting the EADS Eurofighter Typhoon. The show also takes place

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BOEING CH-47F CHINOOK HELICOPTER

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shortly after Indian acquisition officials have chosen the US built CH-47F Chinook and AH-64D Apache Block III over the Russian Mi-26T2 and Mi-28 Night Hunter respectively for the Indian Air Force's heavy-lift and attack helicopter requirements. In that sense, there is less frenzied anticipation. Less intrigue. Less tumult. But that doesn't mean there isn't work to be done, technologies to be shared, opportunities to be explored and created.

For starters, one of India's least known or reported – but perhaps most crucial – hardware competitions circles around the acquisition of 197 light reconnaissance and surveillance helicopters (RSH) for the Army and IAF. Two months ago, the two finalists in the arduous, meandering competition – Eurocopter and Kamov – were instructed to extend the validity of their commercial bids for the fourth time, a record of sorts even in the notoriously unhurried regime that is Indian defence contracting. The companies have duly done so, but are both anxiously awaiting a decision, either way. It has been nearly five years since the MoD issued RFPs for the requirement in 2008. Aero India 2013 could have provided a perfect platform for an announcement of a winner – but will that happen? Eurocopter which burnt its fingers badly once before has tried, without success, to engage with the government on a speedy decision, but so far there seems little clarity on which way the MoD will decide – indeed, if it will decide at all. The opacity of the decision-making process makes it that much more difficult to define the next move. The programme also impinges on HAL's light utility helicopter (LUH) programme – a mock-up of the helicopter makes a return to Aero India this year. HAL looks to service a requirement of 184 LUHs, to operate in conjunction with the 197 RSHs. But with the RSH delayed, and the LUH still only a scale model – even an engine hasn't been decided just yet, though that will be a point of focus at this year's show – there isn't much good news for the Indian Army and IAF, both of which desperately need these helicopters for high altitude multi-role operations.

The Indian Air Force's ambitious replacement programme for its HS-748 Avro transport aircraft is also expected to take wing, after an abortive attempt to rope Indian private companies in on it. The project is now wide open for vendors the world over. Companies like EADS and Lockheed Martin will be focusing their strategies at Aero India, for instance, on the C295/C295 and C-130J Super Hercules programmes respectively as possible replacements for the Avro in Indian Air Force service.

Enormous opportunities exist for unmanned air systems across the board in India. Apart from continuing opportunities to procure full systems – the Indian Navy is looking for a maritime MALE system, the Indian Army is looking for a man-portable MAV system to name just two instances – there are several co-development opportunities as well, both ab-initio as well as mid-course programmes. It is virtually certain that with pressing time-lines and impatient customers, HAL and DRDO will be forced to draft in the help of experienced consultants to complete current programmes. For instance, the Rustom-2 MALE multi-role UAV, which was expected to make its first flight this year, requires a serious nudge in terms of data link, comm/nav systems and sensors. The Indian Unmanned Strike Air Vehicle (IUSAV) is a hugely ambitious UCAV programme that is still in a project definition stage, but could provide big opportunities. Boeing and Elbit will be debuting their maritime UAS – the Scan Eagle and Hermes 900 maritime – at the show. Companies that include BAE Systems, EADS Cassidian and Saab are involved at various levels in discussions with DRDO on co-developing UAS for the Indian military.

Another recently floated requirement in the Indian market is the Indian Navy's search for a new medium-range anti-ship missile, while the Army continues its search for a stand-off loitering weapon – incidentally India plans to test its first loitering cruise weapon, designated Nirbhay this month. A big-ticket missile programme entering its final leg in India is the VSHORADS (very short-range air defence system), currently a three-way fight between the French MBDA Mistral, Sweden's Saab RBS 70 NG and Russia's KBM new generation Igla-S – all three systems are on display at Aero India 2013. The deal could be worth $6-billion and involve the purchase of 1,000 launchers with 6,000 missiles. MBDA, which had tasted sweet success a year ago with the Indian Government handing it a €950-million deal for MICA air-to-air missiles for the IAF's upgraded Mirage 2000 multi-role fighters, the company is now eagerly awaiting the results of the competition to supply short-range IR air-to-air missiles for the IAF's Jaguars. MBDA and Israel's Rafael await a verdict on what is a toss-up between MBDA's ASRAAM and Rafael's Python 5.

Another key area where several opportunities could arise just about now is the realm of India's indigenous fighter programmes – the light combat aircraft (LCA Tejas) that is on a finishing run, and requires the possible nudge over the finishing line, and the ambitious fifth-generation advanced medium combat aircraft (AMCA). Several indigenous programmes including the delayed Indian multirole helicopter (IMRH), light utility helicopter (LUH), multi-role transport Aircraft (MTA) and others could throw up very serious sourcing and other opportunities for foreign and Indian vendors at every level. Another enormous opportunity is the Indian National Civil Aircraft (NCA), which by itself, could present the most profound spaces for cooperation in new technologies.

India's light combat aircraft ought to be the centrepiece of any Indian air or defence exposition. In a few years, perhaps it will be able to show off its squadron colours to adoring crowds as foreign fighters now do. But for now, there is still much work to be done – and this draws deep, sobering attention once again to the enormous journey the Indian aerospace establishment has to tread. As Aero India 2013 dawns, as the mood sets in, it is imperative that the establishment and test teams be less forgiving with themselves and with what is expected of them. The light combat aircraft was an idea that took birth during a deeply socialist phase of India. It's final lap happens at a time when the country recedes each day from those ideals of yore, into a far more egalitarian, far more promising regime. But will it ever get there? For now, the Indian Air Force's eyes are fixed on the MMRCA fighter but that doesn't mean it has given up on the Tejas, a fighter it will hopefully operate in large numbers over the years, and over several variants.

At this point, the Tejas development programme is in an advanced stage and on the road to completing initial operation clearance (IOC-2) requirements and continuing system performance towards reaching final operations Clearance (FOC). The type, across prototypes and limited series vehicles has completed 1986 flawless flight trials till date, including cold weather and high altitude trials at Leh and Pathankot, and hot weather & weapon trials in the desert terrains of Jaisalmer and Uttarlai. According to the Aeronautical Development Agency (ADA), LCA will be participating for the first time in an airpower demonstration called "Iron Fist". There, it will demonstrate its swing-role capability, performing air-to-air and strike roles in the same mission, say officials. The IAF has placed production orders on HAL for 40 LCAs and production activity is under progress. The LCA's other variants include the two-seater LCA-Trainer and LCA-Navy, being built to take off and land from aircraft carrier decks. The naval version of Tejas had its maiden flight in April last year. But the variant is now delayed by an elaborate landing gear redesign for which the ADA has had to seek foreign help, considering building a naval fighter has been a first time effort for the Indian military-industrial complex.

It is clear, therefore, that aerospace in India is healthy, well and positively burgeoning with opportunities. Recently reported slashes in the Indian defence budget will take time to reflect in programmes that are already on course, and with pressure from the forces, it is unlikely that crucial programmes will be deferred more than they already have been. It remains an exciting time in Indian aerospace. •

EUROCOPTER AS550 C3 FENNEC
THE HELICOPTER OF CHOICE

AS550 C3 FENNEC

BY **SP'S CORRESPONDENT**

Extensive global experience shows that reconnaissance and observation helicopters need to be capable of fulfilling various roles – personnel transport, escort and armed missions, casualty evacuation and observation. Thus three key expectations from a successful helicopter in this segment are manoeuvrability, versatility and agility.

This is what makes Eurocopter's AS550 Fennec one of the most successful helicopters in the world for this kind of requirement. The success of Fennec clearly lies in its versatility. It is the only helicopter that is certified by internationally accredited military certification agency (French DGA, under the Ministry of Defence).

As an important advantage, Eurocopter has a manufacturing capacity of more than 300 Fennec/ Ecureuil helicopters a year. The AS550 Fennec is the combat version of the Ecureuil family and is renowned the world over for its lethality. It can be fitted for anti-tank, air-to-air combat, ground support and training missions and it is also used in the utility transportation role.

The Fennec can function impeccably from –40 degrees Celsius to 50 degrees Celsius. This is what makes it a reference helicopter for extremely hot and desert operations. Not only can it be deployed successfully at sea-level, it also holds the world record for landing on top of the Mount Everest. It can execute forward speed and rapid ascent in record times, which makes it best suited for reconnaissance and surveillance activities.

"The Fennec is our most advanced helicopter and it is a proven military helicopter including complete weapon systems, fully compliant with the quality requirements of the Indian army and the air force. We have recently completed field trials as well and are confident that we will meet the expectations of the armed forces," said Rainer Farid, Eurocopter's Vice President for Sales, South Asia.

The AS550 is a light aircraft based on a reinforced high-strength glass fibre and aramid airframe. The Starflex main rotor head and blades are also of composite materials for added strength and weight reduction. The helicopter is fitted with armoured seats and can carry the pilot and up to five troops. The cabin can also be configured for medical evacuation with capacity for up to two medical evacuation stretchers and two doctors.

Its sophisticated cockpit is equipped with single controls and is night-vision compatible. The navigation suite includes sophisticated global positioning system, a VHF omni-directional radio ranger and instrument landing system (VOR/ILS), an automatic direction finder, distance measuring equipment and a marker beacon transponder. The secure communications systems are fitted according to the customer country's specification.

The AS550 Fennec currently represents the best transport / radius of action trade-off of any helicopter in its class. In just an hour, it can transport 25 commandos 20 km at altitudes of up to 4,000 metres at ISA temperatures, and up to 3,500 metres at ISA +20°C while at the same time performing take-offs out of ground effect. In its attack configuration, the AS 550 C3 Fennec can be equipped with a gun, rockets, or machine guns. Its stability, manoeuvrability and low detectability make it an excellent platform. •

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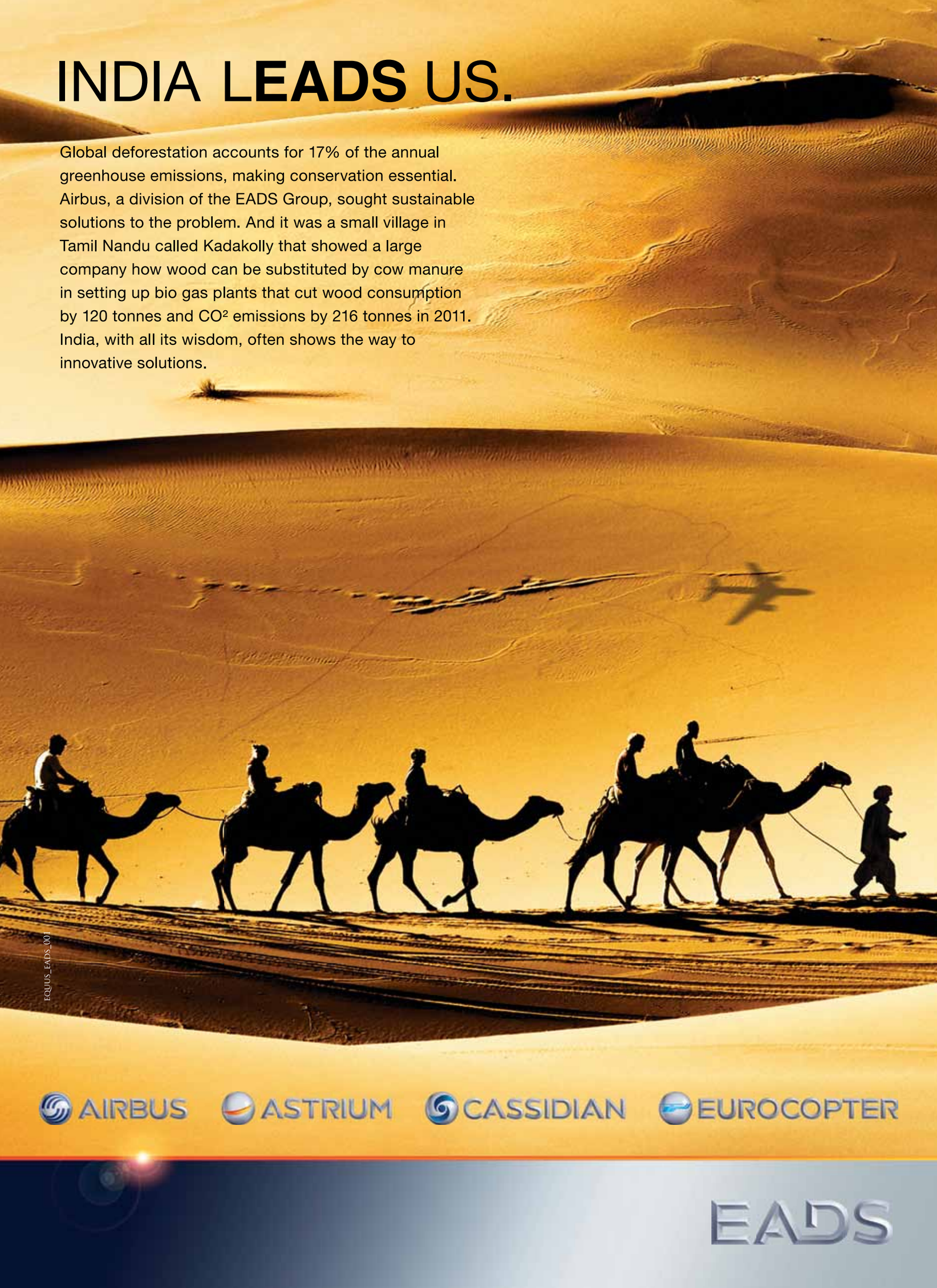
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Global deforestation accounts for 17% of the annual greenhouse emissions, making conservation essential. Airbus, a division of the EADS Group, sought sustainable solutions to the problem. And it was a small village in Tamil Nandu called Kadakolly that showed a large company how wood can be substituted by cow manure in setting up bio gas plants that cut wood consumption by 120 tonnes and CO² emissions by 216 tonnes in 2011. India, with all its wisdom, often shows the way to innovative solutions.
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'We plan to indigenise the Indian defence capabilities in a big way'

■ **Dr R.K. Tyagi, Chairman, Hindustan Aeronautics Limited**

***SP's ShowNews* (SP's): What steps is Hindustan Aeronautics Limited (HAL) taking by way of modernisation and upgradation of facilities to gear up for the fourth-generation medium multi-role combat aircraft (MMRCA) programme and other projects coming your way?**

R.K. Tyagi (Tyagi): We have planned state-of-the-art manufacturing facilities for MMRCA, light utility helicopter (LUH) and medium-lift helicopter projects. Centre of Excellence in Transmission and Composites and a separate factory for manufacturing engines for helicopters exclusively are also being conceived. As I have already said, light combat aircraft (LCA) production facilities will be augmented to increase the production rate up to 16 aircraft per year. Helicopter Division facilities too will be reinforced to take up the production of light combat helicopter (LCH) in addition to the current production of advanced light helicopter (ALH).

In addition, the company is in the process of finalising the modernisation plan considering the current and new programmes, the delivery schedules and the required rate of production.The plan will provide a roadmap for creation of new facilities, induction of new technologies, augmentation/upgradation of existing facilities to cater to the design, development and manufacturing activities.

We plan to outsource in a big way and HAL has drawn up plans to outsource more than 30 per cent of the manufacturing task. This strategy would enable HAL to add and use the capacity more optimally on high value added jobs and new business opportunities.

HAL will like to enter into allied fields to widen its product/service profile. The company is pursuing strategic business alliances through partnership and joint ventures to gain access to technology and the global market. The company aims to leverage the Indian market to gain access to the global market.

SP's: Can you give us an overview of the major projects in hand at HAL?

Tyagi: At HAL, major development projects like advanced light helicopter weaponised version, intermediate jet trainer, light combat helicopter, light utility helicopter and light combat aircraft are entering their intermediate/final phase of development. Projects like development of basic trainer aircraft, co-development projects like fifth-generation fighter aircraft (FGFA), multi-role transport aircraft (MTA) and licensed production of MMRCA, have been initiated and their preliminary activities have commenced. The immediate challenge for HAL is to put in place the right mix of resources to ensure the smooth progress of all the new and current projects and meet their time and cost milestones.

With the opening up of the defence industry to private players and the growth of the private industry in the defence sector over the past decade, HAL is moving from being a vertically integrated industry to an aircraft integrator with established supply chains rooted in the private defence industries of the country. The company has drawn up plans to outsource more than 30 per cent of the manufacturing tasks. This would enable HAL to use the capacity more optimally and focus on core competencies and high value-added jobs.

India's defence modernisation and expansion plans give "offset opportunity" for those businesses engaged in defence related activities.The projected offset opportunity market in the aerospace and defence sector in India is estimated at $30 billion (₹1,50,000 crore) over the next 10 years. HAL will strive to garner a major share of the offset market opportunities. If required, the company will set up a separate unit as a strategic business unit (SBU) to cater to the offset market.

We have identified unmanned aerial vehicles, civil aviation sector and development of Nasik airport for commercial operations as areas of strategic interest having immense business potential. We have arrived at this based on our market analysis reports and growth prospects. This is in addition to take advantage of offset opportunities, setting up of separate business groups we plan to establish. The market dynamics and opportunities are analysed closely to enable HAL to foray into these sectors.

SP's: Where does the LCA Tejas stand in respect of operational clearance and induction into the IAF?

Tyagi: HAL is the major partner to the Aeronautical Development Agency (ADA) for the design and development of LCA. ADA is the designated lead designer/project manager for the development of LCA. ADA has indicated that initial operational clearance (IOC) for the LCA is being planned to be achieved in the second quarter of 2013.

HAL is geared up to commence delivery against the current order for LCA within three to six months of the IOC certification of the aircraft. HAL has already set up the production line and has produced six limited series production aircraft pending final IOC. HAL is ready with the infrastructure to meet the immediate orders. Activities to ramp up the production from the present level to eight aircraft per year are also being taken care of. The company is planning to augment the production capacity up to 16 aircraft per year as we anticipate more orders in future.

SP's: The IJT project had an impressive start having undertaken the first flight in record time after go-ahead sanction.What is the time frame in which the IAF should expect the aircraft to be available in sufficient numbers to take over the training role from the Kiran fleet?

Tyagi:The intermediate jet trainer (IJT) project of HAL is currently at an advanced stage of development. Flight testing has re-commenced subsequent to the design modifications from February 2012 after the loss of PT-1 aircraft. While this type of loss of aircraft needs to be avoided, such incidents of loss of prototypes have occurred in many such development programmes undertaken in other countries as well.

HAL is making all efforts to achieve the IOC at the earliest.The project is being closely monitored to ensure that any support/decisions required are given on a fasttrack mode. More than 600 flights have been completed so far. However, considering the number of test flights to be completed, the IOC is expected during the second half of 2013. •

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India Integral to Honeywell's Global Growth Strategy

■ **Pritam Bhavnani, President, Honeywell Aerospace India**

Honeywell Aerospace is the largest manufacturer of aircraft engines and avionics, as well as a producer of auxiliary power units (APUs) and other aviation products. Honeywell Aerospace products and services are used globally on virtually every commercial and business aircraft operating today as well as for defence and space applications. It provides integrated avionics, engines, systems, and service solutions, focusing on the technologies that best meet their needs to make flying safer, more reliable, more efficient and more cost-effective.

***SP's ShowNews* (SP's): Could you give a brief background of Honeywell's association with India?**

Pritam Bhavnani (Bhavnani): Honeywell's India experience dates back to the 1930s, when UOP commissioned India's very first oil and gas refinery in Digboi, in the north-eastern state of Assam. Today, India is integral to Honeywell's global growth strategy. All four of its businesses-- aerospace, automation and control solutions, performance materials and technologies, and transportation systems – have significant operations in India.

Honeywell Aerospace has been servicing the India aerospace industry for four decades, which includes a long-standing relationship with the Hindustan Aeronautics Limited (HAL) on the local production of the TPE-331 engine. Though this period of investment we have grown our customer portfolio to include some of the largest names in India's defence and aviation industry, including, Air India, IndiGo, GoAir, SpiceJet, Jet Airways, Air Works and Magnum.

Today, we are supplying to, and working with, key stakeholders across all aspects of aerospace at a time when India is going through a period of significant defence and civil aviation investment in response to demand for increased capabilities and from growing passenger numbers. With many of our products designed specifically to support cost-efficient growth of operations, it's a good time for us to be doing business in India.

SP's: Which activities is Honeywell focusing on currently and what activities would you focus on in the future?

Bhavnani: We are working with the AAI closely, as Air Traffic Management modernisation remains an important area. We have a large portfolio of advanced technologies to help aircraft land easier, faster and operate more efficiently while helping airport operators minimise flight delays and congestion.

Outside of our broad aerospace portfolio, we continue to build on our work in helping to modernise the international airports at Delhi, Hyderabad and Bengaluru with terminal-side and air-side technologies to improve passenger experience from the moment they check-in to picking up their bags at the other end.

And in the defence domain, we are supporting retrofit modifications and upgrades (RMU) requirements for India's military fleets as the country modernises and extends the life of its existing platforms. For example, we are working to install the wide range of existing Honeywell technologies on platforms such as the MiG-21, Do-228, An-32, ALH and IL-76, in addition to already supporting equipment on platforms such as the C-130J, P8I, C-17, Mi-17, An-32, Mirage, LCA, ALH, Cheetah and Chetak in India, through repairs, spares, and software updates.

With future incoming aircraft such as the Pilatus, Chinook, Apache, and Rafale, Honeywell will expand its presence of equipment in India with high-tech avionics and modern rugged engines proven in challenging environments such as Afghanistan.

SP's: Any specific plans for the country in the next five to ten years?

Bhavnani: When you look at our local growth trajectory in recent years -- Honeywell has grown from 1,000 people in 2002 to more than 12,500 employees across facilities in Delhi, Pune, Bengaluru, Hyderabad, Chennai, Gurgaon and Madurai -- you can see the level of importance we are placing on the Indian market. Across the business, we are continuing to grow our own manufacturing and design capabilities in the country. We are also strengthening our local partnership portfolio in the market to further support the country's drive for indigenised design and manufacturing capabilities. The strategy of 'manufacturing in India, by India, for India' is the cornerstone of our long-term plan for this important market, and consequently our local collaborations are pivotal for success.

SP's: What makes you feel that India is an exciting market?

Bhavnani: The mix of significant industry growth -- the Centre for Asia Pacific Aviation is reporting airport passenger traffic growth to 452 million by 2020-21 -- and some of the world's finest engineering talent make this a great market to be involved in. We not only have enough talent within the Indian market, but we also find many airlines in the Middle East and South East Asia have expatriate Indian engineers and staff. Honeywell Technology Solutions, the technology development and engineering arm for all of Honeywell's businesses globally, has more than 2,800 dedicated aerospace engineers in India working on our latest aerospace products and services across multiple aircraft platforms.

When it comes to cultivating talent, we firmly believe that our responsibility to the aviation and defence industry in India goes beyond just product supply. That's why we have partnerships with numerous universities and schools across the country, in order to foster aviation talent at the grass-roots level. Our Aero Club initiative is a great example of this, as it drives an interest in aerospace engineering and principles of flight at a time when young people are starting to consider their aspirations for the future. It makes sense for us too because with the emphasis we put on doing work locally, ensuring there is a consistent flow of talent coming into the industry is critical to our long-term success.

SP's: What capabilities do you plan to showcase during Aero India 2013?

Bhavnani: Our focus for Aero India 2013 is centred on technologies and services that can help strengthen local military and aviation capabilities and advance safety, efficiency and operational effectiveness.

We're excited to be showcasing some of the latest products from our engines, navigation systems, connectivity and safety portfolios, across a wide range of military platforms. From the F125IN engine, which provides best-in-class performance and is an option that is designed to extend mission capability of the IAF's Jaguar fleet, to our TALIN inertial navigation system to help troops more accurately navigate in India's numerous remote and GPS-denied areas, our portfolio has been designed to modernise military fleets to maximise mission success and readiness. With safety a top priority in the region, we'll also be showcasing our Health Usage Monitoring System (HUMS) technology, a sensor-based system that proactively measures the health and performance of mission-critical components along a helicopter drivetrain, and our Traffic Collision Avoidance System (TCAS) that improves pilot situational awareness and reduces the risk of in-flight collisions in busy skies. As well as maximising safety, these products also reduce unplanned maintenance costs and increase asset availability.

SP's: Can you elaborate on your involvement with P-8I progressing for Indian Navy, the IAF's C-130J and the MMRCA programme, as well as HAL's ALH, LUH, HJT??

Bhavnani: As with most military platforms, Honeywell has a range of standard-fit technologies on-board these aircrafts, spanning both avionics and mechanical. Honeywell has components on each of the platforms mentioned insuring a steady growth of our presence in India. Because we have the capabilities right here in India, we are well placed to provide maintenance, servicing, logistics and other service and support requirements to keep the aircraft in the best operational condition.

And when the time comes for major upgrades and overhauls, as in the case of Jaguar, we have large-scale technology solutions to help the IAF extend the life cycle of its fleets, improve performance and maximise mission success. Because of the wide range of platforms in service, and being considered by the Indian Air Force, it is very important that we organise and develop long-term support capabilities in India and in conjunction with our long-standing partners such as HAL. •

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RAFALE

The Rafale is slated to become eventually the sole type of combat aircraft operated by the French Air Force and French Navy. As a result, with the programme totally secured by a French Government commitment for around 300 aircraft, among which 180 are already on firm order, the Rafale is in production and more than 100 aircraft are now in service. Everything that is necessary to maintain its combat relevance will be done.

Starting in 2013, the Rafale "Omnirole" fighters will be delivered with the "Active Electronically Scanned Array" (AESA) RBE2 radar. They will also be fitted with a new missile launch detector and a "Front Sector Optronics" updated unit (FSO-IT), offering improved target detection and identification performance. Meanwhile, engineering work is already being done to further extend the air-to-air and air-to-ground capabilities and the connectivity of the Rafale well into the next decade.

The ongoing effort will ensure more robust detection, tracking and identification of emerging air-to-air threats, and increase the Rafale's survivability with new low observable modes and with the latest advances in electronic warfare systems. Air-to-surface capabilities could benefit from assisted target recognition and enhanced sensor resolution, enabling the Rafale to attack ever more elusive targets. New materials could extend the life of engine components. And the connectivity of the Rafale will be further extended to keep it "plugged" into tomorrow's integrated battlespace. •

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■ **Dr. Kaustubh Nande, Manager, Marketing ANSYS**

***SP's ShowNews* (SP's): Can you tell us about the recent achievements of ANSYS and throw light on the company's current ventures?**
KaustubhNande (Kaustubh): In the last couple of years we have had significant acquisitions, addition of partners, sales and support staff and developments on the product side. These all add up in creating more value for our customers.ANSYS has today built its position as a leading engineering simulation software provider.With the acquisition of Esterel Technologies in 2012, ANSYS has extended its capabilities to embedded software simulation and code production – enabling rapid, reliable and cost-effective design of smart product systems. The company continues its strategy of offering the most comprehensive multiphysics engineering simulation software offer available.

SP's: Tell us about your immediate plans for India and cooperation with Indian armed forces. How do you see the Indian market?
Kaustubh: The Indian armed forces through DRDO organisations have several initiatives that vary dramatically. Overall fleet modernisation, surveillance and space applications are some of the areas where products and engineering resources seem to be devoted. Unmanned aerial vehicles (UAVs) particularly are gaining traction as they are used for a wide spectrum of applications in the military today. Unmanned aircraft systems (UAS) represent one of the bright spots in the tightening of mature global defence markets as well as in emerging markets such as China and India. They are also a natural fit for the full portfolio of products – fluids, structures, thermal, EM and infrastructure – and hence represent a strong opportunity for ANSYS. Globally ANSYS software has helped UAV's designers to solve some complex engineering problems. For example, the ANSYS Suite of Solutions can help you understand UAV as a complete system.

SP's: What do you think that gives you an edge over your competitors?
Kaustubh: ANSYS offers a comprehensive range of engineering simulation solution giving users access to virtually any field of engineering simulation that their design process requires. Today, engineering simulation tools from ANSYS form a solution set of unparalleled breadth that goes well beyond FEA and CFD to include interoperative structural, fluid flow, thermal, electromagnetics and related technologies. As such, the company's products offer the ability to perform comprehensive multi-physics analysis, critical for high-fidelity simulation of real-architecture that integrates components – these capabilities make ANSYS a leading engineering simulation provider over the others.

SP's: Where do you see yourself five-ten years down the line—in India and the international market?
Kaustubh: ANSYS today has a global presence in more than 60 strategic sales locations throughout the world in addition to a substantial network of channel partners.The continued investment in the development of fully integrated CAE software and services has placed us at the vanguard of advances in engineering simulation. Everyone knows India is one of the fastest growing engineering simulation markets in the world with already a significant customer base for us. So our goal is to ensure that all product development companies in India embrace Simulation Driven Product Development – a vision that ANSYS is committed to in each of its territories.

SP's: What are the major offerings of ANSYS in aerospace and defence?
Kaustubh: ANSYS is uniquely positioned to offer the aerospace and defence industry a physics-based simulation tool set that is capable of addressing the entire breadth of applications without compromising the three critical factors to aerospace and defence: Accuracy, Robustness and Speed. This breadth and depth of capability enables the aerospace and defence industry to meet with confidence the challenges of evolution in technology today and the revolution in the technology of tomorrow. Leaders in the aerospace and defence industry focus on process and people as much as tools and the ANSYS simulation framework support, training and services are recognised as key enablers for maximising the return on investment in physics based engineering simulation.

ANSYS' vision is uniquely positioned to enable Indian aerospace companies to move beyond solvers and maximise return on investment via physic-based simulation technology. •

CAE and InterGlobe to Open New Delhi Aviation Training Centre this Spring

Facility to train up to 5,000 pilots and maintenance personnel annually

A joint venture of CAE and InterGlobe Enterprises will open a new pilot and maintenance technician training centre near New Delhi's National Capital Region. The facility will eventually have capacity to train up to 5,000 pilots and technicians annually for airlines in India and the neighbouring region.

Rahul Bhatia, InterGlobe Group Managing Director, said, "We are delighted to collaborate with CAE to bring to the National Capital Region a world-class training facility. This training centre will be pivotal to meeting the needs of the civil aviation community in India and offer access to globally benchmarked training technology and solutions to aviation personnel here."

CAE's Jeff Roberts, CAE Group President, Civil Simulation Products, Training and Services, said, "The New Delhi training centre is a testimony to our continued long-term commitment to serve the growing needs of the aviation industry in India. This will be the fifth CAE aviation training facility in the country, and our entire focus at these training centres is enhancing the safety and operational efficiency of our customers."

THE CAE 7000 SERIES SIMULATOR

The training centre will be located at 1.5-hectare area in Greater Noida Industrial Area, about 40 kilometres from New Delhi.

The focus of the New Delhi training centre will be to provide "wet" and "dry" type-rating, recurrent, conversion and jet indoctrination training for commercial aircraft pilots. Programmes will also be offered for maintenance technicians. The new training centre will become part of the Airbus-CAE flight crew training services cooperation agreement.

The New Delhi training centre will initially house four full-flight simulators and will be capable of expansion to eight simulator bays. Advanced training technology will be used such as CAE Simfinity multimedia classrooms, computer-based training and brief/debrief facilities.

CAE also operates a training centre for airline pilots in Bengaluru. •

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Embraer means more than airplanes. It also means security. And now is the time to reflect that reality in a new name: Embraer Defense and Security. With over 40 years of technological development, and 30 Armed Forces deploying our products, we help protect countries through solutions that integrate a wide range of platforms, software, and services. The result is high security and surveillance capability for military as well as for critical infrastructure, natural resources, and public events. Not to mention the preservation of a cherished way of life, and a nation that sleeps soundly at night.

EMBRAER
Defense and Security

Rockwell Collins Growing Presence in India

As the tenth largest economy in world and with GDP forecasted to grow at 8 per cent annually, India is a critical growth market for Rockwell Collins. Increasing air traffic and ongoing regional security threats are driving spending on programmes in both commercial and government sectors.

Rockwell Collins Offerings for India: Rockwell Collins sees significant business opportunities for communications upgrades, network-centric warfare, soldier modernisation, air transport, business aviation and security and defence markets in India. The company's strength in network-enabled communications, advanced, integrated avionics and communication systems for military fixed- and rotary-wing aircraft, precision navigation and nose to tail systems for unmanned aerial vehicles (UAVs) aligns well with India's needs.

Rockwell Collins provides proven radios for fixed- and rotary-wing aircraft that are commonplace on aircraft worldwide, including:

- The Rockwell Collins HF-9000D light-weight airborne HF radio is a highly versatile, all solid-state, digital, high frequency radio communication system intended for both fixed- and rotary-wing airborne applications. Advanced features include digital signal processing technology to provide new embedded features in an exceptionally light-weight, compact system.
- The Rockwell Collins ARC-210 /TALON programmable digital communications systems provide superior V/UHF performance and interoperability between ground and airborne military forces and land-based civil agencies. The 629F-23 is the first ARC-210 with software loads tailored to customer requirements, including the TALON waveform. The next-generation TALON 2 Software Defined Radio (SDR) will feature an expanded frequency range and air-to-ground Mobile Ad Hoc Networking (MANET), via the tailorable FlexNet-Waveform.

For fixed site applications, the 721S transceiver offers the latest in V/UHF capabilities with the flexibility of Ethernet and Voice over IP (VoIP) ground-air-ground communications; the URG III family offers superior HF communications enhanced by Wideband Data Transfer. In addition, the 721S or URG III can be coupled with Rockwell Collins SubNet Relay and High Speed Modem products to create ad hoc, dynamically reconfigurable data networks with data rates up to 1.92 Mbps.

For ground mobile applications, the FlexNet™ family of software defined radios – developed in collaboration with Thales – enables interoperability for joint coalition forces. FlexNet radios include the FlexNet-One compact high-capacity, single-channel radio and the FlexNet-Four versatile multi-channel radio. Both radios are capable of supporting the FlexNet – Waveform for high data-rate ad hoc networked communications as well as other India unique waveforms.

Customers: Examples of Rockwell Collins customers doing business in India include the Hindustan Aeronautics Limited's transport aircraft, communication equipment through ECIL, original equipment manufacturers such as Boeing and Airbus, and numerous commercial airlines. In addition, Rockwell Collins has multiple ARC-210 and Talon radio systems on many transport and helicopter platforms

Hyderabad Engineering Design Centre: In 2008, Rockwell Collins opened a design centre in Hyderabad to augment the company's existing engineering capabilities. The India Design Centre (IDC) was created to help Rockwell Collins expand its global footprint, meet the needs of customers in this region, and increase access to high-quality engineering and design talent. This centre also enables Rockwell Collins' engineering teams to work collaboratively around the world and round the clock to develop innovative solutions.

Rockwell Collins' IDC is dedicated to product development for global markets with initial work focused on the design of display applications for commercial and military customers and flight management systems. The IDC currently has 500 employees with plans to grow to 600 by the end of 2013.

New Delhi: Rockwell Collins opened a new facility in Gurgaon, Haryana, near New Delhi in 2011. This facility houses the business development, programme management, systems engineering and related support activities for net-enabled communications, navigation, surveillance, displays, sensors, simulation and training and integrated systems and sub-systems for airborne, ground and maritime applications.

Leadership: Thud Chee "TC" Chan is Vice President and Managing Director of the Asia-Pacific region. Chan has more than 18 years of aerospace industry experience, most recently as Vice President and General Manager, Customer Service – Asia-Pacific for Goodrich Aerospace. He works out of the Rockwell Collins Singapore office location.

Ram Prasad is Managing Director of Rockwell Collins' India operations. Prasad has over 20 years of experience in aerospace and defence engineering and management, with management positions at Honeywell and the Aeronautical Development Agency, and as squadron leader in the Indian Air Force. •

THE NEW

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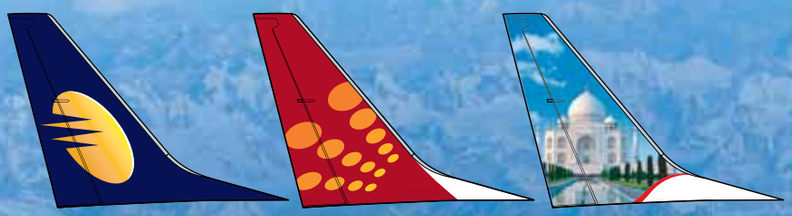

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BOEING

'The US-2 is a tried and tested amphibious aircraft'

■ **Kanji Ishimaru, Managing Director, ShinMaywa Industries India Pvt Ltd**

***SP's ShowNews* (SP's): ShinMaywa is a recent entrant into the Indian Aerospace segment. Can you please enunciate your company's profile, past achievements and business development?**

Kanji Ishimaru (Ishimaru): About 90 years ago, ShinMaywa Industries began its business operations as the Kawanishi Machinery Company when the Kawanishi Type II seaplane was manufactured for the then Imperial Japanese Navy. It was a leading aircraft manufacturer for many decades. After World War II, the company utilised its expertise in the aerospace segment to diversify into special purpose trucks and industrial machinery for many customers. Later, the company was renamed ShinMaywa Industries Ltd (ShinMaywa meaning new, bright and harmony) and expanded its business to once again start manufacturing seaplanes. Since then our product range has expanded to include passenger boarding bridges, environmental systems, pumps, direct drive motors, automated car parking systems, etc. We now have customer network in over 100 countries with overseas manufacturing plants in five countries. ShinMaywa has recorded sales of about $1.3 billion last year. ShinMaywa is committed to substantial contribution in the social sector and upliftment of weaker sections of the society. Our corporate policies attach great importance and priority to safety and quality standards, work ethics, efficient production, delivery schedules and costs in all its operations. The company has supplied about 50 seaplanes to the Japanese Maritime Self Defence Force (JMSDF). Its latest product is the US-2, which is in operational service with the JMSDF since 2007.

SP's: What are the characteristics and operational capabilities of Seaplane US-2 which may be of relevance to the Indian Navy's mission assignment, and could this platform be of utility to the Indian Army and the Indian Air Force?

Ishimaru: The US-2 is a tried and tested amphibious aircraft which has served the JMSDF extremely well for over five years. Important characteristics of this aircraft include its capability of landing and take-off in high seas in rough sea state condition (up to sea state 5). In addition, to the central role of long-range search and rescue (SAR) and exclusive economic zone (EEZ) surveillance, this aircraft can be highly useful in conducting anti-piracy missions, long-range fleet support, remote island support and constabulary operations like fishery protection, prevention of toxic dumping at sea, illegal human migration and smuggling of weapons and drugs. For most of the stated missions, the Indian Navy is currently deploying its sophisticated and high technology warships, incurring heavy costs on prolonged deployments. Additionally, we also believe that the unique capabilities of the US-2 amphibian aircraft can be gainfully utilised by the Indian Army as also the Indian Air Force in high-altitude areas, river/lake operations and for transportation and medical evacuation of people and stores from remote areas and forward locations. The US-2 can also carry out complex HAND and disaster management operations. As you can see, US-2 is a very versatile aircraft and is capable of undertaking multifarious and highly useful roles. At the same time it provides the users with low-cost solutions to the low levels of security, surveillance, rescue and constabulary operations. Accordingly, we have offered the same US-2 to the Indian Navy.

US-2

SP's: What are the unique technology features inducted which make US-2 amphibian aircraft a versatile platform to operate at sea on multifarious missions?

Ishimaru: The US-2 amphibian aircraft with its matchless short take-off and landing capabilities, its unrivalled sea keeping abilities and outstanding endurance is ideally suited for all benign and constabulary missions of a modern navy. The short take-off and landing (STOL) technology is based on boundary layer control (BLC) which allows ultra-low speed operations and introduction of spray suppressor technology to enable rough sea operations in waves of up to three-metre high, which no other aircraft has achieved, so far. It also requires the least take-off and landing distance whether on land or sea, the longest range, the highest payload and is the only aircraft in its class which is proven, in-service and certified/ruggedised for military specifications. Its radar system combines both weather and surface surveillance and it has the most modern avionics, aero engines and a rugged aerostructure. Most of all, it is high quality ahead in the art product.

SP's: For how long have been the footprints of ShinMaywa in India and what is your vision on business development in this country?

Ishimaru: ShinMaywa began its business operations in India almost 20 years ago. We already are a major supplier of passenger boarding bridges and wire terminating machines to Indian customers. Our present focus is to introduce the US-2 in the Indian Navy. All our products are of unmatched quality and use very powerful modern technologies that meet the aspirations of modern customers for best in class products. However, we wish to expand our operations in a calibrated manner which ideally suits the Indian business environment and will best contribute to the needs of the Indian armed forces as well as other customers in India.

SP's: What is your long-term perspective on expanding your product range and business relationship in India?

Ishimaru: We have responded to the Indian Navy's request for information (RFI) for the amphibious aircraft. In addition, we also have regular queries for our other engineering products and environmental systems. The long-term aim is not to just establish a typical "buyer-seller" relationship by selling state-of-the-art products, but we also intend to manufacture locally the service and maintenance facilities of some of our products in India, involve the Indian MSME in our supply chain, work with Indian design and engineering companies for new products and perhaps also engage with Indian academia. That would help in bringing new technology and capability for the Indian industries. We are here in India to establish a long-term relationship and we plan to grow in a calibrated and systematic manner. •

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Our ideas, like our technologies, take flight over India every day.

Over 40 years ago, Honeywell began its investment in India with a vision to strengthen both our presence in India and our strategic relationships with Indian industry. Today, our commitment to India continues, with thousands of employees focused on delivering new technologies that reduce lifecycle costs while impoving safety and efficiency. Working with the government, continues to deliver innovative new products, services and technologies that make aviation safer, smarter and more energy efficient - for today and for the future.

Honeywell

For more information email aerospace.india@honeywell.com

'Big-ticket deals open up huge offset market'

The acquisitions in the aerospace and defence sector which are happening at a rapid pace in India have opened the floodgates for foreign investments in India, thanks to the offset initiatives the Government of India has put forth. The offset procedures need due diligence and Offset India Solutions (OIS), which is an advisory and project management company, has been addressing precisely these requirements of foreign primes.

■ **N.K. Sharma, CEO, OIS Advanced Technology Pvt, Ltd**

BY **R. CHANDRAKANTH**

***SP's Shownews* (SP's): With the opening up of the aerospace and defence sectors, modernisation of the armed forces, increased investments in homeland security, the offset opportunities must be humongous. Could you estimate what kind of offset opportunities exist in the country in the next couple of years?**

N.K. Sharma (Sharma): No doubt the opportunities in offsets mandated through the various acquisition programmes of the Government of India (GoI) in the aerospace/defence/homeland security sectors provide various avenues. This includes manufacturing of components/sub-assys locally (built to print/built to specifications). The foreign OEM primes can also employ sub-systems available locally and integrate them in their main equipment. Outsourcing by OEMs in the area of engineering and design activities has also taken off. Services is yet another major area where OEMs are banking on local support, for instance, framing and imparting training, assistance during trials of equipment, providing maintenance support etc. FDI in the key technologies is always a preferred area and foreign OEMs are slowly realising the potential of local skills in the area of designs, activities related to IT and abilities to provide value engineered products. Possibly in the near future, outsourcing in this segment may be on increase though gradually and cautiously. Thus the spectrum of activities under the offset regime is quite large.

SP's: Have the offset opportunities gone unutilised in the past, if yes, why?

Sharma: Consolidated published data across the sector giving indication on the quantum of offset opportunities gone unutilised is possibly not available. It is, however observed that the implementation of offsets has not taken place in the manner as envisioned or estimated at the planning stage. You do notice contracts where though broad areas and gross values of offsets are identified, but when viewed with regards to data of actual finalised and assigned 'offset work packages' (detailed cost/delivery schedules), there are large gaps yet to be filled up. There is a view by some OEMs that Indian industry is not mature enough to qualify and take on large offsets. It has also been expressed that the earlier version of Defence Procurement Procedures (DPP) did not provide enough avenues and need certain amendments retrospectively to ease in the implementation of offsets. This is under the background that amendments in DPP introduced in year 2011 and 2012 have brought out measures which are considered to result in improved utilisation of contractual offsets, for instance, opening up of civil aerospace and homeland security segments to qualify, multipliers for SMEs, and in key technologies, increasing the time period for banking offset credits, etc.

SP's: What are the main challenges that OEMs face when it comes to doing business in India and is compliance with offset norms difficult?

Sharma: Defence and aerospace industry in India is not as mature as this segment in some of the western countries. Systems and procedures are not fully formulated which is one of the essential requirement. SMEs in most of the countries as tier-II or tier-III suppliers are the recipient of major part of business. During the process of selection and assessment of vendors by OEMs, often there are observations that companies and SMEs, in particular, lack in maintenance of detailed documentation, requisite quality systems, mandatory certifications, general aesthetics and degree of confidence to deliver contracted items in promised time frames, as part of supply chain management. The industry as a whole is also not fully equipped to handle the large obligatory package of offsets, particularly when offset work packages include higher value items like sub-systems, integration activities. Absence of a single body to address all issues of OEMs, time bound responses to them are often cited as some of the suggestions. Notwithstanding that, recent amendments in DPP when put to practise will certainly pave way towards increased compliance.

SP's: Do you think the offsets have augmented defence R&D and developed the civil aerospace and internal security?

Sharma: Strength in R&D is an important requirement for companies which are interested in the domain of defence and aerospace industry on long-term basis. Defence Procurement Procedures provide avenue for OEMs to make FDI in the area of R&D, be it technical know-how, ToT or joint development. But generally concrete and valued programmes under the R&D category have not taken off as foreign OEMs are reluctant to provide core knowledge for fear of creating future competitors. The present situation when there is a large unfulfilled obligations by OEMs as mandated, there are possibilities that the defence R&D base may get built up, may be in a gradual manner through higher stimulus packages by GoI. In order to get boost in R&D through offsets, the industry as a whole, both system integrators as well as SMEs, must have themselves fully prepared, through streamlining their internal procedures/systems and establishing essential infrastructure. Offsets in the civilian aerospace and homeland security has been opened up not long ago. At the same time, offshoots of technology from defence and aerospace will open up opportunities as several technologies are common in both the domains. Therefore one can expect growth in these areas probably at the similar pace.

SP's: Is it true that the Indian industry is not capable of absorbing the heavy flow of offsets, as perceived by foreign vendors?

Sharma: Indian industry has always risen to the occasion and has demonstrated its capabilities at par with some of the best industrialised sector, for instance, automotive industry, information technology, etc. The defence offset business being relatively new, the industry is slowly gearing itself to meet the challenges. This sector is characteristic of being high in technology and quality and flow of business may not be steady, driven by market forces. One has to therefore permit time for industry to understand all fundamentals and nuances. I think some support from the government in creating the essential infrastructure will provide the necessary catalytic effect. The view of foreign OEMs as stated is based on their observations due to lack of structural approach in India and that the large base of smaller companies is not adequately organised.

SP's: Could you tell us how Offset India Solutions/OIS Advanced Technology and group companies have helped in realising some of India's dreams of indigenisation, transfer of technology, etc?

Sharma: Offset India Solutions is an advisory and project management company and has been addressing the offset requirements of foreign prime OEMs. The execution part of offsets is looked after by OIS Advanced Technology (OIS-AT). OIS-AT, apart from this, is also involved in upfront development of selected high-technology products through its own funding. This is to meet the domestic requirements as well as supply of products to international markets both as exports as well as a means under the offsets programme. OIS-AT is gradually bringing up key technology products through indigenous development, and with its own IPR, provides advantages of local product support, supply of upgrades in future, keeping track of technological changes. With effective networking of foreign OEM primes and Indian companies under the offset business, there are bound to be upward trends in improved manufacturing and R&D leading to self-reliance.

SP's: Do you think the offsets need to be further tweaked?

Sharma: Although the Government of India has introduced various amendments in policy and implementation part under the DPP to facilitate the development of business under aerospace/defence/homeland security, I feel, there is need to introduce a few more measures to kick-start towards improved implementation. For instance, easing the process of grant of industrial licence to SMEs, removing anomalies of taxes (excise, VAT, Custom duties etc. among all the stakeholders), providing institutional help to SMEs by creating and making available necessary infrastructure (specialised test labs, certifications, applications oriented institutes), providing soft loans to SMEs, creating offset fund for promoting R&D activities etc. This initial handholding will go a long way in giving a boost to indigenous industrial base in defence and aerospace sectors. •

India An Exciting Biz Jet Market

■ **Jose Eduardo Costas, Vice President, Marketing and Sales – Asia Pacific for Embraer Executive Jets**

***SP's ShowNews* (SP's): Can you give a brief background of your company's association with India?**
Jose Eduardo Costas (Costas): Embraer has a strong presence in the Indian market and counts the national government, private corporations and individuals as customers and operators of a significant number of in-service Embraer jets in executive configuration.

With 18 jets based in India presently, the country is home to over a third of the more than 40 Embraer jets in executive configuration in the country, with at least one 'type' from Embraer's family of Phenom, Legacy and Lineage jets, in service today. Embraer's executive jets based in India today represent over 10 per cent of the entire fleet of executive jets (160+ jets according to CAPA) in service in India today.

In addition, the Company's Defense and Security business area is in collaboration with India's DRDO for the development of three bespoke EMB 145 platforms for use in AEW&C missions. The Indian Government also operates five Legacy aircraft for the transport of VIPs and dignitaries. The Indian Air Force (IAF) operates four of these jets, and the Border Security Force (BSF) operates one.

SP's: What are the activities you are focusing on currently and how do you foresee the future in India?
Costas: We have a robust line of executive jets and promote them all, as they each meet different needs and purposes, so it's a matter of matching the best possible plane to the prospective customer, so they and the plane receive the optimum result from their relationship.

In India, we continue to market all our seven biz jets, participate in shows such as Aero India, bringing our aircraft to prospects and customers so they experience the full benefits – both operationally as from a passengers' point of view – of the plane, and are a member of the local aviation organisation BOAO. We are optimistic and confident our association and business development activities in India will not only contribute to the development of the industry in the country, but also see the growing maturity and sophistication of the industry in India.

SP's: What makes you feel that India is an exciting market?
Costas: First of all, business aviation is still in its infancy in India and there is much potential for growth in terms of the development of the industry, such as to increase the use of business jets and in so doing, contribute to the economy through the development of infrastructure like FBOs, aviation services catering to biz jets, and event related industries like travel, hospitality, etc. India's leading 500 companies generate almost $1 trillion in annual revenues and corporate profits have increased almost 50 per cent in just three years. These are encouraging signs for us.

As more businessmen and travellers discover the productivity value of business jets, and therefore a necessity rather than a luxury – especially for business productivity – we are optimistic biz jets will be more in demand, and we have products to cater to every kind of need.

There is also the opportunity for fleet renewal – almost 60 per cent of all biz jets in India are over six years; more than half this number of jets are older than 10 years so its timely for owners and operators to review their fleets for reasons of safety and also upgrades in technology today allow for more efficient jets to be used.

SP's: What capabilities you plan to showcase during Aero India?
Costas: Embraer will promote its full portfolio of its Executive Aviation, Commercial Aviation and Defense and Security products and services. Three of the Embraer Executive Jets aircraft will be on static display: the entry-level Phenom 100, the long-range Legacy 650 and the ultra-large Lineage 1000.

SP's: Would you like to refer to any important innovation of your company?
Costas: To pinpoint a single innovation project for the moment, it would have to be the Legacy 500 midsize biz jet that has already completed its first flight and is undergoing its flight test phase currently, ahead of its entry into service in 2014. The Legacy 500 is set to raise the bar in terms of technology, performance, style and comfort for future designs, to break through the traditional midsize jet envelope to offer something that has never been done before.

For instance, it is the only midsize jet to incorporate fly-by-wire technology, and in doing so, enable more precision, efficiency, safety and comfort every time the aircraft flies. The aircraft also offers a 6-foot tall standup cabin, fully flat floor and a full wet galley, among other features, that will make it the foremost aircraft in its class.

LUXURIOUS INTERIOR OF LEGACY 650

The Legacy 500 is the sixth aircraft in its robust portfolio of seven aircraft which span almost all categories of executive jet types. The midsize Legacy 500 will be followed by Embraer's fourth clean-sheet design, the mid-light Legacy 450, which will enter service one year later.

Innovation however, is part of our heritage and DNA, and we practise innovation daily at Embraer. Past examples of innovative behaviour include the way the company married technological knowledge with entrepreneurial ability in 1994 during its privatisation, developing cutting-edge, game-changing aircraft for use in the commercial aviation market, diversifying its portfolio thereafter to offer products for executive use and then translating that into a wholly sustainable business unit with a robust line of seven jet aircraft for executive use.

Innovative projects and programmes are always being worked on at any one time at Embraer, and this is reflected also in our annual investments in research and development, which last year was $360 million. •

Sikorsky

Sikorsky S-70B helicopter

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Battle-proven technology. State-of-the-art equipment. The S-70B protects above and below the water with anti-submarine / anti-surface mission solutions. Its array of field-proven capabilities and mission-adaptive systems makes the S-70B the world's most capable maritime helicopter. Sikorsky: a business unit of United Technologies.

United Technologies

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Kazakhstan takes delivery of two C295

Kazakhstan has taken delivery of the first two C295 transport aircraft that it ordered last year, marking Airbus Military´s entry into the Commonwealth of Independent States (CIS) regional market.

The aircraft, the first two on firm contract and a further six on options to be progressively confirmed in the coming years, were formally handed over in Sevilla before the ferry flights, via Astana, to Almaty, where they will be based.

They were earlier technically accepted in Sevilla by a combined team of Kazspetsexport, the Kazakhstan Ministry of Defence, and the Kazakhstan Air Force. Both aircraft will be used in support of transport missions throughout the nation´s vast territory. The purchase contract additionally covers the related service support package for spare parts and ground support equipment.

Airbus Military Senior Vice President Commercial, Antonio Rodríguez-Barberán, said: "We greatly appreciate the high level of professionalism and strong commitment shown by the relevant Kazakh institutions in ensuring the smooth and mutually rewarding execution of this agreement. It is a great pleasure to welcome the Air Force of Kazakhstan into the worldwide family of C295 operators and we are committed to providing the required level of support for our new customer for many years to come." •

C295 ideal for defence and civic missions

The new generation C295 is the ideal aircraft for defence and civic missions to the benefit of society, such as humanitarian actions, maritime patrol, and environmental surveillance missions, amongst others. Thanks to its robustness and reliability, and with simple systems, this medium-sized tactical airlifter provides wide versatility and flexibility, necessary for personnel, troop and bulky/palletized cargo transportation, casualty evacuation, communication and logistic duties or certified air-dropping capabilities. Its mix of dual technology civil/military equipment ensure success on demanding tactical mission, growth potential for future equipment as well as compatibility with the latest civil airspace environment. The C295 is part of Airbus Military's family of light and medium airlifters which also include the smaller C212 and CN235 platforms. •

First production A400M in French Air Force colours

The first production A400M 21st century airlifter can be seen for the first time in the colours of an air force in this latest picture of the aircraft in the Airbus Military final assembly line (FAL) at Seville, Spain. The photograph shows MSN7 in the colours of the French Air Force, thus passing another milestone in the A400M programme towards first delivery, scheduled for the second quarter of this year.

The A400M is an all-new military airlifter designed to meet the needs of the world's armed forces in the 21st century. Thanks to its most advanced technologies, it is able to fly higher, faster and further, while retaining high manoeuvrability, low speed, and short, soft and rough airfield capabilities. It combines both tactical and strategic/logistic missions. With its cargo hold specifically designed to carry the outsize equipment needed today for both military and humanitarian disaster relief missions, it can bring this material quickly and directly to where it is most needed. Conceived to be highly reliable, dependable, and with a great survivability, the multi-purpose A400M can do more with less, implying smaller fleets and less investment from the operator. The A400M is the most cost-efficient and versatile airlifter ever conceived and absolutely unique in its capabilities. •

Flight departments everywhere are under pressure to deliver more for less. The King Air 350i lets you do just that, without compromise. Its unsurpassed versatility and payload, combined with class-leading range and efficiency, carries more people farther at lower cost than any other aircraft. More for less, or the ideal stable mate? How about both. *We build aircraft you can believe in.*®

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Beechcraft

FIPB approves Telephonics JV with Mahindra

Telephonics Corporation, a world leader in fully integrated, advanced sensor and communication systems technology serving aerospace, defence and commercial markets. Whether it is in the air, on the sea, or on the ground, Telephonics electronic systems are on board to ensure the safety and security of thousands of military personnel and civilians worldwide.

■ **Joseph Battaglia, President & CEO, Telephonics**

BY **R. CHANDRAKANTH**

***SP ShowNews* (SP's): Could you briefly tell us about Telephonics' range of products, technological advantages, global presence and presence in India?**
Joseph Battaglia (Battaglia): Telephonics produces a wide array of radar, IFF, intercommunication, border surveillance and air traffic management solutions for military and commercial applications worldwide.

We command a significant market leadership position in the airborne maritime surveillance space, including the largest unit-production multi-mode radar-IFF programme – the AN/APS-153(V) – for the MH-60R maritime strike helicopter. Lighter weight versions of multi-mode radar include our APS-143C(V)3 system that is on the P-8i and the AN/ZPY-4(V)1 that has been selected for the Fire Scout programme for the US Navy. These are truly exceptional capabilities, unmatched in the market. The APS-143C(V)3 product line, for example, booked over 40 systems in the last fiscal year alone – that is exceptional for products in this class of sensor.

Our IFF product line includes the only fully US DoD AIMS certified all-mode IFF interrogator – these are high performance surveillance interrogators that enable missions on the world's AWACS fleet, and have also been successful in ground-based applications like the USMC G/ATOR programme and several ship-based applications. In addition to high performance, I believe we have the most flexible interfaces so integration with the primary radar and the weapons system is much lower cost and much lower risk than with competing systems. Beyond that, the advanced monopulse processing techniques employed in these systems lend themselves to much greater probability of detection, track accuracy and interrogation management. We have recently added the ability to receive ADS-B in these systems as well. The intercommunication capabilities we deliver are just as exceptional – Secure Digital Wired and Wireless solutions to meet the needs of any platform in any environment. We have a flexible and tailor-able solution set that we really have no equal in this space – our systems enable complete communication management in every branch of the US military and several international fleets – here is a great example: we provide the communications management system for the Boeing C-17 and have fully certified wired and wireless solutions for that aircraft and the Lockheed Martin C-130J. Our wireless TruLink product line is on demonstration at Aero India – the fully secure "NAS Type 1" encrypted model was recently approved for full-rate production in the US Army and is just one example of the encryption capabilities we can deliver our customers in the wireless environment. We think there is huge potential for these systems in India.

Another huge potential for us in India is border security solutions. Recently the Ministry of Home Affairs released a request for expression of interest (EoI) that covered a wide array of border operating environments in India. I think our mobile surveillance capability (MSC), a system just now completing final acceptance for the US Customs and Boarder Protection Service, is ideal for these widely varying operating environments and we plan to bring a system to India for trials and adaptation to the Indian operating environment. This is a very exciting opportunity for us. We have the right solution for these challenging environments ready today. So our product line is really an excellent match with our understanding of the current and near future needs of the Government of India and we are very pleased to be here with our partner Mahindra Defence Systems.

SP's: Could you give an update on the joint venture with Mahindra & Mahindra (M&M)? Will it be used only for the Indian market or for export purposes as well?
Battaglia: I am happy to say that we have just received FIPB (foreign investment promotion board) approval for our joint venture with Mahindra Defence Systems (a wholly-owned subsidiary of Mahindra & Mahindra). While our initial focus is certainly to promote, manufacture, support and adapt Telephonics proprietary products for the Indian market, we have structured our business to be flexible enough to address regional markets in the future. There are several avenues to success for this venture – it will be the first to provide the wide array of products in the aerospace and defence electronics market using US technologies in a non-government aligned company. Of course, there is probably not a defence company in India that is not looking at the large offset obligations building up from Indian defence procurement and planning a way to make satisfying those offsets a core component of their business plan. The difference with us is that we already have decades-long, highly successful relationships with companies like Lockheed Martin, Boeing Corporation, Northrop Grumman, Sikorsky Aircraft, AgustaWestland, Airbus Military, Textron and many others.

SP's: Does India have the necessary eco-systems for setting up high technology applications manufacture? Will it involve huge investments?
Battaglia: We will indeed be supporting a robust supply-chain development effort here in coming months. This is probably one of the top two or three essential elements of our execution plan – supply-chain development. And we are very focused on that. Our team is also very focused on the recruitment, retention and training of a world-class workforce and we strongly believe that is possible in Bengaluru with all of the high-tech and aerospace industry already operational here. It will take time. But India is a very important market for us and for the US. We will make it happen.

SP's: What is the emerging dominating picture – whether it is civil or defence applications – for Telephonics in India?
Battaglia: Telephonics has traditionally been a defence company. And the planned modernisation of the Indian defence forces is certainly important for many international suppliers. We want to grow our air traffic management solutions in India as well, but the major thrust is defence and border security.

SP's: What is unique about Telephonics family of Identification Friend or Foe (IFF) systems?
Battaglia: Outside of India, Telephonics has produced the first all-mode IFF interrogator system for use on fixed and moving platforms. It is fully US DoD AIMS certified for operation in modes 1,2,3,C,4,5 and civil mode S. As a matter of fact, our interrogators are aboard most of the world's AWACS fleet and in the US Navy version of the P-8 aircraft. We have proposed using this well proven solution as a primary interface to the P-8i mission system and await word on the way forward here as well.

SP's: Could you give us an overview of the two other operating divisions – communication and integrated systems and Systems Engineering Group?
Battaglia: Well, as I mentioned before, the Communications and Integrated Systems division is an essential part of our India strategy and our joint venture here in India. The Systems Engineering Group is a division based in Columbia, Maryland, that supports the US Navy through various contracts as they develop missile defence capabilities – so we do not see a direct fit with India's requirements.

SP's: Air traffic management is a growing area in India, could you tell us whether the JV will take care of that too, if not what are the plans?
Battaglia: Absolutely, this is a great capability that we have in our AeroTrac NextGen system and it has been gaining pace in recent months with integrated system wins in Korea and China. Telephonics offers high-performance, affordable secondary surveillance radar solutions on a stand-alone basis or as part of an integrated solution together with primary surveillance radar and automation. Whether customers consider our automation system for primary or backup, we have an excellent solution set. Our user interface has been adapted to replicate with extremely high fidelity, the user interface of other leading ATM providers – so we can seamlessly provide primary / backup capabilities in important air transportation networks. That is one reason I feel we have been so successful in the Pearl River Delta, and why I think we will be successful here in India with ATM solutions as well. •

To compete in the world market we did a major step forward having accumulated the best industry resources and outstanding engineering expertise in a single corporation. The integration brings us strength to offer the market the best innovative solutions in the balanced product lines in commercial, military and transport aviation. In the challenging environment we grow open and build strong partnerships with the world industry leaders. We never stop nourishing fresh ideas and young talents who dare to look in to the future.

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HISTORY REVISITED: Lockheed Martin C-130 to C-130J Super Hercules

Year 1951, the US Air Force was seeking designs for an aircraft capable of hauling large bulky equipment, including artillery pieces and tanks, over long distances. It had to land in tight spaces, slow to 125 knots for paratroop drops, and fly, if need be, with one engine. What the Air Force wanted, in other words, was a tough, versatile heavy-lifter with plenty of "trunk" space.

Hall Hibbard, Lockheed's Chief Engineer, eyed the request and saw the potential. Design genius Kelly Johnson, by contrast, viewed it as a potential disaster, a diversion from the high-speed, high-performance jet fighters that were his focus.

"If you send that in," Johnson told his boss, Hibbard, referring to an early proposal for the aircraft, "you'll destroy the Lockheed Company." Hibbard didn't listen. When the prototype YC-130 taxied for its inaugural flight on August 23, 1954, it was clear to all—even Johnson— that the Lockheed engineers had forged something timeless out of a seemingly simple list of Air Force requirements. Later officially nicknamed Hercules, the prototype had a cargo deck that was capable of carrying an astonishing 300 pounds per square foot, lifted into the air after a ground roll of a mere 855 feet, an astoundingly short distance considering that most aircraft of that size required 5,000 feet.

BUILDING THE HERK

The creation of the C-130 Hercules came about largely as a result of America's experience in the Korean War. The US forces fighting along the 38th Parallel dividing North and South Korea quickly discovered that their aerial transports were ill-equipped for the missions at hand. Some were too heavy. Some needed longer runways for take-offs and landings. What the US military needed was a single versatile aircraft that could be used for any and all transportation needs—one aircraft that would perform the role of many and which is precisely what Lockheed's Hercules accomplished.

With a sweeping array of 23 cockpit windows allowing for clear visibility on steep approaches and high wings to operate from rough fields, the original C-130 Hercules was the antithesis of the sleek, speedy jets of its day. It had a low centre of gravity, reached 575 kmph, and boasted a large, easily accessible cargo area that could carry 40,000 pounds. But it was a key design element—instituted by a team that included Art Flock, Dick Pulver, Bill Statler, Gene Frost, and Chief Designer Willis Hawkins—that may have proven most useful for its longevity. The inclusion of four turboprop engines provided surplus power to pressurise the fuselage of the plane, including the cargo compartment, which was necessary to fly efficiently at higher altitudes.

WAR BIRD

The C-130 was pressed into action in Vietnam, where it picked up and dropped off troops and supplies in the most remote of locations. The C-130s are equipped to carry out low-altitude parachute extraction drops of cargo, which led to the plane's key role in the defence of Khe Sanh in 1968, when C-130s accounted for 90 per cent of the supplies used by troops defending the village from a North Vietnamese siege. As the war progressed, C-130s were modified into MC-130 Combat Talons, which not only picked up special operations forces in hostile territories but acted as flying gas tankers, orbiting in the sky as American rescue helicopters docked with them to refuel. Three decades later, Marine Corps KC-130J tankers were being fitted with missiles so crews could take out hostile targets on the ground in Afghanistan.

LIFESAVERS

For more than three generations, the C-130 has been there to help during devastating humanitarian crises. The people of the Congo, Somalia, Bosnia, Rwanda, Kosovo, Japan, and points all over the world, including New Orleans after Hurricane Katrina, have all benefited from the C-130's unparalleled delivery and air-drop capabilities, whether they were acting as a flying hospital or delivering hay to cows marooned by a snowstorm. Equipped with skis and Teflon-coated runners, the durable aircraft has earned great respect for safely delivering supplies deep into Antarctica or to the Greenland ice cap.

HURRICANE HUNTERS

The C-130—the latest C-130J Super Hercules in particular—is the airplane of choice for the Air Force Reserve Command's weather reconnaissance squadron, known as the Hurricane Hunters. They fly their WC-130Js straight into the eye of hurricanes, travelling from the outskirts of the storm to its centre and then out again. Perhaps most amazing is the fact that since 1974, no WC-130 aircraft flown by the Hurricane Hunters have been lost. That safety and performance record is a testament to their skill, and an example of the toughness of a 60-year-old Lockheed design that shows no sign of slowing down. •

Raytheon continues to build on its strong ties with India

For over 60 years, Raytheon has collaborated with Indian industries to support the nation's economy and technological capabilities. Through enduring partnerships that deliver engineering, project management and services support, Raytheon's Indian customers can draw upon the company's global presence, technological excellence and supply chain.

Raytheon has long supported civil aviation in India by selling and servicing business aircraft through our Beechcraft and Hawker representative, Indamar. Since 1995, Raytheon has supplied and upgraded air traffic control capabilities — including state-of-the-art radars and automation systems — at the Delhi, Mumbai and Chennai airports. This has helped modernise India's air traffic system to world standards.

In 2002, Raytheon and the US Government entered into a ground-breaking agreement in which India contracted to purchase 12 Firefinder ground weapon-locating radars. In 2004, Raytheon was contracted to update India's civilian air navigation system by supplying, installing and integrating a GPS and GEO augmented navigation (GAGAN) system.

Today, Raytheon stands committed to deliver next-generation solutions to customers and partners in India, including:

- Air and missile defence
- Other critical systems for national defence

- Soldier modernisation and battlefield management systems
- Global ISR
- Air traffic management
- Maritime, border, civil and cyber security

Each of these will help modernise critical capabilities, promote economic growth and strengthen a collaboration that spans over six decades of innovation. Raytheon looks forward to countless decades of continued partnership, and remains committed to working with India to save lives and infrastructure — and build a safer, stronger nation. •

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Boeing's FAQs on 787 Dreamliner

What actions are you taking to ensure the safety of the 787 Dreamliner?
A: There is no higher priority than the safety of passengers and crew members flying onboard our airplanes. Boeing is committed to supporting the US Federal Aviation Administration (FAA) and finding answers as quickly as possible. The company is working around the clock with its customers and the various regulatory and investigative authorities. We will make available the entire resources of the Boeing Company to assist. We are confident the 787 is safe and we stand behind its overall integrity. We will be taking every necessary step in the coming days to assure our customers and the travelling public of the 787's safety and to return the airplanes to service.

How long will 787s be grounded?
A: According to the FAA's recent announcement, operations can resume once airlines have demonstrated the batteries are safe. Boeing is working with the FAA to define that process and timeline.

What are you doing about this situation?
A: Boeing continues to assist the US National Transport Safety Board (NTSB) and the other government agencies in the United States and Japan responsible for investigating two recent 787 incidents. The company has formed teams consisting of hundreds of engineering and technical experts who are working around the clock with the sole focus of resolving the issue and returning the 787 fleet to flight status. We are working this issue tirelessly in cooperation with our customers and the appropriate regulatory and investigative authorities. The safety of passengers and crew members who fly aboard Boeing airplanes is our highest priority.

What is the issue with the batteries?
A: We are supporting the investigations that will determine the cause of the recent incidents involving 787 batteries. Until those investigations conclude, we can't speculate on what the results might be. There are multiple backups to ensure the system is safe. These include protections against overcharging and overdischarging.

The 787 uses electric motors and electric controls in places where earlier designs used mechanical linkages and hydraulic systems. Does this have anything to do with the batteries?
A: No. All modern jetliners have batteries. The 787's more-electric architecture has very little to do with batteries. The key innovation that enables the improved efficiency is the generation of more electrical power and the elimination of the high-pressure bleed air (pneumatic) system. The functions that were formerly powered pneumatically are now powered electrically. •

Source: Boeing

Boeing Statement on US National Transportation Safety Board 787 investigation update

Boeing has welcomed the progress being made in the 787 investigation discussed by the US National Transportation Safety Board (NTSB) in Washington, D.C. The regulatory and investigative agencies in the US and Japan have dedicated substantial resources to these investigations, and we appreciate their effort and leadership.

Boeing continues to assist the NTSB and the other government agencies in the US and Japan responsible for investigating two recent 787 incidents. The company has formed teams consisting of hundreds of engineering and technical experts who are working around the clock with the sole focus of resolving the issue and returning the 787 fleet to flight status. We are working on this issue tirelessly in cooperation with our customers and the appropriate regulatory and investigative authorities. The safety of passengers and crew members who fly aboard Boeing airplanes is our highest priority.

In order to ensure the integrity of the process and in adherence to international protocols that govern safety investigations, we are not permitted to comment directly on the ongoing investigations. Boeing is eager to see both investigative groups continue their work and determine the cause of these events, and we support their thorough resolution.

Boeing deeply regrets the impact that recent events have had on the operating schedules of our customers and their passengers. •

Source: Boeing

Boeing rolls out first 777 at increased production rate

Boeing has rolled out the first 777 to be built at the increased production rate of 8.3 per month, or 100 airplanes per year. The airplane is a 777 Freighter that will be delivered in this month to Korean Air.

The production increase began in October when the first airplane parts entered the Everett factory. Planning for the increased rate has been in work for almost a year.

"As we built the first airplane at the new rate, we saw some of the best production metrics ever," said Scott Fancher, Vice President and General Manager, 777 programme and Airplane Development. "Our factory is running smoothly and we've reduced the time it takes to build a 777 by one day from 49 to 48 days." New manufacturing innovations such as flex-track drilling in the body and wing panels, automated floor drilling and wings painting equipment also contributed.

"Employee involvement teams have been critical to the rate increase," Fancher said. "Ideas from those teams are saving time while improving quality and safety."

In the past 31 months, the 777 programme has increased rate two times. First from five to an all-time high production rate of seven in 2011, and now going beyond that to an all-time high rate of 8.3 airplanes per month.

At least 1,066 freighter 777 aircraft have been delivered till date and a total of 1,431 have been ordered from 66 customers around the globe. •

Boeing 737 programme starts building at higher production rate

Boeing has begun assembly of the first next-generation 737 to be built at the rate of 38 airplanes per month. Over the past two years, production of the 737 has risen more than 20 per cent, from 31.5 to 38 airplanes a month. In 2014, the rate will go up again to 42 airplanes a month.

Today mechanics completed loading initial parts of the spars—internal support structures in the wings—into an automated spar-assembly machine. The spar is the first step in building the wings and marks the start of major manufacturing for an airplane.

"The first spar load serves as the defining moment for our latest rate break, and the 737 team did it as planned, on schedule," said Beverly Wyse, Vice President and General Manager of the 737 programme. "We have more hard work ahead of us, but we are well on our way to another successful production rate increase."

Employee teams have been instrumental in reducing 737 production flow by developing and implementing innovative efficiency improvements. The first next-generation 737 built at the new rate is scheduled to be delivered in the second quarter of this year. •

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Rafael keen on expanding ties with India

Rafael Advanced Defense Systems is a steadily growing company with sales in 2011 exceeding $1,979 million, backlog orders exceeding $3,465 million, and net profits at a record level of $111 million. It invests 7 per cent of its sales towards R&D. The company has created partnerships with companies in Israel and with leading aerospace and defence companies overseas. Offset activities and industrial cooperation have been organised with over 20 countries worldwide.

■ **Major General (Retd) Ilan Biran, Chairman, Rafael**

BY **R. CHANDRAKANTH**

***SP's ShowNews* (SP's): Could you tell us from when Rafael started participating in Aero India and what has been the progress?**
Ilan Biran (Biran): Rafael has participated in the Aero India show for the last 18 years. Rafael considers this Bengaluru show an excellent platform to showcase its wide portfolio of solutions and systems for air applications. It is also an effective platform to hold meetings with our Indian and other international customers and users.

SP's: What will be the focus of Rafael at this year's Aero India event?
Biran: In the upcoming air show Rafael will display for the first time its entire portfolio of aerial solutions and systems:

Iron Dome is an air defence system to counteract short-range ballistic threats. Developed in less than three years, Iron Dome has in the last two years intercepted over 500 rockets that were fired into Israel from the Gaza Strip, with a success rate of over 80 per cent, most notably in the latest Operation Pillar of Defense last November.

SPYDER (surface-to-air Python & Derby) is a quick reaction, low-level surface-to-air missile system designed to counter-attacks by aircraft, helicopters UAVs and precision-guided munitions. The system provides effective protection of valuable assets, as well as first-class defence for forces located in the combat area. SPYDER incorporates Rafael's most advanced, proven performance air-to-air missiles—the Derby active radar (RF) missile and Python-5, a dual wave band imaging infrared (IIR) missile. The SPYDER family includes SPYDER-SR (short-range) and SPYDER-MR (medium-range) systems.

David's Sling is an affordable and lethal solution against long-range artillery rockets (LRAR), short-range ballistic missiles (SRBM), cruise missiles (CM) and traditional air defence threats. The system provides optimum protection for the homeland as well as forward deployed forces. David's Sling is in development by Rafael, in partnership with Raytheon USA. The system has already completed its first successful full interception test.

SP's: What new products/technologies are you bringing to India this time?
Biran: At Aero India 2013, Rafael will also exhibit in addition to its air defence systems other families of missiles with high commonality, for multi-platform applications:

Python-5 is the fifth-generation air-to-air missile that provides the pilot engaging an enemy aircraft with a full sphere launch capability. The missile can be launched from very short to beyond-visual ranges with greater kill probability, excellent resistance to countermeasures, irrespective of evasive target manoeuvres or deployment of countermeasures.

Derby is an active radar air-to-air missile that provides fighter aircraft with outstanding and effective performance in both short ranges and beyond visual range (BVR) intercepts. The missile enables operational flexibility and multi-shot capability. It can be launched at an enemy aircraft day or night and in all-weather conditions.

The Python-5 IIR, air-to-air missile, complements the performance of the Derby medium-range air-to-air missile. Both missiles are already operational in several air forces. Together they offer superior warfighting capability to ensure air superiority for pilots in the 21st century.

SPICE, stand-off, autonomous, air-to-ground weapon system hits and destroys targets with pinpoint accuracy and at high attack volumes. SPICE is in service with the Israeli Air Force and under contract with several international customers. SPICE is a guidance kit that can be mounted on general purpose and penetration warheads:

SPICE-1000 for 1,000 lb warheads such as MK-83/RAP1000/BLU-110 and SPICE-2000 for 2,000 lb warheads such as MK-84/RAP2000/BLU-109

The SPIKE Family consists of multi-range missiles suited for land, air and sea platforms, multiple ranges and a variety of targets. The missiles in this family have sophisticated electro-optic CCD or IIR sensors for day/night all-weather operation, as well as a tandem warhead. Their lofted trajectories enable the warhead to strike the target at its most vulnerable location with pinpoint precision. All of the SPIKE Family members have a low life-cycle cost, due to high reliability and operational and logistic support and production commonality between members.

ELECTRO-OPTIC SYSTEMS
Litening is a combat-proven multi-spectral airborne targeting and navigation pod. Designed for navigation and target illumination, Litening significantly enhances day and night attack capabilities.

RecceLite is day/night electro-optical tactical reconnaissance pod for real-time imagery collection and data transfer. Self-contained and self-cooled, the multi-sensor system is composed of an airborne payload, a wide digital data link and a ground exploitation station (GES). RecceLite is combat proven and in operation worldwide.

COMMUNICATIONS
ImiLite is a cost-effective advanced ISR exploitation system. The system is designed to receive, process and exploit multiple stand-alone imagery and video sensors, as well as other intelligence data, in a centralised and unified way. Utilising state-of-the-art image processing algorithms, the ImiLite ISR exploitation system enables efficient exploitation of all incoming data into a unified intelligence situational awareness picture.

Global Link is a wideband communication system that fulfills today's network-centric warfare communication requirements, and provides common data link connectivity for transferring tactical data of C4I applications.

SP's: India has shown interest in the Iron Dome systems. Could you give an update on the same? Python 5, Derby, Spyder, RecceLite, etc have been showcased at earlier Aero India events and they are here this time too. Is it difficult to convince the Indian market or such programmes take time to materialise?
Biran: Rafael does not elaborate on specific marketing processes before their completion and announcement by the customer. We do emphasise, however, that we consider Indias a strategic partner to Rafael, and as such, we will continue to offer it our wide variety of systems and capabilities, including knowledge and productions transfer, while taking into consideration the prolonged nature of procurement processes in the industry.

SP's: What is the status of the joint venture (JV) with Mahindra Defence? Any other JV in the pipeline?
Biran: We are engaged in joint ventures and partnerships with local Indian industries such as Mahindra, BDL and BEL and are on constant search to expand our activities in the country, in cooperation with the Defence Research and Development Organisation (DRDO), in order to better address local needs and requirements.

SP's: Besides India, which other countries in Asia have Rafael products?
Biran: Rafael holds dozens of partnerships and cooperation agreements with many countries, including with the United States, countries in Europe, Asia, South America and others. More than 60 per cent of our business is international. One of our strengths lies in the fact that we are Israel national laboratory, with an exceptionally capable workforce that provides the company the innovative and combat-proven solutions that it offers to its customers, such as the globally-unique "Iron Dome" and "Trophy" systems. Rafael is known for making systems that are flexible and adaptable to the customers' specific needs. •

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Increased use of simulation needed by India's defence forces

■ **Ananth Ramaswami**
Managing Director, CAE India

***SP's ShowNews* (SP's): How do you view the opportunities for simulation and training in India?**
Ananth Ramaswami (Ramaswami): We see bright future for simulation and training, and no shortage of opportunities globally, including here in India. Some parts of the global defence market are facing some very real and challenging fiscal restraints, while others like India have plans for growth in defence. In either case, defence forces are not going to accept anything that jeopardizes safety or readiness. The people in uniform all over the world are highly professional, and they have high expectations of themselves to not let readiness be impacted even in austere budget environments. CAE firmly believes that the increased and more efficient use of simulation is part of the solution to lowering costs without sacrificing readiness or capability, and we believe India's defence forces need to adopt an increased use of high-fidelity simulation and training systems. Simulation offers a number of benefits, notably safety and cost advantages, which simply cannot be ignored. The increased cost of fuel, environmental impacts, and significant wear and tear on weapon systems all point to the greater use of simulation. More importantly, simulation is the ideal tool for mission preparation and rehearsal, which is critical for ensuring readiness and doing so both safely and cost-effectively.

SP's: What needs to happen in India to shift more training to the virtual domain?
Ramaswami: Making the shift to more virtual training is not without investment, and not without challenges, the greatest of which may be changing behaviour. India's defence forces need to be ready and willing to do business a different way. For example, India needs to consider training options such as government-owned contractor-operated or contractor-owned contractor-operated training centres, such as the HATSOFF helicopter training centre in Bengaluru. As a company focused exclusively on modelling, simulation and training, as well as a company who owns and operates more than 40 training centres worldwide where over 1,00,000 civil and military crew members train annually, we have some relevant experience both in developing world-class simulation technologies and applying those technologies efficiently and effectively.

SP's: What emerging technologies are likely to impact the future of simulation?
Ramaswami: One of the definite trends we see globally is the desire to use simulation for mission preparation and rehearsal, which is critical for ensuring the readiness of defence forces. Another trend is the continuing desire for realism – in other words, to make the virtual world look and feel just like the real world. There are lots of pieces to this puzzle – some that are in CAE's control and some where we are leveraging the technology curve of other industries, such as gaming technologies or display technologies. One of the emerging technologies that we see impacting the future of simulation is something we call a "dynamic synthetic environment", which we are demonstrating here at Aero India. CAE has had an internal research and development programme over the past couple years aimed at making synthetic environments dynamic, persistent, open and scalable. Military customers have been telling us they need a fully correlated, interoperable and persistent dynamic synthetic environment. What defence forces want to do is have the ability to plan for missions using "what-if" analysis and decision-support tools, rehearse for missions in real-time, and then execute missions that will leave less room for surprise outcomes – and be able to do this in "real-time" and in "simulation". In other worlds, the synthetic environment needs to be more like the real world, which is constantly changing. This kind of integrated, interoperable, immersive synthetic environment is also important for joint, coalition training, which will increasingly need to be done in a virtual environment because of the cost-efficiencies it can deliver.

SP's: Has CAE initiated any steps in India to capture business generated by offsets?
Ramaswami: Last year CAE and Rossell India Limited established a special purpose company called CAE Rossell India Limited to address the needs of the market generated by offsets. This company is owned 74 per cent by Rossell and 26 per cent by CAE. We want to maximise business opportunities as well as technology transfer to India by leveraging CAE's breadth of simulation technologies in line with the offset policy. We are in discussions with major OEMs from the United States, Europe and Russia to discuss ways to partner with them and help them meet offset obligations. •

EADS' Feel Good Factor

With the Airbus A330 MRTT win in India's tanker competition, EADS will be riding into Aero India 2013 with a long-missed feel good factor coursing through its veins—the win comes after a string of disappointments in India, particularly last year's loss of the Eurofighter in the medium multi-role combat aircraft (MMRCA) competition.

In a statement, the company says, "Airbus Military is promoting its very successful C295/C235 transport aircraft in India for future competitions. Airbus Military also is the manufacturer of the A400M military transport aircraft, a heavy airlifter which on the long term could provide ideal capabilities for a country like India."

EADS subsidiary Cassidian also has long-term plans it will detail at Aero India 2013. "In the past few years, Cassidian created several partnerships with organisations such as the Defence Research and Development Organisation (DRDO) which build a solid basis to expand the cooperation with Indian aerospace and defence companies. India plays a key role in Cassidian's globalisation strategy. Our presence there has now been firmly established.

"As a next step, Cassidian is starting to build on its Indian base to strengthen its reach in other Asian markets," the company says. EADS' rotorcraft subsidiary Eurocopter enters India at a tentative time: On the one hand, for the third consecutive year, Eurocopter India leads the Indian helicopter market with a market share of 43 per cent in terms of registered deliveries. On the other, it continues to anxiously await a decision in the long-delayed reconnaissance and surveillance helicopter (RSH) competition that could see it, if it wins, supply 197 AS550 C3 Fennec choppers to the Indian Army and IAF. The company will also be showcasing its AS565 N3+ Panther chopper on offer to the Indian Navy and Coast Guard. •


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Eli Alfassi heading IAI India as Corporate Vice President

The board of Israel Aerospace Industries (IAI) headed by Chairman Dov Baharav has approved Joseph Weiss', IAI President and CEO, proposal to appoint Colonel (Res.) Eli Alfassi as IAI's Corporate Vice President for India operations.

India is a significant market for IAI's divisions and groups, with a large spectrum of projects and advanced technologies. The challenge of an extensive and diverse range of activities in this target country, has led to a need for management focus so as to create a synergy in IAI's activities and leverage the company's technologies. IAI has set itself ambitious goals in the face of challenging competition from leading nations and international companies operating in India.

Colonel (Res.) Eli Alfassi joined IAI a decade ago, after completing a long and varied period of service in the Israel Defense Forces (IDF) in various command and staff roles including as commander of an armoured brigade and battalion, as well as head of the planning administration in IDF's operations division. He also served as IDF's military attaché in India and head of the Israeli Ministry of Defense delegation to India.

As part of his activities in IAI, Col (Res.) Alfassi has filled a number of senior roles in IAI's marketing and procurement administration and was head of IAI's delegation in India for five years.

IAI's President and CEO recommended Eli Alfassi's nomination as Corporate Vice President based on his extensive and proven experience of eight years in leading the activities related to India, and his outstanding managerial capabilities in IAI and in the IDF.

Alfassi holds a bachelor's degree in history from Tel Aviv University, and a master's degree in political science and national security from the University of Haifa. He is an alumnus of IDF's National Security Studies Centre and Command and Staff College. •

IAI 'thrust' system deployed in joint exercises

Israel Aerospace Industries' (IAI) Helicopter Rehearsal Autonomous Safety & Training System (THRUST) participated in a large-scale exercise of joint forces which included hundreds of live forces including helicopters, air defence platforms, tanks, and land vehicles. Virtual armaments were used rather than live ammunition. During the exercise the forces used IAI's THRUST system to conduct in-depth debriefing of the battle's results.

The attack helicopters and air defence units were equipped with IAI's THRUST and Air Defense Instrumented Training System (ADITS)–both part of IAI's Ehud family of embedded training systems. Connectivity to the land vehicles was achieved via an integral gateway.

THRUST system offers low-cost and high-value embedded pilot training with maximised safety features. The system is designed to achieve advanced joint forces training capabilities by utilising network interoperability with IAI's Ehud system, Laser-based Tactical Engagement Simulation System as well as connectivity to Combat Training Centres.

The airborne system is available in two configurations, both are now off-the-shelf products: THRUST airborne pod designed for attack helicopters – specifically Apache AH-64 (Hellfire enclosure), and the internal case for utility or attack helicopters

The system also provides enhanced safety capabilities including air collision and obstacle avoidance and enhanced debriefing capabilities to allow reconstruction of all flight data and synchronisation of audio and video data. •

Potential Hawk order to expand India footprint

BAE Systems has received a request for proposal (RFP) from the Hindustan Aeronautics Limited (HAL) for a potential order to supply products and services for the manufacture of 20 Hawk advanced jet trainer (AJT) aircraft. The aircraft, to be built by HAL in Bengaluru, will fulfill the Indian Air Force's requirement for its prestigious aerobatic team.

Upon successful conclusion, this would be the third contract placed on BAE Systems for supply of materials and equipment for the Hawk Mk132, building upon previous orders of 66 aircraft in 2004, comprising supply of 24 Hawk aircrafts in fly-away condition and 42 aircraft built under licence by HAL, and a further 57 aircraft in 2010. Under these contracts, BAE Systems has worked closely with the Indian Ministry of Defence (MoD) and HAL to establish a production line in India where the aircraft are now assembled. Hawk trainers already in service with the Indian Air Force are performing well.

Guy Griffiths, Group Managing Director , International, said, "This is a tremendous opportunity to build on the success of Hawk in India and demonstrates the progress we are making in capturing significant opportunities to address the defence modernisation requirements of the Indian Government. Together with HAL, we look forward to giving the Indian Air Force's display team a fantastic aircraft."

Together, BAE Systems and HAL are committed to strengthen their relationship through ongoing discussions on exploring long-term sustainable business opportunities, globally.

The potential addition to the Indian fleet, one of the largest fleets of Hawk anywhere in the world, would take the number of Hawk aircraft ordered worldwide to over 1,000. The Hawk aircraft has been widely exported. Customers include Australia, Canada, South Africa, Bahrain, India, the Royal Saudi Air Force and the UK Royal Air Force. The UK Royal Air Force aerobatics team Red Arrows has used the BAE Systems Hawk since 1979. •

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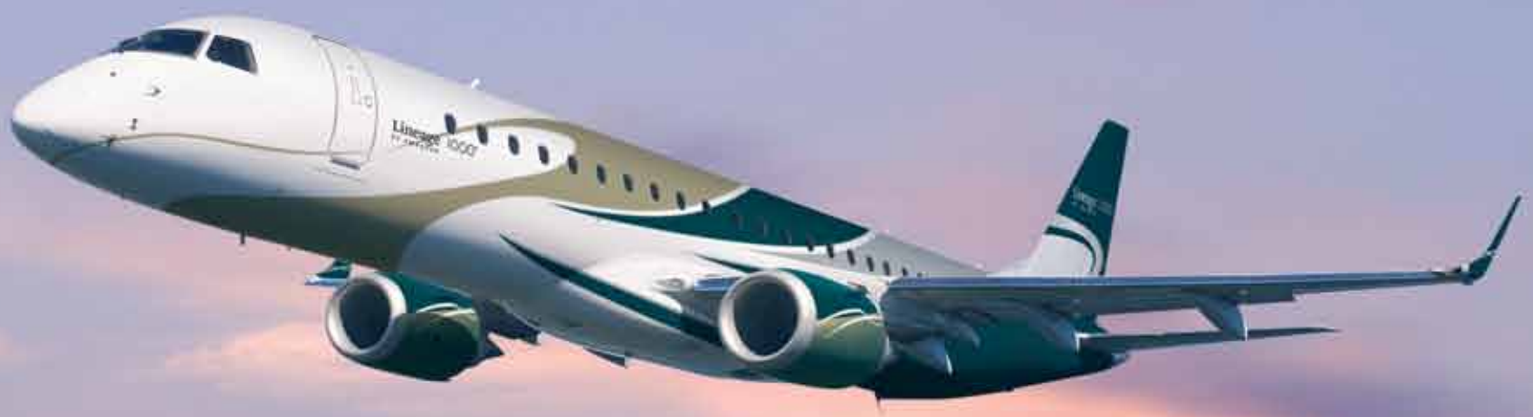

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Ideal for Indian conditions

Dassault's Falcon 2000S, which combines the range and comfort of large cabin business jets with the economics and flexibility of a super mid-size model, will be on display at Aero India 2013 for the first time. The 2000S will be shown with the new Falcon Cabin HD+ cabin management system, which distributes crisp high-definition audio and video content throughout the cabin in a user-friendly touch screen environment that gives passengers full control of all cabin features from wherever they're sitting.

The performance of the Falcon fleet is well-suited to Indian operating conditions, where short airfields, elevated runways and high temperatures are common. The Falcon 2000 series has been in particularly strong demand because of its large cabin, exceptional flexibility, low operating costs and range, which allows passengers to fly from the southern tip of India to the north in a single hop.

The 4,000 nm (7,400 km) Falcon 2000LXS, unveiled at the National Business Aviation Association convention in Orlando, Florida, last October, will enable operators to access small airfields from destinations even farther afield than the 2000S. The 2000LXS will be available from 2014.

Falcons are just right for the long-range requirements of Indian customers, too. The 4,750 nm (8,800 km) Falcon 900LX combines long-range, fuel economy and full fuel low-speed landing capability with exceptional hot-and-high performance. The 900LX will also be on display at Bengaluru with the FalconCabin HD+ cabin management system. The Falcon 900LX flies non-stop from Mumbai, the financial capital, to London City Airport, the heart of London, a popular destination for Indian businessmen.

The top-of-the-line Falcon 7X, equipped with a full digital flight control system, can fly non-stop from Mumbai to Cape Town or from any airport in India to London. And like the Falcon 900, it is the only jet in its category able to meet the challenging access requirements of London City Airport. The first Falcon 7X was delivered in India to Religare which has been operating the aircraft for charter operation since 2010. The first Falcon, a Falcon 2000, was delivered in India in 1995 to the Tata Group.

DASSAULT IN INDIA

Dassault Falcon is investing heavily in India to better serve its expanding customer base in the Indian subcontinent and preparing for future growth. These investments will be highlighted along with Falcon's full line of large cabin long-range business jets at Aero India 2013.

Dassault built its reputation for advanced high-performance aircraft in the region with the Indian Air Force which operates 50 Mirage 2000 fighters and in January 2012, selected the new-generation Rafale for its medium multi-role combat aircraft (MMRCA) mission. But this reputation for design excellence is also increasingly driven by advanced business aircraft like the Falcon 7X, the Falcon 900LX and the Falcon 2000 family.

Dassault is the Indian market leader for large cabin business jets, with approximately 20 aircraft currently in operation in the country, and expects to deliver several more over the next two years. Last autumn, Dassault extended its Falcon liaison office in New Delhi which serves as a hub for its expanding business in the region. It also added a new Dassault engineer to reinforce its local team.

ENHANCING SUPPORT NETWORK IN INDIA

In July 2012, charter operator Taj Air was authorised to establish a Falcon Authorised Line Service Station at the Chhatrapati Shivaji International Airport in Mumbai. The facility provides scheduled and unscheduled maintenance and inspections for Falcon 2000 and 2000DX/EX/LX aircraft and serves as a base for spare parts inventory.

Earlier, Dassault Falcon had named Mumbai-based Air Works India an authorised service centre for the Falcon 900EX and established spares distribution centres in Chennai and Mumbai. The company also set up a technical field office in Mumbai. These measures were the latest steps taken recently to enhance the Falcon support network in southern Asia, mirroring a strategy Dassault Falcon has been pursuing in other major emerging markets, such as China, Russia and Brazil.

"The Indian market is becoming more conducive to consistent growth and the investments in our support network will place us in an excellent position to benefit in the future," said John Rosanvallon, President and CEO of Dassault Falcon. •

DRDO displaying future programmes


LCA TEJAS

The Defence Research and Development Organisation (DRDO) is displaying its achievements and future programmes. The Scientific Advisor to the Defence Minister V K Saraswat said the main thrust would be on projecting aerospace related research and development advancement made by DRDO Labs and the coordinated efforts of various R&D work centres of DRDO. In all 31 DRDO Labs would be showcasing their technological might.

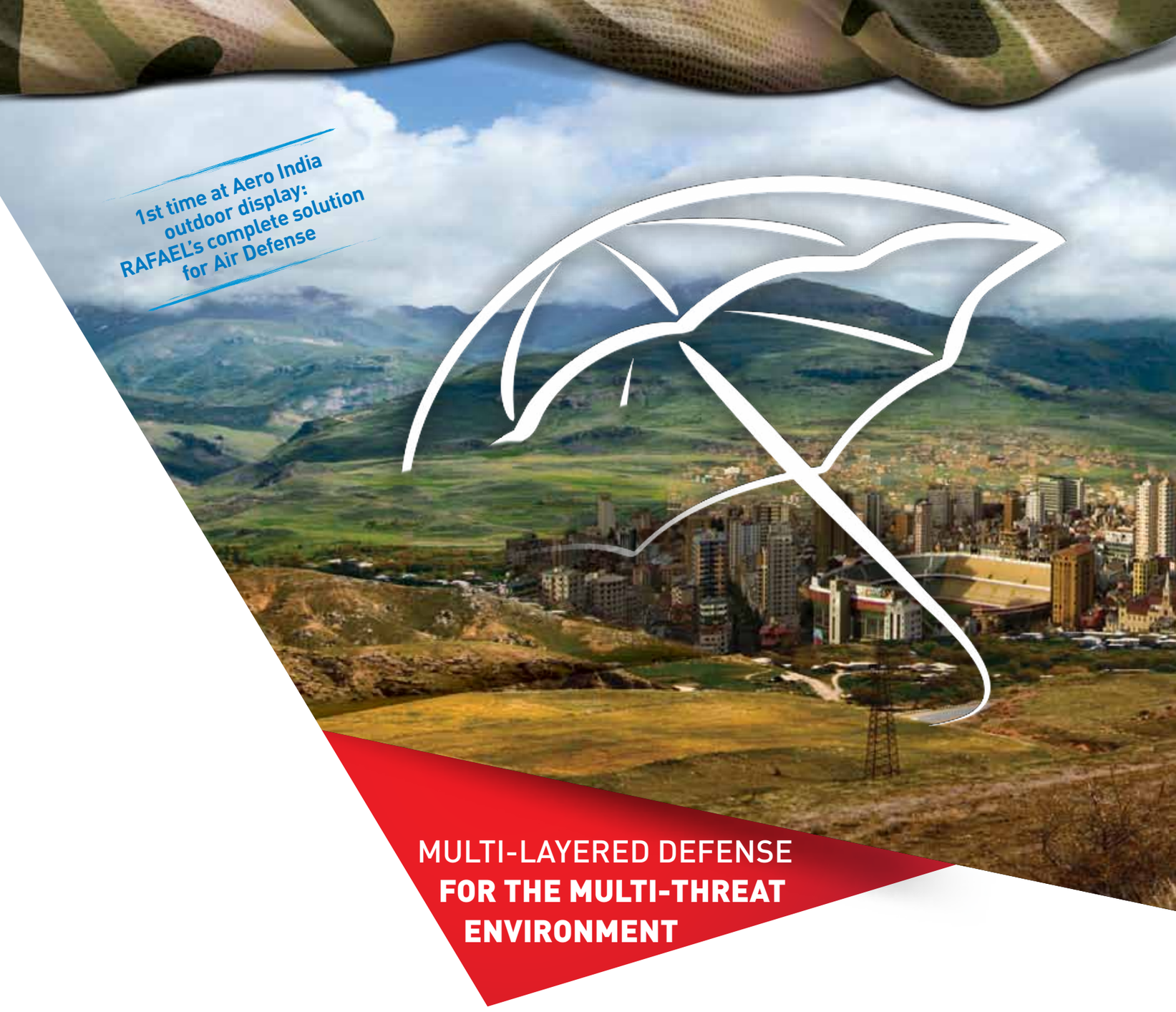
The displays would be in 14 categories including combat aircraft systems, avionics and unmanned air vehicle systems, aerial delivery systems, surveillance systems, certification of aircraft systems, electronic warfare, missiles and radar. The light combat aircraft fighter variant would be on display along with flying display of combat LCA and airborne early warning and control systems. •

Jean-Bernard Levy appointed Chairman and CEO of Thales

The Board of Directors of Thales have elected Jean-Bernard Lévy as the Chairman and Chief Executive Officer of Thales. Thales's two main shareholders, the French State and the Dassault Aviation, have welcomed the appointment and will work in agreement with senior management to pursue the continued recovery of the Group and its future development.

Jean-Bernard Lévy has said that he is very proud to be appointed to lead Thales. "In the global marketplace, Thales has all the strengths needed to play a leading role. I know I can count on the energy and commitment of all to meet the challenges ahead and work together to develop our Group."

Jean-Bernard Lévy is a graduate of the École Polytechnique (1973) and Télécom ParisTech. He began his career in 1979 with France Telecom as an engineer in Angers. In 1982, he became responsible for the management of senior staff and budgets, and was later promoted to deputy head of personnel. In 1986, he acts as advisor to Gérard Longuet, the French Minister for Postal and Telecommunications Services. Lévy was General Manager, Communications Satellites of Matra Espace and then Matra Marconi Space from 1988 until 1993, when he became Chief of Staff to Gérard Longuet, the Minister for Industry, Postal Services & Telecommunications and Foreign Trade. In 1995, he was appointed Chairman and Chief Executive Officer of Matra Communication, and in 1998, he joined Oddo et Cie as Chief Executive Officer, then managing partner. •



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AGUSTAWESTLAND'S High Performance Helicopters

AgustaWestland, a Finmeccanica company, is showcasing its range of modern high performance military and commercial helicopter, including the AW101, twelve of which are now in the process of delivery to the Indian Air Force for government transport duties. Other helicopters to be featured include the AW109LUH light twin-engine military helicopter, the best-selling AW139 12-15 passenger medium-twin engine helicopter and the naval variant of the NH90 helicopter.

Geoff Hoon, Managing Director International Business, AgustaWestland, said: "India is an important and growing market for AgustaWestland, so at Aero India we are promoting the most modern and capable rotorcraft available today, confident that we can build on our past successes and fulfil the future requirements of both the Indian armed forces and commercial customers."

He added: "We will also be using Aero India to help pursue our strategy to expand and develop our relationships with Indian companies to ensure we are a part of India's growing aerospace industry. Indian Rotorcraft Limited, our joint venture with Tata Sons, is a prime example of this strategy and our long-term commitment to India."

NH90 NAVAL HELICOPTER

AW139 CORPORATE TRANSPORT HELICOPTER

MILITARY ROTORCRAFT

AgustaWestland has a complete range of maritime helicopters ranging from the three-tonne AW109 right up to the 16-tonne AW101, which can meet all future Indian Navy and Coast Guard requirements.

At 11 tonnes, AgustaWestland is offering the naval variant of the NH90 to the Indian Navy for its new anti-submarine and anti-surface warfare helicopter requirement. The NH90 is the biggest helicopter programme ever launched in Europe, with firm orders for 529 units to equip and modernise 19 services in 14 countries including the armed forces of France, Germany, Italy, the Netherlands, Portugal, Finland, Norway, Sweden, Greece, Oman, Australia, New Zealand, Spain and Belgium. Of those 529 firm orders over 100 are for the NFH naval variant for the navies of Italy, France, Norway and the Netherlands.

The Indian Navy's fleet of Sea King Mk42B helicopters, used for anti-submarine and anti-surface warfare, is to undergo a mid-life upgrade programme. AgustaWestland, as the original equipment manufacturer, is bidding for this contract.

COMMERCIAL ROTORCRAFT

In 2005 AgustaWestland sold its first AW109 Power helicopter to the Government of Rajasthan and since then sales of its civil product range have taken-off with orders being placed for nearly 50 aircraft including additional AW109 Powers, the GrandNew light twin-engine helicopter, the AW119Ke and the AW139 medium twin-engine helicopter. AgustaWestland is a worldwide leader in the supply of corporate and VIP helicopters and is the last five years has been the market leader in India with over a 50 per cent share of the commercial helicopter market.

AgustaWestland will certify two all new twin-engine commercial helicopters, the AW189 and AW169, in 2013 and 2014 respectively, which along with the in service AW139 form the new AgustaWestland Family of helicopters covering the 4.5- to 8-tonne weight range. Customers of the new Family of helicopters will benefit from the latest technology and safety standards, as well as a common approach to maintenance and training which will maximise effectiveness and significantly reduce overall operating costs.

AgustaWestland has appointed OSS Air and AirWorks as authorised service centres for its commercial helicopters in India. These companies provide a range of maintenance, spares, technical support and training services to the growing number of operators of AgustaWestland helicopters in India.

INDIAN ROTORCRAFT

In 2010 AgustaWestland signed a joint venture agreement with Tata Sons Ltd for the final assembly, completion and delivery of AW119 commercial helicopters for the worldwide market. This company, Indian Rotorcraft Ltd., will produce the aircraft in Hyderabad where an all new facility is currently under construction.

The 8,000 square metres facility is being built on a four-hectare site adjacent to the Hyderabad Rajiv Gandhi International Airport and includes a main assembly building, flight hangar, office accommodation and outside helicopter landing pads. The facility will be capable of producing up to 30 helicopters per year and will be able to accommodate a variety of helicopter types, including the AW101. Final assembly of aircraft is scheduled to start in early 2014.

LOCAL PRESENCE & PROUD HISTORY

AgustaWestland's wholly owned subsidiary company, AgustaWestland India Pvt Ltd, is based in Delhi to coordinate the company's business activities in India. It also has a branch in Cochin that provides technical support to the Indian Navy's Sea King helicopters.

AgustaWestland is proud to have been supplying helicopters to India for over 40 years, however, it can trace its heritage back to 1933 when the Indian Air Force received it first aircraft comprising four Westland Wapiti biplanes. Eighty years later In 2013 the Indian Air Force's newest aircraft, the AW101 helicopter, is entering service continuing the company's long and proud connection with the Indian armed forces. •

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Selex Elsag Bringing Latest Defence and Security Technologies

Selex ES sees India as a critical market and works from its in-country offices to bring the latest defence and security technology into the nation. This year's Aero India exhibition will see Selex ES continue to develop its strong links in India and highlight some of its dual-application technologies for civil and military uses.

Selex Elsag, Selex Galileo, and SELEX Sistemi Integrati are uniting to create a stronger and more comprehensive defence and security electronics Group. The new organisation will be called Selex ES and will be operational from January 2013. Selex ES will consist of two main operating companies in Italy and the UK with a single transnational management team.

Selex Elsag has had a presence in India for 20 years and has supplied the country with avionic, tactical and naval communications systems either directly or in collaboration with the leading local companies HAL and BEL.

In the near future SELEX Elsag could demonstrate its expertise in protected military communication systems and next-generation systems. SELEX Elsag is also involved in some of the major programmes under way in India relating to tactical communications and the telecommunications component of the battle management systems (BMS).

SELEX Elsag can also provide India with licence-plate reading systems, biometric sensors, mobile checkpoints, video surveillance and other technology for police forces. •

Bombardier showcasing two class-leading jets

Bombardier Aerospace is showcasing two of its class-defining jets – the Challenger 605 and Global 600 business jets. "India represents huge potential for business aviation," said Nilesh Pattanayak, Regional Vice President, Sales, Asia-Pacific. "As the economy grows and the need for global and regional corporate travel increases in the region, the value of a business jet is now well established. Our Global aircraft family is the market leader in India and we look forward to having the opportunity to showcase a Global 6000 jet, our class-leading Challenger 605 jet and presenting our overall product portfolio.

"It's an exciting time for business aviation in India, and we are playing our part in connecting India's business leaders with the rest of the world by providing the ultimate tools to improve their efficiency," added Pattanayak. "The year 2012 was a great year for Bombardier Business Aircraft as we captured 60 per cent of business aircraft orders worldwide and we are continuing to build upon that success in 2013." •

Gulfstream receives FAA production certificate for G650

Gulfstream Aerospace Corporation has recently received two important certifications for its new flagship aircraft, the ultra-large-cabin, ultra-long-range G650. The company has received the Production Certificate (PC) from the US Federal Aviation Administration (FAA) Atlanta Manufacturing Inspection District Office. Gulfstream also has got a Type Certificate for the G650 from the European Aviation Safety Agency (EASA).

The PC was obtained on December 20, 2012, and confirms that Gulfstream's production processes for the G650 are in compliance with the Federal Aviation Regulations Part 21. The FAA issued the PC after Gulfstream completed an extensive FAA Production Certificate audit conducted by the Gulfstream Organisation Designation Authorisation (ODA) office, which examined Gulfstream's engineering, supplier, manufacturing and quality systems to assure that the aircraft are produced in accordance with their design.

The EASA Type Certificate was awarded on December 21, 2012. By securing EASA certification, the G650 can be registered in the 27-member states that form the European Union.

"This is quite an achievement for Gulfstream," said Larry Flynn, President, Gulfstream. "The G650 Production Certificate is a testament to the strength of four departments within Gulfstream — Engineering, Materials, Operations and Quality — along with the Gulfstream ODA to achieve this outcome. Their efforts and the support from the FAA are to be commended."

"The EASA certification allows us to begin our first G650 deliveries to customers based in Europe," Flynn added. "We look forward to getting the G650 certified in many other countries."

The G650 earned its FAA Type Certificate on September 7, 2012. The aircraft also has Type Certificate validations from Bermuda and the Isle of Man.

The G650 has the largest cabin and can fly farther and faster than any other purpose-built business jet. The aircraft can travel 6,000 nautical miles (11,112 km) at its high-speed cruise of Mach 0.90. This is a 1,000 nm (1,852 km) increase over the original target of 5,000 nm (9,260 km). At its long-range cruise speed of Mach 0.85, the G650 can fly 7,000 nautical miles (12,964 km). The G650 has a maximum cruise speed of Mach 0.925, making it the fastest certified civilian aircraft in production.

The G650 is also environmentally efficient. Each of its two Rolls-Royce BR725 A1-12 engines provides 16,900 pounds of thrust, yet the aircraft burns less fuel and produces fewer emissions than other aircraft. It is also extremely quiet, with certified noise levels 17.2 decibels below Stage 4 noise regulations. •

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IAF Gets First Lot of Brand New Pilatus Trainers

In a major fillip to strained basic flying training regimes, the IAF has just received the first lot of its brand new Pilatus PC-7 MkII trainer aircraft for Stage I training. The aircraft arrived yesterday at the Air Force Academy, Dundigal near Hyderabad. The first batch of aircraft of a total of 75 ordered by the IAF, were ferried in by Swiss pilots and received at Air Force Academy by Air Officer Commanding-in-Chief, Training Command, IAF, Air Marshal Rajinder Singh and Commandant AFA, Air Vice Marshal R.G. Burli. In a statement, the IAF said, "With the induction of the PC-7 MkII aircraft, the IAF will be able to meet the long-standing need of having a basic trainer aircraft post grounding of HPT-32 in July 2009."

A deal was signed with Swiss firm Pilatus in May last year for 75 PC-7 MkII basic turboprop trainer aircraft, making this a record delivery of less than nine months. The IAF order is the largest that Pilatus has ever serviced. The contract includes an integrated ground based training system and a comprehensive logistics support package. The contract also contains an option clause for extending the scope of this contract within three years from initial signature and we are optimistic that this will indeed be executed, according to Pilatus.

"The Indian Air Force joins more than 30 other countries to modernise its training pipeline with the most modern, capable and cost-effective system for Basic Flying Training on the market today. The Indian Air Force is the fourth largest air force in the world with approximately 1,70,000 personnel and 1,500 aircraft operating from more than 60 air-bases. This contract will extend the fleet of Pilatus turboprop trainers to more than 900 aircraft operating worldwide. Pilatus Aircraft Ltd is committed to serving the Indian Air Force with its world renowned dedication to Swiss precision and quality, through delivering and supporting the most advanced basic flight training turboprop trainer aircraft in the world—the Pilatus PC-7 MkII," according to Pilatus.

Pilatus will now assist with the establishment of in-country depot level maintenance capabilities, which includes the required transfer of technology to the Hindustan Aeronautics Limited (HAL), enabling in-country maintenance of the platform throughout its service life of over 30 years. Pilatus has also entered into a separate offset contract with the Government of India for 30 per cent of the value of this contract. •

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UAC Sees Opportunities in Civil, Besides Military

■ **Mikhail A. Pogosyan, President, Chairman of UAC Executive Board, Member of Board of Directors**

SU-30MKI

***SP's ShowNews* (SP's): Can you give a brief background of your company's association with India?**

Mikhail A.Pogosyan: Russia and India have 50 years of cooperation history which resulted in operation of more than 500 aircraft in Indian Air Forces and Navy. For years the key driver, the philosophy, of this partnership has been the readiness to share the most advanced technologies to meet the stringent requirements of rapidly growing fleet of the Indian Air Forces. We've been focused on bringing value to the Indian aerospace industry segment, implementing vast collaboration programs such as Su-30MKI, MTA, FGFA. Now partnerships and joint ventures are becoming the biggest drivers of the aerospace and defense companies worldwide. Having maintained the substantial GDP growth, for defense businesses India belongs to the top 5 most favorable markets for international expansion.

SP's: What are the activities you are focusing currently and how do you foresee the future of association?

Pogosyan: Currently we proceed working with HAL on Su-30MKI programme having added the order for 42 technological sets to the existing order. The total fleet of Su-30-MKI will reach 272 aircraft. It's worth saying that this programme which started in the end of the 90th is not a frozen concept with frozen aircraft design and combat performance. Together with our colleagues from HAL we keep on implementing modernisation projects. On the one hand, modernization increases the combat capabilities of the Indian Air Force, on the other hand, the new technical solutions incorporated into the product in collaboration with HAL open ways to wider marketing opportunities we could analyze together with HAL.

Also, the contract for 16 naval MiG-29K fighters was fulfilled completely. Currently, aircraft from the option for another 29 MiG-29K are being delivered. In addition to this, earlier delivered MiG-29 are going through an extensive upgrade (UPG) program. The first batch of aircraft is to be upgraded in Russia while the rest will be serially modernized in India.

The other significant program is FGFA. It's a unique program with unprecedented level of technologies' share. We continue working on it with our Indian partners. We are planning to shift to the next development stage in the nearest future. The R&D contract is on the way.

One more important program is the multi-role transport aircraft. Now a team of more than 30 Indian specialists is working in Moscow together with Ilyushin for the forthcoming 10 months.

SP's: Would you like to elaborate on any specific plans for the country in next 5 and 10 years?

Pogosyan: India is a country with rapid passenger traffic growth. In 2012-2016 only several countries including India will experience double digit passenger growth. Owing to solid economic growth and substantial investments into the airport infrastructure the country will maintain the substantial traffic growth rate in spite of some key airlines' grounding this year. We are planning to expand the borders of our presence in India by marketing products from our commercial line. Here in Bangalore the United Aircraft Corporation along with military products is showcasing Sukhoi Superjet 100 and MC-21 aircraft. In the segment of 90-120 seats we are planning to win 25 per cent of the market with SSJ100, and in the segment of 140-220 seats we estimate the tentative share of MC-21 at 14 per cent. India is a good opportunity for us. As in India the aerospace services market is a fast growing one, we are ready to collaborate with India in the segment of customer support services as well.

India has been our strategic partner for years. We have good experience in military segment and now we see the vast opportunity to expand our cooperation to transport and commercial segments as well. We are ready to involve rapidly growing local business into our joint programs. India is a market that no one, who wants to be successful in the aerospace segment, can afford to ignore. •

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'Bell Helicopter has made some significant investments in our Indian footprint over the last few years'

■ **Rishi Malhotra, General Manager, Bell India**

***SP's ShowNews* (SP's): Can you give a brief background of your company's association with India?**
Rishi Malhotra (Malhotra): We started operations in India in 1995 with a small liaison office in New Delhi. Today we have opened new offices in Bengaluru and Mumbai and have grown to more than 100 employees. The technology centre located in Bengaluru called Textron India Pvt Ltd is a shared Textron facility that provides high-tech engineering and technological solutions for many Textron business units. Bell Helicopter has over 125 engineers with varying expertise including design, analysis, modelling, simulation, systems engineering, mechanical engineering, manufacturing engineering, sourcing and quality assurance. This cross-functional team supports all Bell production models, research and new product development.


V-22 OSPREY

SP's: What are the activities you are focusing on currently and how do you foresee the future of association?
Malhotra: We recently entered an agreement to explore establishing DTL as a second source for cabin assembly, airframe components, and details for the Bell 407. Work with DTL will begin early this year for price and delivery schedules, including procurement. The estimated business volume of the work proposed is approximately $243 million over a ten-year period. This agreement provides Bell flexibility and a cost-effective second source. This helps us build manufacturing capacity to support growing demand for our commercial helicopters and the introduction of the Bell 525 Relentless.

SP's: Would you like to elaborate on any specific plans for the country in next five to ten years?
Malhotra: Bell Helicopter has made some significant investments in our Indian footprint over the last few years. Part of our global strategy is to look at joint Bell and Cessna facilities to leverage capital and resources as we did in Singapore. We are continuing to assess the whether a joint maintenance repair and overhaul (MRO) makes sense in India.

India's military helicopter requirements over the next ten years are tremendous. We see significant opportunities to enter the military space and these programmes will generate a large offset obligation. Bell Helicopter continues to assess potential manufacturing partnerships to assist in meeting these offset requirements and become potential suppliers for growing Asia-Pacific and global demand for our products.

SP's: What makes you feel that India is an exciting market?
Malhotra: India has always been an important market for Bell Helicopter. We are the leader in the Indian civil market, which speaks volumes about our products and dedication to serving our customers in India. Although there has been some softness in the Indian market over the past two years in line with the global economy, we are now seeing indications that the market is strengthening. There is tremendous opportunity in India for both civil and military sales and Bell Helicopter will continue focusing on meeting our customer's mission requirements.

SP's: What capabilities do you plan to showcase during Aero India 2013?
Malhotra: Bell Helicopter will have a strong presence at Aero India 2013 as we continue to grow our footprint and expand our business in the growing Indian aviation marketplace. We will fly demonstration flights in the Bell 429 and 407AH. Both aircraft will also be on static display. The Bell 429 and 407AH have generated a great deal of interest throughout the world during their demonstration tours, and are ideally suited to meet the mission needs of our customers in India. Additionally, we will showcase scale models of the Bell 429, UH-1Y, AH-1Z, and V-22 Osprey in our booth. We are excited to be a part of Aero India and highlight the commitments and investment we are making to position ourselves to serve this important market.

SP's: Would you like to refer to any important innovation of your company at this point?
Malhotra:: Bell Helicopter has a range of products that offer a great fit for India's requirements. The Bell 407GX and 407AH (armed variant) are made to operate in rugged conditions at high altitude; the Bell 407 has landed at the density altitude 23,000 ft in the India Himalayas region. The AH-1Z and UH-1Y offer unmatched reliability and hot and high performance in India's diverse geography and climate. Given India's vast land mass, large coastal lines and unique operational needs, the V-22 Osprey offers exceptional multi-mission capabilities for border protection and special mission operations.

The Bell 429 is truly tailor-made for India. This new light twin is already very popular with corporate as well as charter companies because of the cabin comfort, low noise and fast cruise speed. When India's Gagan project is commissioned later this year, Bell 429 pilots will be able to fly in low visibility conditions with utmost safety with the help of the Bell 429's LPV capability (hands off instrument approach capability).

In 2012, Bell Helicopter unveiled the 525 Relentless which defines new "Super Medium" product class, positioned at the upper end of the medium class market, providing game-changing capabilities. We are making steady progress towards a first flight in 2014 followed by an aggressive schedule for flight testing, certification and production. The 525 Relentless boasts:

- Best-in-class payload range capability to meet our customers future needs
- Best-in-class cabin and cargo volumes coupled with flexible cabin layout options
- Best-in-class crew visibility from wrap around windscreens providing a wide field of view during takeoff, cruise and landing
- Featuring the ARC horizon flight deck system
- Unparalleled crew situational awareness through the use of a fully-integrated glass flight deck coupled with an advanced fly-by-wire flight control system resulting in enhanced safety levels and mission capabilities •

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The King Air 350i's new interior is the most comfortable and capable cabin ever offered in its class. The 350i's revolutionary Flexcabin system can be reconfigured for work or play, while the new Venue Cabin Management System makes flying more productive, entertaining and relaxing.

Whether one is travelling to major airports or unimproved airstrips, the versatility and comfort of the King Air 350i will show why pilots, companies and governments in 105 countries have trusted more than 6,500 King Airs over the years – more than any other business aircraft.

If the requirement is extended range or high-performance special mission aircraft, the endurance and economy of the new King Air 350iER (Extended Range) delivers the ultimate solution. This King Air can be custom modified to fulfill a wide variety of long-distance, highly technical missions. •

Expanding Rafale's Air-to-Air Capabilities

With the successive introduction of the active electronically scanned array (AESA) for the Thales RBE2 radar, of the Meteor ramjet-propelled missile, of the new generation missile detector, of the AM39 Exocet anti-ship missile and of a laser-guided variant of the battle-proven AASM air-to-surface modular armament, the omnirole fighter will shortly become even more efficient, lethal, survivable, reliable and maintainable. With such a powerful offensive and defensive tool, decision-makers will have at their disposal the required asset to handle all crises: in an ever changing world, the Rafale will stand ready to instantly react to a new geopolitical situation and to dominate the modern battlefield.

AESA AND METEOR

The Rafale was designed to excel in all air-to-air and air-to-surface roles and replace a wide range of French Navy and French Air Force interceptors and ground attack aircraft: F-8P Crusader, Etendard IVP, Super Etendard, Jaguar, Mirage IVP, Mirage F1C and Mirage 2000C. As a result, the Rafale is an extremely capable air-defender that can defeat all known airborne threats. It can carry out the full spectrum of offensive and defensive counter air missions (including air-sovereignty, air-defence and air-superiority), either from air bases or from the pitching decks of aircraft-carriers.

For the Rafale programme, the last few months have proved decisive with the delivery to the French Air Force of the first production Rafale equipped with the AESA and the first firing trials of the Meteor missile. Held in October 2012, these events help bring the Rafale into a class of its own in the air-to-air arena.

The delivery of single-seat Rafale C137 to the French Air Force operational evaluation centre, at Mont-de-Marsan, has allowed French Air Force pilots to start evaluating the new AESA in a realistic combat environment. This will pave the way to the adoption of new, advanced air-defence/air-superiority/self-escort tactics that will revolutionise the way the Rafale community operates in the air-to-air role.

The first two Meteor separation trials performed in early October 2012 are part of a comprehensive integration programme that will culminate with the entry into service of the new missile in 2018. They come in addition to the aircraft-carrier compatibility trials already conducted from nuclear aircraft-carrier Charles de Gaulle to ensure that the new missile could withstand the shocks associated with catapult shots and carrier landings. Compared to the current Mica air-to-air missile already operational on Mirage 2000-5/2000-9 and Rafale fighters, the Meteor will offer a tremendously expanded interception range and a much larger no-escape zone.

DETERRENT FORCE

With its new sensor and weapon, the Rafale will prevail in the air-to-air arena and the omnirole fighter will be able to deter any foe from entering friendly airspace: thanks to the AESA, French Air Force and French Navy fighter pilots will be able to detect airborne threats at considerable distances and the Meteor will allow them to engage hostile aircraft before they can shoot back. Even targets offering very small radar cross sections (such as late generation cruise missiles) will be detected, tracked and targeted at long ranges.

In a contested battlespace, pilots flying Rafales equipped with the AESA and armed with the Meteor will have unmatched situational awareness that will allow them to use advanced tactics in order to dominate the battlefield. Using their innovative suite of active and passive sensors, their broadband datalinks and their intuitive sensor fusion / man-machine interface, they will be able to accurately position themselves in three dimensions and deny enemy fighters the opportunity to reach a firing position. Add this to the Rafale's kinematic performance in the air-to-air role (a decisive combination of remarkable climb rate, outstanding acceleration and unmatched combat persistence) and you end up having an offensive/defensive fighter that will prove extremely hard to defeat. •

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'I am a normal woman with plenty of not strictly normal hobbies'

■ **Radka Máchová, Aerobatics Leader, The Flying Bulls**

Flying Bulls, the Czech Republic aerobatic team of four Zlin 50LX aircraft, is coming to Aero India 2013 to thrill the crowd yet again. Radka Máchová, leader of the Flying Bulls, is an excellent flyer, extremely passionate about airplanes and has nerves of steel. Her passion for flying is more than noticeable and her smile is disarming. Excerpts of an interview with Radka:

BY **VASUKI PRASAD**

***SP's ShowNews:* At 64 when you look back, what do you see as the one memorable moment that stands out?**
Radka Máchová (Máchová): It is a very difficult question. I don't have an isolated most memorable moment. I still remember my first parachute jump, my first solo flight and my first solo aerobatics flight! I cannot forget my first loop as a leader of our aerobatics formation and my first Federation Aeronautics International (FAI) Grand Prix competition at Motegi, Japan, in 2002. I was very apprehensive.

SP's: Why were you apprehensive?
Máchová: FAI World Grand Prix Motegi 2002 was for me my first competition in my capacity as a team leader. Pilots in my team were more experienced than I was. I started training for the position of leader from the spring of 2002, giving me little time. I was very anxious as it is really a nerve-racking situation when flying in a competition or display flight as opposed to a training flight.

SP's: How many hours of flying experience have you accumulated?
Máchová: Forty-two years is really a long time but except for my flying with Flying Bulls Aerobatics Team, I fly only as a hobby private pilot. Till date, I have 1,120 hours of total flight time.

SP's: What made you take up flying? When was your first aerobatic manoeuvre?
Máchová: As a young girl, I built flying plane kits and dreamt of becoming a pilot or an astronaut. My first aerobatics manoeuvre was a loop and that feeling was wonderful! Flying upside down and the feeling of the earth "above" you is indescribable.

SP's: How did you transition to becoming an aerobatic pilot? Which other airplanes you are rated on?
Máchová: Aerobatics flying is nicer than other types of flying. The aeroplane is under your control at all times. You have a sense of belonging to the machine. I got my first taste of aerobatics during my elementary flight training. Next, I attended an aerobatics course and joined the Czech National Aerobatics Team. I have CPL with single-engine rating only. I fly all types of Zlin aircraft, piston Cessna 300, Soccata TB 10 and an ultra light. I have never flown a business jet.

SP's: Could you tell us about your business jet charter company?
Máchová: After the "velvet revolution" in my country in 1989, when the political system changed from communism to capitalism, I had more opportunities in aviation. I worked very hard as the Managing Director of the first business jet charter company. That was a very good experience for me. Aerocharter Prague has me as the Managing Director (Personal, Commercial, Marketing, Navigation, Financial Deportments, all represented only by myself!), my secretary and hired pilots. From time to time, I work as a techniques director as well. We operated a number of aircraft from Cessna 500 to Falcon 10, Beachcraft 90 to Beachcraft 200, Cessna Caravan and Gulfstream.

SP's: What is the most attractive feature of the Zlin 50LX?
Máchová:: Zlin 50 is a very well-behaved, non-aggressive and good looking aeroplane in comparison to Extra or Xtreme aircraft.

SP's: They say great flyers dissolve the boundary between man and machine. What is your opinion?
Máchová: It is true. Man and flying machine make one unit. You have to feel the aeroplane not only as a machine but also as a close friend.

SP's: How many hours did it take you to master the art of formation flying?
Máchová: Aerobatics flying is not about flight hours. One aerobatic sortie is a maximum of 15 minutes. It is very strenuous and after the sortie, the pilot is too tired to perform well. Aerobatic flight hours accumulate slowly unlike in commercial flying. For formation flying, the pilot needs good flight experience, aerobatics experience and a very good set of morals. Formation flying is about team work. I really cannot say how many hours it takes to master the art of formation flying.

SP's: What is the typical separation between your airplanes in tight formation?
Máchová:: Approximately 1.5-3 metres, sometimes less!

SP's: In aerobatic manoeuvres, what are the G forces that are experienced? How would you describe the experience?
Máchová:: During display we pull +/- 5 G, sometimes more. But not more than 6.5 G. Under positive G, blood flows to the legs and with negative G, blood rushes to the head. During aerobatics sequence, G forces keep changing from positive to negative and vice versa. The pilot can temporarily lose peripheral vision and sometimes even total vision. Military pilots wear anti-G suits but we don't. We use stomach muscles to control blood flow.

SP's: What is the key aspect in maintaining a good, tight formation?
Máchová: The main qualities include aerobatics experience, thorough practice, sense of responsibility and importantly, 100 per cent confidence in the skill of the team members.

SP's: What is the difference between aerobatic flying and commercial flying?
Máchová: My type of flying is nicer. We are like birds. Commercial flying is also nice but the commercial pilot does not feel like a bird. The aeroplane is too big and he is not alone in the cockpit.

SP's: How do you keep yourself flying fit and what is the key element that defines your personality?
Máchová: I laugh, I smile, I eat, I sleep! I ride bicycles, ski, swim, scuba dive and do many other things! Hmm.... I am a normal woman with plenty of not strictly normal hobbies.

SP's: I see a stuffed monkey in the cockpit.
Máchová: The monkey is our mascot. Over time, he has accompanied our airplanes. He flies with us in all our displays. His place is on the right echelon airplane bearing registration. OK-XRB! •

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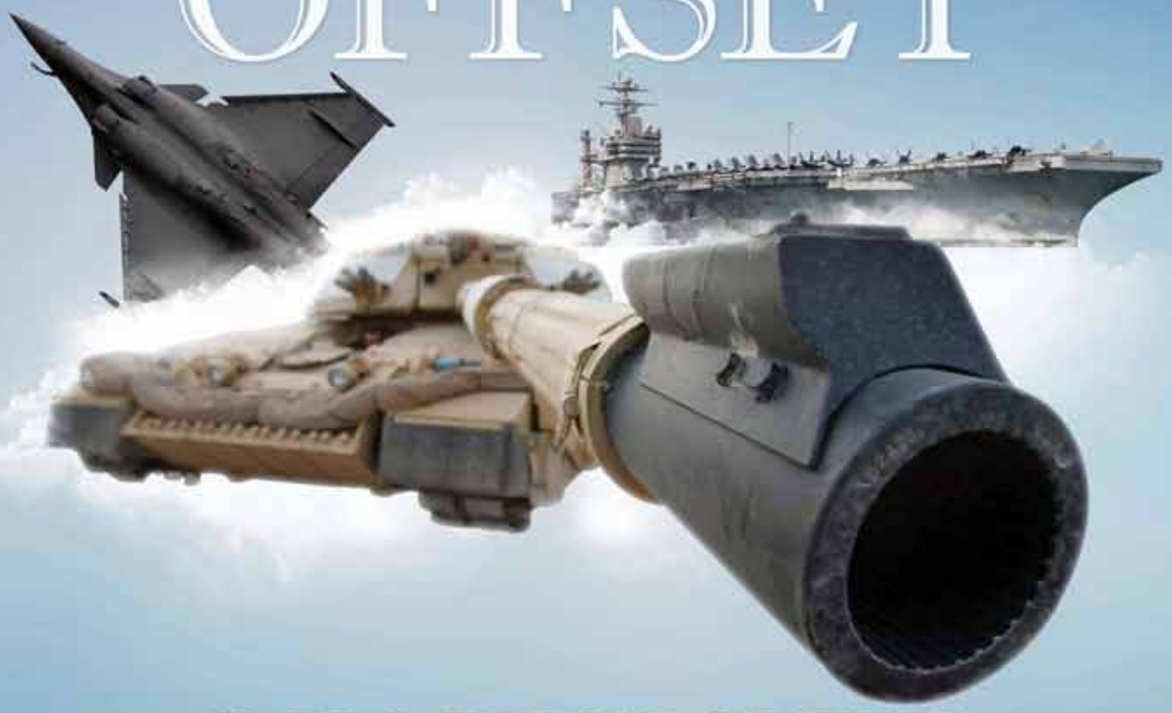

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