



SHOWNEWS

PUBLISHERS OF

SP'S MILITARY YEARBOOK, SP'S AVIATION, SP'S AIRBUZ, SP'S LAND FORCES, SP'S NAVAL FORCES, SP'S MAI & BIZAVINDIA

snapshots



Photographs by SP Guide Publications (Archive), Karthik Kumar & respective organisations

AP GOVERNMENT PROMOTING AEROSPACE AND DEFENCE HUB

The Global CEOs Conclave at the Aero India 2017 provided a platform for global CEOs to understand the measures taken by the Government of Andhra Pradesh to provide an enabling ecosystem for aerospace and defence sector.



By **R. CHANDRAKANTH**

The Andhra Pradesh Economic Development Board on February 14 organised the 'Global CEOs Conclave on Aerospace and Defence Manufacturing Opportunities in Andhra Pradesh' under the 'Make in India' initiative at Aero India. Over 50 CEOs attended the discussion session with Finance Minister of Andhra Pradesh Yanamala Ramakrishnu, Union Minister for Civil Aviation P. Ashok Gajapathi Raju and J. Krishna Kishore, Chief Executive Officer, Economic Development Board, Andhra Pradesh, besides Colonel K.V. Kuber, independent consultant on aerospace and defence and member, committee of experts on DPP 2013, Ashok Kumar Gupta, Secretary, Defence Production and Dr Satheesh Reddy, Scientific Advisor to the Defence Minister.

Colonel Kuber said that India was on the verge of becoming the third largest defence spending nation by 2018. Over \$23.5 billion worth FDI was signed with 119 licences issued in 2014-16 and that soon defence exports would amount to \$1 billion.

Dr Satheesh Reddy focused on the need for a technology revolution and on bridging the gaps in technology and infrastructure capabilities. Dr Reddy also mentioned that the industry base in India was sufficiently established as state-of-the-art missile systems, avionics, anti-ballistic missile systems and complex systems like AWACS are being developed indigenously.

The presentation on 'Opportunities for Aerospace and Defence Companies in Andhra Pradesh' was delivered by J. Krishna Kishore who emphasised the proactive readiness of Andhra Pradesh in providing an enabling ecosystem for a robust aerospace and defence sector.

The Andhra Pradesh Economic Development Board also signed a letter of intent (LoI) with DCNS India Private Limited for industrialisation of systems and platforms for Ocean Thermal Energy Conversion (OTEC) offshore power plant intended for Andaman and Nicobar Islands. A production facility for the OTEC power plant will be established at a district in coastal Andhra Pradesh, preferably along the Visakhapatnam coastline.

Ramakrishnu said that Andhra Pradesh is about to be transformed into a well-connected landscape of thriving economic activity. The Mega Aerotropolis in Bhogapuram will see maintenance, repair and overhaul (MRO) centre come up soon to serve leading global and Indian airlines. In addition, six upcoming and three brownfield expansion airports are on the anvil. The Government of Andhra Pradesh is working towards establishing aerospace and defence parks in Ananthapur, Chittoor and Nellore districts.

A delegation from Andhra Pradesh led by Ramakrishnu met Daniel Carmon, Ambassador of Israel to India, Brig Gen (Retd), Director, SIBAT and other senior officials to discuss potential cooperation in technology between Israel and Andhra Pradesh. •



ShinMaywa manufactures the world's largest in service proven amphibian with matchless STOL capabilities, unrivalled sea keeping ability and outstanding endurance. Meeting Indian Requirements, Fulfilling Regional Aspirations and Matching Global Expectations for "Safe Seas and Secure Coasts" the US-2i is India's best option for a brighter tomorrow.

Unique. Ahead of the Art.

ShinMaywa
Brighten Your Future

ShinMaywa Industries India Private Ltd.

Flat No. 1010,1011 and 1012, 10th Floor, Narain Manzil
23, Barakhamba Road, New Delhi -110001

URL <http://www.shinmaywa.co.jp> E-mail air.sales@shinmaywa.co.jp

Chief of the Air Staff Air Chief Marshal B.S. Dhanoa Flies the Light Combat Aircraft Tejas at Bengaluru



Chief of the Air Staff Air Chief Marshal B.S. Dhanoa took to the skies in Yelahanka over Bengaluru city in the indigenously designed and developed aircraft LCA Mk I (Tejas) at 1645 hours on February 14, 2017. The Air Chief Marshal flew with the Principal Director Test Flight of the National Flight Test Centre Air Vice Marshal A.P. Singh.

During the sortie the Chief of Air Staff was demonstrated the operational capability of the aircraft which included agility, manoeuvrability and advanced interface of avionics. The profile included general handling, air-to-air and ground attack patterns. The Air Chief Marshal was impressed by its capability expressing his faith in the programme. The Tejas aircraft has achieved initial operational clearance (IOC) and has been inducted into the Indian Air Force.

Boeing to Revisit India Forecast after RCS

By **R. CHANDRAKANTH**

Boeing which has forecast 1,850 new airplanes valued at \$265 billion for India from now to 2035 will revisit the forecast to factor in the requirement of regional jets in the changed scenario of the government laying emphasis on regional connectivity.

Stating this at the press conference, Dinesh Keskar, Senior Vice President, Sales, Asia Pacific and India, Boeing, said Boeing would wait and watch how the Regional Connectivity Scheme (RCS) panned out. While agreeing that RCS would require less than 130-seat aircraft, he said the regional jets and turbo-props would first create the market in the second and tertiary markets. In three to five years time, these routes would mature to take in single-aisle aircraft.

Presently, Boeing states that of the 1,850 new airplanes, single-aisle would account for 84 per cent, wide-body 15 per cent and regional jets less than 1 per cent. "We want to be the preferred supplier for wide-body aircraft in India."

"The major factors we watch — the exchange rate, fuel price and the profitability of the airlines — are still favourable and we remain confident in the strong growth of India's commercial aviation sector. We see the potential for travel growth in 2017 to continue to be high in India and we expect more than 100 million passengers to fly domestically this year."

Fuel prices, Keskar said, had gone up by 50 per cent since last February and the lowering of the exchange rate with the US dollar had brought about 39 per cent reduction in break-even fare over the last three years. The average fare is decreasing and Boeing constantly watches these trends as it helps in creating or developing markets. The fuel price in India is \$2.93 per gallon as against \$1.44 per gallon which the US carriers pay. •



DINESH KESKAR, SENIOR VICE PRESIDENT, SALES, ASIA PACIFIC AND INDIA, BOEING COMMERCIAL

PUBLISHER AND EDITOR-IN-CHIEF
Jayant Baranwal

ASSISTANT GROUP EDITOR
R. Chandrakanth

SENIOR CONTRIBUTORS
Air Marshal B.K. Pandey (Retd)
Lt General Naresh Chand (Retd)
Lt General P.C. Katoch (Retd)
Lt General V.K. Kapoor (Retd)
Rear Admiral S.K. Ramsay (Retd)

CHAIRMAN & MANAGING DIRECTOR
Jayant Baranwal

PLANNING & BUSINESS DEVELOPMENT
Executive Vice President: Rohit Goel

SALES & MARKETING
Director: Neetu Dhulia
General Manager Sales: Rajeev Chugh

CREATIVE DIRECTOR
Anoop Kamath

LAYOUT DESIGNERS
Vimlesh Kumar Yadav
Sonu S. Bisht
Research Asst-Graphics: Survi Massey

ADMIN & COORDINATION
Bharti Sharma

ASST-ADMIN, HR & INFRA
Pooja Tehlani

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

SP GUIDE PUBLICATIONS PVT LTD
A-133, Arjun Nagar,
(Opposite Defence Colony)
New Delhi 110003, India

Tel: +91 (11) 24644693, 24644763,
24620130

Fax: +91 (11) 24647093

E-mail: info@spguidepublications.com

Owned, published and printed by
Jayant Baranwal on behalf of
SP Guide Publications Pvt Ltd. All rights
reserved. No part of this publication
may be reproduced, stored in a retrieval
system, or transmitted in any form or
by any means, photocopying, recording,
electronic, or otherwise without prior
written permission of the Publishers.

Printed at Kala Jyothi Process Pvt Ltd,
Hyderabad

© SP Guide Publications, 2017

www.spguidepublications.com



SP GUIDE PUBLICATIONS

SP's @ 53 PURSUING EXCELLENCE OVER FIVE DECADES SINCE 1964

For Advertisement / Editorial queries,
please contact us at **Hall AB (AB3.46)**

Tactical Intelligence Solutions for Land Forces

Modern land forces face challenges managing large formations in complex terrain. In both static and manoeuvre warfare, operations are fluid and dynamic. Planned at the command, army or division level, they are designed to achieve operational goals, but the translation of such plans to the tactical level must adapt to the new realities of asymmetric warfare.

Asymmetry is not limited to guerrilla and low intensity conflicts, but it is implemented in the use of superior technology such as stealth, mobility, and effects, including precision strike and cyber. The area of responsibility (AOR) of the brigade and battalion have increased and are now exceeding areas previously controlled by divisions. Quite often battalions are assigned an AOR spanning 20 km of front line, and 40 km deep into enemy area, while maintaining an 'area of interest' (AOI) ranging up to 100 km deep.

RELYING ON ORGANIC ASSETS

To dominate such large areas tactical formations from brigade and below are prepared to conduct their missions relying on organic assets — infantry, armour, artillery, and combat support elements necessary for their operations. While sophisticated and advanced, these assets are designed to fight within visual range. When engaging distant targets, those formations depend on intelligence and targeting provided by the higher echelons even when their firepower (artillery, helicopters or guided weapons) is in range. Such intelligence is collected by satellites, drones, radars and other forms of electronic surveillance that monitor those areas in the real time, and centrally processed, analysed and transferred to the users in the form of intelligence reports and target lists.

When those distant targets are stationary, and operations unfold along preplanned processes, this hierarchy works fine. But what happens when the forces are moving? Enemy artillery entering firing positions? Their resupply convoy move in to replenish an exhausted battalion? Anti-tank ambush set to close a mountain path you plan to use? These are important intel bits that includes actionable targets, that would rarely trickle down to the battalion in relevant real time to be actionable.

These insights were part of lessons learned during Israel's 'Second Lebanon War' of 2006. Through the month-long campaign, combat units engaged in combat in the mountainous terrain of Southern Lebanon were limited by their ability to obtain intelligence and situational picture in near-real-time, although such intel was available at higher echelons.

Due to the centralised nature of military intelligence, the tactical echelons — those combat formations that are facing the enemy head on — often get trickles of the huge volumes of information generated at the operational level, reflecting battlespace pictures that are often outdated and irrelevant to the situation in hand.



BIRDEYE 650D MINI-DRONE

TACTICAL INTELLIGENCE BY IAI

To fill this gap Israel's leading defence enterprise, Israel Aerospace Industries (IAI) developed the new tactical intelligence concept based on operationally proven building blocks, integrated and adapted to operate with the manoeuvre forces. "Tactical intelligence capabilities enable commanders at the battalion and brigade to look through the smoke, beyond the hill and over the next ridge, to dominate the entire AOR and well into the AOI" Avi Bleser, Vice President, Marketing & Sales, at IAI's MALAT division explains. "It focuses the commander's attention on the objectives and targets that are the most relevant to them, relying on organic assets."

According to Bleser, IAI's BirdEye 650D mini-drone is a central element of IAI's tactical intelligence solution and offers mission endurance of 20 hours. These drones typically operate at altitudes up to 15,000 ft and over distances of 150 km. It carries electro-optical payloads that provide excellent imagery for situational understanding and targeting. Each drone can carry additional payloads, including electronic sensors and communications relays to maintain communications continuity over complex terrain. An electrically-powered variant can be used for specialised, shorter missions, where low acoustic signature is mandatory. The drones are operated from standard tactical vehicles equipped to carry, launch, control, retrieve and support multiple drones.

HOVERMAST, HYBRID VEHICLE

The battalion operates a different solution — the Hovermast. "This hybrid vehicle is an electrically-powered quadrotor tethered to the command vehicle by a cable that provides electrical power and downloads imagery and data," Bleser noted. "As an automatically operated sensor Hovermast can be integrated into any combat vehicle — tank, command APC or light utility vehicle, providing an elevated view of the terrain and targets within its line sight," he added. While each Hovermast is controlled and monitored by the user, it is also linked via wideband and data link to the brigade, providing instant situational report.

What makes these elements a 'Tactical Intelligence Solution' is the Real-Time Image Intelligence Center (RICent) element that collects, processes and analyses the information. RICent was originally developed by IAI Elta to manage real-time intelligence repository at the strategic level. "A derivative of the system is now available for tactical use. A brigade would operate several RICent nodes to maintain operational continuity. Using wide-band communications these nodes are interlinked with drones and Hovermasts, as well as other collecting assets the brigade may have, to create a unified intelligence picture," Bleser added.

"The Tactical Intelligence Solution IAI offers is unique in the integration advanced technology solutions," Bleser concludes, "Adding the operational and logistical maturity makes this battle winning solution a perfect element in the brigade modernisation." •

AMPL – High Volume Production of RF & Digital Subsystems

Astra Microwave Products Limited (AMPL) believes that a good manufacturing facility is critical to bring out highly reliable products, which is why AMPL has ensured that every equipment used in their production line meets the most demanding global standards of precision and performance. This in turn ensures the matchless quality of every product that leaves the premises.

AMPL has already made huge investment on infrastructure, facilities and trained manpower for mass manufacturing of RF & microwave components, super components and subsystems, for both the Indian market as well as for the export market.

These mass manufacturing facilities of 3,00,000 sq ft are under temperature controlled, clean room and static protection environment. The process equipment include state-of-the-art surface mount technology (SMT) based automated electronic mass manufacturing lines.



SPECIAL TEST FACILITIES

Test and measurement is the foundation on which all successful designs are built. The exhaustive test facility includes, RF and digital test equipment for testing at component, subsystem levels as well as during the bulk manufacturing. Automated test equipment for testing of very large numbers of transmit/receive modules for both domestic market and export market has also been created. Military and space qualification is another major requirement met with the facilities like the environmental tests, HAL/HAS and the EMI/EMC facility. This combined with

high-end facilities that includes hermetic and laser sealing equipment combined with gross and fine leak testing ensures that products meet stringent requirements of hermeticity. The company is also investing to build a near field test range for calibration and collimation of active phased array radars, which is expected to be operational soon. •



Swadeshi.

Honeywell

© 2017 Honeywell International. All rights reserved.

Honeywell Aerospace is a committed partner to India. Investing in cutting-edge technology development and engineering centres, manufacturing facilities and our people across the country, we are creating solutions for the challenges faced by the Indian aerospace industry. Made in India, by Indians, for India and the world.

For more information please visit aerospace.honeywell.com/india.



Pain Points for Foreign OEMs

In a rare media interaction with *SP's ShowNews*, **Ashok Kumar Gupta, Secretary, Defence Production**, outlined his vision for defence manufacturing in India and addressed a wide range of subjects including 'Make in India', DPP 2016, defence offsets, role of DPSUs, investment in R&D, delays in procurement decisions, blacklisting and other related issues.

(...Continued from SP's ShowNews Day 2)

SP's ShowNews (SP's): Are we likely to see the serious investments in R&D in India (beyond DRDO) which can be one of the catalysts for indigenisation?

Secretary, Defence Production (Secretary): The government is committed towards facilitating investments in R&D defence sector in India. Accordingly enabling provisions have been introduced in DPP 2016. In order to promote indigenous design and development of defence equipment, DPP 2016 has introduced the 'Buy (Indian-IDDM)' category of acquisition and accorded it the top most priority.

Technology acquisition by DRDO in the areas of high technology has been listed as one of the avenues for discharge of offset obligations. Moreover, in discharge of offset obligations related to technology acquisition by DRDO a multiplier up to 3 is permitted.

Government plan to offer at least 8-10 projects every year under 'Make' procedure for development by Indian private sector. This is likely to give a fillip to investment in R&D in India.

Technology Development Fund has been established to promote self-reliance in defence technology as a part of 'Make in India' initiative. It is a programme of Ministry of Defence executed by DRDO for meeting the requirements of Tri Services, Defence Production and DRDO.

SP's: The biggest pain point of foreign OEMs today is the time that India takes to decide on any defence procurement. What is being done to cut this time down and expedite the whole procurement process?

Secretary: The Ministry has introduced many provisions in DPP 2016 in order to address the issues of pendency/delays in procurement process. Some of them are:

- Provision for requirement of draft RFP to be submitted along with proposal for seeking AoN.
- Reduction in validity of AoNs from one year to six months in 'Buy' and 'Buy and Make' categories and from two years to one year in 'Buy & Make (Indian)' category.
- Stages of approval for accord of AoN of procurement proposals have been reduced.
- Proposed time lines of procurement process have been further reduced in DPP 2016 as compared to earlier versions.
- The complaints received by the government in respect of defence contracts was one of major hurdles in progressing the cases. Guidelines for handling of complaints have now been notified.
- Provision for change of name of vendor/entity have been incorporated.
- Use of certifications and simulations as much as possible, is recommended in DPP 2016.
- Provisions have been made to allow foreign OEM to select Indian production agency of its choice for transfer of technology.
- Single vendor cases at the bid submission and Technical Evaluation Com-

mittee (TEC) stages will not be automatically retracted; they can be processed with due justification and approval of DAC.

SP's: Another major sticking point with foreign OEMs is cancellation of tenders, even after announcing the L-1. Why does it happen so frequently and what are the solutions so that these can be avoided in the future?

Secretary: Does not pertain to defence production, so I won't be able to comment on this.

SP's: There have been series of clearances of various programmes however actual contracts being signed are still not that many. Hence the sense still persists that the concrete modernisation process is still something that remains a pipe dream. How do you respond to this?

Secretary: Defence procurement cycle has typically been longer on account of various factors such as long and exhaustive all weather trials, small vendor base, etc. Therefore, the AoN accorded by government takes three to four years to fructify into contracts.

Nevertheless, 108 contracts with total value of ₹1,12,736.81 crore have been signed for capital procurement of defence equipment during the last two financial years (2014-15 and 2015-16), out of which 73 contracts involving a value of ₹72,303.34 crore were signed with Indian vendors. Therefore, it shall suffice to say that the government is committed towards defence modernisation with maximum participation of Indian vendors.

SP's: Blacklisting of companies! What is latest on the policy of banning companies for presumed wrongdoing? And how do we plan to address the scenario of single vendor situation?

Secretary: The guidelines of the Ministry of Defence for penalties in business dealings with entities applicable for both capital and revenue procurement of goods and services have been approved by the DAC in November 2016 and promulgated on the MoD website. MoD is reviewing the existing cases of suspension/ban/blacklisting, etc., against vendors in the light of the guidelines. With regard to single vendor situation, DPP 2016 has been suitably amended as per which single vendor cases at the bid submission and TEC stages will not be automatically retracted.

SP's: What are your expectations from the upcoming Aero India 2017?

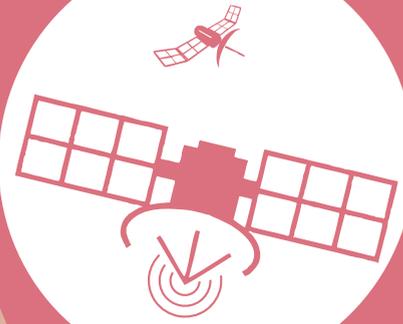
Secretary: Through Aero India, the government provides a common platform to leading national and international manufacturers/suppliers of aerospace sector to share their business plan on various topics related to the sectors such as integration of Indian aerospace industry into global supply chain, creation of infrastructure, enhancing rural-regional connectivity, empowering and incentivising Indian MSMEs in defence & aerospace sector, etc.

Bolstering 'Make in India' would be the major theme of Aero India 2017. The government expects to have maximum participation of all stakeholders specially foreign OEMs, Indian states and leading Indian defence companies during Aero India 2017 and to have successful B2B or G2B meetings, fructifying into joint ventures/tie-ups/technology sharing agreements in the near future. •



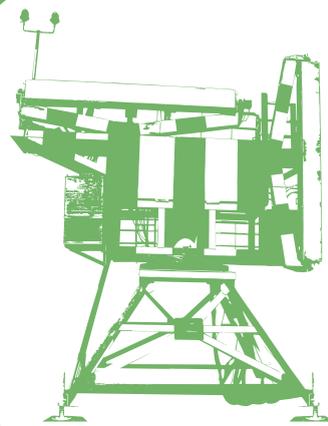
Astra Microwave Products Ltd.

EXPLORE
INNOVATE
INVENT



PIONEERS IN
STRATEGIC
ELECTRONICS

- RESEARCH & DEVELOPMENT
- HIGH-VOLUME PRODUCTION
- STATE-OF-THE-ART INFRASTRUCTURE
- TOTAL QUALITY MANAGEMENT



Regd. Office: ASTRA Towers, Survey No. 12(P), Kothaguda post, Kondapur
Hitech City, Hyderabad 500084, Telangana, India.

Tel +91 40 30618000/8001 | Fax +91 40 30618048/8383
info@astramp.com | www.astramp.com



L3 APS is Committed to Partnering with the Government of India on the 'Make in India' Programme

L3 Aviation Products & Security (L3 APS) President **Krishen Ganase** elaborated on range of activities of the company and plans towards India in a conversation with *SP's ShowNews*.

SP's ShowNews (SP's): Can you briefly recount the history and profile of L3's Aviation Products sector?

Krishen Ganase (Ganase): Founded in 1997 as L-3 Communications, L3 Technologies is one of the world's top 10 aerospace and defence companies and is a leading provider of a broad range of communication and electronic systems and products used on military, General Aviation (GA), homeland security and commercial platforms. L3 Aviation Products & Security (L3 APS), a sector within the company's Electronic Systems business segment, provides leading-edge avionics and support that enable enhanced flight safety, efficiency and mission effectiveness for multiple markets and platforms.

SP's: Can you catalogue the range of technologies and services that the company provides, both in the military and commercial aviation segments across the world?

Ganase: L3 APS supplies a broad range of avionics technologies, such as voice and flight data recorders, collision avoidance systems, navigation products, airborne flight displays and mission processors. Offerings include advanced next-generation avionics solutions and services for air transport, general and business aviation, and military aircraft, including helicopters. L3 APS also provides MRO and integrated performance-based logistics for commercial and military systems.

Through our Traffic Alert and Collision Avoidance System (TCAS) and transponder product and software portfolio, L3 APS technology is enabling implementation of ICAO's Global Air Navigation Plan (GANP). We also manufacture the advanced Large Area Cockpit Displays on the F-35 Joint Strike Fighter, as well as displays on the C-130J. L3 APS's independent standby flight instruments are on many civil and military aircraft.

In General Aviation, the groundbreaking Lynx[®] NGT-9000 transponder system enables full ADS-B mandate compliance while providing seamless air navigation coverage and enhanced safety in flight operations. Lynx brings commercial airliner levels of safety and situational awareness features to GA operators.

SP's: You own a number of brands. What has been the vision behind this?

Ganase: Our vision has been to provide our customers with high-performing products and support, delivering best-in-value solutions while meeting a vast range of customer operational requirements. The L3 APS brand and product line also reflect our core company values of operational excellence, teamwork and the highest ethical standards. We are further defined by world-class talent and an unwavering commitment to value and innovation. It all adds up to a strong foundation for delivering products that provide increased functionality, enhanced efficiency and lower cost of ownership over the product life cycle.

SP's: What are the new products that L3 APS is currently developing or is planning to launch in the near future?

Ganase: L3 APS continues to innovate to improve flight safety, efficiency and effectiveness. Our legacy is innovation and technology leadership, and we continue to introduce new solutions for all aircraft segments. Our latest solutions include the Lynx NGT-9000, which brings commercial airliner-class safety and surveillance features to GA; significantly lighter weight, high-resolution Active Matrix LCD displays; and next-generation transponders that are ADS-B compliant to DO-260B standards.

SP's: What kind of future technologies are you currently investing in?

Ganase: We are focused on optimising and enhancing our products, leading to higher value and peak performance at a lower cost of ownership for today's operators. We concentrate our research and development on advanced technologies that can enhance mission effectiveness, safety and efficiency. Next-generation data fusion displays – which L3 currently provides to the world's

most advanced fighter programme – remain a key part of our innovation strategy. And, we now have successfully developed a derivative display solution for global customers at a very competitive cost. We believe that this will drive the next generation of cockpit displays and upgrades across the market.

In the safety and surveillance portfolio, we will continue to provide software and hardware products, delivering certified solutions that can be applied in conjunction with ICAO's 15-year GANP. We are making excellent progress on solutions that leverage ADS-B positioning and Iridium satellite-based data link technology to develop a new generation of products and applications that will support NextGen aircraft tracking capability, navigation and surveillance, and safety.

SP's: While your products are widely employed on manned aircraft across the globe, are there any products the company has developed or is developing for unmanned platforms?

Ganase: We have several solutions for UAVs. L3 APS safety and surveillance solutions include TCAS products, aircraft information reporting and tracking equipment, and other sense and avoid avionics that help ensure the interoperability of UAVs with manned aircraft. As another example, our sister company, L3 WESCAM, provides imaging and targeting systems that can be found on more than 100 different types of platforms, including UAVs and aerostats.

SP's: Can you please describe the company's involvement with Indian military aviation and also with the Indian aerospace industry?

Ganase: L3 APS has been supporting the Indian aerospace industry for more than a decade. Our support to the Hindustan Aeronautics Limited (HAL) dates to 2003, when we began supplying Flight Data Recorders (FDRs) for the Advanced Light Helicopter and Cheetah/Chetal helicopters. Our relationship with HAL has grown, and now we provide TCAS-II systems for the HAL Do-228s and Advanced Light Helicopters, and are well into the integration phase of our Tactical Airborne Navigation System (TACAN+) on the new Light Utility Helicopter (LUH) platform.

Several aircraft flying with the Indian armed forces have L3 APS avionics, including the cockpit displays on C-130Js, TCAS and flight data recorders on Boeing P8-Is, TACAN+ and FDRs on Pilatus PC-7s, and TCAS on IL-76/78s. Recognizing that life-cycle support is a critical requirement for our Indian military customers, L3 APS established a repair and overhaul centre in Bengaluru, bringing OEM expertise to India and significantly reducing turnaround times for repairs.

SP's: While your name does suggest your offers are more aviation-centric, do you also have any solutions for land forces and naval forces? If so, can you elaborate a little?

Ganase: L3 APS focuses on both military and civil aviation technologies. L3 divisions also design and develop land and marine systems, as well as a broad range of sensor and warfighting technologies. L3 has developed a relationship as a trusted partner to the Indian military and has been supporting indigenisation efforts for more than a decade. As an example, L3's marine division has been working with Indian Navy indigenous shipbuilding projects on the manufacture and integration of ship control systems for the past 15 years, designing, developing and manufacturing these systems out of L3's Bengaluru facility.

SP's: How relevant or important is the Indian market for your company, especially in view of the 'Make in India' programme of the Indian government?

Ganase: L3 APS is committed to partnering with the government of India on the 'Make in India' programme. In addition to opening a Part 145 repair and overhaul facility in Bengaluru, some of our next-generation global products are partially built in India. And, we are collaborating on manufacturing electronic circuit assemblies and the design of embedded avionics for future products. L3

APS is on the path to expand in India to meet demand, including solutions that will meet new airworthiness mandates.

SP's: Has the company established any joint ventures or partnerships with companies in India in the public as well as the private sector?

Ganase: L3 APS has subcontract and collaborative relationships with several Indian companies to design key avionics systems and subsystems to manufacture electronics and also to develop and validate embedded software.

SP's: How is your relationship with HAL?

Ganase: L3 APS is proud to have a long-standing and growing relationship with HAL. We are committed to supporting HAL's mission and objectives and strive to support HAL as a strategic avionics partner, delivering products and life-cycle services that provide the best value and optimized operational availability for the end customer.

SP's: What is the business strategy of the company in India for growth in the long term as well as the company's plans to expand its footprint in India?

Ganase: L3 APS has invested in our India operations over the past five years, and we remain committed to our local employees and to the support of Indian aerospace and defence. Having established an L3 business development and customer support team, supply chain and engineering oversight, as well as a sustainment facility, we are focused on continued growth. We also continue to train and expand the knowledge and capability of our local teams. We are reviewing further expansion opportunities, taking into consideration the government of India's increased foreign direct investment parameters and the evolution of India's policy framework and rules, among other factors.

SP's: Will the recent upgrade of India's status as a major defence partner of the US have any implications for the business prospects of the company in the future?

Ganase: We think this preferred status is mutually advantageous for L3 APS, our growing Indian supplier network and our customers in India. That said, market dynamics and other factors will continue to shape our ability to continue expanding and growing in India. •

Rafael, Reliance JV to Manufacture Air Defence Systems

By **R. CHANDRAKANTH**

Israeli company Rafael with cutting-edge technologies in air defence systems has tied up with Reliance to manufacture air defence systems, which the company is showcasing at Aero India.



The Deputy General Manager, Colonel Joseph Horowitz (Retd) told *SP's ShowNews* that delegations from the Indian Navy and the Indian Air Force had visited the pavilion and expressed interest in the air defence systems – Iron Dome and C-Dome. He said the Iron Dome since its launch in 2011 had destroyed over 1,700 enemy rockets. "We cannot find any missile in the world with such a strike rate of 90 per cent." He said that a week ago, Israel had destroyed a Hamas fired rocket with great effect. He said the Iron Dome launcher was put on a Israeli ship recently and using the ship's radar, it was possible for 'target detection' and 'weapon allocation' in quick time. The company was now working on integrating the air defence system on ships. The Israeli Navy had worked on this system called 'Closed-in Weapons System'. The system can detect sea-skimming threats, rockets and other enemy munitions.

The systems, he said, would be required in India as the country had huge assets to protect not only on land but also on sea. He was hopeful that these systems would soon be accepted by India. •

TEJAS
A FOURTH PLUS GEN FIGHTER, SMALLEST LIGHT WEIGHT, SUPERSONIC, ALL WEATHER MULTI-ROLE, AIR-SUPERIORITY

DESIGNED FOR
AIR - TO - AIR, AIR - TO - GROUND
AIR - TO - SEA, COMBAT ROLES

REVOLUTIONISING
AVIATION SECTOR IN

NATION'S DEFENCE
Displaying the might at
Aero India 2017
14th - 18th February
Yelahanka, Bengaluru

ATTAINING GREATER HEIGHTS

Defence Research & Development Organisation (DRDO), Ministry of Defence
Aeronautical Development Agency (ADA), An Autonomous Society of DRDO



UK Minister Looks Up Joint Advanced Hawk

During her visit to Aero India 2017, Harriett Baldwin, Member of Parliament, United Kingdom and Minister for Defence Procurement met BAE Systems and the Hindustan Aeronautics Limited (HAL) and was given a demonstration of the partnership's latest collaboration, the Advanced Hawk fast jet trainer.

After seeing at first-hand the capabilities the Advanced Hawk offers, the Minister said: "The UK and India have so much to offer to one another in defence and I'm delighted to be at Aero India to build this close relationship. The joint development of the Advanced Hawk by BAE Systems and HAL is an outstanding example of what our defence industries can achieve together. Indian companies like HAL have been building UK-designed aircraft for over 40 years, so we are building on a strong foundation."

Alan Garwood, Group Business Development Director, BAE Systems, added: "The Advanced Hawk is another demonstration of our commitment to 'Make in India' and presents a unique opportunity to build on our track record of collaboration with HAL and Indian industry in developing technologies and capabilities. Advanced Hawk is a great example of 'Make in India', for India and Export from India." •

Kalyani Group and Israel Aerospace Industries JV on Air Defence Systems



JOSEPH WEISS,
PRESIDENT AND CEO, IAI



BABA KALYANI,
CHAIRMAN, KALYANI GROUP

Kalyani Strategic Systems Limited (KSSL), the defence arm of Kalyani Group, and Israel Aerospace Industries (IAI) signed a memorandum of understanding (MoU) to set up a joint venture company to manufacture specific air defence systems and ground-to-ground and ground-to-sea munitions, in accordance with 'Make in India' programme.

The MoU was signed by Joseph Weiss, IAI's President and CEO, and Baba Kalyani, Chairman of Kalyani Group. Baba Kalyani said: "The joint venture company will combine IAI's advanced technology, knowledge and experience as an OEM with world-class design, development and manufacturing capabilities of the Kalyani Group."

Joseph Weiss said: "We are excited to announce the next step in our partnership in India, one of IAI's leading markets. This collaboration brings together the manufacturing and technology excellence of two leading companies and we hope we can continue with our partners at KSSL to spread our footprint in India and to continue our vast work with the 'Make in India' policy."

Rajinder Singh Bhatia, President & CEO, Defence & Aerospace of Kalyani Group, said: "Kalyani Group's manufacturing competence is well suited to complement IAI's products in niche segments. Together, we shall provide the most advanced solutions to our armed forces." •

Aequus is Fastest Growing Precision Engineering Company

By R. CHANDRAKANTH

Aequus is among India's fastest growing precision engineering companies specialising in precision machining, sheet metal fabrication, aerospace assemblies, closed die forging, and special processing for the aerospace, automotive and oil & gas industries.

The company's customers include global industry leaders including Airbus, Baker Hughes, Bosch, Dassault, Eaton, GKN, HAL, Honeywell, JVS, Sprit Aerospace and UTAS to name a few. Aequus operates several manufacturing facilities in India, US and France. The significant facilities are located in the Aequus SEZ, Belagavi, India's first notified precision engineering and manu-

facturing ecosystem. Aequus is further forging partnerships with global players at Aero India.

Aequus combines the benefits of specialised manufacturing centres in Europe and the US enabling close customer collaboration with a global ecosystem in Belgaum in Karnataka, providing vertically integrated manufacturing capabilities including precision machining, sheet metal fabrication, assembly, closed die forging and special processing.

Over the past year, Aequus has acquired a diversified manufacturing group in France and constructed a fully operational 1,00,000 sq ft machining facility in India to better serve the needs of Airbus and other European-based customers. •

Bell Helicopter: Focus on Indigenous Capabilities



SAMEER REHMAN, MANAGING
DIRECTOR FOR ASIA PACIFIC,
BELL HELICOPTER

Bell Helicopter is committed to meeting the 'Make in India' requirements through robust and proven technology transfer and developing significant indigenous content. The company has demonstrated a deep commitment to 'Make In India' through the successful delivery of more than 50 Bell 407 cabins from Dynamatic in Bengaluru in support the company's commercial production needs. Partnering with the Indian industry, Bell Helicopter intends to develop and deliver on projects which grows jobs, increase technology and industrial capability in India.

"Our focus in India has always been to grow the indigenous capabilities of the Indian industry through technologically-advanced processes while continuing to grow the base of helicopters here. Bell Helicopter still enjoys majority share of commercial helicopters in India, but our focus at Aero India 2017, as has been in the past, is to develop deeper relationships with the services and find new ways to partner with local industry to meet 'Make in India' requirements. Our commitment and determination to India and its citizens are unwavering," said Sameer Rehman, Bell Helicopter's Managing Director for Asia Pacific. •

नवरत्न रक्षा पीएसयू

देश के रक्षा बलों को सशक्त बनाते हुए

भारत इलेक्ट्रॉनिक्स
BHARAT ELECTRONICS

गुणता. प्रौद्योगिकी. नवोन्मेष.

भारत इलेक्ट्रॉनिक्स लि. (बीईएल), भारत की अग्रणी रक्षा इलेक्ट्रॉनिक्स कंपनी ने सैनिकों के निर्णायक मिशनों में उनकी सहायता करने वाले उत्पादों की व्यापक श्रृंखला तैयार करते हुए देश के सशस्त्र बलों को सक्षम बनाने का अपना लक्ष्य तय किया है। एक बहु-उत्पाद, बहु-यूनिट वाली कंपनी, बीईएल को अपने उच्च परिशुद्ध उत्पाद जिसकी सभी प्रक्रियाओं में विश्व-स्तरीय गुणता सुनिश्चित की जाती है, से आद्योपांत, आवश्यकता अनुकूल समाधान प्रस्तुत करने में विशेषज्ञता प्राप्त है।



टैंक उन्नयन



हथियार प्रणालियों



सैन्य संचार



रेडार



इलेक्ट्रो ऑप्टिक्स



नौसेना प्रणालियों



तटीय निगरानी प्रणाली



वैमानिकी



असैनिक

अधिक जानकारी के लिए www.bel-india.com देखें

भारत इलेक्ट्रॉनिक्स लिमिटेड

(भारत सरकार का उद्यम)

आउटर रिंग रोड, नागवारा, बेंगलूरु - 560045, भारत

टॉल फ्री - 1800 4250 433

सीआईएन : L32309KA1954GOI000787

Meeting your operational needs is our mission



IAI – your one-stop address for helicopter upgrade and maintenance needs

- Modular integrated upgrade packages tailored to day/night missions
- Optimized integration of advanced mission equipment and sensors
- Mission-driven displays and controls for enhanced air crew performance
- Refurbished helicopters and comprehensive helicopter support



www.iai.co.il
lahav_marketing@iai.co.il

SEE US AT
AERO INDIA 2017
Israel Pavilion, Hall A



WHEN RESULTS MATTER