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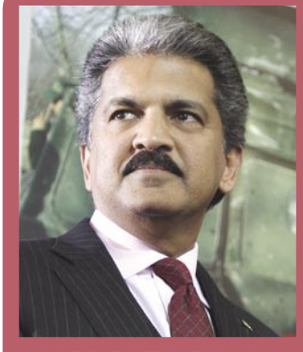
» INSIDE «

SPOTLIGHT



CORPORATES BULLISH ABOUT DEFENCE MARKET

"We are also looking forward to developing the critical version of Bofors gun. The Bofors controversy has become a past. It has had many incarnations and we have seen the power of the artillery during the Kargil war. We are proud to have it."

Anand Mahindra
Vice Chairman &
Managing Director,
Mahindra & Mahindra

SP's EXCLUSIVE

Return To Arms

Decks cleared for world's largest small arms order for the Indian Army

By Vishal Thapar

The 1.1 million-strong Indian Army is seeking more firepower for its foot soldier. It has decided to replace the decade-old, indigenously developed INSAS assault rifle and the obsolete 9 mm carbine. The army is in the international arms bazaar, shopping, to begin with, for about 400,000 new generation rifles which will cost over $1.5 billion (Rs 6,900 crore).

The rifle purchase could go up by as much as four times, as security planners see merit in equipping India's 500,000-strong para-military and armed police with the same weapons later. This looks set to evolve into one of the world's largest-ever purchase of rifles.

Keen to get the best deal, the army is looking at a wide array of rifles available across the world (see box). The shopping list includes 218,320 assault rifles, 160,082 close-quarter battle carbines and 10,730 lightweight assault rifles for special forces. There will be three separate global tenders for each of these categories. Tenders for the assault rifles and carbines involve transfer of technology to India's ordnance factories, where the bulk of the weapons will be manufactured.

Procurement of the new rifles will be dovetailed with the Indian Army's Future Infantry Soldier as a System (F-INSAS) programme to modernise its huge infantry. The requirement is for a more lethal, lighter weight rifle which can fire various kinds of munitions, and has high-tech gadgetry—including laser sights and night vision equipment—mounted on it. This is intended to be the Indian foot soldier's weapon for the next two decades.

Highly-placed sources at Army Headquarters tell SP's ShowNews that there are also operational reasons for seeking to replace the INSAS. "Our experience of using the 5.56 mm INSAS is that it often does not immobilise adversaries like terrorists, but simply

Continued on page 26

Season of JVs

Raytheon ties the knot with L&T for T-72

Page 4

ROTARY RULES

AgustaWestland tie-up with Tata for chopper production

By Sucheta Das Mohapatra

Against the backdrop of the milling crowds attending Defexpo 2010 at Pragati Maidan in Delhi, AgustaWestland CEO Giuseppe Oris and Tata Sons Chairman Ratan Tata agreed to the pact wherein a Hyderabad-based joint venture (JV) company will be responsible for final assembly of AW119 even as AgustaWestland markets the helicopter across the world.

Continued on page 6

Page 30

'MMRCA's ToT, offset great boost to domestic players'

Dr Chandan Chowdhury, CEO, IFS India

Wipro & CAE join hands to address India's defence training needs

On the second day of Defexpo 2010, Wipro announced that it has signed an agreement with CAE Inc to jointly address the growing simulation-based training, operations, maintenance and training support services opportunities for India's defence forces.

Wipro and CAE will collaborate to provide training systems integration and simulation-based solutions for areas like war gaming, C4ISR and a range of defence platforms expected to be acquired by India's defence forces. The two companies will also work together to help original equipment manufacturers (OEMs) meet offset obligations in India that are required by India's Ministry of Defence. Both the companies shall provide joint investments, sales support and local production support based on the respective expertise of each company.

"We are committed to enhancing India's defence capabilities, and part of this commitment involves bringing state-of-the-art capabilities, technologies and solutions to India through collaboration and partnership with global leaders," said Mr. Partha Sarathi Guha Patra, Vice President, Defence, Security & Offsets for Wipro. "CAE is a recognised leader in training systems integration and simulation technologies, and a company that has made significant investments in India, so we are excited to team with CAE to better serve India's defence forces."

Wipro will also work closely with Bangalore-based CAE India Pvt Ltd, which is incorporated in India and is part of CAE's global family of companies serving the defence market. CAE India is leveraging CAE's full breadth of simulation products, technologies and capabilities to address the requirements of India's defence forces.

SAAB & Samtel sign MoU

HANS BRANDTBERG, SENIOR BUSINESS DEVELOPMENT EXECUTIVE-AVIONICS DIVISION, SAAB, AT THE SIGNING OF AN MOU BETWEEN SAAB AND SAMTEL DISPLAY SYSTEMS TO JOINTLY DEVELOP, MANUFACTURE AND MARKET RIGS HEAD-UP DISPLAYS (RIGS HUD) IN INDIA. ***(STORY IN SP'S DEFEXPO 2010 SHOWNEWS 4. PLUS AN INTERVIEW OF PUNEET KAURA, EXECUTIVE DIRECTOR, SAMTEL DISPLAY SYSTEMS.)***

COFFEE BREAK

Eat Out

NORTH INDIAN CUISINE

Haveli: Hotel Taj Mahal
Phn: 23026162
Timings: 12:30 pm - 2:45 pm and 7:30 pm - 11:45 pm
Gulati: 6, Pandara Road
Phn: 23388836, 23782949
Pind Balluchi: 13 Regal Building, Connaught Place
Phn: 43720507 / 9650494994

CHINESE CUISINE

Berco's: Connaught Place
Phn: 43731111, 43731122, 43731133
Fa Yian: Connaught Place

MUGHLAI CUISINE

Karim's: Nizamuddin
Phn: 23264981: **Timings:** 12 noon to 3.30 pm, 6.30 to 11.30 pm
Nizam's: Connaught Place
Phn: 2332 1953

SOUTH INDIAN CUISINE

Sagar Ratna: Defence Colony Market **Phn:** 24333110, 24333440
Dakshin: District Center, Saket
Phn: 26521122
Saravana Bhavan: Connaught Place **Phn:** 23317755, 23316060

Thai Cuisine

Baan Thai: Oberoi Hotel
Phn: 24363030, **Timings:** 12:30 pm to 3 pm; 8 pm to midnight
Spice Route Restaurant: Janpath
Phn: 23341234/ 41501234
Ichiban Restaurant: Pandara
Phn: 23386599

Best of Bakeries

Bakers: Greater Kailash Market
Gourmet Shop: Vasant Kunj
Café Turtle: Greater Kailash
Phn: 24655641/2/3

Seafood

Melange: Saini Enclave
Phn: 22374590
Ploof: Lodi Colony
Phn: 24649026 / 24634666

DESSERT PARLOURS

Perfect Ice: GK **Phn:** 26441709
Gourmet Ices: GK II
Phn: 26232233, 26219866
Creams N Shakes: Jangpura
Phn: 24310141
Kwality Walls Ice Cream Limited: Connaught Place **Phn:** 23341160

FAST FOOD

Pizza Hut: Phn: 39883988
Nirula's: Phn: 44010101
McDonalds: Phn: 66-000-666
Dominos: Phn: 23416880-85
Haldiram: Phn: 28898030

MUST VISIT

Akshardham Temple: NH 24, Noida Mor; 9am to 9 pm; Mondays closed.
Qutab Minar: Mehrauli, South Delhi; open daily.
Red Fort: Opposite Chandni Chowk, Old Delhi; closed on Mondays.
Garden of Five Senses: M.B. Road, Near Saket; 6 am to 9 pm.
Bahai (Lotus) Temple: Near Nehru Place; open daily.
India Gate: Rajpath; always open.

EMERGENCY

HOSPITALS
- AIIMS: 26588500
- Indraprastha Apollo: 26925858
- Moolchand K.R. Hospital: 42000000
- Max Healthcare: 26515050
- Fortis Hospital: 42776222

FIRE
- Delhi Fire Service: 101

RAILWAYS
- Enquiry: 139
- SMS Enquiry: 57886, 54959, 5676747

POLICE CONTROL ROOM: 100

IGI DOMESTIC AIRPORT: 25675373, 25684600 / 7601

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SP GUIDE PUBLICATIONS

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www.raytheon.com
Keyword: TACAESA

Raytheon

Customer Success Is Our Mission

DRDO seeks JVs in critical technologies

"We're looking for industry partners to co-develop futuristic technology related to gallium nitride semi-conductors as well as nano technologies related to structures, sensors, propulsions and communication."

—Dr V.K. Saraswat, Chief of the DRDO

By Vishal Thapar

India's Defence Research and Development Organisation (DRDO) is seeking joint ventures (JVs) with world leaders in the areas of high frequency communication and nano technologies. The DRDO has declared 2010 as the "year of R&D collaboration" in critical areas.

"We're looking for industry partners to co-develop futuristic technology related to gallium nitride semi-conductors as well as nano technologies related to structures, sensors, propulsions and communication," Dr V.K. Saraswat, Chief of the DRDO told *SP's Show News*. DRDO is already in JVs with Israeli entities for the co-development of missile systems.

Gallium nitride chips are the new game changers in communication, enabling high resolution satellite and radar transmission. These semi-conductors make even real-time picture imagery through radars possible. Dr Saraswat said the effort was to harness cutting-edge technology through industry partnerships.

India's top defence scientist declared "significant progress" in the JV with Israeli companies for the co-development of the Long-Range Surface to Air Missile system for the Indian Navy. Another agreement on the joint development of a Medium-Range Surface to Air Missile system for the Indian Air Force is also on the anvil.

But Dr Saraswat ruled out more JVs in the near future in the area of missile development. "We're not looking at missiles at the moment," he said. But he disclosed that the DRDO is interested in acquiring more capability in critical areas like infra-red seeker technology and imaging, for which they're scanning the market for tie-ups.

The tie-ups are aimed at building more self-reliance for India in defence production. "DRDO has declared 2010 as the year of collaboration with industry, academic institutions and the armed forces. This is part of our strategy for self-reliance. Defexpo 2010 is the first step in the DRDO scheme of things," Dr Saraswat said.

Another key focus area is technology for low-intensity warfare. "There are tremendous spin-offs from our research in life sciences for sub-conventional warfare. Detection devices, NBC systems, remotely-operated robots and micro-Unmanned Aerial Vehicles based on DRDO technologies could soon be on the anvil," he disclosed.

M.V. KOTWAL, SENIOR EXECUTIVE VP, L&T, WITH FRITZ A. TREYZ, VICE PRESIDENT, RAYTHEON NETWORKING CENTRIC SYSTEMS

Ink On the Dotted Line

Raytheon teams up with Larsen & Toubro to upgrade the T-72 for the Indian Army

By Ruchika Chawla

Larsen & Toubro (L&T) formally shook hands with Raytheon on Tuesday morning on a joint venture (JV) to upgrade Indian Army T-72 tanks. Present on the occasion were M.K. Kotwal, Senior Executive Vice President–Heavy Engineering, L&T and Fritz Treyz, Vice President, Raytheon Network Centric Systems India Operations.

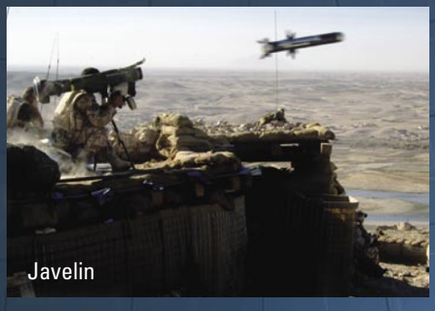
As a part of the proposal, Raytheon will provide infrared imaging sights and electronics to improve the target accuracy and increase overall system lethality for the T-72; while L&T will provide fire control system, sensors and the final integration along with customer support to the Indian Army which retains the T-72 tanks.

"Through collaboration with L&T on this important proposal for the Indian Army, we have confirmed the very complimentary capabilities leveraged across our companies," Treyz said. Collaboration for the two companies came easy as both are leaders of technology in their own fields and regions. "There's no doubt we'll be meeting again to look at other opportunities," Treyz told *SP Guide Publications*. "The criterion we adopt for collaboration is two-fold. Where real value can be added and global relationships can be made are vital for our collaborations," explained Kotwal to *SP Guide Publications*. "L&T and Raytheon combination has got what it takes to deliver on such an important programme." •


C-130J


F-16IN


MH-60R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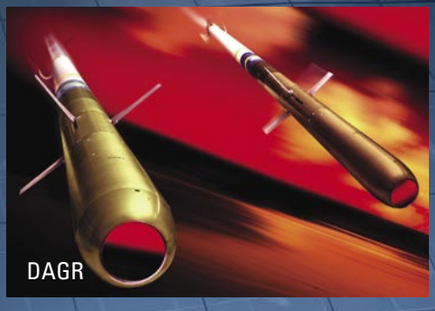
DAGR


HELLFIRE II


Aegis

how

BETWEEN PARTNERSHIPS PROMISED AND PARTNERSHIPS ACHIEVED, THERE IS ONE IMPORTANT WORD: HOW.

In a world that continues to change dramatically, governments increasingly seek to accomplish their most vital goals by working with advanced technology companies from around the globe. Building and sustaining partnerships that achieve their objectives is a matter of how. And it is the how that makes all the difference.

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NORTHROP GRUMMAN

to support India's homeland defence needs

Northrop Grumman continues to lead the defence industry in surveillance and fighter sensor technology. Whether maintaining border and maritime security, or providing the finest systems in fighter situational awareness and survivability, successful government agencies and military forces of the millennium will focus on how technology meets mission requirements.

"Our main focus is on supporting homeland defence modernization. With a wide range of capabilities available in this area we are ready to support India's immediate needs. The relationship we have with India goes back more than 25-years when we first provided target drones (KD2R5) for the Indian Army, Air Force and Navy. Northrop Grumman also competed for the IAF's advanced jet trainer (TF-5), and we have installed numerous air traffic control communications systems and radars. The company continues to provide unmanned ground vehicles for the Indian Army and marine navigation systems for the Navy" said John Brooks, president Northrop Grumman International Inc.

"But our eye is also on the future. We believe that strategic partnerships are the way to provide the best solutions to our customers and we are demonstrating that by creating partnerships with companies such as Hindustan Aeronautics, Bharat Electronics, and Dynamatic Technologies," he added.

"Two years ago we opened new offices in New Delhi to meet India's growing demand for homeland defence upgrades, aerospace and commercial capabilities and technologies. Northrop Grumman is competing for MMRCA as a major partner with Boeing on the F/A-18 E/F and with Lockheed Martin on F-16IN Super Viper.

We bring significant, relevant capabilities for homeland defence modernization and command & control, intelligence, surveillance and reconnaissance (C2ISR) for the Integrated Defence Staff by designing and developing advanced defence electronic systems, and Military and Civilian air traffic control."

The company offers a broad range of products and technologies to meet India's homeland

Continued on Page 30

Rotary rules

Continued from Page 1

Further, the two companies inked a shareholders agreement for the formation of the JV. Under the pact, Finmeccanica Company AgustaWestland and Tata Sons will jointly deliver at least 30 aircraft every year to cater to the global market. The first aircraft is scheduled to be out in 2011. The JV company would be a supplier for the Reconnaissance and Surveillance Helicopter programme of the Indian armed forces. In order to strengthen their strategic partnership deal, AgustaWestland and Tata Sons are also exploring opportunities for commercial, technical and industrial collaboration opportunities in the rotorcraft industry.

Later, interacting with the media, Oris said: "The establishment of the JV to establish AW119 vehicles will give us better industrial opportunities across the world through the synergies generated by both the countries. We are committed to enable Tata Sons to play an increasing role as an aerospace enterprise. We will jointly explore future prospects in the growing Indian helicopter market."

Asked if the JV would also manufacture VIP helicopters, G. Cole, Managing Director, Business Development, AgustaWestland, said, "The VIP helicopters are advanced and sophisticated and can be manufactured in London. We are exploring opportunities of manufacturing it in India. But at present we cannot make any commitment." He further added, "It took a long time for the agreement. But we are very pleased to have a leading industrial partner in India." •

The C-17 Globemaster III is the world's most capable airlifter, able to perform the full range of both tactical and strategic airlift requirements. Whether it's transporting out-sized cargo and personnel or delivering humanitarian relief into virtually any environment, the C-17 provides one-of-a-kind mission flexibility. A world of capability and value, ready now.

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BOEING

LONG STANDING Partnership

By Rajiv Kumar

ANTONOV has been working with India for over 45 years. So far, several programs can be named as landmarks of Ukraine – India successful cooperation.

AN-32 upgrade

AN-32 light transport has been a common Ukrainian-Indian project since the stage of the aircraft design to meet the Indian Air Force requirements including operational capability of the airfields located up to 4500 m above sea level and under hot climate conditions. So far, AN-32 has become the only Indian aircraft to connect big cities with mountain settlements.

Nowadays India and Ukraine joint forces on the Indian AF 105 AN-32 upgrade. The inter-state contract was signed on June 15, 2009. The works will be conducted in both India (employing BRD-1 plant in Kanpur) and Ukraine with the first batch of the aircraft to arrive to Kiev this February.

With the paper work completed on 25 new equipment positions the aircraft are to be fitted with up-to-date equipment providing higher level of flight safety, including air collision avoidance system, ground proximity warning system, satellite navigation system, distance measuring equipment, upgraded radio altimeters, new radar with two multifunctional indicators, new oxygen system and improved seats for the crew. The test flights are to be conducted by the joint crew headed by Indian pilot.

The contract should be completed within 5 years to bring the Ukrainian-Indian cooperation up to the new heights. According to H.E. Debabrata Saha, Ambassador of India to Ukraine: "Ukraine is known as a country of high-skilled specialists. There are many directions for cooperation between our countries in aviation fields as well in economy, military-technical and space industries".


AN-158 REGIONAL JET


AN-32 LIGHT TRANSPORT AIRCRAFT

AN-74 – Indian Navy and Coast Guard best option

ANTONOV has been tendering with AN-74 navalised version on maritime patrol aircraft program of the Indian MoD. AN-74 family has enjoyed worldwide recognition with 165 aircraft being operated in 17 countries at all climatic zones with temperature range from – 60C to +45C delivering cargoes to the most remoted places including Arctic and Antarctic. With various missions fulfillment such as S&R, ice reconnaissance, sea surveillance etc., AN-74 proved to be a multipurpose aircraft.

The latest AN-74 version being evaluated by the Indian MoD has been tailored for a spectrum of military missions including: aerial and maritime patrol; naval ships combat and combat service support; S&R; EW and radio reconnaissance; polluted sea areas detection. The aircraft is easily convertible to a transport-passenger and evacuate-hospital version.

The aircraft enjoys a 26m3 compartment, highly-mechanized ramp and advanced devices for independent loading-unloading, variety of cargo transportation as well as aerial delivery. Featuring short takeoff and landing AN-74 can be safely operated with up to 6t payload from hush airfields including unpaved, pebbly, snow- and ice-covered ones.


AN-74 MARITIME PATROL AIRCRAFT

The AN-74 proposed version has been upgraded by ANTONOV in partnership with Aerodata and SAAB. The aircraft received a glass cockpit, the latest command-control, navigation and communication systems, main engines and auxiliary power unit, fuel and hydraulic systems, etc. The aircraft after sales support, maintenance and repair is to meet the most demanding requirements. So, far HBE and HAL expressed their interest to take part in the project.

ANTONOV regional jets family

Regional aircraft have always been ANTONOV' stronghold. With the new generation AN-148 and AN-158 regional jets intended for 68-85 and 99 passengers respectively the company is going to keep one of the world's leading position in the market.

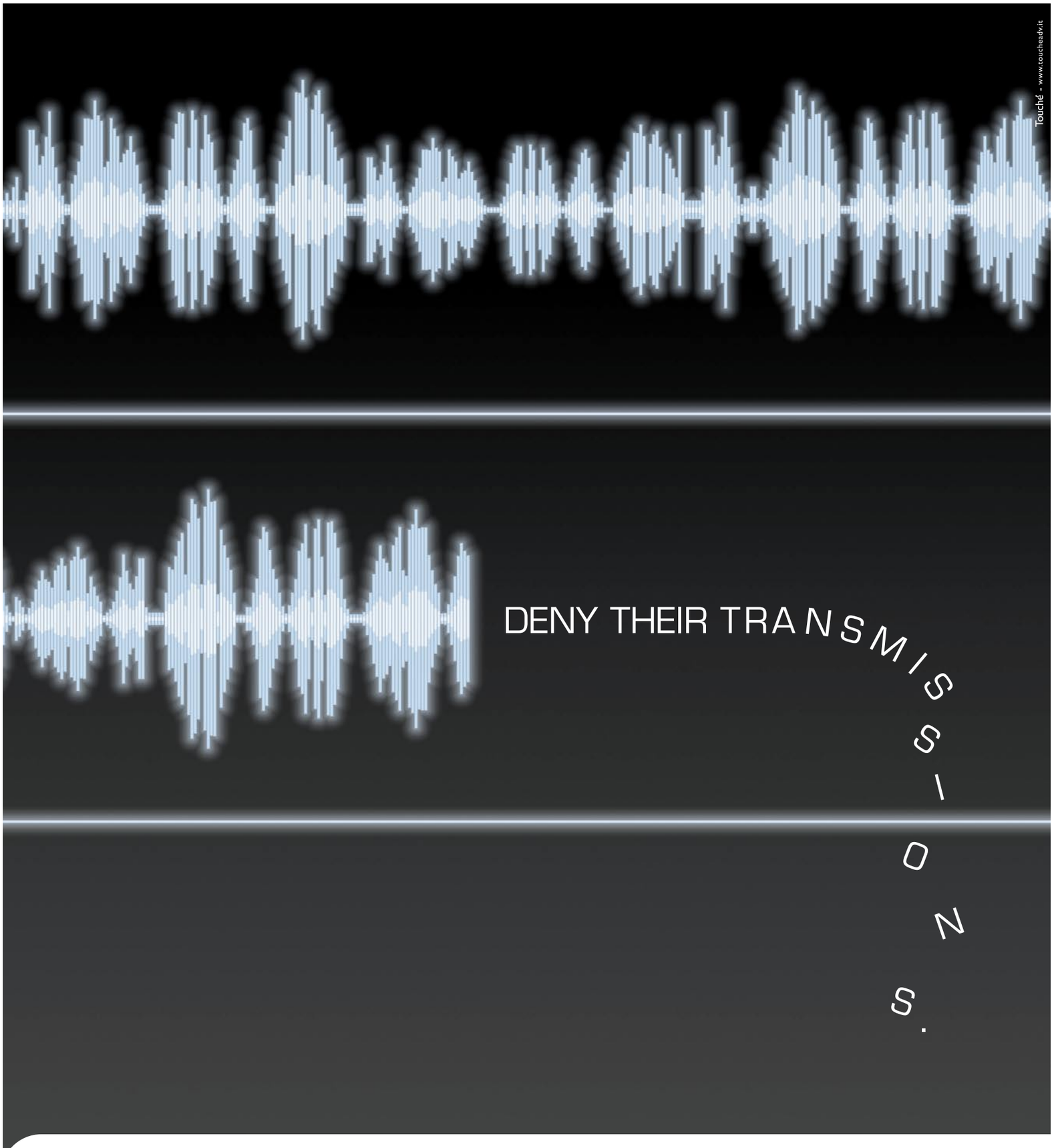
The first serially produced AN-148-100s have been successfully operated since June 2009 conducting over 600 flights with over 26,000 passengers onboard. Two of AN-148-100 are part of the ROSSIA airline fleet (Russian Federation) while another AN-148-100 has been under the flag of the AeroSvit airline of Ukraine.

The AN-158 has been already built at the ANTONOV Kiev facilities with the maiden flight scheduled for this year. Being a close relative to AN-148 the certification program of AN-158 shouldn't take that long. The AN-158 serial production has been scheduled with aviation plants at Kiev, Ukraine and Voronezh, Russia in partnership with a number of enterprises from 15 countries of the world.

Solutions used in the AN-158 design provide possibility to create on its basis a new cargo aircraft to be operated by both civil and military aircraft operators. It will be able to carry various cargoes including containers and pallets of IATA standard with total weight up to 13 t and perform aerial delivery.

For demanding passengers looking for high comfort ANTONOV has designed two new family members designated as AN-168 and Antonov Business Jet (ABJ) to carry 8-40 passengers up to 7000 km. Among the ABJ advantages is the unpaved runways operational ability due to the engines upper position and integral stairs.

By now, the 150 aircraft of AN-148/-158/-168 family has been orders by 63 customers with the forecast of the market demand of 450 aircraft. This family can become a basis for a new Indian-Ukrainian program on creation of new passenger and transport airplanes with high level of commonality. •



COMM EW CAPABILITY INTERCEPTS AND DISRUPTS WIRELESS COMMUNICATIONS.

Network centric operations require a high and sophisticated integration level. In the operational scenario it is necessary to get the complete Electronic Order of Battle at the right time. Elettronica is fully aware of this new challenge, our Electronic Warfare solutions are complete and support the decision makers in the full spectrum surveillance and dominance. We master Electronic Warfare against communication threats through a variety of system solutions and products, ranging from communication ESM, COMINT system, communication jammer and Counter Remote Radio Controlled IED, that can be employed in different platforms, i.e., ground, naval and airborne, and unmanned vehicles (UAV, UGV).

Design and production of electronic defence systems by **ELETTRONICA.**

elt
mind is the first defence

'Rockwell Collins supports & facilitates UAV proliferation'

T.C. CHAN, Vice President and Managing Director, Asia Pacific, Rockwell Collins

SP Guide Publications (SP's): Do you feel that a dedicated Defence Band is an absolute must and if so, what are the reasons that you attribute to this essential requirement?

T.C. Chan (Chan): A dedicated defence band will always be essential to ensure the ability to communicate in any given situation, during both peace time and wartime operations. The ability to adapt when dedicated bands are unavailable or inadequate will determine our success working in a modern signals environment. As a result, Rockwell Collins provides adaptable solutions and the tools necessary to find the available spectrum when dedicated bands are unavailable.

SP's: In an era of proliferating UAVs of various categories (including mini and micro category) operated by different Services /agencies, in addition to the increase in helicopters, aircraft and other aerial platforms, would you recommend a single system architecture or a 'system of systems' approach? Could you elaborate on the nuances and how can the best robust, reliable and interoperable solution be achieved to enhance the capabilities of joint interoperability, precision guidance, situational awareness and information displays?

Chan: We recommend a "system of systems" approach, which is in-line with the development philosophy of Rockwell Collins and the US Department of Defense.

As military and civilian airspace continue to become increasingly crowded and military operations require the coexistence of both manned and unmanned aircraft, it is critical for all of these systems--in the air and on the ground--to communicate effectively. A "system of systems" approach with open systems architectures, standards adherence and plug and play interoperability is important for flying UAVs and manned aircraft reliably and safely in the same airspace.

Rockwell Collins has a well-documented initiative for supporting and facilitating the proliferation of UAVs, including their use in commercial airspace. This strategy includes increasing automation and autonomy in both manned and unmanned aircraft and certifying technologies to government agency standards. We have additional information about this in our e-Book titled "Five Steps to Facilitating the Convergence of Manned and Unmanned Aviation," which can be found at http://learnmore.rockwellcollins.com.

SP's: In times of a national crisis/war in any country, commercial aerial platforms (aircraft, helicopters etc) plus similar platforms of para-military forces would need to be integrated with the resources of the security establishment for specific durations and missions. What solutions can Rockwell Collins offer enhancing joint interoperability in such eventualities?

Chan: A "system of systems" approach focusing on open systems, standards and interoperability is recommended for the optimal integration of disparate aerial platforms. Our advanced communications, avionics and electronic solutions facilitate automation, connectivity, information dissemination and situational awareness.

We believe that close collaboration with government working groups and standards committees is important in all countries in which we have a presence. We plan to enhance our participation with these groups in the Asia Pacific region.

SP's: What is the typical solution that Rockwell Collins can offer for a helicopter borne command, providing command, control and communication links (voice, data, and video streaming)? What are the additional features recommended for such a command post and how compact would be such on-board equipment?

Chan: The needs for situational awareness, reduced crew workload and enhanced levels of flight safety for military helicopters are constantly changing. Rockwell Collins continues to stay at the forefront of these evolving needs with our Flight2TM avionics system.

A typical Flight2 system installation for a helicopter incorporates a modern glass cockpit along with mission processing capabilities. The system's design incorporates cockpit flight and mission management functionality and typically integrates multiple communications, navigation, weapons and mission sensor subsystems for reduced crew workload and improved operational effectiveness and safety. The Flight2 system features a consistent, intuitive user interface for displays and allows control of all avionics subsystems by each cockpit user. With a design based on widely used open standards the system can be easily integrated with additional mission specific communications and data link equipment to provide a customised airborne command platform.

SP's: Rockwell Collins is offering new "Pro Line 21TM" integrated avionics system and the new "Pro Line Fusion TM". What are the new additional features that have been added in these systems and how do they compare to the previous packages? Could you elaborate these?

Chan: Pro Line 21 and Pro Line Fusion are both advanced integrated avionics systems targeted at the business jet, regional jet and utility aircraft markets. Both systems offer size, weight, power and functional capabilities, including flight crew situational awareness, which provide advantages over traditional systems.

Today, there are more than 4,000 aircraft flying with our Pro Line 21 system, which is a testament of its proven reliability and capability. Pro Line 21 offers advanced liquid crystal displays with moving map and electronic charts capability, engine indication and crew alerting system, maintenance system, complete communication/navigation/surveillance capabilities, flight guidance, autopilot and geophysical sensors.

Pro Line Fusion, which will debut in 2011, is the next generation in our Pro Line family. It includes many of the same features that have made Pro Line 21 such a success, but has been enhanced with the largest format, high resolution head-down displays available, synthetic and enhanced vision, integrated head up and head down displays, our advanced MultiScan hazard detection system and a "point and click" interface.

SP's: What are the systems/solutions that Rockwell Collins can offer to the navy as part of surface or airborne solutions? Can you elaborate on these?

Chan: Rockwell Collins provides a number of maritime solutions to various naval organisations around the world, which can also be customised for the Indian Navy. The examples of these solutions include:

- Software defined radio systems are modular, open architecture, hardware and software systems that host a customised, high-data rate, networked waveform. This waveform provides military forces with a wireless mobile network capable of simultaneous voice, data and video communications.
- SubNet Relay (SNR) technology makes it possible to establish ad hoc, Internet Protocol (IP) networks used for tactical data exchanges, enhanced situational awareness and collaborative planning.
- Very Low Frequency (VLF) radios for use in fixed site, airborne and shipboard applications. Rockwell Collins has a long history of providing high power solid state VLF systems for customers around the world.
- Control, navigation, communication and displays for aircraft, helicopters and UAVs used for coastal surveillance.
- Direction Finding systems — Rockwell Collins' DF-430 for airborne Search And Rescue (SAR) missions, is a lightweight, compact and rugged system specifically designed to receive and interrogate all current international distress frequencies, including 121.5 MHz, 243 MHz, 406 MHz and ARGOS and COSPAS-SARSAT encoded beacon signals. Responsible for saving dozens of lives, the DF-430 system is in service with the US, Italian and Canadian Coast Guards, all major European forces involved in SAR missions and certain Asia Pacific forces. •

(Concluded.)

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Innovative Naval Technology

More than 160 naval vessels have been delivered since 1980 by ThyssenKrupp Marine Systems (TKMS) shipyards. This makes TKMS one of the most successful surface vessel system suppliers for advanced naval vessels in the world.

With its shipyards Blohm + Voss in Hamburg, and HDW in Kiel, Germany, and Kockums in Malmö and Karlskrona, Sweden, the group has consistently set good standards internationally. Ships designed and built by the group range from frigates to corvettes and special purpose vessels. The innovative technologies and concepts common to all of them reveal the group's maritime expertise.

Navies, coast guards and civilian maritime authorities use TKMS' innovative technologies for a wide range of naval and civilian maritime tasks. Vessel concepts ranging from fast frigates and SWATH patrol boats to high-capacity special purpose vessels are available for defence, reconnaissance and surveillance.

F125 Class Frigates

F125 class frigates are based on the comprehensive requirements profile of the German Navy developed jointly by industry, the navy and the Federal Office of Defence Technology and Procurement (BWB). The flexible approach is able to accommodate changing mission conditions at present and in the future. The frigates will be commissioned from the year 2014 onwards. The frigates are primarily developed for so-called stabilisation operations and are designed to safeguard naval deployments. F125 class frigates meet the highest requirements at present for intensive use within a two-year deployment in the area of operation. As against conventional frigates, the operational hours at sea are doubled to 5000 hours per year and the intervals between main overhauls are extended to 60 months. At the same time, due to a high degree of automation, the crew strength has been halved to 100.

K130 Class Corvettes

With the creation of the Class 130 (K130), TKMS has developed a corvette, which enables reconnaissance and the engagement of surface targets in coastal waters with a minimum crew strength and maintenance requirements. The corvette is characterised by its high mobility and combat power as well as its long endurance at sea, which in turn enables missions in remote areas. In the field of radar and infrared signatures, the corvette features stealth characteristics. Numerous platform, marine technology, and weapons command and control systems innovations are featured on the K130 class corvettes. The first of five K130 class corvettes have been in service since the beginning of 2008 by the German Navy. K130 class corvettes are built by the ARGE K 130 consortium consisting of Blohm + Voss Shipyards and TKMS Blohm + Voss Nordseewerke – both belonging to the TKMS group - and Fr. Lürssen.

VISBY Class

The signature-reducing smooth hull plating and concealed deck equipment are the most obvious features of the futuristic stealth concept underlying the VISBY class – this is a true "Stealth Ship". These features are achieved by a water-jet propulsion system with reduced stern wave, an underwater exhaust outlet, the use of non-magnetic GRP and the most advanced sensor technology. The VISBY class has been in service in the Swedish Navy since 2005, tasked with reconnaissance and surveillance. Research on the Visby concept was started in the nineties. This means that TKMS has the longest experience internationally in the construction and production of stealth technology.

MEKO® CSL

The MEKO® CSL Corvette is a further development of the successful MEKO®- and VISBY classes. Because of its high degree of modularity, it is tactically flexible and can be adapted within a very short time to a wide range of mission requirements in terms of functionality and combat capability. The module system also allows the ship to carry two helicopters. The MEKO® CSL is designed for networked operations and can assume multiple functions from surveillance to combat missions. All basic vessel functions and all weapons systems can be controlled from the bridge. Another innovative feature is the delta-shaped hull which enhances the speed/performance ratio and provides more space astern. The monohull made of non-magnetic GRP and the marked reduction of acoustic, infrared and radar signatures contribute to the highly developed stealth feature. The know-how gained in the design and construction of 65 MEKO® and VISBY vessels is incorporated in the MEKO® CSL class.

Multi-Role Helicopter Dockship—MHD 200

The Multi-Role Helicopter Dockship – MHD 200 fulfils today's requirement for the rapid deployment of troops and materiel to regions close to the coast. The modular concept ensures that the ship can be used as a troop transporter or floating hospital. The communications systems on board enable participation in networked operations and the rew strength is 160. With the creation of the MHD 200, TKMS has in its portfolio a vessel that offers armies, navies, and air forces a flexible logistical support platform for a wide range of joint operations. Furthermore, the MHD 200 provides logistical platforms and evacuation facilities for civil missions.

Multi-Role Expeditionary Support Helicopter Dock

On the MEKO® MESHD, TKMS' successful modular technology for naval surface vessels is applied to auxiliary vessels. The ship is equipped with communications and control systems which allow it to take on the flagship role during operations. Outfitting is reduced to the basics of an auxiliary, for example flexible multi-function areas for the installation of mission modules, accommodation and utility services for the crew, facilities such as the dock which cannot be modularised, the flight deck, or the lift platform. The mission modules are based on module components proven on naval vessels. This allows harmonisation of the civil/military logistics chain. The concept can be employed for supply vessels, vessels for amphibian operations and vessels for air transport.

Offshore Patrol Vessels

With the patrol boat programme, TKMS meets the rising demand worldwide for multi-function coastal protection vessels. They are required by navies and other authorities to combat piracy and terrorism, for surveillance, and to perform patrol duties. The GUARDIAN class conforms largely to commercial shipbuilding standards. The SENTINEL class is based on the MEKO® 100 design and is equipped with MEKO® technology. It has versatile deployment capabilities mainly in the military sector and can be upgraded to corvette capabilities.

MEKO

To close the gap between the F125 class frigates and large Offshore Patrol Vessels (OPVs), TKMS has developed a frigate for worldwide deployment on crisis reaction missions. For the first time ever, a delta-shaped hull was integrated into the MEKO® concept. With a complement of 125 and a width of 21.5 m at the stern, the frigate has an optimal platform for systems deployment beyond coastal waters. Its range of 5,000 nautical miles means the 134 metre long frigate is optimised for worldwide deployments. A speed of up to 32 knots produced by a CODOG or CODAG plant makes the MEKO® D superior in speed terms to most other advanced frigates because of the delta hull. The MEKO® D has a firing and control system optimised for air defence. Since the MEKO® D is provided with system resources, it is suited for networked deployments in combat groups and bigger fleets. It can therefore take on anti-submarine warfare or wide area sea surveillance roles.

Highlights of ThyssenKrupp Marine Systems

ThyssenKrupp Marine Systems is a leading European systems house providing submarines, naval surface ships and premium segment yachts to customers globally. The company's outstanding shipbuilding competence includes repairs, services, and ships' components. With its headquarters in Hamburg, ThyssenKrupp Marine Systems is part of the Marine Systems business area within the ThyssenKrupp Corporation. Worldwide, ThyssenKrupp employs almost 200,000 people and has an annual turnover of over 53-billion Euros. •

Team K-MAX demonstrates successful unmanned Helicopter Cargo resupply to US Marine Corps

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Iron Dome Systems by Rafael

Lockheed Martin Corporation [NYSE: LMT] and Kaman Aerospace Corporation, a subsidiary of Kaman Corporation [NASDAQ GS: KAMN] have successfully demonstrated to the US Marine Corps the capability of the Unmanned K-MAX® helicopter to resupply troops by unmanned helicopter at forward operating bases in Afghanistan.

During a series of flights last week in subfreezing temperatures at the US Army's Dugway Proving Ground, UT, the Unmanned K-MAX demonstrated autonomous and remote control flight over both line-of-sight and satellite-based beyond line-of-sight data link.

"We met or exceeded the requirements within the scheduled three-day timeframe of the demonstration," said Dan Spoor, Aviation Systems vice president at Lockheed Martin's Mission Systems & Sensors facility in Owego, NY. "The system performed a rigorous set of cargo resupply scenarios as programmed, allowing the ground-based operator to monitor progress, and make adjustments to aircraft positioning only when requested by the Marine Corps for demonstration purposes," he added.

Performance attributes demonstrated included hovering at 12,000 ft with a 1,500-pound sling load, delivering 3,000 pounds of cargo within the six-hour required timeframe to a forward operating base (two 150 nm round-trip flights), remotely controlling flight and a precision load delivery by a ground-based operator in both day and night conditions, and uploading a new mission plan to the aircraft's mission management system during flight.

As an optional demonstration, Team K-MAX showcased the Unmanned K-MAX helicopter's four-hook carousel, which enables multi-load deliveries in a single flight. Lifting a total cargo of 3,450 pounds, the aircraft flew to three pre-programmed delivery coordinates, autonomously releasing a sling load at each location. At the customer's request, the fourth load delivery was performed under manual control by the ground operator.

"The Unmanned System performed operationally representative cargo resupply scenarios, and each time the system delivered as promised," said Sal Bordonaro, President, Kaman Helicopters, a division of Kaman Aerospace Corporation. "This capability gives the Marine Corps a proven unmanned power lifter to bring vital cargo to troops on the battlefield without the need for ground vehicles and manned helicopters," he added.

Team K-MAX has flown the Unmanned K-MAX nearly 400 hours in unmanned mode since 2007. The demonstration fulfilled an $860,000 (Rs 4 crore) US Marine Corps contract awarded to K-MAX manufacturer Kaman Aerospace in August 2009.

A manned version of K-MAX has accumulated more than 250,000 flight hours, conducting repetitive lift operations for the construction and logging industries worldwide.

Kaman Corporation, founded in 1945 by aviation pioneer Charles H. Kaman, and headquartered in Bloomfield, Connecticut conducts business in the aerospace and industrial distribution markets. The company produces and/or markets widely used proprietary aircraft bearings and components, complex metallic and composite aero-structures for commercial, military and general aviation fixed and rotary wing aircraft, arming solutions for missile and bomb systems for the US and allied militaries, subcontract helicopter work, and support for the company's SH-2G Super Seasprite maritime helicopters and K-MAX medium-to-heavy lift helicopters. The company is also a leading distributor of industrial parts, and operates nearly 200 customer service centers and five distribution centers across North America.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. •

DCNS: A long-term and local partner

Through the Scorpene submarines programme, DCNS is committed to a long-term partnership and close cooperation with the Indian Navy and the country's shipbuilding industry.

When preparing bids, DCNS always seeks to use local resources and work with local partners. It is indeed for this reason that the Scorpene contract was signed with Indian state-owned shipbuilder Mumbai-based Mazagon Dock Limited (MDL). As the programme prime contractor, MDL is responsible for equipment purchasing, submarine construction and final integration tests and acceptance; while DCNS is responsible for the associated technology transfer including the delivery of some parts and subsystems. Working in close cooperation with the customer, the programme began in early 2006 with an audit of the MDL shipyards, leading directly to a modernisation plan. The first cut for the first Indian Scorpene took place in Mumbai on December 15, 2006. Today, the pressure hull of the first submarine is approaching completion and work has begun on boats 2, 3 and 4.

"Both sides are very happy," said the chairman and managing Director of MDL. "All the issues that we had in the beginning pertaining to the infrastructure and industrial means have been resolved in a very quick time. The skills of our workers like welders, structural fitters and other operatives are being admired by our collaborators who consider them amongst the best in the world," he added.

The programme also includes some training courses of Indian resources. DCNS trained to weld submarine hull plates made of HLES 80 high-yield steel identical to that used for the French Navy's nuclear-powered attack submarines. The standards and requirements imposed on hull fabrication contribute directly to the Scorpene's unparalleled mechanical properties and acoustic discretion compared with competing conventional-propulsion submarines.

DCNS' local and long-term commitment is also illustrated via the Group's decision to set up DCNS India Private Limited, inaugurated on March 25, 2009. With this new naval services subsidiary, DCNS aims to smooth up the technology transfer process and foster lasting ties with both public and private Indian companies in the engineering and manufacturing sectors.

DCNS India also helps with equipment sourcing and the qualification of Indian suppliers of components and subsystems. Looking beyond the Scorpene programme, DCNS India has been assigned a range of tasks including detailed engineering studies, consultancy work, equipment sourcing and purchasing for other DCNS projects in conjunction with Indian shipyards. More generally, the subsidiary promotes the Group's expertise for the benefit of the Indian Navy and local naval contractors.

DCNS, through Scorpene programme and through DCNS India, is working as closely as possible with the Indian Navy and the country's shipbuilding industry to track progress on ongoing programmes and to develop new ones in the region. •

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The C-17 Globemaster III: An Unequaled Tactical Edge

By Vivek Lall

In January, when the US government received a Letter of Request from India's Ministry of Defence and the Indian Air Force regarding the potential acquisition of 10 C-17 Globemaster III airlifters, India joined a growing number of countries seriously considering the advanced airlifter as a solution to their requirements.

We believe the C-17 can fulfill India's needs for military and humanitarian airlift to help meet its growing domestic and international responsibilities, and continue to see strong interest in C-17s across the global market.

When 2009 came to a close, a record 14 nations had selected Boeing's C-17, the workhorse of the US Air Force since 1993, as their airlifter of choice. The newest members of the C-17 family include the United Arab Emirates Air Force and Air Defence, the Qatar Emiri Air Force, and the 12-nation Strategic Airlift Capability (SAC) initiative led by NATO.

The SAC group includes 10 NATO nations – Bulgaria, Estonia, Hungary, Lithuania, the Netherlands, Norway, Poland, Romania, Slovenia, United States – and Partnership for Peace members Sweden and Finland. The 12 countries share acquisition and operating costs for a fleet of three C-17s over a nearly 30-year agreement. SAC's approach to shared use of the strategic airlifter is now regarded as a model for the pooled acquisition and management of defence capabilities.

Other longtime international customers include Australia, Canada and the United Kingdom, which ordered a seventh C-17 in December.

"Nations looking forward to modernise their airlift capabilities turn to the C-17 because of the industry-leading quality and reliability that all C-17 customers enjoy, coupled with exceptional performance and durability," said Tommy Dunehew, Boeing vice president, Business Development, Global Mobility Systems. "It provides world-class and worldwide strategic airlift capability and the means to rapidly, reliably and flexibly move heavy equipment over vast distances," he added.

Both a tactical and strategic airlifter, only the C-17 can carry large combat equipment and troops or humanitarian aid over long distances and deliver them directly to small, austere airfields anywhere in the world. It can land combat-ready troops on semi-prepared runways or airdrop them directly into the fight. Its ability to back up allows it to operate on narrow taxiways and on congested ramps.

The C-17 is the only platform available that can support a large military or humanitarian operation on unimproved landing strips in a timely manner. The C-5 Galaxy is unable to operate on makeshift runways; the C-130, a four-engine turboprop, can't meet crucial time constraints; and the A400M lacks short-field takeoff capability.

Equipped with an externally blown flap system that allows a steep, final approach and low-speed landings for routine short-field landings, the C-17 can take off and land on runways as short as 3,500 feet and only 90 feet wide and can take off from a 7,600-foot airfield with a full cargo load. Even on such narrow runways, the C-17 can turn around using a three-point star turn and its backing capability.

The C-17 is the only tactical aircraft capable of performing all airlift missions, including strategic, tactical, military, and humanitarian missions, as well as brigade airdrops, aeromedical evacuations, and landings and takeoffs from standard runways or austere airfields.

Reliability and maintainability are two key benefits of the C-17 system, known for an aircraft mission completion success probability rate of 95 percent and only 20 aircraft maintenance man-hours per flying hour.

Maximum payload capacity of the C-17 is 170,900 pounds, and its maximum gross takeoff weight is 585,000 pounds. With its full payload and an initial cruise altitude of 28,000 feet, the C-17 has an unrefueled range of approximately 2,400 nautical miles. The C-17 is also designed to airdrop 102 paratroopers and equipment.

A key feature of the C-17 is that it's operated by a crew of three – pilot, co-pilot and loadmaster – reducing personnel requirements, risk exposure and long-term operating costs. Cargo is loaded onto the C-17 through a large aft door that accommodates military vehicles and palletized cargo. The C-17 can carry Army wheeled vehicles in two side-by-side rows in its cargo compartment.

Significant modifications have been made since the C-17 was first rolled out, from an extended range fuel tank and upgraded software to improvements to the Aerial Delivery System and communications architecture. Defensive Systems, an Electronic Flight Control System and a Formation Flight System have also been added. The support infrastructure for the C-17 is in operation worldwide, and participation in the C-17 Globemaster III Sustainment Partnership provides for significant cost savings.

Today, the C-17 supports U.S. troops as they fight terrorists in Afghanistan and Iraq and respond to humanitarian disasters around the world. In January, C-17s from the United States, Qatar, Canada and SAC supported relief efforts in earthquake-ravaged Haiti. In October 2009, C-17s with the Hawaii Air National Guard and the U.S. Air Force completed a 10-day mission during which they ferried humanitarian aid to victims of the tsunami and earthquake that struck American Samoa on Sept. 29. That same month, C-17s completed multiple humanitarian airlift missions to Padang, Indonesia, where nearly 800 people had been killed in another earthquake.

The C-17 is often the first to respond to international humanitarian disasters, delivering, in one mission, critical supplies, personnel, and a 100-bed, fully equipped field hospital with patient litters, oxygen, and support equipment.

The C-17 is an acquisition success story, with deliveries on or ahead of schedule for the past decade. And it is available right now, without any development risk.

Vivek Lal is the Vice President and India Country Head, Boeing Defense, Space & Security

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Iron Dome Systems by Rafael

The Israeli Ministry of Defense and Rafael Advanced Defense Systems Ltd conducted another series of extensive test trials of the Iron Dome system for intercepting short-range rockets.

The testing performed recently completes an additional series of successful results for the Iron Dome. In the coming weeks, the system will be delivered to the IAF's Air Defense Division. Several months ago, the Air Force made plans to incorporate the new system in its array of air defense solutions and established a designated battalion, specially trained to operate the system.

The recent tests included comprehensive testing for all components in the Iron Dome system. As part of the testing, a number of various types of threats were launched and destroyed. In the course of the trials, the Iron Dome system identified a wide variety of threats, located and tracked the rockets' trajectories, programmed the interception route, and launched the Iron Dome interceptors which detonated their targets. The entire Iron Dome system operated accurately and the rocket threats were destroyed according to plan. Completion of this series of tests is a significant milestone in the Iron Dome development programme and constitutes an important stage in bringing the system to full operational readiness.

Yedidia Yaari, CEO, Rafael expressed satisfaction regarding the testing and said that the successful results are to be credited first and foremost to the team that developed the system, the employees who made all-out, non-stop efforts to fulfill their obligations to the defence establishment and to the citizens of Israel.

About the Iron Dome System

Iron Dome has been developed principally by Rafael Advanced Defense Systems Ltd and is intended to protect the State of Israel from rocket threats. Iron Dome has been developed as part of a comprehensive plan by the Ministry of Defense Research and Development Directorate. Rafael has led the development of the system, including the radar produced by the ELTA Group of IAI, and command & control systems produced by mPrest Systems Ltd. Iron Dome is capable of evaluating the rocket trajectory and differentiating between threats headed for populated areas and those that will fall into open areas. It will fire anti-rocket missiles only when the population is endangered. One Iron Dome system can protect a city the size of greater Haifa. •

Boeing B-52 & CONECT Upgrade accomplish 1st test flight

Boeing has announced that a B-52H upgraded with new communication technology successfully accomplished its first test flight at Edwards Air Force Base on January 17, 2010. The Combat Network Communications Technology (CONECT) upgradation allows B-52H crews to receive and send real-time digital information during their missions.

The more than three-hour flight around the Edwards area included an initial system build-up test, interphone test and communication test. The test process included power-on of each system in flight to determine that there were no adverse effects on flight-essential systems.

"Completion of the first test flight brings us one step closer to giving command centers and troops on the ground the ability to communicate with the B-52 through the military's digital information network," said Jim Kroening, Boeing B-52 Development Programmes manager. "Augmenting current voice-based communication gives B-52 crews greater situational awareness and significantly enhanced mission capabilities," he added.

Prior to the first test flight, a robust testing approach was used, starting with unit and system testing in the laboratory, progressing to system ground test and then flight test.

Boeing and the US Air Force have accomplished more than 220 ground test points out of about 500. Ground and flight tests will continue through February. The aircraft will then rotate through its planned depot maintenance at Tinker Air Force Base, Okla., and resume ground and flight test in January 2011 at Edwards. •

Lockheed Martin Delivers First Two Upgraded P-3C Maritime Surveillance Aircraft for Pakistan

Lockheed Martin recently delivered two of seven upgraded P-3C maritime surveillance aircraft for the Islamic Republic of Pakistan under the U.S. Government's Foreign Military Sales program.

The most recent aircraft delivery occurred on Jan. 7 to the Naval Air Station in Jacksonville, Fla., for subsequent transfer to Pakistan. Lockheed Martin delivered the first plane in October 2009. Lockheed Martin is upgrading the P-3Cs' aircraft and mission systems and providing maintenance under a 2006 contract from the U.S. Navy's Naval Air Systems Command. The aircraft support anti-ship and anti-submarine warfare missions and will enhance Pakistan's ability to conduct maritime surveillance in littoral and deep-water environments. The aircraft are designed to have a single integrated tactical picture of the battle space, drawing upon data from aircraft sensors and information from other platforms.

"These aircraft incorporate a variety of enhanced features including communications, electro-optic and infrared systems, data management, controls and displays, mission computers and acoustic processing," said Mike Fralen, director for Lockheed Martin Mission Systems and Sensors' maritime surveillance programs. The P-3 is the primary maritime patrol and reconnaissance aircraft operated by the U.S. Navy and 16 allied countries. Its roles include anti-submarine warfare, anti-surface warfare, surveillance and reconnaissance, search and rescue, drug interdiction, economic zone patrol, airborne early warning and electronic warfare.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2008 sales of $42.7 billion. •

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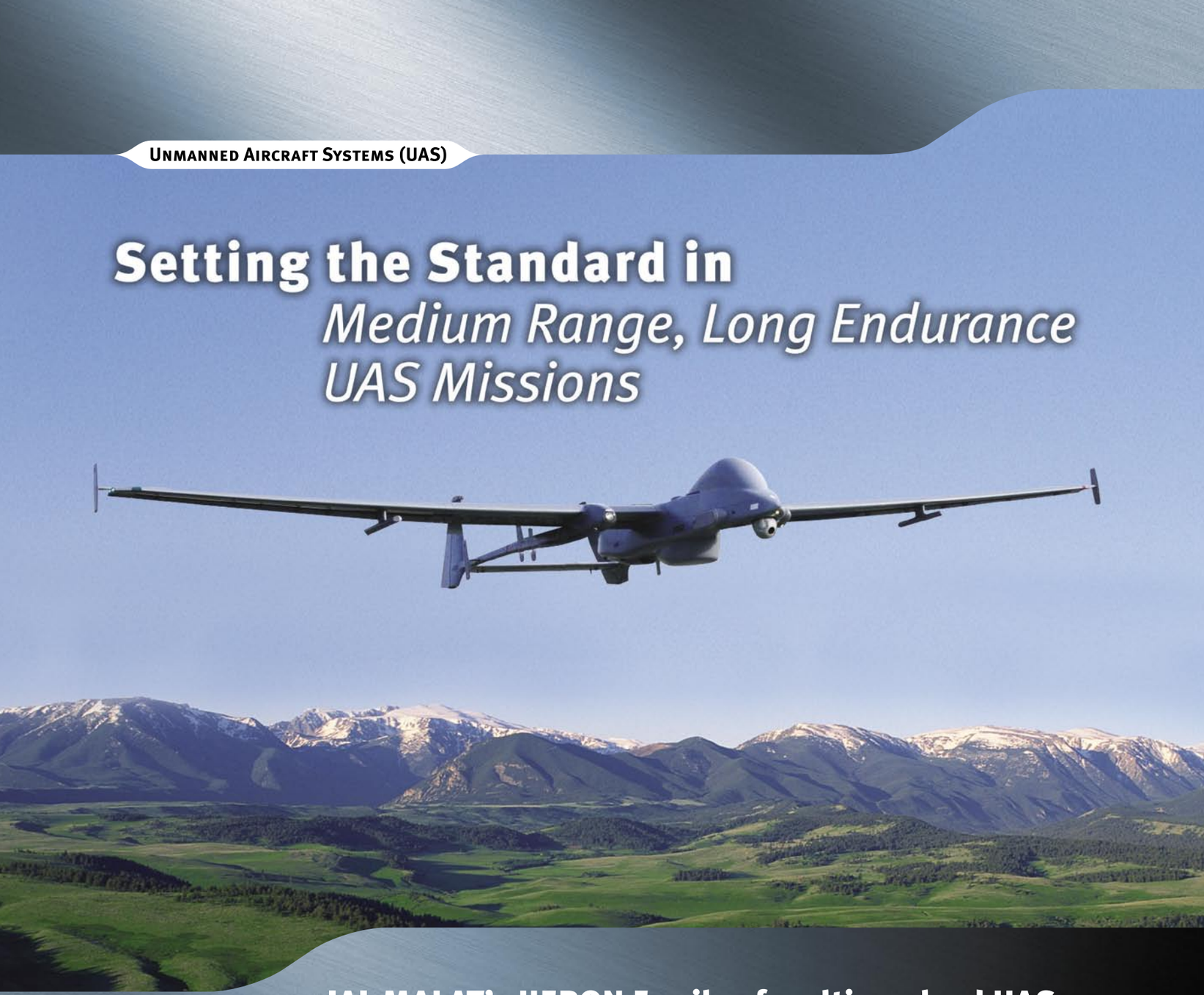

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Boeing Begins A-10 Thunderbolt Wing Assembly for US Air Force

MACON, Ga., Jan. 18, 2010: The Boeing Company [NYSE: BA] today announced that it has begun assembling the first A-10 Thunderbolt replacement-wing set at its Macon facility. The U.S. Air Force awarded Boeing the contract, worth up to $2 billion, in June 2007 to provide as many as 242 A-10 replacement-wing sets through 2018.

"This is a phenomenal accomplishment for this Boeing Macon team and a real tribute to the partnership between Boeing and the Air Force to keep these vital aircraft flying in support of U.S. military men and women," said Dennis Muilenburg, Boeing Defense, Space & Security president and CEO. "We are honored to help extend the life of these storied planes as they serve our warfighters in their essential close-air support missions. This is also an important milestone in Boeing's drive to offer our customers maintenance and modification support on a wide range of aircraft, regardless of the plane's original manufacturer."

Boeing will deliver the replacement wing sets to Hill Air Force Base, Utah, in four parts: three wing sections and an installation kit. Air Force personnel will install the wings. Boeing is scheduled to deliver the first wing set in September and up to 50 wing sets a year at peak production.

The A-10 Thunderbolt, also known as the Warthog, is a twin-engine jet aircraft designed for close-air support of ground forces. More than 350 aircraft are currently in the U.S. fleet participating in both Iraq and Afghanistan operations.

A unit of The Boeing Company, Boeing Defense, Space & Security is one of the world's largest defense, space and security businesses specializing in innovative and capabilities-driven customer solutions, and the world's largest and most versatile manufacturer of military aircraft. Headquartered in St. Louis, Boeing Defense, Space & Security is a $32 billion business with 70,000 employees worldwide. •

Rotorcraft in Afghanistan

BY BRIAN NELSON, Head, International Communications–India, Boeing Defense Space & Security

(Continued from SP's Defexpo 2010 Show Daily 2, P20)

Often, the Apache doesn't have to fire a shot because its presence will intimidate the enemy, a perspective offered by a British Apache pilot who preferred to remain anonymous.

"It's the deterrence factor that we provide just by being in the overhead," he said. "It quite often resolves the situation just by the mere presence of being there ... which is good for the guys on the ground. It dissolves the situation potentially even before it even erupts."

Besides the Taliban and Al Qaeda, another enemy faced by the coalition forces in Southern Afghanistan is the strain of continual missions in an unforgiving environment. Usually, Chinooks log more than 500 flying hours a month.

"It's a huge strain," said RAF Squadron Leader Priest. "We have problems with fatigue. We have to roll the aircraft in and out fairly often. I think it's probably every four months, just because they are working so hard. There are only eight of them. Invariably there'll be one on a deep servicing at one time."

Then there are the debilitating desert conditions. In summer, the temperature reaches a sweltering 50 degrees Celsius. And sand kicked up by nature, or by the machines themselves on liftoff and landing, find their way into every nook and cranny of these aircraft. The sand collects not by the granule, but by the kilo, according to RAF Group Capt. Turner.

"Often we find that we have 400 kilos of sand when we get it back to maintenance back in the United Kingdom," said Turner.

These conditions pose enormous challenges, in terms of time and resources, to the engineers and mechanics whose job it is to keep these aircraft operational. To help alleviate the stress on the RAF Chinook maintenance crews, Boeing has sent teams of company engineers, called Field Service Representatives, to the front lines of Southern Afghanistan to work alongside RAF technicians to ensure mission readiness for the British Chinooks.

By the time my visit was over, I had witnessed an enormous, well-coordinated international effort by dedicated men and women from many nations, relying upon aircraft like the Chinook and Apache to accomplish their mission in Afghanistan's unforgiving conditions.

In closing, it's appropriate perhaps to listen again to Flight Lt. Brown, a Deputy RAF Commander, who flies every type of Chinook mission, from resupply, troop insertion and extraction to medical evacuations. The missions that stay with her the longest are the rescues of the wounded and injured.

"I think I can remember vividly every single one of the medevacs," she said, "where I can honestly say I've saved someone's life by getting there so quickly."

India shares many of the same rugged features as its northern neighbour, with desert and high-altitude conditions posing daunting military and humanitarian challenges. High-flying transport helicopters combined with the right amount of "muscle" should contribute significantly to enhancing the Indian Army's mission success. •

(Concluded)

SELEX Galileo's IRST

Stealth search & track function for Gripen Next Generation

SELEX Galileo has announce that Saab has selected the Infrared Search & Track (IRST) system SKYWARD-G to equip Saab's Gripen Next Generation (NG) fighter.

IRST provides similar functionality to a radar without giving out electromagnetic radiation and can therefore provide full operational search and track functionality with a stealth capability. IRST can operate in highly cluttered environments to track single and multiple targets, and can also operate in slaved acquisition mode.

SKYWARD-G is a product of SELEX Galileo's extensive experience in the field of infrared search and track airborne and naval systems and is the latest addition to the Company's proven record in delivering innovative technology to customers.

The selection of the SKYWARD-G system follows the agreement signed in March 2009 between Saab and SELEX Galileo for the development of the Active Electronically Scanned Array (AESA) radar Raven ES-05 for the Gripen Next Generation.

SELEX Galileo is a key provider of leading edge sensors for the most advanced fighters. With the Raven ES-05 and with the IRST, the Company will be guaranteeing the full mission effectiveness of the next generation aircraft Gripen NG. •

EADS eyes tie-up with ISRO on hypersonic plane technologies

BANGALORE: EADS, a global leader in aerospace, defence and related services, is keen to forge partnership with ISRO on supersonic and hypersonic aeroplane technologies, a top company official said.

"We are looking very much into the future," Chief Technical Officer of EADS, Jean Botti, said here today on possible collaboration between the Indian Space Research Organisation and EADS (European Aeronautic Defence and Space Company) going forward.

"ISRO has a lot of knowledge," Botti said, adding EADS also sees potential between ISRO and the Franco-German group in the area of propulsion technology. EADS is looking at the possibility of working with ISRO in the context of "niche aeroplanes", he said.

EADS is keen on building "green" aeroplanes acceptable to society and it's here that he sees a partnership role for ISRO with his company.

EADS group, which includes Airbus, Eurocopter and Astrium, generated revenues of Euro 43.3 billion in 2008 and employed a workforce of 118,000.

Astrium, EADS' space business entity, already has a partnership with ISRO's commercial arm Antrix on joint building and delivery of satellites of two tonne to 2.5 tonne class.

Botti said EADS also saw opportunities in the biotech sector in India, adding, it's in discussions with companies in the space. "Biotechnology...we are going to look into very closely".

He praised the "lot of brain talent" and English-speaking highly educated youngsters in India, saying it motivated EADS to undertake research in this country.

Asked about the rejection of a proposed joint venture between EADS and Larsen & Toubro by the Foreign Investment Promotion Board because it would exceed cap on foreign investment, Botti said the issue is being evaluated.

"We are still in the understanding mode. Too premature to give information on this. We are trying to understand the situation," he said.

EADS-L&T proposal, to supply electronic warfare systems, avionics and radars, was rejected as it did not adhere to the 26 per cent upper limit prescribed for foreign direct investment in companies in the defence sector. •

Spike NLOS Rafael's recent addition to the Spike Family

At Defexpo 2010, Rafael is showcasing Spike NLOS – Rafael's most recent addition to the Spike Family. Rafael's Spike Missile Family consists of precise tactical missiles for ranges of 2.5–25 km. The Spike Family missiles are multi-purpose, multi-platform electro-optic systems featuring real-time data links. The Spike missiles can be used by infantry units as well as mounted on combat vehicles, attack helicopters and naval vessels.

Spike NLOS – Multi-Purpose, Multi-Platform Electro-Optic Missile System

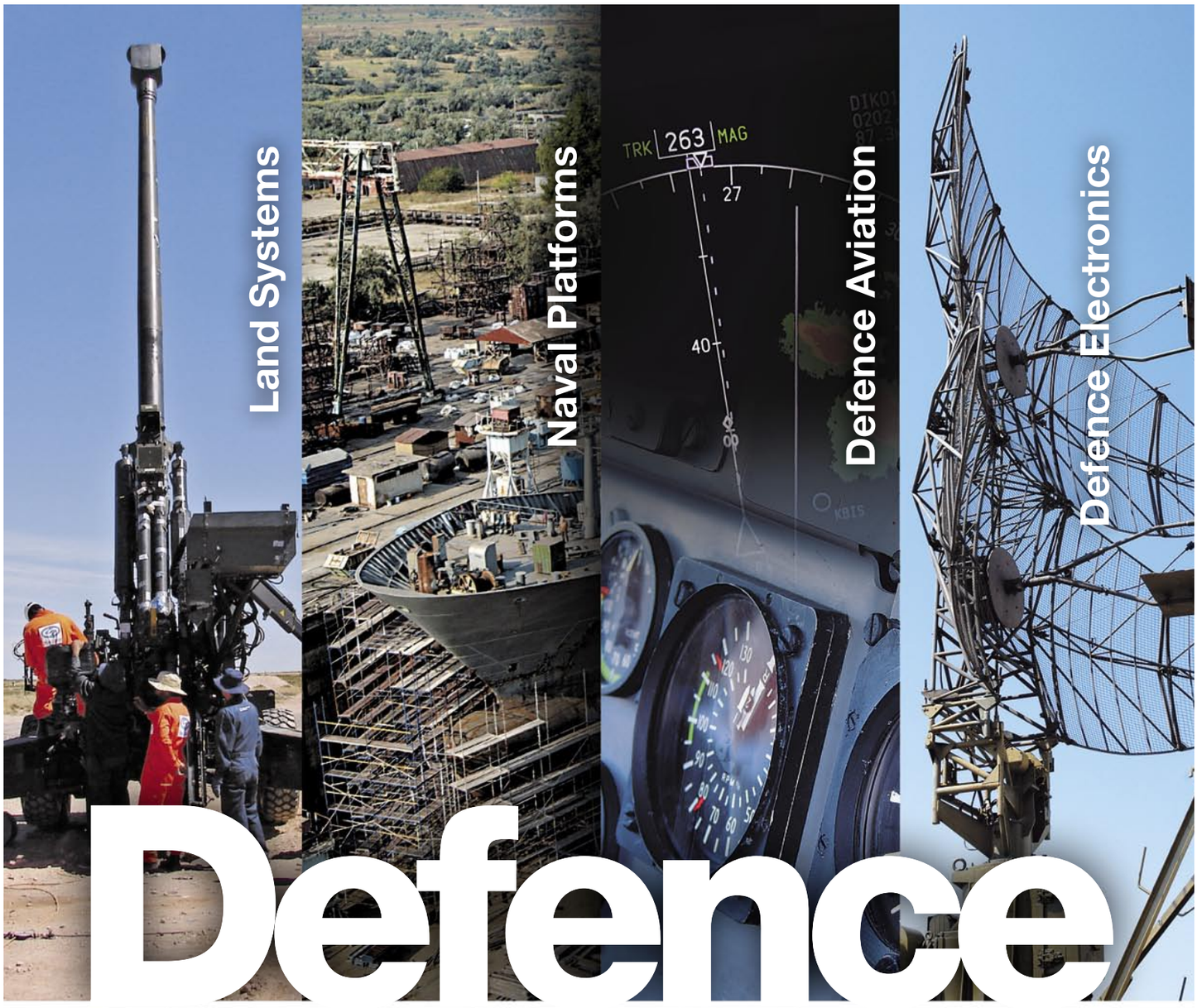
Spike NLOS is an operational multi-purpose, multi platform electro-optical missile system with a wireless data link providing precision non-line of sight firing capability for ranges up to 25 km.

The system provides the gunner with the unique ability to attack targets at stand-off ranges beyond the line of sight. Spike NLOS can be operated in either direct attack or mid-course navigation based on target coordinates received from an embedded TAS system, external sensors, C4I center or UAVs. These modes, in addition to the electro-optical seeker, enable the defeat of long-range hidden targets with pinpoint precision, provide damage assessment and obtain real-time intelligence.

Spike NLOS is capable of effectively engaging targets during day and night, and in adverse weather conditions. It can also be equipped with various warheads especially suited to both urban and high intensity conflicts (heat, fragmentation, PBF, PBF/F). Spike NLOS can be used in a variety of battlefield scenarios as a solution for classic anti-armor high intensity conflicts, low intensity asymmetric conflicts, and future stand-off battle scenarios (small group, remote/special operations).

The Spike NLOS can be installed on air, land and naval platforms providing maximum operational flexibility with low life-cycle cost.

The Spike NLOS is part of the Spike Family which also includes the Spike MR, LR and ER Missile Systems. •



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Northrop Grumman

Wins $577 Million Army Integrated Battle Command System Contract

HUNTSVILLE, Ala. - Jan. 11, 2010 - The U.S. Army has selected Northrop Grumman Corporation (NYSE:NOC) to develop the Integrated Air and Missile Defense Battle Command System (IBCS) under a $577 million, five-year, cost-plus-incentive-fee/cost-plus-fixed-fee contract for system design and development. IBCS is an integrated air- and missile-defense command and control capability. Enabled by a battlefield fire control network, the system will give warfighters the technology, tools and information they need to make better decisions on the battlefield.

IBCS will integrate current and future air and missile defense systems to allow warfighters to use any sensor and any weapon to achieve mission objectives in a true open-architecture environment.

The Northrop Grumman IBCS solution is based on a non-proprietary, open architecture approach that establishes a network-centric system-of-systems solution for integrating sensors, weapons, and battle management command, control, communications and intelligence systems (C4ISR). The solution uses common software and creates standard interfaces that will allow warfighters to take advantage of expanded sensor and weapon system combinations through an integrated fire-control network.

Systems that will be integrated via IBCS include Patriot, Surface-Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS), Improved Sentinel radar, and-if the U.S. Department of Defense directs the inclusion-Terminal High Altitude Area Defense (THAAD) and Medium Extended Air Defense System (MEADS).

"IBCS takes care of the science of warfare, so the warfighter can focus on the art of warfare. The system provides unparalleled situational understanding and the knowledge needed to make risk-based decisions in a highly time-sensitive environment," said Linda A. Mills, Northrop Grumman corporate vice president and president of its Information Systems sector. "We are honored to have been selected to help the Army get this critical capability deployed to the warfighter."

"Northrop Grumman has been a pioneer in providing integrated battle command solutions to our customers. IBCS is another evolution of a software and hardware development process that continues to affirm Northrop Grumman's commitment to leadership in providing net-centric solutions that are highly adaptable to the warfighter's needs in a rapidly changing environment," said Karen Williams, vice president for Air and Missile Defense Systems, Northrop Grumman Information Systems.

The Northrop Grumman team includes The Boeing Company; Lockheed Martin Corporation; Harris Corporation; Schafer Corporation; nLogic Inc.; Numerica; Applied Data Trends; Colsa Corp.; Space and Missile Defense Technologies (SMDT); Cohesion Force Inc.; Millennium Engineering and Integration Company; RhinoCorp Ltd.; and Tobyhanna Army Depot.

The Integrated Air and Missile Defense Project Office, Program Executive Office for Missiles and Space in Huntsville, Ala., manages the IBCS program. Northrop Grumman will also headquarter its IBCS program in Huntsville.

IBCS is expected in the field by 2014.

Northrop Grumman Corporation is a leading global security company whose 120,000 employees provide innovative systems, products, and solutions in aerospace, electronics, information systems, shipbuilding and technical services to government and commercial customers worldwide •

Elettronica: Effective & Enduring E-defence

(Continued from SP's Defexpo 2010 Show Daily 2, P24)

Other Naval Systems

Passive Systems (SEAL family): These ESM systems include Panoramic Receiver, Digital Receiver, Antenna Set and easy man-machine interface. These ensure Self Protection, Tactical ELINT for Surveillance and "Law Enforcement" operations, Enhanced ELINT and enables Network Centric Operations.

Active ECM Systems (Nettuno 4100): These are solid-state modular ECM Systems for active defence against terminal missile threats and long range radar designations systems.

Naval ELT Integrated Systems (NELTIS): This family of Integrated EW Systems combines an ESM System featuring very good ELINT capabilities and an ECM system based on active solid-state technologies. It compromises an ESM Subsystem (SEAL) and ECM Subsystem (NETTUNO 4100). The system is designed to meet the operational requirements of both surveillance and self-protection needs of all individual ship classes.

Land Systems

These include transportable systems that provide ESM, ELINT, COMINT (Communication Intelligence) and ECM systems for 'out-of-area missions'.

EW Operational Support

ELT's commitments are mainly focused on developing the following:

- EW Database Management Systems
- Libraries Generation and Validation System
- EW Simulation applications for training, both on board and on ground
- EW Solutions for Mission Planners
- Briefing and Debriefing Tools

Life cycle support

ELT provides its customers with complete support and assistance throughout their products' life cycle with the aim of maintaining a high level of operational availability and guaranteeing their use to the best of their performance.

Logistic support: ELT equipment efficiency is assured by a set of logistic support products and services aimed at reducing failure events, minimising time and cost of equipment reset to working condition, optimising the usage of equipment.

Technical assistance: ELT operates to promptly restore equipment functionality throughout the product life cycle.

Retrofits & repairs: The equipment is continuously updated and improved through both HW and SW releases to guarantee operational availability.

Test equipment: Supply of diagnostic tools to allow a constant monitoring of performance and timely repairing of faulty equipment

Logistics engineering: The equipment is designed with characteristics that ensure high efficiency and contained costs during operational life.

Manuals & training: Supply of the know-how required to maintain equipment efficiency and obtain optimum performance levels

Operational support: ELT supports its customers by optimising the performance of EW equipment installed in platforms, through a careful planning that takes into consideration the scenarios in which the equipment is expected to operate.

EW data management: Capability to generate, modify and manage information by means of special relational databases that are appropriately organised and interactive.

Libraries: Capability to generate and evaluate libraries employed by EW equipment through related support activity.

Briefing & debriefing: Capability to evaluate the effects of EW on future missions and to analyse the results of previously conducted missions, comparing them with the pre-planned objective.

Mathematical modelling: A mathematical modelling environment allows the definition of optimal countermeasures through detailed simulated EW environments.

Training: The courses focus on the basic concepts of sensors, weapon systems, EW systems and related activities both on equipment and with the aid of the simulators.

Mission planners: ELT develops EW modules with the aim of supporting customers in minimal risk evaluation. •

(Concluded)

Eurofighter Advanced TETRA network to secure Indian Parliament

Page 28

T129: Cost Effective Fire Power by AgustaWestland

EADS Defence & Security (DS) has signed a contract in 2009, to deploy a modern TETRA radio network to secure the Indian Parliament. DS through its line of business Security & Communication Solutions has teamed up with its local partner Sanchar Telesystems Limited to provide the Indian Parliament with a state-of–the–art digital, GPS-based, encrypted communication system. The new system will ensure voice and data communication, automatic vehicle and personal location and the capacity to connect to high speed data applications.

"The specifications of this advanced digital communication system for the Indian Parliament are in line with security requirements in the wake of the Mumbai terrorist attacks of November 2008. This system is needed to better secure the Parliament at the heart of Delhi," said Mr. Sandeep Salunke, IPS, Director of Parliament Security and a well-known technical expert and a graduate of the Indian Institute of Technology, Delhi.

"We have chosen the EADS TETRA system based on a thorough process of technical evaluation. It has proved its performance superiority and meets our strict technical and operational requirements. It will enhance the security of the Indian Parliament, by delivering high-quality voice and data as well as providing the infrastructure for the upcoming high speed data based value added applications," he continued.

"This is a prestige contract, which will be implemented in record time while accommodating the session schedule of the newly elected parliament. Improving security for the Indian parliament at the heart of the world's most populous democracy is a challenge taken up by EADS Defence & Security and we commit, as usual, to perform with excellence." said Dirk Borchardt, CEO of the Security & Communication Solutions line of business.

This contract represents EADS Defence & Security second major public safety and security TETRA PMR venture in India, following its 2008 TETRA radio network contract with the Andhra Pradesh Police for the Hyberabad Region, which is already in operation.

The 2009 Indian Parliament Security contract reflects the country's major ongoing investment in infrastructure and its dedication to the modernisation of its security infrastructure and forces. EADS Defence & Security is a world leader in providing mission-critical communication and command & control solutions through its integrated line of business Security & Communication Solutions (SCS). •

EADS opens R&T centre in Bangalore

EADS Innovation Works, the European aerospace and defence group's research and development network is opening a branch in Bangalore. Dr. Jean Botti, Chief Technical Officer (CTO), EADS, Yann Barbaux, Head, EADS Innovation Works, Yves Guillaume, CEO, EADS India and Eugen Welte, CEO of Airbus Engineering Centre India, inaugurated the research facility in December 2009. It is located within the Airbus Engineering Centre India's premises.

"The opening of EADS Innovation Works India is a part of our global Research and Technology strategy," said EADS CTO Jean Botti. "EADS is developing international R&T capabilities in order to access new technologies and engineering resources efficiently close to our strategic markets. India is an important part of our vision for research and technology growth and India has highly educated people that will offer tremendous value to our R & T capabilities," he added.

Yann Barbaux, head of EADS Innovation Works, added, "Bangalore is India's aerospace and IT hub, it was important for us to be present. The opening of this new branch of EADS Innovation Works, the third outside Europe will again put some fresh ideas in our innovation process "

EADS Innovation Works India will manage and broker R&T projects for the EADS Business Units and the Corporate R&T Organisation. Some of the projects carried out by EADS Innovation Works, India will be performed in collaboration with Indian partners such as the Indian Institute of Science and the Indian Institutes of Technology. EADS Innovation Works India will also run its own projects using internal resources at its own facilities.

The projects will capitalise on Indian capabilities identified by EADS in various fields: numerical simulation of complex physical systems, multi-disciplinary optimisation, high-performance computing and radar technology.

The Airbus Engineering Centre India has been operational since 2007 and currently employs some 120 local engineers. By 2012 the Airbus Engineering Centre India will grow to 400 engineers. •

Return To Arms

Continued from page 1

wounds them. There have been innumerable cases of insurgents continuing to fight even after taking two or three hits," says a senior infantry officer with considerable counter-insurgency experience, emphasising: "We now seek a switch to longer bullets of the 5.56x45 mm type to pack more punch and stop the terrorist in his tracks." Although considerable improvements have been carried out in the INSAS, it has been dogged by confidence problems, particularly in relation to stoppage rates in high-altitude areas and the robustness of its furniture. While the DRDO-developed INSAS is the official infantry rifle with the 'Made in India' tag, the soldier's preferred weapon in counter-insurgency combat is the AK-47 Kalashnikov. This weapon is available in limited numbers in sector stores in counter-insurgency areas.

"There's no follow-on programme to the INSAS," Dr V.K. Saraswat, the DRDO Chief told SP's ShowNews, indicating a green signal for the acquisition of the new rifles through the foreign route. The DRDO holds a veto against procurement from foreign sources. Only after the DRDO indicates that it cannot develop a particular weapon system within the desired time frame, is the requirement put on the international market.

Frontline troop formations and combat elements would be first to be re-equipped with the new weapons. This includes about 400 battalions of the army, the Rashtriya Rifles counter-insurgency force, the Territorial Army and the Assam Rifles. Further, the army wants to equip the mechanised and armoured forces. Later, support elements like artillery, air defence and engineers will also be armed with the new rifles. Serious thought is being given to integrate paramilitary and police requirements too into this programme, particularly because the rifles will be made at Indian Ordnance Factories under transfer of technology. If this happens, the total requirement could balloon to 1.5 million rifles. India has the second largest number of men in arms, next only to China.

A major focus of security planners now is to strengthen the ability of the armed forces to fight low-intensity wars with better technology. The defence procurement process will reflect this priority, and the new generation rifles are part of this agenda. A shift to higher technology in small arms started with the recent acquisition of 3,700 Israeli Tavor rifles for the special forces. But a major worry of field formations is the inordinately long time it takes to acquire new combat equipment. Despite Defence Minister A.K. Antony's assurance that the Defence Procurement Procedure (DPP) is being tweaked to make arms acquisitions faster, there's cynicism in the forces. The army's much-talked about modernisation programme has made little headway. In the last seven years, not a single open tender deal has been struck for army modernisation. Tenders for critically required equipment have been repeatedly cancelled after long years of consideration. But Antony has sought to dispel this sentiment: "Confidence levels in India's armed forces have never been higher." The major thrust of DPP 2010, likely to be finalised soon, is ensuring timely acquisition and promoting self-reliance in defence procurements, he has promised. •

Guns in the fray

- Heckler and Koch G-36 (German)
- Heckler and Koch XM8 (American)
- Beretta 70/90 (Italian)
- SAR 21 of Singapore Technologies (Singaporean)
- Steyer A3 (Austrian)
- Tavor TAR 21 (Israeli)
- IMI Galil (Israeli)
- Arsenal AK-74 (Bulgarian)
- Herstal F-2000 (Belgian)
- SIG SG 551 (Swiss)

Thales launches Vigile LW

A new Maritime Radar ESM for small vessels

Thales on Tuesday, February 16 announced the launch of Vigile LW, a new, lightweight, naval Radar Electronic Support Measures (RESM) system set to redefine situational awareness for small vessels.

Vigile LW detects, identifies and displays air and surface threats in real time, providing tactical situational awareness wherever needed for small vessels. Whether protecting national coastlines or protecting EEZs and shipping lanes, Vigile LW also draws on Thales's cutting edge pulse deinterleaving and signal processing technologies, to provide immediate, automatic warning of high priority threats.

Leveraging key Thales technologies in Radio Frequency and the latest advances in digital software, Thales has developed a new lightweight system designed specifically for small vessels such as patrol boats and attack craft. Its compact size means that it can be smartly integrated and rapidly fitted to any type of vessel.

Vigile LW is the core element of a Self Protection Suite and can be operated as a standalone RESM or as a central Electronic Warfare controller. It can control the communication and Radar ESM, Laser Warning, Missile warning and programmable decoying functions. Installed across several vessels, Vigile LW can provide a network-centric compatible solution for increased protection.

Pierre-Eric Pommellet, Thales Senior Vice President, in charge of defence mission systems, commented: *"This new member to the Vigile family meets a true requirement in the market and aims to fill a very real capacity gap – at a lower acquisition and possession cost. It is the perfect maritime surveillance solution for small, fast vessels carrying out vital tactical missions."*

MR. FRANÇOIS DUPONT WITH MR. JEAN-MARC GOUJON AT THALES LAUNCH, DEFEXPO 2010

The system operates automatically and therefore is autonomous and easy to support. Tracks can optionally be overlayed onto the radar picture, removing the need for a dedicated Electronic Warfare operator and thereby keeping through-life costs low and easing crew workloads.

Vigile LW draws on Thales's excellent pedigree in Naval Electronic Warfare systems both for the British and French Navies and for many export customers worldwide. •

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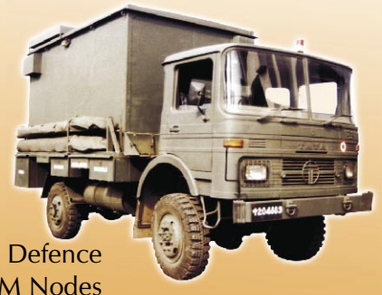

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T129: Cost Effective Fire Power by AgustaWestland

AgustaWestland is offering the Indian Ministry of Defence a customised version of its T129 aircraft currently being built for the Turkish Land Forces to meet its Attack Helicopter requirement. The T129, a much upgraded variant of the A129 operated by the Italian Army, recently beat off international competition to win the Turkish attack and reconnaissance helicopter programme with a contract placed for 50 aircraft and 41 options.

The first T129 for the Turkish Land Forces performed its maiden flight in September 2009 on schedule. An AgustaWestland spokesman said, "The T129 is the most cost effective, versatile and state-of-the-art solution in the attack helicopter market and incorporates 15 years of A129 operational experience in demanding operations around the world."

The T129 is a multi-mission battlefield helicopter which is capable of operating worldwide by day and night and in all weather conditions, including hot, humid and sandy desert environments. The helicopter can perform a wide range of missions including anti-armour, fire support, armed reconnaissance, surveillance and armed escort.

The excellent power to weight ratio of the T129 ensures outstanding performance in hot and high conditions. Italian Army aircraft are currently undertaking intensive operations in Afghanistan and are exceeding commanders' expectations with high availability rates.

The T129 was designed from the outset as an attack helicopter weapon system, to provide the maximum operational flexibility and effectiveness by utilising highly integrated avionic and weapon management systems that maximise the effectiveness of the aircraft and crew in high threat and high workload pilot and gunner.

Two modern CTS800 engines power the T129 giving it a high power to weight ratio and outstanding performance in the demanding "hot and high" environments experienced in India and other areas of the world. The T129 high survivability is based on its low detectability, high ballistic tolerance and crashworthiness and further enhanced by its excellent

agility and manoeuvrability utilising a state of the art Electronic Warfare (EW) System. Crew survivability is enhanced through the fitting of crashworthy seats with armour protection.

The T129 delivers the mission equipment and weapon fit flexibility necessary to meet the Indian Air Force's operational requirements. The weapon types that the T129 can carry include air-to-ground missiles, unguided rockets, air-to-air missiles and a 20 mm turreted gun system.

The weapon system is supported by a fully integrated mission system, communication/data suites and the latest technology targeting system that includes the Integrated Helmet and Display Sight System. •

Naval and defence products from Lockheed Martin

Lockheed Martin held a press conference on the second day of the Defexpo to draw attention on a broad range of land and naval defence products, systems and solutions showcased by the Company at the Expo.

Speaking on the occasion, Orville Prins, Vice President, Business Development — India, Lockheed Martin, briefed on the F-16IN Super Viper, the C-130J, the MH-60R Multirole Helicopter Weapon System and the Apache Systems.

F-16IN Super Viper is the most advanced fourth generation multi-role fighter and has been tailored exclusively to meet or exceed all of India's Medium Multi Role Combat Aircraft (MMRCA) requirements. The F-16IN is the right choice for the Indian Air Force (IAF) and is ready for integration into India's infrastructure and operations.

The Lockheed Martin C-130J Super Hercules

ORVILLE PRINS, VICE PRESIDENT, BUSINESS DEVELOPMENT INDIA, LOCKHEED MARTIN, ADDRESSING THE PRESS CONFERENCE

being built for India is the most advanced airlifter ever built. Already on the production line at Lockheed Martin's facility in Marietta Georgia, the Indian C-130J combines the latest in aerospace technology with a proven, rugged airframe design, resulting in an aircraft that gives the Indian Air Force more capability with greater operational efficiency. The first C 130Js will be delivered by 2011.

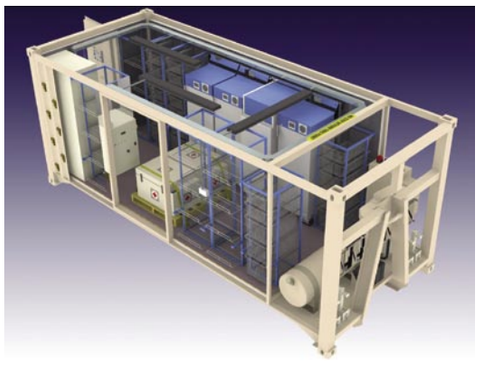
The MH-60R Multirole Helicopter Weapon System is a world class solution for maritime defence needs. It has the capabilities and mission systems attributes of the US Navy's most advanced anti-submarine and anti-surface warfare helicopter, and the benefits derived from commonality of airframe, avionics and logistics support for both Indian Navy and Coast Guard operations.

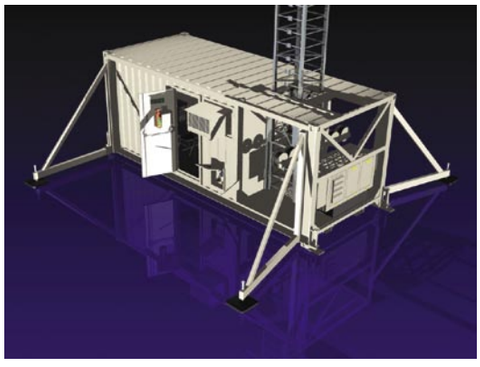
Apache Systems is the combat proven solutions to give War fighters the decisive edge key system capabilities and attributes of several Lockheed Martin products employed on the Apache helicopter was the focus of the briefing. •

Innovative deployable infrastructures by General Dynamics UK Limited

Mobility of people and equipment is the hallmark of both modern warfare and civil society's response to accidents and disasters. The ability to move equipment, house operatives, treat the injured or deal with the results of a major incident means the humble ISO container is an increasingly important piece of equipment.

Whether in response to unexpected events such as the recent earthquake in Haiti, or as a sustainable and flexible alternative to a conventional fixed installation as used by ISAF forces in Afghanistan, General Dynamics UK's approach to integrating key systems into deployable infrastructures such as an ISO container allows any civil or military organisation's operational reach to be extended beyond the geographic limitations of fixed infrastructure, or to areas rendered inoperable due to emergency, disaster, war or civil unrest.





Innovative deployable infrastructure solutions provided by General Dynamics UK include command, communications, force protection, medical and utility infrastructures in an easily deployable format. Because these solutions are deployable from flatbed truck, Chinook helicopter or C-130 Hercules transport plane, they can be moved to virtually any location in the world, no matter how inhospitable.

Major military forces from around the world including NATO, as well as civil authorities and industrial partners trust General Dynamics UK to deliver these innovative solutions.

Thanks to this trust in General Dynamics UK's innovative solutions, the UK MoD now has the capability to field the first ever facility to ensure the safe and secure availability of blood, blood products and medicines at a moments notice to help medics at forward field hospitals save more lives.

The revolutionary Blood Medical Storage Facility (BMSF) is also the perfect technology for disaster relief. For example the ability to drop an ISO container 'Blood Bank' into Port au Prince could have given UN agencies the edge in providing medical assistance to many injured and dying Haitians who, as we know, suffered from a lack of medical assistance in the week following the devastating earthquake.

The same container technology can also meet the sanitary needs of soldiers in forward operating bases or civilians in disaster areas. A basic human right, the possibility to carry out ones ablutions in a dignified manner, has spurred General Dynamic UK on to develop one of the best Forward Ablutions Unit available today. Not only does it provide comfortable showers, washing and toilet facilities, it reduces the impact of such facilities on their environment by using the most modern techniques to recycle so-called grey water and reduce the amount of electricity used – essential when sharing the power-grid of a forward operating base.

Another use General Dynamics UK has put the ISO container to is force protection, surveillance, coastal and asset protection. This solution provides a 20m climbable lattice tower that travels in sections within the ISO containers profile and is easily assembled by a crew of two. When erected, the tower maintains stability for multiple long-range surveillance sensors up to a weight of 200kg. The crew can operate the sensors from a reconfigurable command station within the shelter and the shelter can be located virtually anywhere necessary.

General Dynamics UK are also the first choice of their industrial peers for the provision of shelters. At the end of last year Raytheon Integrated Defense Systems signed a long-term agreement with General Dynamics UK to provide shelters for their Patriot systems.

These shelters will be built in General Dynamics UK's production facility in Izmir, Turkey. 100% owned by the company, the facility, called PageTel, is an excellent example of how General Dynamics UK can transfer manufacturing to new emerging markets, producing excellent, innovative products in a highly affordable manner.

For more information visit General Dynamics UK on Stand 14.28, Hall 14 of DefExpo 2010. •

'MMRCA ToT, offset great boost to domestic players'

DR CHANDAN CHOWDHURY, CEO, IFS India

By Ruchika Chawla

SP Guide Publications (SP's): The scope of Enterprise Resource Planning (ERP) project at Hindustan Aeronautics Limited (HAL) is one of the biggest worldwide and that BAeHAL has implemented it well. What all platforms have been already covered by BAeHAL?

Dr Chandan Chowdhury (Chowdhury): The scope of ERP project at HAL is really vast and it covers 27 divisions with more than 10,000 users. The number of users in future is likely to increase further since the Chairman and Directors of HAL are committed to the project and they are keen to make ERP as a big movement to reduce cycle time of manufacturing and 'maintenance, repair and overhaul' cycle. The implementation of the ERP system at HAL is aimed at improving the organisation's profitability by substantially reducing inventory, decreasing delivery cycle times, reducing operational costs and improving manpower productivity, and ultimately improving the quality of its services. Our partner BAeHAL has excelled in implementation and they have already covered a wide range of combat and commercial aircraft.

SP's: What's your view about the Medium Multi-Role Combat Aircraft (MMRCA) tender? What in your view are the factors that would influence the final decision?

Chowdhury: This deal is referred by some experts as a "Mother of all Tenders" and through this procurement process the Indian Air Force will have 126 MMRCA. Under the terms of purchase, the first 18 aircraft will come in a 'fly away' condition while the remaining 108 will be manufactured in India in partnership with HAL under a Transfer of Technology (ToT) agreement. The vendor finally selected would also be required to undertake 50 per cent offset obligations in India. The ToT and offset contracts would provide a great technological and economic boost to the domestic players. The products being considered are Swedish JAS-39 Gripen, Russia's MiG-35, Dassault's Rafale, Lockheed Martin's F-16 Super Viper , Boeing's F/A-18 Super Hornet and Eurofighter Typhoon from EADS.

SP's: How do you see IFS growing in the Indian market?

Chowdhury: India is one of our focus markets. During the last five years, we have grown year on year more than 50 per cent. We had the privilege to implement major ERP projects in defence, energy and project centric organisations. •

C

NORTHROP GRUMMAN

Continued from Page 6

defence needs. These include the E-2D Advanced Hawkeye airborne early warning surveillance aircraft, Multi-role Electronically Scanned Array (MESA), the APG-80 AESA radar for the F-16IN, the MQ-8B Fire Scout vertical takeoff unmanned vehicle, the Joint Multi-Mission Expeditionary Craft (JMEC) and Harbor and Coastal Security system (HCS).

Northrop Grumman is also offering its extensive experience of delivering C4I solutions and battlefield management systems capability. It has C4I systems deployed in more than 50 countries including NATO nations and Taiwan, Japan, Korea, Australia together as well as recent regional wins such as the Joint Operations Centre system (I-JOCCS) C4ISR programme for the Royal Brunei Armed Forces. These systems all build around Northrop Grumman's industry leading core products ICS, C2PC and C2CE. •

MEDIA ROOM

Boeing's C-17 to land shortly in India

On Day 2 of Defexpo 2010, Boeing held an engrossing session on the C-17 Globemaster III and how India will soon be one of its proud owners. Having submitted a Letter of Request to the US Government for acquisition of 10 Boeing C-17s, Boeing showed its enthusiasm in sharing the vantage points the C-17 will provide to the Indian Army. With an overview provided by Patrick Druez, Regional Director of Boeing Global Mobility Systems, the C-17 has already been purchased and delivered to five countries and is on order by two others. However, what drew most attention was the C-17's Virtual Fleet & Global Sustainment Program. The maintenance centre based in San Antonio, TX and owned by the US Air Force has all the spare parts of the C-17 and maintains an inventory for the purchasing nations.

Rafael helping 'Protect' India

Familiar to Indian defence and territory, Israel-based Rafael Advanced Defense Systems Limited showcased the Protector, an unmanned surface vehicle which is remotely controlled and highly autonomous, aimed at serving for maritime security missions. Being promoted in India to protect its fragile sea borders, the Protector can also serve for naval force protection, especially in littorals. The Protector system can be launched from shore or a host ship; it consists of the platform system and the Mission Module. It can be utilised in electronic warfare, mine warfare, anti-submarine warfare, and most importantly intelligence, surveillance, and reconnaissance.

Fish Hawk closer to Indian skies

Raytheon is showcasing its equipment ideal for Indian defence, including the Fish Hawk, a wing kit system built. Senior Manager of Raytheon Missile Systems Business Development, Mark Borup points out: "Fish Hawk's new streamlined design, with low profile pivot wing, achieves the needed size and clearance to maximise the payload capacity of P-8 and other potential ASW platforms." Using mature, proven components, Fish Hawk is guided to the target area by a highly integrated guidance system. Fish Hawk receives the targeting information in the preplanned mode from the ASW aircraft controller. "Fish Hawk represents an affordable, low-risk solution to the long-range, high-altitude ASW requirements," adds Borup.

—By Ruchika Chawla

MAKING HEADLINES

IAF CHIEF AIR CHIEF MARSHAL P.V. NAIK FLIES THE EUROFIGHTER TYPHOON SIMULATOR AT DEFEXPO 2010 AND IS INSTRUCTED BY EUROFIGHTER TEST PILOT ALEX HOENIG ALONG WITH BERNHARD GERWERT, CEO, MILITARY AIR SYSTEMS, EADS & CHAIRMAN, SUPERVISORY BOARD, EUROFIGHTER GMBH (EXTREME RIGHT)

PRECISION ELECTRONICS SHOWCASES HOST OF ITS EQUIPMENT AND SOLUTIONS FOR MILITARY COMMUNICATIONS, COMMAND & CONTROL. NIKHIL KANODIA, PRESIDENT AND CTO (ON THE EXTREME RIGHT) MAKES A PRESENTATION TO ARMY DELEGATION DURING DEFEXPO 2010.

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