SP's

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DEFEXPO INDIA 2010 OFFICIAL PUBLICATIONS

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defexpo 10

Defence Exhibition Organisation
Ministry of Defence
Government of India

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SHOWNEWS
DEFEXPO INDIA 2010 OFFICIAL DAILY

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Mercury Rising

India to make 15-year arms procurement plan public

DEFENCE MINISTER A.K. ANTONY INAUGURATES THE SHOW (LEFT) AND VISITS THE SP'S STALL IN HALL 14

By Vishal Thapar

Much sought after by the armed forces, India will soon publish the 'Technology Perspective and Capability Roadmap' delineating India's military requirements over the next 15 years. Defence Minister A.K. Antony made the declaration while inaugurating Defexpo India 2010, the sixth Land and Naval Systems Defence Exhibition in Delhi on Monday.

A key indicator of the defence industry's requirements, the roadmap will "make our Defence Procurement Procedure (DPP) transparent and speed up the process", Antony said. The capability roadmap will be put on the Ministry of Defence website.

India will continue to substantially increase the budget for military modernisation. "India's defence expenditure is about 2.5 per cent of its GDP. The Indian economy is expected to grow at 8 to 10 per cent for the next two decades. Expenditure on defence in absolute terms is bound to increase in equal proportion," the Minister said, brandishing a carrot for the defence industry.

Policy initiatives are being taken to build a strong defence industrial base in India to put an end to excessive dependence on foreign suppliers. A new Defence Production Policy is on the way and

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Exclusive to SP's

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Flying the F18 Super Hornet... well, almost!

FIRST LOOK

MINE PROTECTED VEHICLE INDIA by BAE Systems and Mahindra & Mahindra JV

By Sucheta Das Mohapatra

On the first day of Defexpo India 2010, the newly formed joint venture company of Mahindra & Mahindra Limited and BAE Systems unveiled the Mine Protected Vehicle India (MPVI). First product of the joint venture company, the MPVI will meet the requirements of both the Indian armed and

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Page 12

'Homeland security, space have potential'

Dr Vivek Lall, VP and India Country Head, Boeing

SP'S EXCLUSIVE

F18 Super Hornet simulator trial

By Ruchika Chawla

SP Guide Publications got an exclusive flight in the F18 Super Hornet flight simulator with Theodre N. Herman, Manager Global Strike Systems of Boeing, on Sunday February 14 at Pragati Maidan, the event site of Defexpo 2010. The Super Hornet is currently being offered to the Indian Air Force under the Medium Multi-Role Combat Aircraft programme and is competing with several other leading companies. With ultimate AESA radar and ammunition control, the tandem seat variant provides a realistic flight experience for the many anticipated visitors at Boeing's booth starting Monday, February 15. Boeing anticipates Indian Air Force personnel, journalists and the public (on Thursday) to fly high and examine the Super Hornet for all that it has to offer in comparison to other similar fighter planes which are under consideration for purchase for the Indian Air Force.•

COFFEE BREAK

Eat Out

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Karim's: Nizamuddin
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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.

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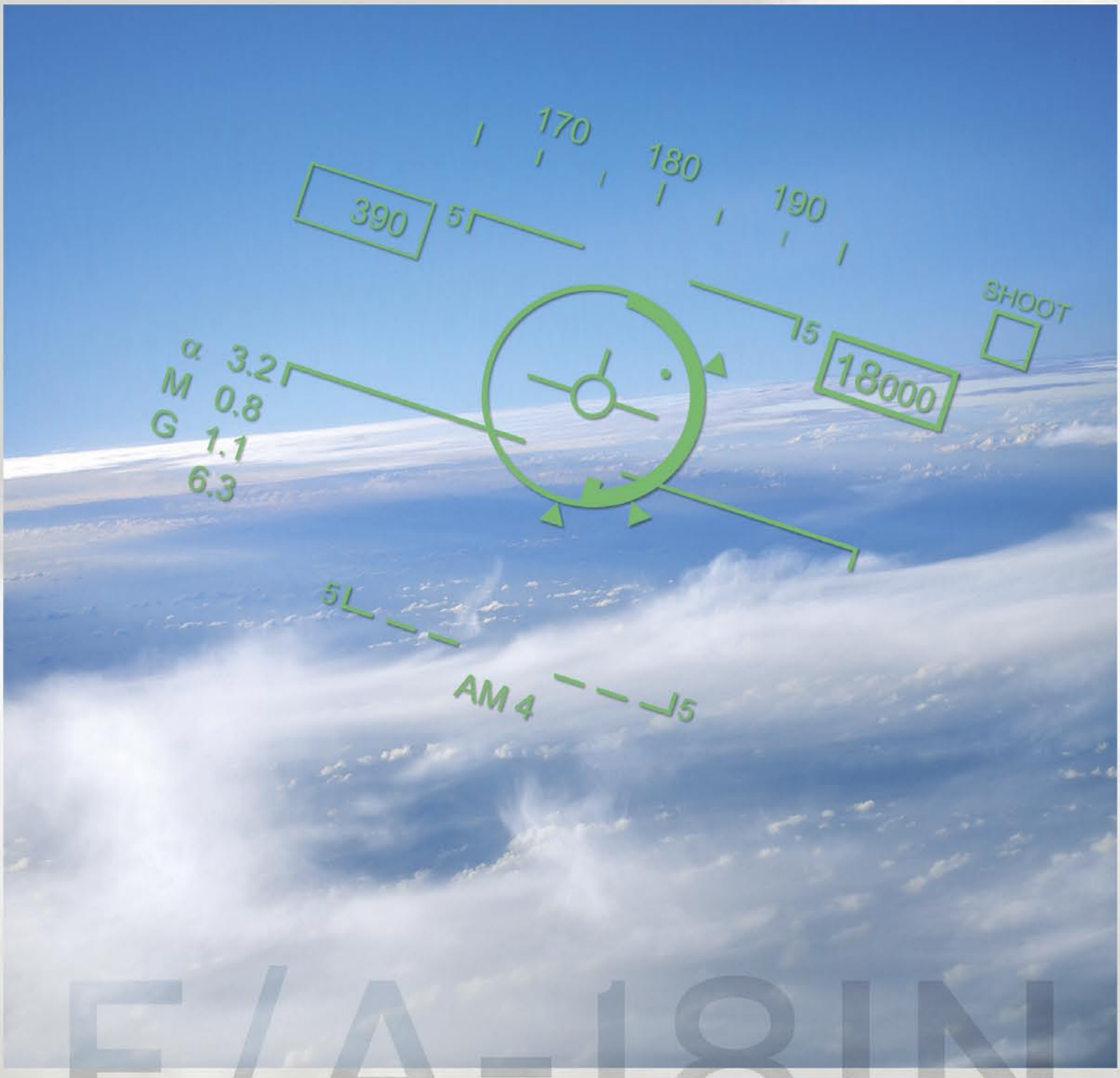

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'Space security the

Dr V.K. SARASWAT,
Scientific Adviser to the Defence Minister & Chief of the Defence Research and Development Organisation

By Vishal Thapar

SP Guide Publications (SP's): Recent changes in the Defence Procurement Procedure (DPP) 2009 allow the private sector to tie up with foreign defence industry for technology transfer and bid for military tenders. The government also proposes to fund the private sector for defence R&D. Does this dilute the role of the Defence Research and Development Organisation (DRDO)?

Dr V.K. Saraswat (Saraswat): The primary role of whole systems development will always be that of the DRDO. The private sector will now have an opportunity to customise technology to meet particular requirements. Also, the DRDO will have a major say in assessment of private and public sector joint ventures with foreign companies before they are approved by the government. The DRDO continues to remain relevant.

SP's: So, what is the role of the DRDO in the joint ventures with Russia for the development of the Fifth Generation Fighter Aircraft and the Multi-Role Transport Aircraft?

Saraswat: The DRDO has a major say in testing and evaluation. The main areas of involvement relate to engine, avionics, materials and stealth

SP's: What are the next big areas for defence R&D that you are taking up?

Saraswat: There are three major thrust areas for the future: the first is development of technologies for space security; second, for low-intensity conflict to increase survivability and efficiency of soldiers; and third, cyber security.

SP's: What sort of capabilities do you seek to develop for space security?

Saraswat: These are both passive and active technologies to protect India's space assets and prevent satellite denial. We will also be working on satellite-based capability for electronic and cyber warfare.

next big area for R&D'

SP's: Is the focus on cyber security prompted by the repeated Chinese cyber attacks on India?

Saraswat: We did examine the issue resulting from the attempt to hack into the network of the Prime Minister's Office. But I'm not at liberty to talk more about this. One of the focus areas will be encryption to secure sensitive communication and networks.

SP's: What sort of technologies will result from your focus on low-intensity conflict?

Saraswat: There are several areas, including identification of buried IEDs, counter-measures against IEDs, increasing survivability, technologies for making the soldier function as a system.

SP's: Two high-profile DRDO projects nearing completion are the Light Combat Aircraft (LCA) and the Arjun Main Battle Tank. Where do you take these projects from here?

Saraswat: The Medium Combat Aircraft (MCA) will take over from the LCA. The Indian Air Force (IAF) envisages a role for the MCA after 2020. Design work on the new jet fighter will commence full steam after the Initial Operational Clearance for the LCA in 2010-11.

SP's: What capabilities are envisaged for the MCA?

Saraswat: Super cruise, stealth, higher speed and manoeuvre. The MCA will mostly be a twin-cockpit fighter, powered by an upgraded Kaveri engine.

SP's: What is the status of the Kaveri engine which was planned for the LCA?

Saraswat: It's being tested In Russia. We seek a particular level of performance, especially at high altitude. We also want increased thrust. The tie-up with the French SNECMA to assist with the Kaveri development should happen in about six months. The Kaveri will be fitted on to the LCA should there be more orders after it's development is complete.

SP's: Does the programme for the follow-on MCA mean a closure for the LCA?

Saraswat: We expect a follow-on order for 20 LCAs in addition to the first batch of 20 already contracted. We would hope for a total of 100 LCAs to be ordered by the IAF. As I said, the IAF envisages a role for the follow-on MCA only after 2020.

SP's: The Indian Army is reportedly seeking a new Main Battle Tank with contemporary capabilities. What does this mean for the production run of the Arjun?

Saraswat: We're expecting more orders for the Arjun. We would like to see a production run of at least 500 Arjun tanks at least. Now, the DRDO is working on the Arjun Mark 2. We're in consultations with the army on capability requirements. The new, improved tank will have features like active armour and cannon-launch missile capability. It will be designed for better survivability.

SP's: Why is India stopping short of developing an Inter-Continental Ballistic Missile?

Saraswat: We have the capability. But missile range and lethality is based on the immediate objective of threat mitigation. The Agni 5 suits our present requirements. It will be a three-stage missile with a cannister launch facility to ensure operational flexibility.

SP's: China has tested both an Anti-Satellite Weapon and Ballistic Missile Defence (BMD). How does India measure up?

Saraswat: India has the building blocks for the Anti-Satellite Weapons: the Agni 3's propulsion and the BMD system's kill vehicle. But India does not plan a real test of an anti-satellite weapon because that will lead to debris in space. We can simulate the test on the ground. In the BMD area, India is far ahead of China. The fourth test of our two-tier BMD will be conducted soon. •

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Antony to China: India set on deterrence, not offence

India's military build-up on the Chinese front is "not offensive but only aimed at deterrence", Defence Minister A.K. Antony clarified to a Chinese journalist at Defexpo 2010.

"India is a peace loving country. But it is strengthening its armed forces only to act as a deterrent," the Defence Minister said when asked to confirm reports that India was deploying two more army divisions on the boundary with China.

"The two divisions are a part of an overall policy of augmenting the presence of the armed forces, not just in the Northeast but the rest of the country, too. The additional troops are not directed against any country but only to strengthen capability to face any eventuality. Such augmentations are being done in south India, the west and Jammu and Kashmir," he said.

Antony reiterated that India is not a warmonger. "We do not covet even an inch of foreign territory. But at the same time, we are clear that we will defend every inch of our own," he asserted. The Defence Minister made it a point to mention that China is India's biggest trading partner, and that the two neighbours have now started a programme of defence cooperation. "India's Defence Secretary was in China recently for the third round of the Defence Dialogue between the two countries. The armed forces from the two sides are engaging in exercises," Antony said.

Explaining China's absence from Defexpo 2010, the minister clarified: "China was invited to Aero India (in Bangalore) last year. They did not respond. Since they did not seem interested, we didn't invite them here."

changes are being made in the current DPP. "India must achieve a high level of indigenisation in defence. Our quest for self-reliance in defence underlines the importance of private sector participation on the one hand and revitalising the public sector on the other," the Defence Minister said.

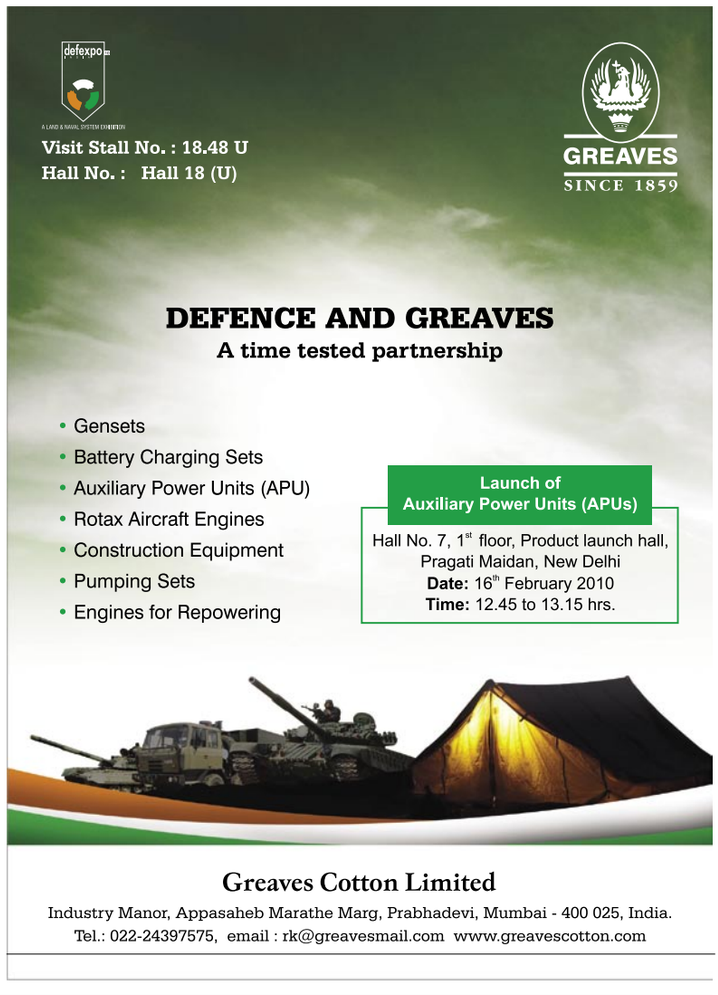
"We're determined to increase the share of domestic companies in the Indian defence market. The forthcoming (updated) DPP 2010 will give a momentum to Indian industry. We'll buy foreign only if we're convinced that Indian companies can't do it," Antony later elaborated at a press conference.

The Defence Minister clarified that India would continue to engage foreign companies so far as critical and futuristic technologies are concerned. "We welcome and invite the support of the best in the world in our endeavour to modernise our armed forces," he said.

Antony acknowledged the importance of foreign participation in building India's defence industrial competence. "The recent introduction of 'Buy and Make (Indian)' category in the DPP aims at encouraging the Indian private industry to form joint ventures with any foreign manufacturer," he said.

India is gradually becoming a key outsourcing hub for the global defence industry. The introduction of the Defence Offsets Policy is a facilitator towards this end. The Union minister informed that changes are being made to render the offsets policy more feasible. "Offset banking is now part of the Defence Offsets Policy and the licencing conditions have also been rationalised. Necessary administrative structures have been put in place in the Ministry of Defence to facilitate offset banking," he assured.

The minister described the response to Defexpo 2010 as "beyond expectations", and promised that the next edition of the show, scheduled to be held in February 9 to 12, 2012, would be much bigger. •



Lockheed Martin sets the pace

By Ruchika Chawla

Drawing the spotlight the C-130J and F-16IN project, Lockheed Martin's Chief Executive Roger Rose delineated the company's various programmes for Defexpo 2010 at a media briefing on Sunday. "The C-130J programme execution is the focus for us during the Defexpo," Rose said. The conversation over dinner varied from current events and, of course, the latest in Lockheed Martin technology and projects. Enthusiasm over Lockheed Martin's current projects, such as the F-16IN, the Apache Systems and the MH-60R Multirole Helicopter, was infectious, setting an appropriate mood and thought process for the extravagant Defexpo inauguration less than 15 hours away. Lockheed Martin is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services worldwide. •

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The building blocks of modern life — water and energy supply, public transport and communications networks, government services and national monuments, treasures and key government buildings — are some of the easiest things for malevolent forces to disrupt and some of the most difficult things to protect. Like in many other countries, protecting these key assets is a key concern of national and state governments alike in India.

But with several central police forces and numerous state and government department forces protecting national borders and critical national infrastructure, combating counter terrorism and insurgency, and responding to disasters and other emergencies is undoubtedly a complex operational challenge.

General Dynamics UK has 50 years of experience in protecting key facilities around the globe, from some of the largest oil and gas installations and pipelines that run across some of the most unreceptive terrain in the world to airports, commercial ports and communications centres.

Unlike many other security contractors, General Dynamics UK does not promote a vertically integrated systems solution where the customer must procure contractor equipment that might not provide the optimum solution. The company rather believes in ensuring a bespoke solution for each individual application and works with customers to design the most effective solution to provide the required effect within a certain budget.

In addition to providing physical protection, the key to ensuring an effective response to threats and unexpected situations is communication, not only inside each individual force but between forces, be they police, paramilitary, civil or military. Recent attacks have demonstrated the importance of clear communication and information sharing between different forces that come from interoperable systems and the adverse consequences that can occur if they are not achieved.

The company's experience of delivering C4I (command, control, communications, computers, and intelligence) solutions to defence forces around the world, combined with its civil security expertise implies General Dynamics UK can be of great benefit to both the state and central government.

Military forces from Britain, Holland, Libya and Romania are very effective in the battlefield. General Dynamics UK's C4I expertise in better situational awareness and battlefield communications, they know where members of their own forces are able to direct and communicate with them easily. The interoperability of the systems has further made it easy to communicate easily with coalition forces. More importantly, they also know where the enemy is in relation to them and can respond more effectively and precisely to the threat.

This capability is equally useful in a security environment. It provides the ability to coordinate the response of Police, Army and Special Forces to a threat and also the other emergency services such as medical response teams in case of an emergency. •

Punj Lloyd's
defence initiatives

Punj Lloyd Group, having a revenue of over US$ 2.6 billion (2008-09), is one of the largest engineering groups in India providing integrated design, engineering, procurement, construction and project management services for its clients in sectors such as oil and gas, petrochemicals, civil infrastructure, high rise buildings, transportation, utilities, renewable energy in eighteen countries. Punj Lloyd has strategically diversified into the Defence Industry, under the Government of India's public-private partnership initiative.

Punj Lloyd is establishing itself as a credible original equipment manufacturer with focus on state-of-the-art technology. The group's objective is to indigenously develop genuine force multipliers that will contribute to providing a decisive edge to the Indian Armed Forces and is in the process of developing capability and infrastructure which can be effectively leveraged for defence programmes.

Naval ship building, maintenance and repair

- Co-promoter of Pipavav Shipyard, it is spread over 782 acres of land, and is amongst the world's largest shipyards strategically located in the industrialised state of Gujarat
- Two dry docks of 651m X 65 m (Largest in South Asia) with nine automated state-of-the-art workshops has been developed in 250 acres of land

Manufacture, Assembly, MRO of land systems and weapons

- Licensed to manufacture guns, rockets, artillery missile systems, electro optical systems, FCS, C3I systems & power packs associated with armoured fighting vehicles (Tanks & ICVs)
- Undertaking maintenance and refurbishment of the group's vast fleet of earth moving equipment (including tracked vehicles) at a modern workshop facility near Gwalior
- Setting up a world class, state-of-the-art manufacturing and assembly facility on 65 acres of land at Malanpur, Gwalior, that is expected to be operational by the end of 2010, for potential manufacture, assembly, upgrade, MRO of land systems and weapons such as artillery, rockets, missile systems, A-vehicles etc.

Maintenance, repair, overhaul (MRO) and modification of aircrafts

- Access to runway and hangar near Bangalore capable of handling Airbus/Boeing platforms
- Potential for retrofit and integration of sub systems onto defence aircraft platforms

Design and engineering capability

- PL Engineering, the group's stand alone engineering arm having close to 800 highly qualified engineers who provide design support, engineering animation, analysis support, manufacturing support and miscellaneous engineering services

Other initiatives

- Developing capabilities in Defence Electronics & Avionics
- Plan to invest in facilities for manufacture of precision aero components •

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'Rockwell Collins consistently leverages best of breed technologies'

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

SP Guide Publications (SP's): The US and coalition forces operating in Iraq and Afghanistan have little to fear through cyber warfare. However, the settings in the Asian Region during a conventional war or an asymmetric war waged during peacetime would be quite different, especially for some countries with extensive cyber warfare capabilities and the will to use them. What measures have been incorporated in the solutions being offered by Rockwell Collins to withstand such threats and how foolproof are they?

T.C. Chan (Chan): Rockwell Collins has a wide variety of technologies and solutions ranging from encryption to anti-jamming solutions for both voice and data radios. We can develop and deliver encryption and anti-jamming technologies that are indigenous to India and/or leverage existing standard encryption technologies.

We specialise in helping achieve battle-space dominance and enhanced situational awareness, delivering key intelligence and electronic warfare systems that operate across the full radio frequency spectrum. Our solutions can be enhanced with an extensive offering of capabilities—tailored to the mission—to ensure secure and uninterrupted voice and data communications.

SP's: While the need for separate Airborne and Surface Solutions is well understood, are you looking at exclusive solutions for Special Forces and even Airborne Forces, considering the growing importance of such forces in countering terrorism, asymmetric and fourth generation wars aside from their strategic reach and specialised missions?

Chan: Rockwell Collins consistently leverages our "best of breed" technologies and products from across our organisation and customises these into solutions that meet the specific mission needs of our customers. We utilise an open systems approach and design methodology to allow for affordable plug and play integration across the battle-space, from airborne applications to surface systems. This is the approach we take with organisations such as Special Operations in the US and other countries. We can take the same approach with India.

SP's: The fact that net-centricity is bandwidth hungry is well known. The US is already looking at a bandwidth of 1GB per second for a single combat team. The Israelis may not be going in for SDRs (Software Defined Radios) per se, but they are upgrading the capabilities of their radio sets to bring them at par with the futuristic SDRs. How is Rockwell Collins looking at this problem and what is the advice that you would like to give to the Indian Defence Forces in an environment of limited spectrum resources? In this context, what is the research and development being done by Rockwell Collins in respect to compression technologies, what are the current capabilities and what can be expected in future and in what time frame?

Chan: Rockwell Collins continually looks at solutions for moving high bandwidth data. We embedded Time Division Multiple Access (TDMA) channel capabilities into our radios, allowing multiple users to share the same frequency by splitting the signal into different time intervals.

Another example is our SATCOM systems, where we have recently expanded our offerings as a result of an acquisition. These systems are designed to move very high bandwidth intensive data.

Rockwell Collins continues to develop advanced data compression technologies through our C3I (Command, Control, Communication & Intelligence) organisation and our Advanced Technology Centre.

We are extremely committed to Research and Development (R&D) for ongoing innovation in these new technologies. In fact, with nearly 20 per cent of our revenue going into R&D activities, Rockwell Collins is considered an industry leader.

In the US and Europe, we routinely cooperate and collaborate with government agencies to determine the best solutions to meet specific defence needs. As head of the Asia Pacific region, it is another focus of mine to ensure that we are actively engaged and working closely with government working groups in Asia Pacific and India to determine the best solutions for this region.

(Continued in SP's Defexpo 2010 Show Daily 3, P10)

First Look: The MPVI

Continued from page 1

paramilitary forces. The vehicle has been built on technology developed by BAE Systems and will offer high level of protection at a cost effective price.

Affording large seating capacity (18 seats), the MPVI is capable of safely transporting a complete operational team of army or police forces involved in anti-terrorist and anti-Naxal operations. High power to weight ratio and very high torque makes the vehicle suitable for Indian terrain, especially the mountainous region of Jammu and Kashmir and the bumpy landscapes in Naxal dominated areas.

"The MPVI is relevant to the needs of our defence forces today. Its enhanced protection technologies will protect the lives of more number of defence forces from mines and roadside bomb attacks. It is critical for India's security and defence," said Anand Mahindra, Vice Chairman and Managing Director, Mahindra & Mahindra. "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."

Speaking on the occasion, Brigadier (Retd) K.A Hai, Chief Executive, Mahindra Defence Systems, said, "The MPVI has been designed with more seating offering from the joint venture company. Using technology proven in BAE Systems' RG series of vehicles and Mahindra's expert knowledge of Indian requirements and conditions, we are proud to provide the Indian defence sector with advanced yet affordable technology."

Andrew Gallagher, President, BAE Systems India, said: "We are extremely proud to unveil the joint venture's very first product which has been tailor made for the Indian armed forces. The MPVI is based on BAE Systems' three decades of protection experience that resulted in the highly successful RG 31. The RG 31 has a proven track record and is in service not only with the US, Canadian & UAE defence forces, but also with the United Nations."

Besides the MPVI, Faridabad-based Defence Land Systems India is focused on the manufacture of up-armoured light vehicles, specialist military vehicles, mine protected vehicles, artillery systems and other selected land system weapons and the upgrades. It is intended to create a centre of excellence for artillery systems to meet the Indian Army's needs for global exports. •

Mahindra & Mahindra's Stable

Marksman: It is India's first armoured capsule based light bullet proof vehicle and is designed to provide protection to paramilitary and Police forces against small arms fire and under belly grenade attacks. It can be used in counter terrorist and anti-Naxal operations as well as in more conventional roles such as armed reconnaissance and convoy protection.

Up Armoured Scorpio: This 'discreetly protected' Scorpio is ideal for VIP protection as it offers both security and comfort. The Up-Armoured Scorpio is already being used by the Indian armed forces and other security forces of India as well as for the protection of dignitaries.

Mahindra Axe: The Mahindra Axe Fast Attack Vehicle is a lightweight, high mobility, high payload combat vehicle, designed for use by Special Forces and for varied operational requirements.

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'HOMELAND SECURITY & SPACE have tremendous potential in Indian market'

Dr Vivek Lall, Vice President and India Country Head, Boeing Defence, Space and Security, elaborates on the concept of One Boeing and the company's growing involvement in space and homeland security

By Vishal Thapar

SP Guide Publications (SP's): Does programme-specific joint R&D, of the type envisaged under the Defence Policy Group framework, look like a possibility in the near future?

Dr Vivek Lall (Lall): That is always a possibility. The model set up in Bangalore is a collaborative research model. We're working with industrial partners and entities like research laboratories. For instance, the Indian Institute of Science is one of the eight university partners that we have worldwide. We're working with industry and universities jointly on research for platforms of the future.

SP's: Russia is engaging India in joint ventures to develop platforms of the future, like the Fifth Generation fighter and the multi-role transport aircraft. Could this close the doors for others in the market, like yourself, at least in particular segments?

Lall: I think the pie is getting bigger here. Industry analysts say it's a $100 billion (Rs 4,62,850 crore) market over the next 10 years. The Boeing addressable market itself is $31 billion (Rs 1,43,480 crore) over the same period. I think the pie is huge. Russia has been a trusted and respected partner for India for long, and will continue to be so. We're just looking for an opportunity to also participate in India's modernisation. I don't necessarily view this as us versus them.

SP's: Would an MMRCA order for 126 aircraft or more be the kind of litmus which could propel the Indo-US defence industrial relationship big time?

Lall: If India picks up the F/A-18 E/F, it would be an iconic symbol of trust and cooperation between India and the US for the next many decades. It will also lead to a consortium of industries in the US and India to develop aerospace capabilities. We have tied up with 16 of our tier-1 suppliers. If you look at the annual revenues, it is $454 million (Rs 2,100 crore).

SP's: Post-26/11, homeland and coastal security have been of vital interest to India. Does this figure on Boeing's business plans for India?

Lall: Homeland security and space are two unexplored areas that have tremendous potential in the Indian market. We've renamed our Integrated Defence Systems business unit to Boeing Defence, Space & Security. We've developed homeland security technologies in the US and we'd like to see where they fit in here in India, which has to secure vast borders. We have a programme in the US called the Southern Border Initiative, which is a very significant technology effort. We would like to explore areas where we can partner with India on homeland security needs. We offer solutions for security at installations like nuclear power plants and airports. There could even be customised Boeing solutions for the police and coast guard.

SP's: What about space?

Lall: We're involved in the International Space Station, and also in the space shuttle programme, Delta rockets, the satellite business. There's a huge amount of capability and talent and that goes back to the One Boeing enterprise. We can leverage the best of Boeing and bring it to India.

SP's: Is the Foreign Military Sales (FMS) route being preferred for business with India?

Lall: The P-8I is a direct commercial sale. Clearly, the C-17 is going down the path of FMS. There could be situations wherein there could be a hybrid of both models tried successfully in India.

SP's: Does politics still limit the potential of Indo-US defence trade?

Lall: Frankly, it's a catalyst. Indo-US ties have been very strong at a people-to-people level for decades. In the last few years, defence ties have grown exponentially. Five years ago, it would have been unthinkable that a state-of-the-art F/A-18E/F would be competing for an Indian order. The P-8 will be inducted into the Indian and US Navies around the same time. That speaks of the strength of the relationship. •

(Concluded.)

Mahindra and BAE Systems' Joint Venture named Defence Land Systems India

Mahindra & Mahindra Ltd and BAE Systems Joint Venture Defence Company, has been named Defence Land Systems India.

Deepak Chhibba and Arne Berglund will be Defence Land Systems India's CEO and Deputy CEO respectively. Deepak Chhibba was earlier EVP International Operations Mahindra & Mahindra and has over 32 years industrial experience. The newly appointed Deputy CEO, Arne Berglund, was previously a director at BAE Systems, Global Combat Systems, in the UK.

Defence Land Systems India is showcasing an extensive portfolio of defence products and services at India's Defexpo 2010. A key project is the development of a mine protected vehicle specifically designed to meet the needs of the Indian armed and paramilitary forces. In addition, it is anticipated that Defence Land Systems India will be involved in a number of future artillery programmes, with the ambition to become an artillery centre of excellence in India that covers not just manufacturing but development, testing and support.

Anand Mahindra, Vice Chairman and Managing Director, Mahindra Group, says, "As a fully operational joint venture, Defence Land Systems India will bring real and lasting value to India's growing defence industry. BAE Systems is the global number one land systems defence company. We are proud to have them as a partner in this joint venture and are confident of addressing the unique requirements of Indian defence and security forces with world class product offerings."

Guy Griffiths, Group Managing Director International, BAE Systems, said, "This Company is founded with the express purpose of serving the Indian armed forces and the Indian economy through the creation of high quality jobs, the development of innovative technologies and system integration skills, and benefits from the leadership of two world class companies. We firmly support the Indian Government's aim of procuring 70 per cent of defence equipment domestically and see the establishment of this company as a major contribution towards this objective.

Defence Land Systems India will be headquartered in New Delhi with manufacturing at a purpose built facility South of Faridabad, just outside of Delhi. Initially there will be about 100 employees and existing projects include the Axe high mobility vehicle as well as up-armored and bulletproof Scorpios, Boleros, Rakshak, Rapid Intervention Vehicles and the Marksman light armored vehicle.

Approved by the Foreign Investment Promotion Board of the Government of India (GoI), the parent companies' initial investment will be US$ 21.25 million over a three year period. The company's equity split will be 74 per cent Mahindra and 26 per cent BAE Systems, in accordance with the current defence sector Foreign Direct Investment regulations of the GoI. •

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BAE Systems completes Indian Hawk aircraft deliveries

After completing a flight development contract for the Indian Air Force (IAF), BAE Systems has delivered the 24th and final UK built Indian Hawk.

Following a 3,000 mile journey across Europe, Africa and the Middle East, the aircraft, flown by BAE Systems test pilots, arrived safely at Air Force Station Bidar to join the rest of the Hawk fleet in delivering fast jet training to the IAF.

The aircraft, HT001, which was actually the first IAF Hawk to be built, has, for nearly three years served as a flight test platform and proving ground for the integration of new systems and capabilities onto the IAF Hawk fleet .

HT001 was also a key component in the programme, which saw the Indian Air Force flying instructors train to teach student pilots on the Hawk. This programme took place prior to the delivery of Hawks to India allowing the Indian training programme to start at the earliest.

The first Hawk was delivered to the IAF in November 2007 and other than this final development aircraft, deliveries were completed in 2008. Whilst this marks the completion of aircraft deliveries by BAE Systems to the Indian Air Force, we continue to provide support services to the IAF, and work closely with our industrial partners, HAL, in meeting the fast jet training needs of the Indian Air Force. •

SELEX Galileo to lead UK MoD CDAS TD programme

SELEX Galileo, a Finmeccanica Company, has been awarded a 4-year contract for the Common Defensive Aids System Technology Demonstrator Programme (CDAS TDP). This important contract has been placed by the UK MoD to support the aims of the UK strategy for Air Platform Protection.

The TDP will be led by SELEX Galileo, based at Luton in the UK. The DAS Controller and architecture will be developed from the Company's combat-proven HIDAS system and subsequent DAS upgrade programmes on UK MoD helicopters.

The main goal of the CDAS strategy is to implement a coherent, cross-platform approach to the acquisition and support of survivability equipment. The aim is to provide survivability according to the platform and role while allowing capabilities to be easily upgraded to address changes in the threat environment or obsolescence. In parallel, the strategy addresses the needs to optimise through-life cost-effectiveness and provide UK with operational sovereignty.

The CDAS TDP will develop an architecture that can easily integrate the different sensors and effectors that may be required for a given platform and role. A flexible, open-architecture approach with standardised interfaces will be developed, together with a common approach to programming. The outcome will be a coordinated, optimised response to threats based on the various sensor and effector capabilities fitted to the platform.

The architecture will be used to demonstrate additional operational capability that builds on the use of existing in-service equipment with the addition of new sub-systems, developed such as SELEX Galileo's new ECLIPSE Pointer Tracker and IRCM laser. The objectives are to demonstrate, through bench and flight trials, the combined and coordinated capabilities of missile warning systems, hostile fire indicators and Directed Infra-Red Countermeasures (DIRCM).

The award of this contract to SELEX Galileo is an important step towards implementing the UK MoD's strategy for Air Platform Protection whilst also giving an opportunity for the company's involvement in the programme to cooperate and demonstrate the capabilities of their products. •

Belgian Navy orders Thales sensors

Thales Nederland has received a contract for two Seastar and Gatekeeper sensors, to be delivered and installed on the two multi-purpose M-class frigates of the Belgian Navy.

The modernisation will take place in 2011 and 2013 in the scope of the M-frigates' upkeep programme.

The Seastar and Gatekeeper sensors provide the vessels with the capability to detect small targets encountered during missions, and to counter frontier-running, pollution, drugs trafficking and piracy. The two new sensors will be matched with the tried-and-true SMART-S surveillance radar and the STIR weapon control radar that are on board of the M-frigates.

Based on the cooperation between the Dutch and the Belgian Navy, this contract was already an option in the contract that Thales concluded in 2008 with the Royal Netherlands Navy, and that provided for the delivery of the Seastar and Gatekeeper sensors to the two M-class frigates of the RNLN.

Seastar is a non-rotating active phased array radar for naval surface surveillance. The system automatically detects and tracks asymmetric threats and very small objects such as swimmers and periscopes in all weather conditions. Seastar can also be used for helicopter guidance.

Seastar is internationally marketed as Sea Watcher 100.

Gatekeeper is a 360 degree panoramic electro-optical surveillance and alerter system based on IR/TV technology. Designed to counter emerging asymmetric threats down to small boats and swimmers, Gatekeeper increases short-range situational awareness in littoral environments. •

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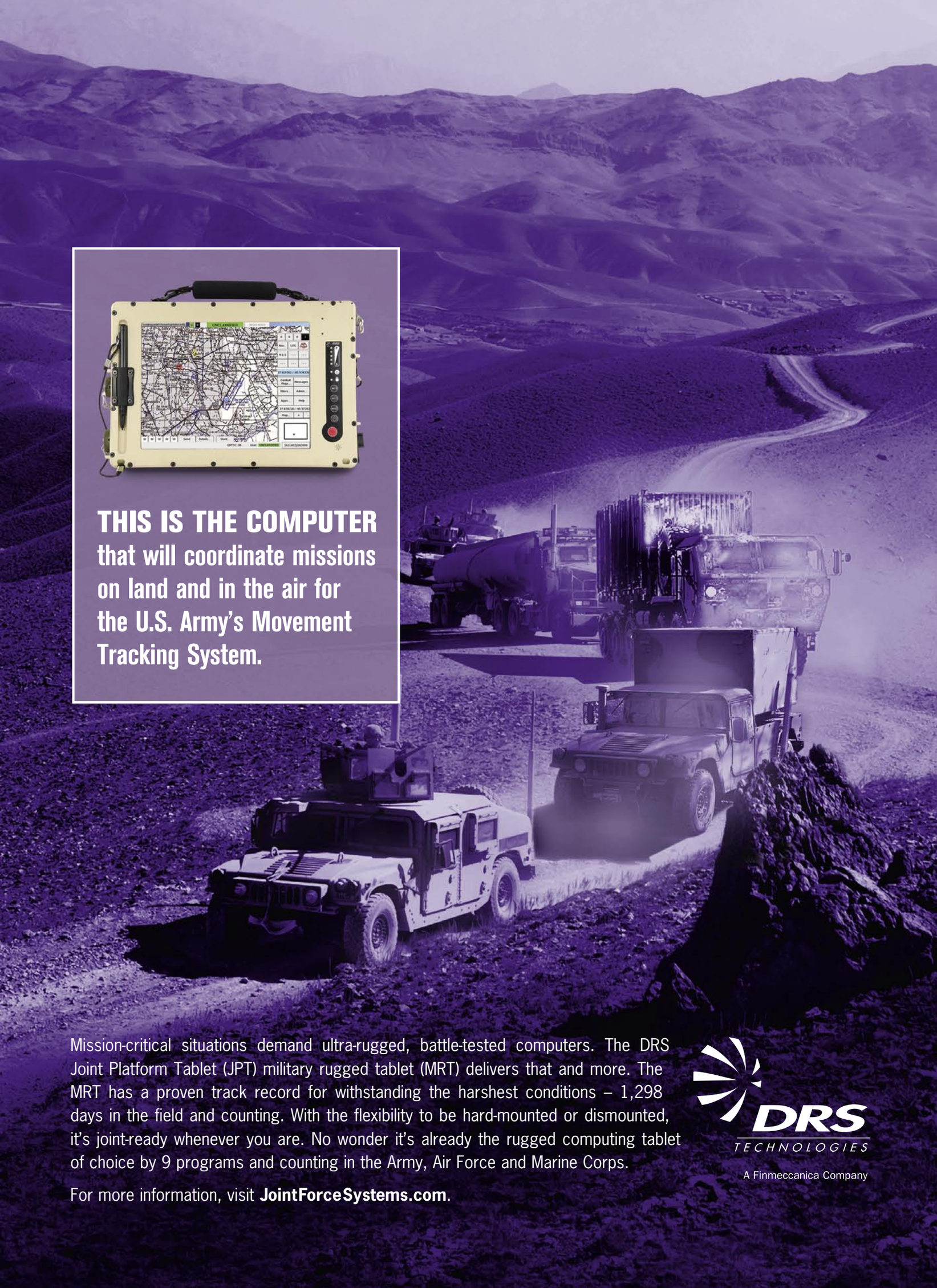

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Recapitalisation budgets remain stretched. The cost of ownership in tactical aviation has risen to unprecedented heights due to the high operating and support costs of older aircraft and the high acquisition cost of new-generation aircraft. In the effort to renew assets with next-generation systems and capabilities, most new-aircraft acquisition and design programmes promise much, but become overwhelmed with challenges to budgets, schedule, and technology. As a consequence, the warfighter continues to operate aging equipment with reduced capability while always looking ahead to promised capability.

The F/A-18E/F Super Hornet delivers an outstanding solution to these challenges today.

Fully equipped and qualified with next-generation technology and capability, the Super Hornet is operating around the world and offers a nation's fighting force the widest range of capability, and the most affordable, low-risk solution to a growing capability gap in tactical aviation.

Here's what the Super Hornet is delivering today: The Super Hornet is a true model for defence acquisition with more than 420 aircraft delivered, all on a budget and on or ahead of schedule. The Super Hornet is highly supportable, and available today with an advanced design built with Lean manufacturing processes, automated logistics, low maintenance, reduced life cycle costs and US Government support beyond 2035.

In addition, the Super Hornet employs an evolutionary approach to growth that continuously optimises performance of existing systems, incorporating maturing technologies when they're ready. Super Hornet has and will dominate identified threats for decades to come through planned and funded growth.

The Super Hornet Block II currently performs a full spectrum of traditional and non-traditional tactical missions:

- Air superiority
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- Land/maritime strike
- Anti-piracy
- Fighter escort
- Close air support
- Suppression/destruction of enemy air defense
- Reconnaissance
- Non-traditional intelligence, surveillance and reconnaissance (ISR)
- Tactical air refueling

The Super Hornet's highly advanced integrated sensor and information suite collects and fuses all active, passive, and defensive data from off-board sources and advanced on-board sensors. The aircrew receives the information in an intuitive and actionable format for enhanced situational awareness, mission effectiveness, and high survivability. The information also can be transmitted off-board to command and control units or other airborne assets for greater force capability.

Operational today, the APG-79 AESA radar system is at the heart of the Block II Super Hornet's sensor suite. It enables employment of precision weapons at long ranges in any weather. The agile and highly reliable APG-79 enables simultaneous air-to-air and air-to-ground and maritime combat operations, guiding weapons to multiple targets in widely spaced azimuth, elevation and range.

Whether engaging moving ground targets, providing electronic jamming, communicating, or making extremely high-resolution synthetic aperture maps, the APG-79 radar system is changing the rules of aerial warfare.

In addition, a low radar cross-section, combined with a highly effective, fully integrated electronic warfare suite, the powerful AESA radar, and long-range precision-guided weapons, make the Super Hornet extremely effective and difficult to detect by airborne or surface threats.

The Super Hornet features extreme agility and maneuverability that give the aircraft exceptional ability to dominate combat engagements at any range. Long range and long loiter times with large and varied weapons loads also offer persistence over the battlefield for lethal reach and power projection. In addition, a fully integrated defensive electronic countermeasures system, two engines, rugged airframe, self-compensating flight controls and redundant systems make the Super Hornet highly survivable and incredibly safe.

The Super Hornet also provides all-weather, day or night tactical reconnaissance and observation that can be shared real-time with other aircraft or the command and control infrastructure. This enhanced situational awareness enables the force to find and destroy elusive targets. In the two-seat "F" model, cockpits can be de-coupled to provide even more simultaneous mission capability over a wider range.

The Super Hornet will be a front-line fighter for the next four decades for the U.S. Government and international allies. Its well-defined technology insertion road map – "The Flight Plan" – ensures continuous, low-risk capability enhancements to keep it current and combat-relevant during its service life. With upcoming threat-based upgrades, such as a passive Infrared Search and Track system that can increase precision and multi-targeting capability, and ever-increasing information sharing, the Block II Super Hornet will be the warfighting commander's strike platform of choice for decades to come. •

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AgustaWestland AW119 starts RSH trials

The AgustaWestland AW119 has started a series of demonstrations before the Indian Armed Force as part of the evaluation process for the Indian Ministry of Defence's Reconnaissance and Surveillance Helicopter (RSH) programme. The AW119 has already demonstrated its exceptional performance with operators around the world where the aircraft's rotor system and powerful engine give it unrivalled hot and high performance in its class. AgustaWestland spokesperson said, "The AW119 meets and in some cases exceeds the Indian Armed Forces mission requirements for a high performance, multi-role light helicopter and this will be demonstrated to the Armed Forces in the coming months. Its class leading performance, cabin space and payload we believe will make it a very strong contender in the RSH competition."

The AW119 features eight seats, six of which are located in the 3.45 cubic metre wide body cabin, which can alternatively accommodate two medical litters plus attendants. The AW119 not only boasts the largest cabin of any single-engine helicopter in its class but also one that has easy access via two large sliding doors and that is easily reconfigurable between roles without the need to use any tools. In addition to its cabin, the AW119 also has a large equipment compartment behind the cabin that is 2.3 metres long.

The AW119 can be flown single or dual pilot in VFR and IFR conditions. The advanced "glass" cockpit also features a four-axis autopilot, which is an advantage while conducting high altitude mountain flying. The aircraft can be configured to accommodate a wide range of mission sensors and weapons systems and aircrew and passengers will also be pleased to know that the AW119 has built in "fail safe" design and dual redundancy of all critical systems.

The AW119 has a four blade main rotor featuring a titanium rotor hub with elastomeric bearings giving low vibration levels across the speed range as well as an aerodynamic dampening effect in windy conditions. The composite rotor blades and engine power give the AW119 a maximum speed of 152 knots making it one of the fastest single engine helicopters around. •

SELEX Galileo to build on strategic partnerships with India

By Ruchika Chawla

SELEX Galileo, a Finmeccanica Company, regards the Indian market as an important strategic area and a key growth opportunity. The Company is working closely with the Defence Research & Development Agencies in India and with Indian industries in order to jointly collaborate in the creation of new products and capabilities both for the armed forces of India and for the wider export market.

At the upcoming DEFEXPO 2010, SELEX Galileo will be pursuing opportunities connected with the need to modernise existing platforms with next-generation sensor systems focusing on Surveillance, Protection, Land & Battlespace and Simulation & Training.

SELEX Galileo has a significant heritage in working with India, delivering a number of the Company's most successful products. These have ranged from protection systems and ESM to Precision Approach Radar and target drones. Activities in the country have also included a repair facility and the training of Indian personnel.

SELEX Galileo is currently pursuing opportunities in the maritime patrol and surveillance domain, related to retrofit programmes for the Sea King and Kamov-28 helicopters of the Indian Navy. The Company's ATOS (Airborne Tactical Observation and Surveillance) system provides wide area and targeted surveillance (overt or covert), anti-submarine warfare and environmental and border control. ATOS can be integrated with Seaspray, the Company's cutting edge Active Electronically Scanned Array (AESA) Radar technology. For Unmanned Aerial Systems and for helicopters, SELEX Galileo offers the smaller, lighter PicoSAR AESA radar, which provides an unrivalled all weather capability.

In the Land & Battlespace sector, SELEX Galileo is also pursuing various programmes for the upgrading of armoured vehicles as well as those for the enhancement of land troops' awareness, effectiveness and protection where equipment can be linked together within a common tactical network.

One solution is the battle-proven Laser Inertial Navigation and Pointing System (LINAPS) which provides pin-point navigation and pointing accuracy for artillery and is in service, and in theatre, with several armed forces. The Company's other solutions include modular and proven 3rd Generation Fire Control Systems, the electro-optic suite for the dismounted soldier, and the acoustic hostile locator HALO.

To provide a solid base for the growth of the Company's Electronic Warfare and Protection business in India, SELEX Galileo last year signed a Memorandum of Understanding with BEL to explore EW-related business opportunities for the Indian market. The Company is currently promoting the combat-proven HIDAS defensive aid suite that delivers world-class protection for helicopters, as well as radar decoys for naval vessels and aircraft such as the Eurofighter Typhoon. •

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Rotorcraft in Afghanistan

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

I flew to Southern Afghanistan in February 2009 as a guest of the UK Joint Helicopter Command. I was immediately struck by the harsh conditions on the ground. Although Kandahar's rolling sands are beautiful when seen from the air, Afghan roads are generally poor, sand is everywhere, and danger is as close as the rocket that struck Kandahar Air Field shortly before my arrival.

The next impression was of the enormity of the efforts mounted by the NATO-led coalition. Kandahar Air Field, for example, is no field. It is a small city bustling with troops from a multitude of nations and an abundance of some very big military machinery, from tanks to jets to helicopters and transport planes.

My third impression, constantly confirmed, was of the urgent and compelling need for helicopters to safely travel across this rugged, war-battered country.

"The mission in Afghanistan is utterly reliant, utterly reliant on the capabilities that the helicopter brings," said Royal Air Force (RAF) Group Capt. Andy Turner, Commander, Joint Aviation Group (JAG) Afghanistan. "Whether it's movement over the terrain, or providing fire support to those on the ground, or providing reassurance, the helicopter is the critical enabler for the pursuance and success of the operation here. Without it, it would simply grind to a halt," he added.

Echoing Turner was RAF Squadron Leader Dave Marsden.

"We use the rotorcraft to improve the safety of our troops when they're moving around," said Marsden. "Obviously, one of the biggest threats to our guys on the ground is from the IED [improvised explosive device] threat."

The United Kingdom's fleet of Boeing CH-47 Chinooks here is paired with other UK assets, such as the Boeing AgustaWestland Apache and the Royal Navy's Sea Kings, and with helicopters from the United States, Canada, the Netherlands and Australia, under a joint international command.

"It's like this big melting pot from which you make it happen," said Col. Bas Pellemans, who commands the Dutch Air Task Force. "Some nations have intelligence information. Other nations bring in transport helicopters. Other nations bring in assault helicopters."

Attempting to win honest opinions about your company's products can sometimes be a challenge. Here I was, a "Boeing reporter," with a video camera, microphones, lights and tripod. When the camera light goes on, most people being interviewed will lean toward politeness. And for a while, that is what I thought I was getting: simple politeness. Sooner or later, I reasoned, politeness would give way to at least some small gripes about the Boeing aircraft. So I began with, "Just give me the unvarnished truth about the Chinook and Apache and how they are performing, good and bad." What came back, time and again, was high praise.

For example, Australian Lt. Col. Peter Steel of the 50 Aviation Wing called the Chinook "the weapon of choice. Everybody wants a Chinook because it's the thing that can operate here high and hot and heavy. It's guaranteed."

And what about the Canadians?

In early 2009, the Canadian contingent in Southern Afghanistan received six Chinooks purchased from the U.S. Army. Their pilots couldn't have been happier.

"It's an unbelievably capable aircraft. It lifts a ton of weight. It flies faster than anything we have," said Corp. Chris Sample

The British, with more experience on the Chinook and somewhat more detachment, were still equal in their praise.

"It's invaluable," said RAF Squadron Leader Johnny Priest, whose team flies the Chinook daily into the Afghan mountains. "Without it, some of the guys in some of the sites ... certainly if they're higher up in the heat of the summer ... would really struggle to get the resupplies that they need. It just couldn't be done. It would have to be done by road, which is too dangerous. So you have to have the Chinook here."

What sets the Chinook apart as an integral cog in the Afghanistan conflict is its ability to lift up to 24,000 pounds of food, supplies and ammunition high up in the Afghan mountains, even in the extreme heat of summer. Add to that its ability to fly over IED-laden roads and to rapidly insert troops into, and extract them out of, the combat zone.

One pilot, RAF Flight Lt. Hanna Brown, told me nothing changes the battlefield dynamics like the sudden appearance of a Chinook full of troops."It is a force multiplier more than anything," she said. When the Chinooks are sent in, Brown says, "the footprint on the ground can go from nothing to 200 within seconds."

Perhaps the most critical role for helicopters, in the eyes of those in the fight, may be medical evacuation of the injured and wounded. Here, too, the Chinook won praise.

"Its maneuverability is fantastic," said RAF Flight Lt. Andy Smith, a paramedic. "Out here it is really a hot environment. And that's 'hot' with enemy fire. And so the aircraft is the best you can have really for maneuvering around the sky. And for patients, for casualties, it's the biggest helicopter we've got for carrying the amounts of patients we have to sometimes."

RAF Sgt. Mark Gamson told me about a medical evacuation with six civilian casualties in the back and Taliban gunfire puncturing the outer body of his Chinook.

"It caused damage to the forward part of the fuselage. We returned fire with the mini-guns attached to the aircraft," he said. "Silenced the enemy position and returned to the hospital here. All the casualties survived, which the doctors were more or less certain they wouldn't have done unless they were medevac'd out. And it was good the Chinook was taking hits and it actually continued to fly with no major problem."

Generally, transport helicopters need some cover, some "muscle," as they race into and out of the battlefield. In Southern Afghanistan, muscle usually comes in the form of two heavily armed Boeing Apache gunships. The Apache, flown by the British Army and the United States, is also one of the essential assets the Dutch bring to the Afghan fight, usually dispatched in pairs to ride "shotgun" for the more lightly armed Chinook and other transport helicopters.

"Usually the best thing to bring to the negotiation table, as we always call it, is the Apache," said Pellemans, the Dutch commander. "With its looks, the sound it makes, it's very clear to people that it means business."

Sgt. Mark Springhall, a British Army avionics technician, said "the ground force would prefer to call in the Apache than anything else because they are pinpoint accurate. You know, they don't make very many mistakes. And they can pick out individual snipers."

The Apache's "muscle" is made up of laser, infrared, and other advanced visual systems, and a combination of laser-guided precision Hellfire missiles, 70mm rockets, and a 30mm automatic cannon. "So they keep an eye on us," UK Chinook Loadmaster Sgt. Mark Gamson said. "And if there are any problems at all, they obviously have the capability, being an Apache gunship, to take out whatever the problem is."

(Continued in SP's Defexpo 2010 Show Daily 3, P20)

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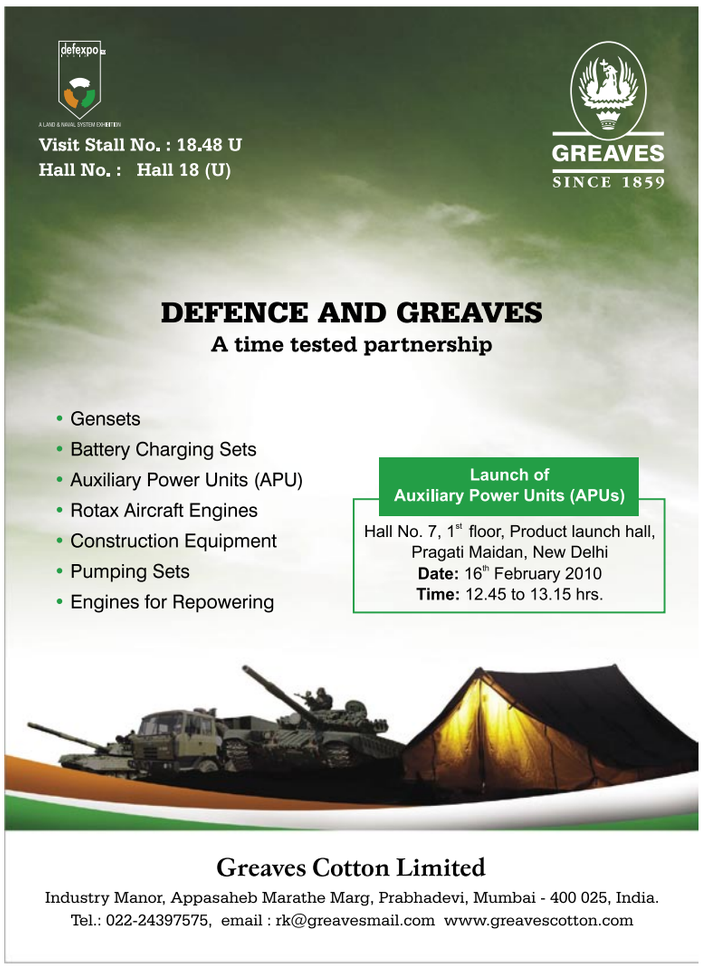
Oto Melara Inks contract worth around 20 million euros for 81 HITROLE Light turrets

Oto Melara, a Finmeccanica company, signed a contract worth around 20 million euro with Italy's Ministry of Defence - General Directorate of Terrestrial Armaments to supply 81 HITROLE Light turrets.

The HITROLE turrets will be used to equip a number of the Lince vehicles currently employed in Afghanistan, thus increasing operational effectiveness and diminishing risks to personnel. The contract also includes technical assistance.

Oto Melara was selected by Italy's Ministry of Defence following an international tender that began in July this year. The first turret will be delivered for operational testing four months from the contract registration, while a large number of the turrets will be delivered by the second half of 2010. •



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Raytheon ATFLIR marks 500,000 flight hours

Raytheon Company's Advanced Targeting Forward Looking Infrared pod has marked more than 500,000 hours of operational flight on the US Navy F/A-18 Super Hornet. Known as ATFLR, the targeting pod provides pinpoint accuracy and real-time target assessment from long standoff ranges.

In coordination with the Navy, Raytheon has continually improved performance and added advanced capabilities to the targeting pod. ATFLIR allows target recognition and tracking at altitudes and ranges substantially greater than those of other targeting systems. It remains the only targeting pod certified for operation on US naval aircraft carriers.

"The ATFLIR pod system offers the warfighter advanced integrated diagnostic, tracking and targeting capabilities," says Tim Carey, vice president for Intelligence, Surveillance and Reconnaissance Systems. "The ATFLIR programme represents a capability that promotes Raytheon's reputation as a technology leader. With more than 500,000 operational flight hours, our targeting pod has proudly supported the Navy warfighter in operations around the world," he adds.

Manufactured by Raytheon Space and Airborne Systems, ATFLIR is a high-technology subsystem that replaced three separate legacy F/A-18 pods. It incorporates an innovative common optical path and continuous auto-boresight technology that significantly increases targeting accuracy while minimising the potential for collateral damage.

"This milestone represents a true team effort between government and industry," says Cmdr. Frank Morely, deputy programme manager, F/A-18 and EA-18 programme office. "There is no combat system on the F/A-18 used more in today's operations than the ATFLIR," he adds. •

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design dragon rouge - photo : C. Chamourat

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Elettronica: Effective & Enduring E-defence

One of the leading European companies engaged in design and production of defence electronic equipment and systems since 1951. Elettronica (ELT) can lay claim a unique experience in research, development and production, thereby being capable of providing reliable solutions to the diverse requirements of a modern war environment over land, sea and air. Proof of ELT's success lies in the fact that its products are employed by the armed forces of 28 countries in five continents, and by its active participation in several international aeronautical, helicopter and naval programmes. In addition to its headquarters in Rome, Italy, ELT owns a company in Germany, 'Elettronica GmbH', and commercial offices in Munich (Germany), Abu Dhabi (United Arab Emirates, or UAE) and Delhi (India).

Aims & objectives

Supremacy: Achieve supremacy by denying the enemy free use of electromagnetic emissions, while retaining their use to own advantage.

Electromagnetic scenario: The electronic defence sector, which aims to gain supremacy in the so-called "electromagnetic scenario", has been ELT's main area of interest for more than half-a-century.

Reliable response to customer requirements: ELT defines and develops new technologies and programs for electronic defence, producing systems with the technical capability of satisfying the operational requirements of its customers, such as intelligence, tactical sensors, self-defence, Suppression of Enemy Air Defences, mutual and remote defence products.

Customer's Self-Sufficiency: The operational functions are supplemented by a series of support activities, such as training, tactical and scenario simulators, and mission planning, that provide users with a fully Self-sufficient operational and technical-logistic support.

Associated companies
(since December 31, 2008)

Companies in which ELT holds an interest are as follows:

- 30 per cent participation in LNX located in US and deals with Hi-Tec Components and Marketing Support.
- 49 per cent in a joint venture with ELTBAT located in UAE and deals with Logistic Support and Business Development.
- 26 per cent in a joint venture with AEDS located in India and deals with Electronic Warfare (EW) System Design and Production.

Products & services

- Tactical and Strategic Surveillance
- Platform Self-Protection
- Operational and Logistic Support
- Passive Equipment—Radar Warning Receiver (RWR), Electronic Support Measures (ESM), Electronic Intelligence (ELINT)
- Active Equipment and Decoys — Electronic Countermeasures (ECM)
- Simulation Facilities
- Defence Electronics Mission Planning
- Integrated Systems

VITAL CONTRIBUTIONS: ELT ACTIVELY PARTICIPATES IN EUROFIGHTER (ABOVE) AND EH101 (TOP)

Qualified personnel

The company qualified personnel are as follows:

- Engineering – 38 per cent
- Production – 39 per cent
- Services/others – 23 per cent

Helicopter Programmes

The Company has participated in important helicopter programmes like EH101 and NH90. Main details are as follows:

EH101: The EH101 programme started in March 1984, following an agreement between the Italian and UK governments to supply their navies with new helicopters to replace the old Sea King platforms.

ELT's Participation: ELT gave its contribution by providing its ALR-735: an ESM/RWR system for the interception, localisation and identification of e.m. emissions. The ALR-735 contributes significantly to the achievement of excellent operational performances in search, surveillance and intelligence missions, as well as to the protection of the platform. The other variants, such as the Utility and its derivatives, the Amphibious Support and CSAR, will also benefit from the addition of a self-defence system developed by ELT.

NH-90: This programme originated from the need of the armed forces of France, Italy, Germany and the Netherlands for a medium-weight helicopter, for naval, tactical and utility use. In 2001, a contract was signed for the production of more than 200 Tactical Transport Helicopters and nearly 100 NATO Frigate Helicopters (NFH) during the first phase.

ELT's Participation: ELT obtained the contract for development and production of the ESM systems for the NFH variant, winning a competition open to European companies specialised in Electronic Surveillance Systems.

The system, named DETE-90, or more technically ALR-733V(4), represents the most advanced version of the similar ELT system already supplied for maritime patrol aircraft and naval helicopters, with enhanced surveillance (ESM), self-defence (RWR) and tactical analysis (ELINT) capabilities.

Multi-Role Combat Aircraft

ELT has participated in a number of combat aircraft programmes, like the Tornado and Typhoon. The Typhoon (formerly European Fighter Aircraft) programme is the result of a multinational agreement involving UK, Germany, Italy and Spain for the development of a "highly-agile" air superiority fighter for use in the operational scenarios of the first decades of the 21st century. It entered service in 2003.

ELT's Participation: The Eurofighter Typhoon is equipped with a computerised electronic defence sub-system, the Defensive Aids Sub-System (DASS), which allows the aircraft to evaluate the air-to-air and air-to-surface tactical situation and to respond automatically, with the most appropriate ECM, also in case of multiple threats. The DASS system includes front and rear Missile Approach Warning System, Electronic Counter measures, Electronic Support Measures and Towed Decoys, produced by the four companies belonging to the Eurodass Consortium: Selex Galileo Ltd (UK), ELT (Italy), Indra (Spain) and EADS (Germany). These are complemented by a Chaff and Flare dispenser and, in the UK variant, by a Laser Warning Receiver.

Mirage 2000: ELT was also involved in modernising the EW component of the Mirage 2000–9 of UAE with a system, known as the Integrated Multimission Electronic Warfare System, consisting of two sub-systems integrated into the M-2000 platform.

Horizon Frigate: Horizon is a collaboration programme that commenced in 1993 involving UK, Italy and France, with the objective of developing and constructing a Common New Generation Frigate. It entered service between 2006 and 2009. Designed for zone defence, the Horizon frigate can be employed both for patrol missions and to escort High Value Targets.

ELT's Participation: The Electronic Defence System is the result of a collaboration between ELT and Thales Sistèmes Aéroportés S.A.. The system takes advantage of the most recent technological developments in the ESM and ECM sectors and today represents the most advanced shipborne EW system available on the international market. ELT has also participated in other naval programmes, like Baynunah, Carrier 'Caviour' of the Italian Navy and FREMM programme of the Italian and French navies.

(Continued in SP's Defexpo 2010 Show Daily 3, P24)

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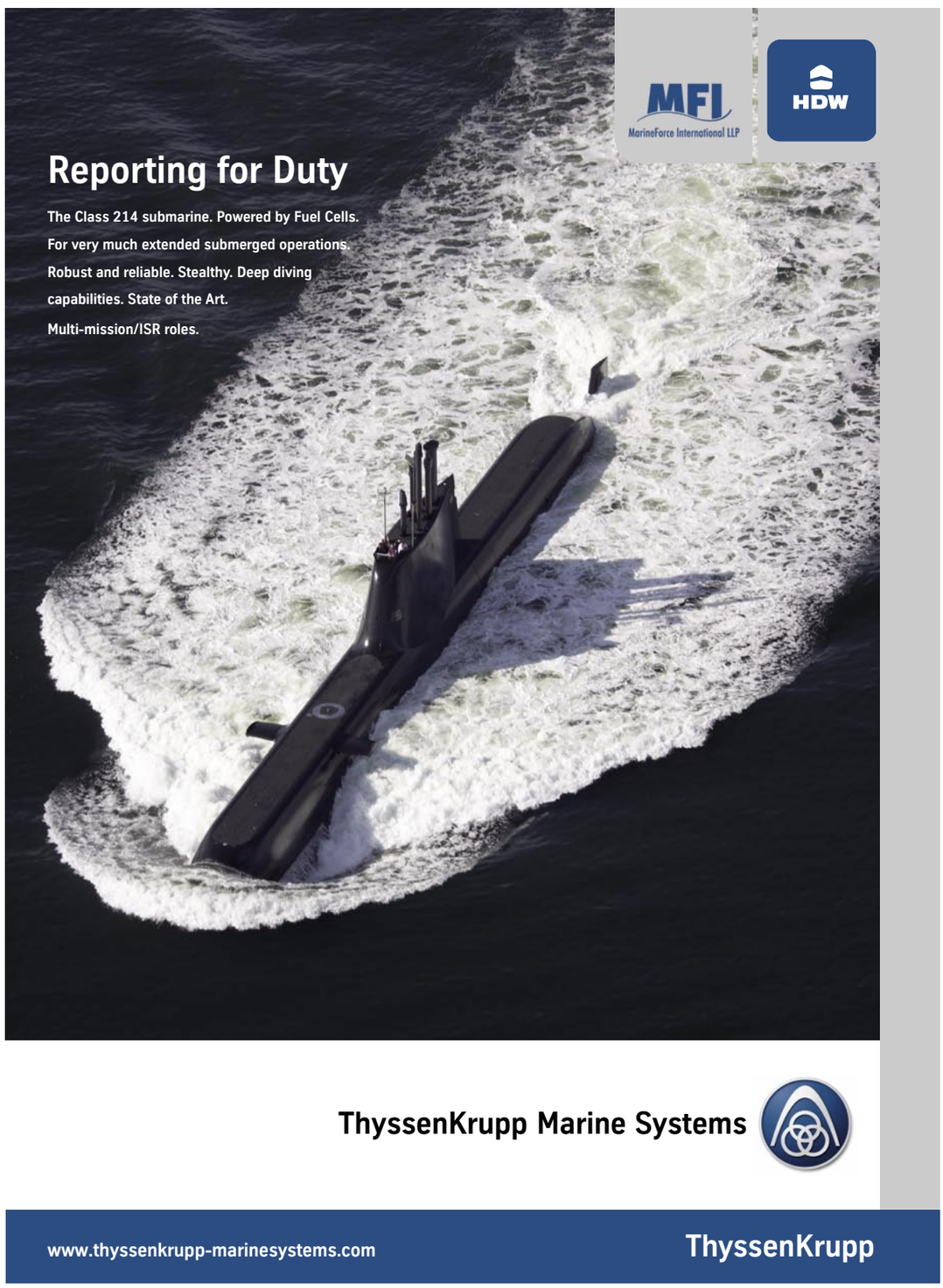
EADS Defence & Security in India

EADS Defence & Security (DS) has always considered India as a fast growing market with an expanding defence and security industry which offers excellent opportunities for partnerships. Therefore, DS is fully committed to invest in India's industry and people and is ready to listen and learn from its Indian customers. The international defence exhibition Defexpo 2010 provides an excellent occasion for DS to demonstrate its capabilities, technologies and explore new opportunities for business with India. Already existing partnerships with R&D organisations such as the Defence Research and Development Organisation (DRDO) and Defence Avionics Research Establishment (DARE) build a solid basis to expand future partnerships with Indian companies. As another step to enhance its industrial footprint in this important growth market, DS created EADS DS India Private Limited.

One of the major programmes is the Eurofighter Typhoon which is developed and manufactured by Alenia Finmeccanica (Italy), BAE Systems (UK) and EADS (Germany, Spain). With more than 700 orders from six customers (Germany, United Kingdom, Spain, Italy, Austria, Saudi Arabia) and over 200 deliveries, Eurofighter Typhoon is fully operational and a mature weapon programme. Most impressive key feature of the Eurofighter Typhoon is its multi and swing-role capability, which provides military commanders with enormous flexibility. On behalf of the Eurofighter consortium, DS submitted the bid proposal for Medium Multi Role Combat Aircraft (MMRCA) competition on 28 April 2008 and its offset offer on 4 August 2008. The Field Evaluation Programme for Eurofighter Typhoon started in November 2009 with training sessions of Indian pilots in Germany. In February-March 2010, combat aircraft of the German Air Force will demonstrate its operational capabilities in Bangalore, Lehel and Jaisalmer.

DS acted as the design and integration authority to the Indian Army for its test bed system called Parikshak. This system is being used to help investigate the capabilities that could be delivered for the new Tactical Communications System (TCS) project. In addition on the 16 February 2008, DS and TATA announced the formation of a new partnership to bid for the TCS project. In the global security market, DS possesses the capabilities to provide integrated border and coastal surveillance as well as large event security solutions. To support the ongoing Network Enhanced Capabilities transformation within the Indian Armed Forces, DS is committed to establishing partnerships with local industries.

In 2008, DS has been awarded with India's first major public safety TETRA network contract by the Andhra Pradesh police. The new network will cover the region of Cyberabad, the high-tech hub that surrounds the city of Hyderabad. In 2009, DS signed a contract to deploy a modern TETRA radio network to secure the Indian Parliament. DS has teamed up with its local partner Sanchar Telesystems Limited to provide the Indian Parliament with a digital, GPS-based, encrypted communication system. •



'Our objective is to expand our role as training systems integrator for defence forces'

MARTIN GAGNE, Group President, Military Products, Training & Services, CAE

SP's: How would you describe CAE's position in the Military market in the domain of modeling, simulation and training?

Martin Gagne (Gagne): CAE is somewhat unique and the focus of the entire company is modeling, simulation and training. We invest a significant amount on R&D specific to this niche, and there are opportunities to leverage technologies between the civil and military markets. We announced last year a $714 million R&D programme called Project Falcon, which will expand CAE's current modeling and simulation technologies and increase its capabilities beyond training into other areas of the aerospace and defence market, such as analysis and operations. Importantly, we leverage our global footprint to bring our modeling and simulation technologies into regional markets, which we are doing for India through CAE India Pvt Ltd. A good example is CAE's Augmented Visionics System (AVS), a technology enabling a pilot to take off and land safely even when visibility outside the cockpit is restricted. Another example is the CAE-developed Common Database (CDB), which was originally developed for the United States Special Operations Command and we are now leveraging in the global market to significantly enhance mission rehearsal capabilities. These are examples of the kind of technology and innovation CAE can bring to market so defence force can better use simulation to enhance safety, efficiency, and mission readiness.

SP's: Where do you see growth in the Military market for modeling and simulation?

Gagne: Traditionally, modeling and simulation (M&S) has been used to support training. This specific application is well understood and employed by militaries and civilian agencies around the world. However, we see significant growth in taking the simulation out of the simulator and applying simulation across the programme lifecycle, including support for analysis and operations. When you consider the increasing complexity of network centric operations where multiple systems from multiple nations will operate together in a mission context, modeling and simulation will enable their operational success. As decision makers face ever more complex environments, simulation is seen as an enabling technology for better and timelier decision making.

SP's: Has the world's economic crisis impacted CAE's military business over the past year?

Gagne: CAE's military business has actually experienced solid growth in the recent years. At a macro-level, simulation offers a number of advantages that address an ever-increasing global threat level and new economic constraints that are pressuring top-line defence spending. The cost savings from the use of modeling and simulation is considerable. The cost of fuel, detrimental environmental impacts, and significant wear and tear on weapon systems all point to the greater use of simulation and synthetic training. Equally important as a market driver, the current state of simulation is so highly realistic that it has become an integral tool for mission preparation and rehearsal. India's defence forces are in a perfect position to extend their use of simulation to help ensure the readiness of India's defence forces as they face new and changing threats.

SP's: What kind of presence does CAE have in India?

Gagne: CAE has a significant presence in India that includes more than 300 employees serving both the defence and civil aviation markets. We have established regional operations in key markets around the world so that we can better serve customers from a local base, while still leveraging the global breadth and capability of the entire company. Our regional operations are located in Canada, the United States, Germany, the United Kingdom, Australia, Singapore and India. In 2007, we acquired Macmet Technologies, the leading military simulation company in India. We now call this division CAE India Pvt Ltd and they are charged with bringing the full breadth of CAE's simulation capabilities to the Indian defence market.

SP's: What are some of your current military programmes in India?

Gagne: CAE India is currently working on a range of projects for the Indian Armed Forces, as well as projects for various laboratories belonging to the Defence Research and Development Organisation (DRDO). For example, we are developing an integrated Arjun tank simulator for the Combat Vehicle Research and Development Establishment (CVRDE) and a missile simulator for the Defence Research Development Laboratory (DRDL). CAE India has teamed with TATA Advanced Systems Limited to develop a comprehensive T-90 and T-72 tank training systems, which we have proposed to the Indian Army and will be marketing globally. CAE India has provided the Indian Navy with an Action Speed Tactical Trainer (ASTT), which is a naval wargaming system. We are also working closely with the Indian Air Force developing two Dornier DO-228 flight training devices, one MiG-21M fixed base simulator, and a C-130J full-mission simulator. Finally, we have a joint venture with HAL called the Helicopter Academy to Train by Simulation of Flying (HATSOFF) that will open the first simulator training facility in India for helicopter pilots later this year.

SP's: What is one of your primary objectives in the Military market?

Gagne: One of our primary objectives is to expand our role as a training systems integrator for defence forces. Military forces around the world must adapt to budgetary constraints, operational demands, personnel shortages, new threats, complex weapon systems, evolving operational doctrines, and shifting priorities. All of these issues can impact training capabilities and ultimately, the readiness of those in uniform. These issues have led a number of militaries to look to private industry for the provision of turnkey training services. This offers the military customer a cost-effective means to producing tactically and technically proficient as well as mission-ready warfighters. By leveraging simulation-based technology and shifting training system accountability to private industry, militaries are able to focus on operational demands and requirements.

CAE is an ideal partner for militaries and major weapon system original equipment manufacturers (OEMs) seeking a training system integrator. We are a company focused on simulation and training delivery with the requisite experience, skills, and capability to design training programmes, develop and support the complex integrated ground-based training system and training environment, and, where applicable, manage or even provide the associated live training assets. For example, last year CAE signed a contract with the Government of Canada to be the Operational Training Systems Provider for Canada's new fleet of C-130J transport aircraft and CH-47 heavy-lift helicopters. Under this programmeme, CAE will serve as the training systems integrator for providing comprehensive aircrew training services over the next 20 years. This type of approach to turnkey training delivery would work well in many parts of the world, including India. •

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The F/A-18IN Super Hornet

The Ever-Evolving Multi-Role Strike Fighter

By CHRIS CHADWICK, President, Boeing Military Aircraft

The "F/A-18IN Super Hornet" is the name given to the advanced, in-production multi-role combat fighter that offers the Indian Air Force next-generation capabilities today. The "IN" designation (for India) reveals how much this Boeing product will reflect the Indian content to be woven into the existing muscle and sinew of this backbone of the US Navy.

Boeing's Super Hornet is truly a study in evolution. Having as its genus the Hornet, a formidable fighter aircraft flown by eight of the world's air forces, the "evolved" Super Hornet is a much more muscular and advanced multi-role combat fighter. Our engineers took the Hornet's strengths and added modern sensors such as the AESA APG-79 radar, as well as advanced avionics and weapons. Its capabilities were extended from air-to-air to also include air-to-ground and night combat missions, as well as air superiority. Added to that is the tanking ability that allows the Super Hornet to serve as a flying gas station.

Since the Super Hornet entered service in 1999, more than 400 aircraft have been delivered to the US Navy, all of them on cost, and on or ahead of schedule. Recently, the first of 24 F/A-18E/F Super Hornets destined for the Royal Australian Air Force rolled off our assembly lines in St. Louis, making Australia the first international customer for this advanced combat aircraft. We hope that India will be next.

And if India should choose this iconic aircraft, itself a symbol of continuous aerospace evolution, the Super Hornet might rightfully come to stand as a symbol of growing India-US ties. From the government-to-government level down to where defense companies such as Boeing are building relationships with the Ministry of Defense and Indian industry, this evolution has been remarkable. And looking ahead, it can only get better.

As continuous insertion of advanced technology ensures the Super Hornet will remain an integral part of the US Navy for 30 or more years, we similarly expect the new F/A-18IN to be defending Indian airspace and international sea lanes for years beyond that.

It's all about evolution, one great aircraft, and two great nations. •

Harris Corporation

JTRS-approved Falcon III Tactical Radio Systems for MRAP-ATV Programme

Harris Corporation (NYSE:HRS), an international communications and information technology company, has received orders totaling to supply JTRS-approved Falcon III AN/PRC-152(C) tactical handheld radio systems with vehicular amplifier adapters to the US Department of Defense for use in Mine Resistant Ambush Protected (MRAP) all-terrain vehicles (ATV).

The AN/PRC-152 was selected to provide MRAP users with advanced multiband SINCGARS and Demand Assigned Multiple Access (DAMA) satellite communications interoperability. Harris RF Communications is the leading global supplier of secure radio communications and embedded high-grade encryption solutions for military, government and commercial organisations. The company's Falcon family of software-defined tactical radio systems encompasses man pack, handheld and vehicular applications. Falcon III is the next generation of radios supporting the US military's network-centric operations worldwide. •

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DRS Technologies

Partner programme for ARMOR Rugged Mobile Solutions

DRS Technologies, Inc. has announced that it has finalised the details for its new channel partner programme, ARMOR allies. This launch is another strong indication that DRS Technologies is fully committed to the distribution of ARMOR Rugged Mobile Solutions around the globe.

ARMOR Allies will leverage the company's vast experience and resources through a channel of highly effective distribution points worldwide.

"ARMOR allies is a partner programme that was specifically designed to give maximum flexibility while still providing full support of our highly developed marketing, sales and service teams," said Bill Guyan, vice president, strategy and business development. "This programme allows new and future Allies to grow their business and reach their highest potential, all while receiving the full support of DRS," he added.

Guyan added, "The ARMOR Allies programme is complete with incentives for improved performance, marketing support for developing emerging markets and bid and proposal assistance for even the most complicated proposals and pilot programmes."

The ARMOR brand is based on over 25 years of experience developing computer and display systems that survive in the harshest environments. DRS Tactical Systems has both a strong legacy in military computing, and, due to its 2005 acquisition of Walkabout Computers, a rich heritage in industrial tablet computing. The combination of legacy and heritage has resulted in a unique competitive advantage now available to its partners. •

ARMOR allies

HONG KONG

Airlines to order six A330-200s

Hong Kong Airlines has signed a Memorandum of Understanding (MOU) with Airbus for six A330-200 aircraft. The latest commitment will increase the number of A330s ordered by the airline to 23. Hong Kong Airlines intends to use the A330-200s to develop new services to destinations across the Asia-Pacific region, as well as to the Middle East and Europe.

"The A330-200 offers the perfect range and size capability to enable us to expand into new medium and long haul markets," said Yang Jian Hong, President, Hong Kong Airlines. "With these aircraft in our fleet we are aiming to create new standards in comfort and service and to establish our company as a premium brand in new international markets," added.

"This latest commitment from Hong Kong Airlines underscores once again the popularity of the A330 as the right aircraft right now for quality airlines across the world," said John Leahy, Airbus Chief Operating Officer, Customers. "The A330 remains the most efficient aircraft in its size category flying today, providing airlines with the ability to maximise profit potential on a wide range of operations," he added.

Established in 2006, Hong Kong Airlines currently operates a full service network linking Hong Kong with destinations in mainland China and the Asian region. In addition to A330s, the carrier also has 30 single aisle A320 aircraft on firm order for future delivery.

The A330 is one of the most widely used wide body aircraft in service today. Till date, Airbus has won more than 1,050 orders for the various versions of the aircraft. More than 660 A330s have already been delivered and the aircraft is currently flying with over 70 airlines worldwide. •

Sea Spotter: Naval IR staring and tracking system

Thales Nederland has received a contract for two Seastar and Gatekeeper sensors, to be delivered and installed on the two multi-purpose M-class frigates of the Belgian Navy. The modernisation will take place in 2011 and 2013 in the scope of the M-frigates' upkeep programme.

The Seastar and Gatekeeper sensors provide the vessels with the capability to detect small targets encountered during missions, and to counter frontier-running, pollution, drugs trafficking and piracy. The two new sensors will be matched with the tried-and-true SMART-S surveillance radar and the STIR weapon control radar that are on board of the M-frigates.

Based on the cooperation between the Dutch and the Belgian Navy, this contract was already an option in the contract that Thales concluded in 2008 with the Royal Netherlands Navy, and that provided for the delivery of the Seastar and Gatekeeper sensors to the two M-class frigates of the RNLN.

Seastar is a non-rotating active phased array radar for naval surface surveillance. The system automatically detects and tracks asymmetric threats and very small objects such as swimmers and periscopes in all weather conditions. Seastar can also be used for helicopter guidance.

Seastar is internationally marketed as Sea Watcher 100. Gatekeeper is a 360 degree panoramic electro-optical surveillance and alerter system based on IR/TV technology. Designed to counter emerging asymmetric threats down to small boats and swimmers, Gatekeeper increases short-range situational awareness in littoral environments. •

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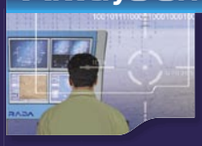

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Lockheed Martin

C-130J Super Hercules Airlifter

The Lockheed Martin C-130J Hercules is the most advanced airlifter ever built. The C-130J combines the latest in aerospace technology with a proven, rugged airframe design, resulting in an aircraft that gives an operator more capability with greater operational efficiency.

This is India's first experience with C-130s so the package being provided by the US government is a complete solution. The package includes six aircraft, three years of initial support, training of aircrew and maintenance technicians, spares, ground support and test equipment, servicing carts, forklifts, loading vehicles, cargo pallets, and a team of technical specialists who will be based in India during the three year initial support period. Also included in the package is India-unique operational equipment designed to increase Special Operations capabilities. In addition, the C-130J Super Hercules will provide the Indian Air Force with modern and effective airlift to support a wide range of national requirements.

In keeping with IAF requirements, the US Government has offered a unique C-130J configuration modified for special mission roles. Equipped with an Infrared Detection Set (IDS), the aircraft will be able to perform precision low-level flying, airdrops, and landing in blackout conditions. Self protection systems and other features are included to ensure aircraft survivability in hostile air defence environments. In addition the aircraft is equipped with air-to-air receiver refueling capability for extended range operations. Lockheed Martin will integrate this equipment and other capabilities into the Indian configuration as agreed between the governments.

The Indian Air Force's new Super Hercules will be the longer fuselage or "stretched" variant of the C 130J, similar to those being delivered to the US Air Force. Deliveries to India will begin in 2011. India joins the growing number of nations with C-130J fleets including the United States, Australia, Canada, Demark, Italy, Norway and the United Kingdom. The C-130J carries eight 463L pallets, 97 medical litters, 24 CDS bundles, 128 combat troops and 92 paratroops.

While the exterior looks very much like previous C-130s, the C-130J mission and propulsion systems have been completely redesigned. Primary features of the C-130J include a new digital avionics architecture and propulsion system, twin head-up pilot displays that are certified as primary flight instruments, and dual mission computers that automate many functions, allowing the aircraft to be operated by only two pilots and a loadmaster. The net effect of these improvements is enhanced performance of the aircraft, and greater reliability of the systems and components. For instance, when compared with C 130E models, the C-130J can provide 40-percent greater range, a 40 percent higher cruising ceiling, a 50-percent decrease in time-to-climb, a 21 percent increase in maximum speed, and a-41 percent decrease in maximum effort takeoff run.

A key to the C-130J's increased performance is the new propulsion system. Four Rolls Royce AE 2100D3 engines, each flat rated at 4,591 shaft horsepower, generate 29 percent more thrust while being 15-percent more fuel efficient. The all composite six-blade Dowty Aerospace R391 propeller system is lighter and has fewer moving parts than previous Hercules propellers. Engines are precisely controlled by a full authority digital electronic control.

The heart of the new Hercules advanced technology is its modern flight station with multifunction, liquid crystal displays (LCD) for aircraft flight control, operating and navigation systems. In addition to four displays on the instrument panel, pilots use holographic head-up displays, approved as primary flight instruments, a precedent among military transports. The displays are all compatible with night vision imaging systems, enabling the crew to operate the aircraft in areas where special missions dictate blackout conditions.

The dual mission computers manage and automate many of the functions formerly performed by the flight engineer and navigator. Aircraft systems are constantly monitored and crews are advised of status or malfunction as required. Some of the new systems of the aircraft that are managed by the mission computers include the full authority digital engine controls, the advisory caution and warning system, automatic thrust control, computerized maintenance recording, the electronic circuit breaker system, the enhanced stall warning system, the advanced digital map, and a state-of-the-art communication/navigation suite.

The C-130J takes full advantage of the Global Positioning System and other highly reliable, automated navigation and route planning aides. This allows the cockpit crew to focus on the mission and on flying rather than on managing aircraft systems.

Lockheed Martin Aeronautical Systems began development of the C-130J in 1991 using corporate development funds. The first C-130J rolled off the assembly line in October 1995. That same aircraft, which had been ordered by the United Kingdom's Royal Air Force, flew for the first time on April 5, 1996. Following one of the most comprehensive flight tests programs ever, the C-130J received type certification from the Federal Aviation Administration in August 1998, and deliveries began soon afterward. •

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'PEL positioning itself as a reliable, efficient, cost competitive alternative'

ASHOK KANODIA, Founder & Promoter
MD of Precision Electronics Limited

SP Guide Publications (SP's): How is Precision Electronics Limited (PEL) positioning itself in the Indian Defence industry?

Ashok Kanodia (Kanodia): Precision Electronic Limited (PEL) is positioning itself as a reliable, efficient and cost competitive alternative to the incumbent suppliers who have dominated the defence industry in India. PEL has been working with all three wings of the Indian Armed Forces since a decade.

SP's: What are PEL's areas of strength?

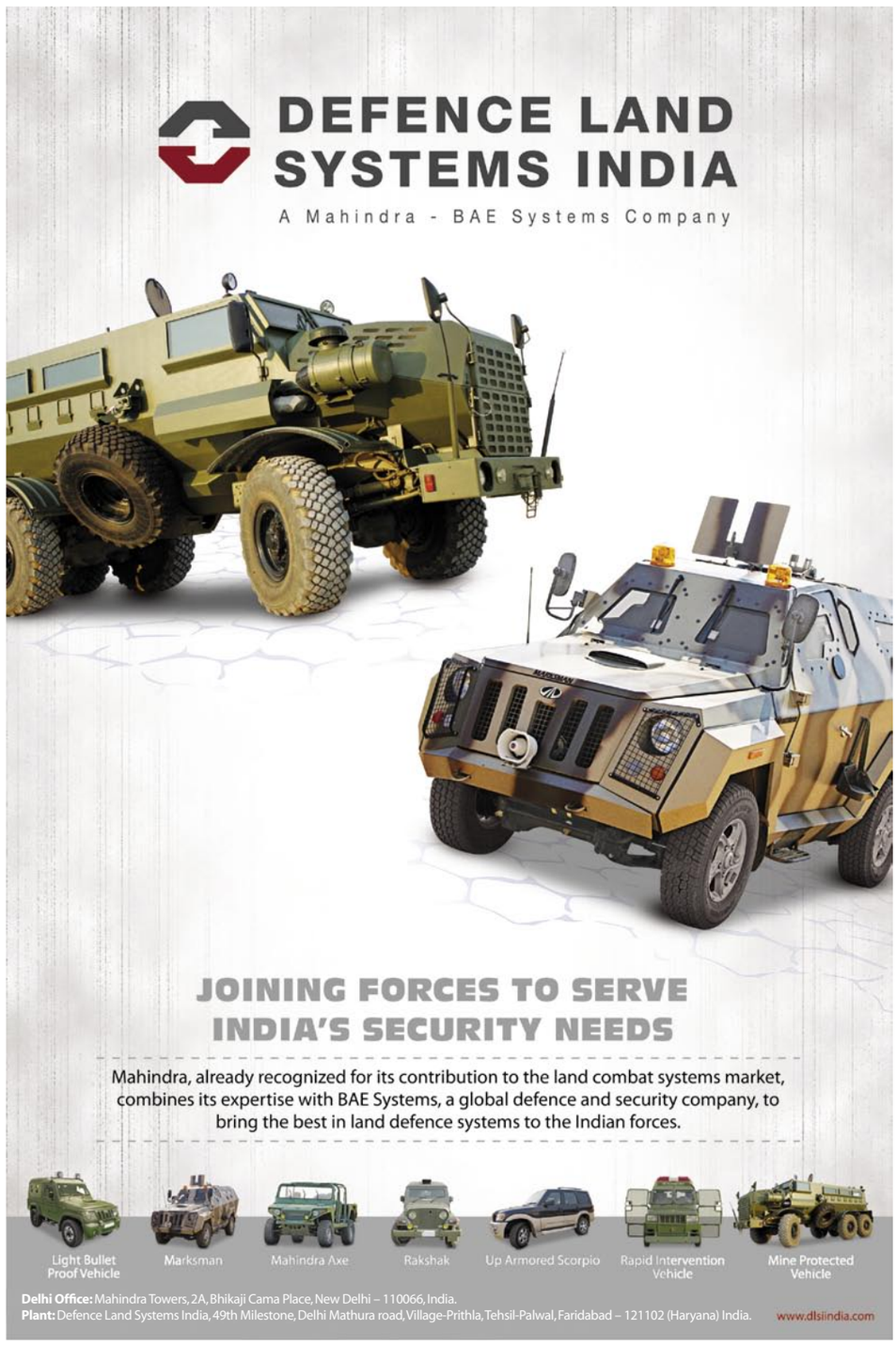
Kanodia: PEL's strength lies in its design and manufacturing infrastructure that is approved by the MoD, its domain knowledge & presence and its experience in International Partnering. PEL's current contracts span all commands of the Indian Army for War time Equipment (WE) systems, all front-line ships of the Indian Navy and every air-base of the Indian Air Force and Army Aviation Corps. We have strong and world renowned partners like Raytheon who have the muscle and a vast product portfolio. Jointly, we offer solutions that are customised to our operational environment and provide in-country life cycle support including mid-life upgrades.

SP's: What are some of the products and services which PEL provides to the defence sector?

Kanodia: PEL supplies built-to-spec for RF, Embedded and Electro-Mechanical systems and sub-systems and built-to-print for a wide variety of Defence Electronics systems and sub-systems. Our Roorkee infrastructure has in house Mil-spec verification and validation facility. Through our pan India presence, we provide warranty, training, AMC and comprehensive Logistic support to our Partner. We have developed capability to undertake turn key assignments that include civil and electrical work at site.

SP's: How does PEL meet offset obligations?

Kanodia: We are continuously working to expand our product portfolio and capabilities. Our Roorkee facility is in the tax free zone which brings a significant cost advantage to our Partner. We assure our Prospective Partners of our ability to create competence to match their requirement and expectations and we have a track record that supports this. Under the current Offset policy, we are active in all the five forms of discharge of obligations; the announcements will be made in the near future. •



General Dynamics UK
Mix of security & defence experience

The building blocks of modern life – water and energy supply; public transport and communications networks; government services and national monuments; treasures and key government buildings - are some of the easiest things for malevolent forces to disrupt and some of the most difficult things to protect. Like in many other countries, protecting these key assets is a key concern of national and state governments alike in India. But with several central police forces and numerous state and government department forces protecting national borders and critical national infrastructure, combating counter terrorism and insurgency, and responding to disasters and other emergencies is undoubtedly a complex operational challenge.

General Dynamics UK has 50 years experience of protecting key facilities around the globe, from some of the largest oil and gas installations and pipelines that run across some of the most inhospitable terrain in the world to airports, commercial ports, and communications centres. At the heart of why General Dynamics UK is successful in providing such security solutions to its customers is its role as a prime systems integrator.

Unlike many other security contractors, General Dynamics UK does not promote a vertically integrated systems solution where the customer must procure contractor equipment that might not provide the optimum solution. Rather, General Dynamics UK believes in ensuring a bespoke solution for each individual application. It does this by listening to its customers and working with them to design the most effective solution to provide the required effect within certain budgets. It then identifies the most capable industrial partners and works with them to deliver a world class solution.

General Dynamics UK's has an unparalleled track record of working with local partners and developing indigenous capability, bringing its skills together with those of local companies, many of them Small or Medium Enterprises (SMEs). In addition to providing physical protection, key to ensuring an effective response to threats and unexpected situations is communication, not only inside each individual force but between forces, be they police, paramilitary, civil or military. Recent attacks have demonstrated the importance of the clear communication and information sharing between different forces that comes from interoperable systems and the adverse consequences that can occur if they are not

achieved. This is another of the areas in which General Dynamics UK can help.

Its experience of delivering C4I (command, control, communications, computers, and intelligence) solutions to defence forces around the world, combined with its civil security expertise means General Dynamics UK is well placed to help India's national and state government protect those precious building blocks of critical national infrastructure.

General Dynamics UK's C4I expertise has meant that military forces from Britain, Holland, Libya and Romania are more effective on the battlefield. Thanks to better situational awareness and battlefield communications, they know where members of their own forces are and are able to direct and communicate with them easily. Thanks to the interoperability of their systems, they can also communicate easily with coalition forces, such as is happening today with ISAF forces in Afghanistan. More importantly they also know where the enemy is in relation to them and can respond more effectively and precisely to that threat.

This capability is equally useful in a security environment. It provides the ability to coordinate the response of Police, Army and Special Forces to a threat and also other emergency services such as medical response teams should the worst happen.

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

Tandem
Rotor Helicopter

Tandem-rotor helicopters operating around the world provide military users with performance and capability across a wide range of missions and operating conditions. The tandem-rotor design has been in operation since the 1950s, but new-production aircraft such as Boeing's popular CH-47F Chinook, now equipped with advanced avionics, will meet modern defence and humanitarian needs well into the future with greater capability than ever before.

The aircraft's tandem design – two full-size rotors rather than a single main rotor and smaller tail rotor – allows the aircraft to put 100 per cent of its power into lift capability, enabling it to reach elevations as high as 20,000 ft and operate routinely at 14,000 ft – higher than most conventional rotorcraft.

With a greater center of gravity, the aircraft is capable of carrying internal and external loads of approximately 24,000 pounds (10, 886 kg) using three external hooks beneath the helicopter or its internal cargo area. This capability allows the aircraft to conduct transport artillery, troops, ammunition, fuel and supplies within military theaters of operation and also perform humanitarian support, disaster relief, rescue, fire-fighting and nation-building missions. In fact, the aircraft is in operation on six continents in all climates and conditions. The tandem helicopter's already long list of mission capabilities also includes water landing, operation in desert environments, and search and rescue.

Typically, a tandem-rotor helicopter at full load can fly more than 150 mph for more than 400 nautical miles thanks to its long-range fuel tanks. With a crew of three, the helicopter can transport 44 seated troops (55 with optional additional seating) or 24 casualty litters.

High-Visibility Missions: Tandem-rotor helicopters have gained high visibility in humanitarian efforts by providing critical search, rescue, recovery and relief missions after the tsunami in Indonesia, earthquakes in Pakistan and Italy, and hurricanes in the Gulf Region of the United States. The aircraft were deployed recently to help control widespread forest fires in the southeastern United States. Using Bambi-Buckets, tandem-rotor helicopters can slingload 2,000 gallons of water to extinguish fires.

Increased capabilities: The aircraft feature a newly designed, modernized airframe, Common Avionics Architecture System (CAAS) cockpit and a Digital Advanced Flight Control System (DAFCS). The system improves aircrews' situational awareness and provides advanced flight-control capabilities that improve performance and safety in brownout situations, as well as the entire flight envelope. The aircraft's advanced avionics incorporate improved situational awareness features and reduce workload for flight crews with an advanced digital map display and a data transfer system that allows storing of preflight and mission data. Improved survivability features will enable these aircraft to meet the needs of countries around the world today and well into the future. It is clear that tandem rotor is here to stay. •

Courtesy: Boeing

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ANTONOV AIRCRAFT IS INTEGRATED SOLUTION FOR DIFFERENT TASKS

One of the main features of ANTONOV aircraft is multifunctionality. More than 6000 of these airplanes carry passengers and cargo, cultivate fields and forests, extinguish fire, find treasures of the soil, deliver humanitarian and evacuate victims. In particular, AN-32 transports have proved their wide abilites and reliability being successfully operated by Indian AF.

New versions of AN-74, keeping the best characteristics of their predecessors, differ from them with number of advantages. New multipurpose maritime patrol version of AN-74 is well prepared to effectively perform different missions including: aerial and maritime patrol; support for military ships with possibility to counteract enemies; search and rescue operations; electronic and radio reconnaissance; detection of polluted sea areas. If it is necessary, the aircraft is easy to convert to transport personnel and cargoes, evacuate sick and wounded persons. Using this aircraft, Indian Navy and Cost Guard will have an integrated solution for many tasks.

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LET THE SHOW BEGIN!

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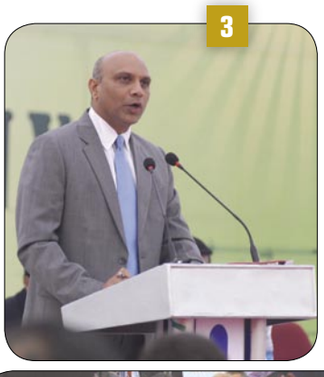

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1. SP'S STALL IN HALL NO. 14 IS QUITE THE SHOW-STOPPER; **2.** DEFENCE MINISTER A.K. ANTONY (SECOND FROM RIGHT) WITH THE THREE SERVICE CHIEFS AND MINISTER OF STATE FOR DEFENCE DR M.M. PALLAM RAJU (EXTREME LEFT); **3.** DR PALLAM RAJU AT THE INAUGURAL CEREMONY; **4.** ADDRESSING THE MEDIA; **5.** CHIEF OF AIR STAFF AIR CHIEF MARSHAL P.V. NAIK (LEFT) GREETS CHIEF OF NAVAL STAFF ADMIRAL NIRMAL VERMA AS CHIEF OF THE ARMY STAFF GENERAL DEEPAK KAPOOR LOOKS ON; **6.** GENERAL DEEPAK KAPOOR INTERACTS WITH ADMIRAL NIRMAL VERMA; **7.** WALTER F. DORAN, PRESIDENT, RAYTHEON ASIA; **8.** TOP EXECUTIVES OF SELEX COMMUNICATIONS BROWSE THROUGH *SP'S LAND FORCES*; **9.** A MODEL OF AN UAV AT THE ANJANI STALL; **10.** THE SIMULATOR OF THE F-16IN IS A CROWD-PULLER AT THE LOCKHEED MARTIN STALL

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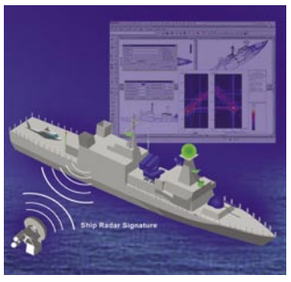

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'Indian Army impressed by Javelin'

WALTER F. DORAN,
President, Raytheon Asia

By Ruchika Chawla

SP Guide Publications (SP's): Would it be possible for the Indian Army to procure the Javelin anti-tank guided missile system?

Walter F. Doran (Doran): In October of 2008, the Javelin missile was brought to India by the US Army as part of an exercise in India. The US Army and the Indian Army fired the weapon during the exercise; we think the Indian Army was very impressed with the weapon. We think that the Javelin is absolutely the premiere man portable light infantry weapon in the world. But if Raytheon is going to sell the Javelin then it's going to be a Foreign Military Sale (FMS). There's interest from the Indian Army as they were impressed with the firing of the weapon. It's a good weapon for India to have in its inventory. We're talking with the US govt and providing appropriate information to the Indian government and we'll see where it goes. We have the Javelin display out here, so we're highlighting it at the Defexpo. We've already the Javelin to 11 countries around the world and it's a proven world class system.

SP's: Do you find going the FMS route to be a little tedious in conducting business with the Indian defence sector?

Doran: The two different routes are the FMS and the Defence Commercial Sales and they are two different things. Considering our relationship and because we are a defence contractor, there are a great number of our products that have to go FMS and we work with the US government on that. The FMS system in many ways is clean cut system to. We have the ability to push on both sides. This is a different way of doing business and the US govt, in its own right is a bureaucracy, so there are parts US will wrestle with, India will wrestle with and learn in their own way.

SP's: How frustrating is it to deal with Indian government from a business prospect?

Doran: Raytheon is a global company. We do business in 80 nations around the world, so international business is not a shock to us, it's not a surprise. Every country you do business in has its own set of challenges. India is a relatively a new market for Raytheon in the defence field; there is a lot of learning we are doing and spending a lot of time with our leadership making sure they understand India and how India works and how RFPs come out and the Defence Procurement Procedure process, and where India is with the Offset process. This is a journey. India is a growth market so we're spending a lot of time. Many of the things we hope to do with India will be FMS, in which case Raytheon becomes a provider of the US government, so we have to work with all the bureaucracies and all the frustrations and all the slowness, and built in problems of the US government over here (India). So, we're very aware of this, we're very patient and successful company. We have made a decision that we are very optimistic about the Indian market, that we are in here for the long run, that we are not power shooting India to make one sale. We are in here to develop, to build on the relations that we have out of our commercial sales (before the defence market was opened up) and to build on that. Yes, there is the slowness, frustrations and things we don't quite understand, but we are learning, However, you can say the same thing about the US government, too. It's all part of international business. •

DCNS Mix of resources & expertise

At the Defexpo 2010, DCNS, a major player in the world market for value-added naval defence systems, is showcasing a range of innovative solutions from integrated warships to strategic systems, equipment and services.

The DCNS stand showcases:

- DCNS expertise in submarine design and construction, through the Scorpene medium-size submarines. Already chosen by the Indian, the Chilean and the Malaysian Navies, Scorpene submarines represents the state-of-the-art in submarine design and construction and benefits from the latest technologies developed for nuclear-powered classes operated by the French Navy, particularly as regards acoustic discretion and combat system performance.
- The Scorpene contract between the Indian shipyard Mazagon Dock Limited (MDL) in Mumbai and DCNS involves the construction under licence of six Scorpene submarines, associated technology transfers and the sale of combat systems. The first pressure hull of the first submarine is now completed and the structures are well advanced. Construction of the second submarine started in 2008, is progressing quickly. Construction of the third submarine already started. The mastering of these sophisticated technologies by MDL shows the quality of DCNS transfer of technology documents, training and technical support provided to MDL. DCNS will complete this year the delivery of combat system equipment for the first submarine, the following ones will be delivered one every year
- DCNS is drawing on 50 years' of experience as a designer and builder of nuclear-powered submarines to develop the new-generation SSN Barracuda combining the latest advances in acoustic discretion and nuclear propulsion. Barracuda nuclear-powered attack submarines (SSNs) is a key component of the French Navy's force projection assets. This programme calls for the delivery of six nuclear-powered attack submarines (SSNs). The construction of the first and second Barracuda submarines started at the DCNS Cherbourg shipyard in December 2007 and in June 2009 respectively.
- The Andrasta, a compact submarine designed to operate in coastal waters, a theatre of growing importance to all maritime nations. Being also a fearsome adversary in deep water, Andrasta combines a state-of-the-art design with stealth, agility and power. A direct descendant of the Scorpene, the Andrasta is remarkably effective in any underwater role in coastal waters that a client navy may wish to assign to it.
- The projection and command ship or Mistral LHD is a multipurpose surface vessel designed to cover a broad spectrum of missions, including amphibious operations, crisis management, airborne operations, operational command, operational transport, healthcare support, humanitarian operations and freight transport. The operational capability and interoperability of the Mistral LHD were demonstrated in Operation Baliste off Lebanon and on sea trials with the US Navy (involving the LCAC and Super Stallion).
- The FREMM multi-mission frigates programme combines the latest technologies developed by the DCNS group. These technological and engineering advances will make the FREMM frigates world leaders in their class. In October 2009, the French Minister confirmed to DCNS an order supplement for three new FREMM. This brings France's total order to 11 vessels, scheduled for delivery from 2012 to 2022. In addition, 1 FREMM frigate is currently under construction for Morocco; Italy confirmed the order of 6 units, on a total of 10.
- SUBTICS combines operational efficiency, high-performance sensors and long-range weapons. The system can be readily added to any new-build programme or integrated as part of a refit. It has been selected by several navies for SCORPENE and AGOSTA 90B submarines, as well as for modernisation programmes for submarines already in service. •

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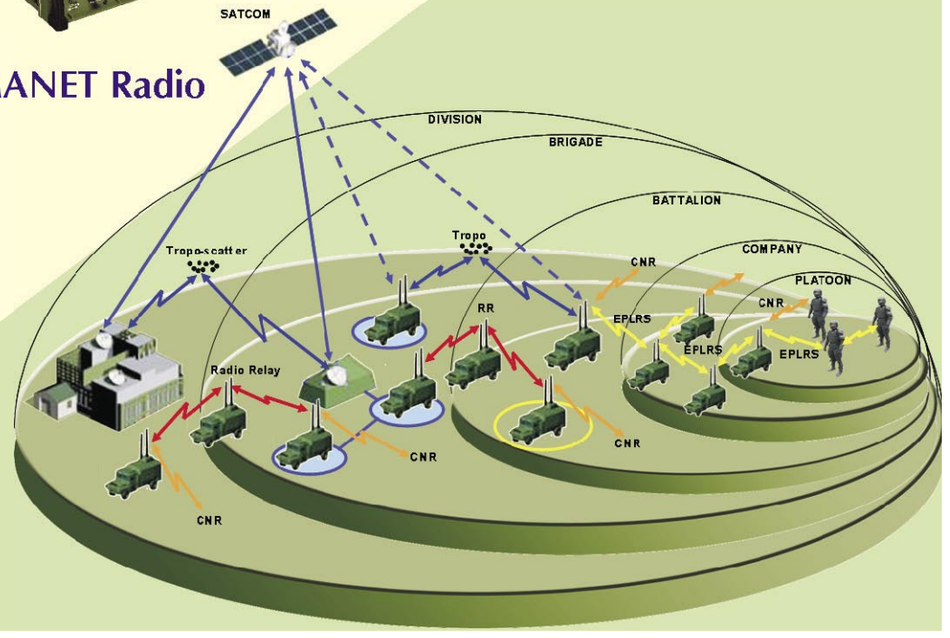

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'IT has created a GREAT BRAND IMAGE for India'

DR CHANDAN CHOWDHURY, CEO, IFS India

By Ruchika Chawla

SP Guide Publications (SP's): How will you define Enterprise Resource Planning (ERP)?

Dr Chandan Chowdhury (Chowdhury): ERP is a integrated software that comes bundled with management and business practices which, when implemented, grant organisations an opportunity to improve their business processes. ERP implementation programs are often called "Packaged Driven Reengineering" projects wherein organisations re-engineer their business processes and align them with the processes built into the ERP software.

SP's: It is often said that total cost of ownership of ERP projects could be very high. What are the expected business benefits of implementation of ERP in a defence manufacturing establishments?

Chowdhury: In a defence manufacturing establishments ERP can provide benefits like, (i) reducing manufacturing cycle time, (ii) improve planning process, (iii)improve supply chain management process, (iv) effective cost estimation and tracking of cost, (v) reduce maintenance, repair and overhaul cycle time, (vi) reduction in Time to Market, (vii) conduct exception based project management through improved project planning, control and execution process, (viii) improved material planning, (ix) enhanced manpower productivity, (x) efficient competency management of employees and (xi) proactive decision making through availability of real-time information.

SP's: What is unique about ERP for the defence industry?

Chowdhury: ERPs for defence industry are quite niche systems. Such ERP systems will have defence specific functionalities and are relatively easy to learn and implement with flexible and configurable framework.

SP's: What's your view on India becoming an IT superpower? How has the Indian IT sector been impacted by global recession?

Chowdhury: IT has created a great brand image for India. There is an excellent pool of IT resources in India and with median age of these professionals being much lesser than what you see in the western countries, I see a great demand for IT professionals worldwide. During the recent global recession, the GDP in India and China has demonstrated much higher growth than the rest of the world. However, the IT sector in India has been one of the worst impacted sectors by global recession. Most of the IT companies in India were focusing primarily on the overseas market and as a result thousands of people had to return from overseas during the recession. The terms like B2B (business to business) got changed to B2B (back to Bangalore). Industry in general has seen very significant decline in demand of IT professionals owing to global recession but the situation would improve.

India cannot become an IT superpower by just offering IT services and bodies to superpower, the country has to use IT as an enabling technology to make the Indian economy globally competitive. Fortunately, government and public sector organisations have started making huge investment in IT and this will be a very good opportunity for the IT community to strengthen its base in the domestic market.

The country is not focused on original research and development in IT and it is because when you work on technology, you don't get immediate return on investment. The money that an overseas company pays you when you do body shopping is much higher (in terms of return in short term), so often many Indian entrepreneurs settle for IT services and the talented people leave. Sam Pitroda, the father of telecom movement in India recently shared similar sentiments and he said that though it's difficult to create an original product and sometime it may be risky, but the rewards are high. Sooner or later, India will realise that, for long-term development, these shortcuts (just making money through body shopping) will not work. The Indian entrepreneurs should take advantage of the availability of great talent pool in India and also focus on original research to develop new technology and products. •

(Continued in SP's Defexpo 2010 Show Daily 3, P31)

Ashok Leyland enters armoured vehicles business

Hinduja's flagship company unveils three new armoured vehicles at the Defexpo

By Sucheta Das Mohapatra

Unveiling three of its new products at Defexpo 2010, Ashok Leyland, the Hinduja Group's flagship Company, announced its entry into the market for armoured vehicles in India. Vinod K. Dasari, Chief Operating Officer and Director, Ashok Leyland said, "We have entered the armoured vehicle industry to address the ever increasing demand for high mobility, high protection and well-engineered tactical vehicles to be used in counter-insurgency and counter-terrorist operations.

"Since the last three decades, Ashok Leyland has been playing a pivotal role in the Indian Army modernisation process. With these new offerings, we will serve the Forces in other fronts in terms of product opportunities," he added. The three new vehicles showcased at the Defexpo are the Armoured Stallion, the Armoured Bus and the Mine Protected Vehicle.

Armoured Stallion: It is an upgraded version of the Stallion 4X4 vehicle with an armoured cab and load body for combat war superiority without any compromise on the vehicle's operational parameters. With a variety of uses such as troop carriers, support logistics, riot control, communication vehicles, command posts and ambulance, the vehicle provides base line protection against AK-47 Kalashnikov 7.62X39 mm on both the sleeper cab and load body.

Armoured Bus: Having been developed in response to the Indian Army's requirement to transport army personnel and their families in insurgency infected areas. It has roof hung floor, the seats in the bus are mounted on a floor which is hung from the roof that can protect the passengers from shock waves that are generated due to a blast under the vehicle. The vehicle has all round protection against 7.62X51 ball (SLR) 5.56 mm INSAS and AK- 47/56 at a distance of 10m. The seat belts prevent the passengers from injury due to roll over in case of a blast. Likewise, the floor is covered by spall liners that protect against shrapnel and secondary projectiles from the floor.

Mine Protected Vehicle: The MPV, a multi-purpose all-terrain vehicle with high mobility, high protection and multi-mission capabilities, can be used in a number of applications like troops carriers, Armoured Personnel Carriers, Command Vehicles, Border Patrols, Riot Control, Internal Security and Counter Terrorism. Run Flat Inserts, Roof Mounted Air Conditioners, radios, GPS Navigation, Weapon Stations, Gun Mounts, Gun Ports, Armour Kits etc can be added to the vehicle. With a power-to-weight ratio of 13.5 KW/T, it is a versatile performer even in the worst of terrain and can attain a maximum speed of 90 kmph. •

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Lockheed Martin Delivers 50th Fully Missionized MH-60R Multimission Helicopter to the US Navy

Lockheed Martin has formally delivered the 50th MH-60R helicopter, fully equipped for its mission to protect the U. S. Navy fleet from hostile submarines and surface ships.

The newest member of the SEAHAWK® family of maritime helicopters is designed and manufactured by Sikorsky, with advanced mission systems integration by Lockheed Martin.

"I am extremely proud of the MH-60R team, which has enabled this important milestone in the Romeo's continued introduction to the fleet," said Rear Adm. Steve Eastburg, Program Executive Officer Air ASW, Assault and Special Mission programs. "The enormous multimission capability of this platform continues to be leveraged by the warfighter in new and innovative ways. It is truly a game-changing platform that will deliver powerful capabilities, ranging from low-end to high-end warfare, in the years ahead."

During the February 3 delivery ceremony at Lockheed Martin's Mission Systems & Sensors facility in Owego, NY, Rear Adm. Paul Grosklags, vice commander, Naval Air Systems Command thanked Lockheed Martin and Sikorsky employees and other key suppliers for their contributions to this important program.

"The MH-60R has evolved over 30 years, through lessons learned during developmental testing, fleet deployments and maintenance on these rugged airframes and mission systems, in the harshest maritime environments," said Grosklags. "It stands now as the premier multimission helicopter in operation today. The U.S. Navy is grateful for the tremendous teamwork and experience you bring to deliver this remarkable weapon system."

This week, an aircrew from Helicopter Maritime Strike Squadron Seven Zero (HSM-70) will fly the 50th aircraft from the Owego, NY, facility to its new home at the Naval Air Station in Jacksonville, Fla. The aircraft is the 10th MH-60R delivered to HSM-70, which was established in February 2009.

HSM-70 will deploy with 11 MH-60R aircraft aboard the USS George H.W. Bush carrier strike group (CVN 77) in 2011. To date, the U.S. Navy has established and equipped four MH-60R squadrons, with plans to fill out 16 more through the purchase of 300 aircraft.

"The 50th delivery is a great opportunity to reflect on the success of the MH-60R within the fleet, to look forward to the expansion of the MH-60R throughout the helicopter community and to recognize the organizations that have brought this tremendous capability to the Navy," said Captain Dean Peters, the U.S. Navy's MH-60 program manager. "Today, these highly integrated platforms are building a situational awareness picture of the surface and undersea domains that is proving invaluable to fleet operators."

As mission systems integrator for the Sikorsky-built MH-60R, Lockheed Martin is responsible for integrating the helicopter's digital cockpit, a multimode radar, acoustic sonar suite, long-range infrared camera and other advanced sensors to detect, identify, track and engage surface and subsurface targets. Lockheed Martin also integrates a self defense system to protect the aircraft from missile threats.

"The highly integrated nature of the Common CockpitTM avionics suite and the mission systems allows the aircrew to spend less time interpreting data and more time prosecuting the target," said George Barton, Lockheed Martin's director of Naval Helicopter Programs.

U.S. Navy test squadrons concluded 1900 hours of rigorous MH-60R flight and mission systems evaluations in 2005. Since full rate production began in early 2006, Lockheed Martin and Sikorsky have delivered all MH-60R aircraft to the U.S. Navy ahead of schedule.

The companies expect to deliver up to 27 fully-missionized MH-60R aircraft in calendar year 2010 to the U.S. Navy as part of a five-year contract for 139 MH-60R aircraft through 2013. Extra production capacity exists to deliver an additional 20 aircraft each year for sale by the U.S. Government to international navies.

The U.S. Navy deployed with 11 MH-60R aircraft for the first time from January to July 2009 with the USS John C. Stennis (CVN 74) carrier strike group. During exercises in the western Pacific, the MH-60R proved to be an exceptional sub hunter and surface warfare weapons platform, accomplishing a 95 percent sortie completion rate, and showing it can perform utility and search and rescue missions among other secondary missions.

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 2009 sales of $45.2 billion. •

BAE SYSTEMS
Debuts Vehicle Power System

BAE Systems will debut its production-ready power management system for military vehicles and showcase the company's situational awareness capabilities at DefExpo 2010 in New Delhi, Feb. 15-18.

The company will showcase, for the first time in India, its on-board power management system, which more than doubles the electric power output of most military vehicles to increase mission effectiveness and provide exportable power during natural disasters and to support facilities and equipment such as field hospitals, command centres, and water purification systems.

BAE Systems also will showcase its Q-SightTM helmet-mounted display, a system that addresses a critical need for increased pilot situational awareness, and will demonstrate its Local Tactical Information System, or LATIS, on an armoured vehicle on the show stand. LATIS provides 360-degree "see-through-armour" capability, giving ground forces a complete field of view while staying protected under armour.

BAE Systems is looking to partner with private and public Indian institutions to develop capabilities in technology areas including design and production of flight controls and head-up displays. These partnerships will be modeled after the company's existing agreements with Bharat Electronics on the Light Combat Aircraft, and with Indian technology companies for development of aerospace products.

"The Indian industrial base brings tremendous capability to our industry," said John Nix, vice president of avionics business development for BAE Systems. "We are committed to investing in and developing long-term partnerships in India for product design and development, and continue to explore joint development programmes on products including flight controls and displays." The company is currently in discussions with institutions including the Aeronautical Development Agency and is exploring partnership opportunities with other public institutions. Technologies and products on display at DefExpo India 2010 will include:

On-board power management system. BAE Systems' on-board power management system meets the requirements of global military ground forces, including those in India, to provide more electric power while smartly managing power loads. The integrated, modular, scalable system generates and manages electric power for use on the vehicle and as an exportable power source, eliminating the need for towed generators.

The system is adaptable for new vehicles and upgrades to existing vehicles, and has been demonstrated on the U.S. Army's High Mobility Multipurpose Wheeled Vehicle, Family of Medium Tactical Vehicles, and Stryker vehicle.

Q-SightTM helmet-mounted display. BAE Systems' lightweight Q-SightTM helmet-mounted display provides day-or-night "head-up, eyes-out" capability for mission-critical situational awareness by projecting flight and mission information in front of the user's eyes — technology that previously involved installing bulky and complex projectors and lenses in cockpits or ground vehicles. The Q-Sight display is a small device that clips onto the user's helmet. Compatible with other helmet displays, its modular design is easily retrofitted or upgraded and enables the addition of new capabilities at low cost. The system's increased visibility and lightweight design minimize eye and neck strain, common problems for aviators managing the demands of longer missions and increasingly complex rules of engagement.

The airborne version of Q-Sight has applications for front- and rear-seat crews. The British Royal Navy recently placed an inaugural order for 12 Q-Sight systems to enhance capabilities for door gunners. For this application, the Q-Sight display will be used in conjunction with a thermal weapon sight on the Lynx Mk8 helicopter.

Local Tactical Information System. LATIS imagery provides a clear field of view in all weather and degraded visual environments, with the ability to identify objects and people with unmatched clarity, enabling soldiers to focus on their missions. LATIS technology is Internet-based and uses commercial, off-the-shelf components, delivering a low-cost solution that reduces obsolescence issues. LATIS is highly scalable to a variety of sensors, displays, and crew stations, and is adaptable for armoured fighting vehicles and mine-protected patrol vehicles. •

Defence Land Systems India: The Mahindra & BAE Systems company showcases FH77 B05 advanced howitzer

Defence Land Systems India, a joint venture between Mahindra & Mahindra Ltd. and BAE Systems, which will soon be operational, will showcase the FH77 B05 Advanced Howitzer, at DefExpo 2010, at Pragati Maidan, New Delhi.

A significantly upgraded version of the FH77 B02 which is already in service with the Indian Army, the new FH77 B05 advanced howitzer is more powerful with greater performance, including increased range. It meets the towed 52 Cal 155 mm howitzer artillery modernization requirements of the Indian Army and is shortlisted for field trials on the basis of its strong capabilities.

Deepak Chibba, Chief Executive, Defence Land Systems India, said: "The FH77 B05 is the right product to help the Indian Army in its drive to modernize its artillery. Its predecessor, the FH77 B02, was in fact, the mainstay of the Indian artillery attack during the Kargil war, giving India a definite edge over its adversary. In future, we see the Defence Land Systems India JV evolving as a centre of excellence for Indian artillery programmes and the FH77 B05 is a part of that vision."

David Allott, Managing Director Global Combat Systems, BAE Systems, said: "FH77 B05 is optimised for operations off-road in desert, hilly terrain and at high altitudes. Its cross country performance in both self propelled and with a towing vehicle, even in deep snow is extremely good. This is achievable due to low weight, powerful auxiliary power unit (engine) and large main wheels. It is intended that Defence Land Systems India would have a significant and increasing role in the production of FH77 B05, with the ultimate goal of reaching 100% domestic production in India."

With the latest in advanced ballistic calculation and laying servos, the FH77 B05 Howitzer comes with a high level of automation suitable for the Indian Army. The new gun computer also has a man-machine interface similar to that found in standard commercial PCs. This facilitates training and operation, ensuring better speed, accuracy and safety when firing.

The FH77 B05 meets and exceeds specifications in the Indian environment (winter and summer) and has already been proven in earlier trials in India. The gun has been optimized and tested to be used in extreme weather conditions, including the desert and higher altitudes. The FH77 B05 has a high powered engine which has been turbo charged for high altitude requirements and is capable of aiming direct fire at moving targets as well. •

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