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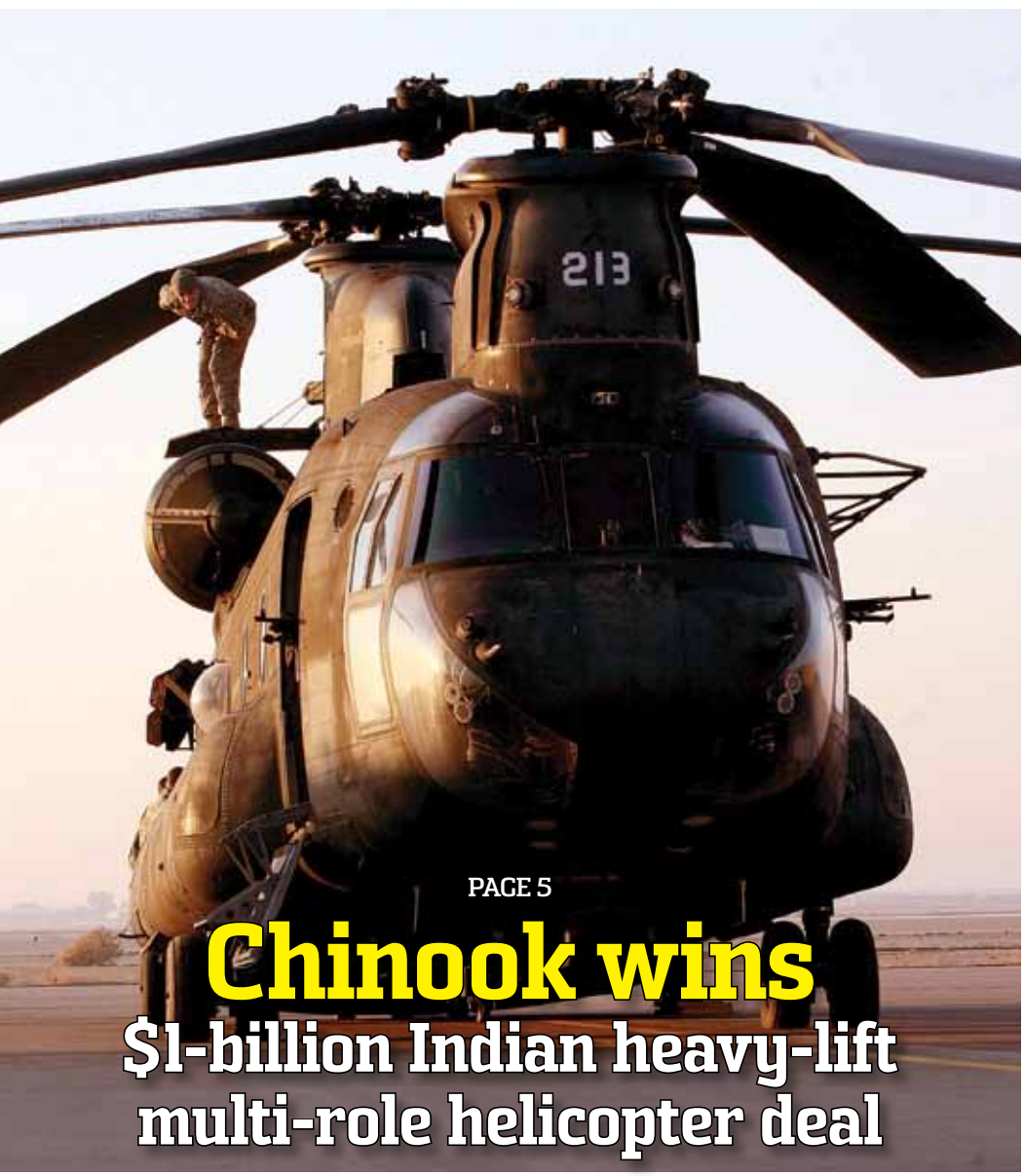

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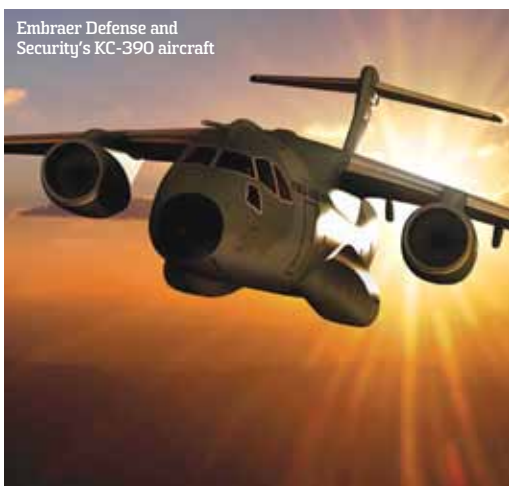
Chinook wins

$1-billion Indian heavy-lift multi-role helicopter deal



Embraer Defense and Security's KC-390 aircraft

Hispano-Suiza (Safran) on board KC-390 PAGE 2

Tactical Communication Systems PAGE 10

DELENG/2010/34651

Hispano-Suiza on board the KC-390

Safran was selected by the Brazilian aircraft manufacturer Embraer to supply the electrical power distribution and back-up power generation systems on its new KC-390 military transport aircraft. This represents a real challenge for the electrical energy system specialist, which has broadened its field of expertise for the requirements of this programme. It marks yet another step towards "more electric" aircraft.

It is no coincidence that Hispano-Suiza (Safran) is working on the KC-390. Two key factors played their role: firstly, Embraer was interested in working with new suppliers in the field of electrical power generation and distribution and, secondly, Hispano-Suiza responded to this requirement by putting forward an innovative range, through the Safran Power division. The contract includes the supply of the primary and

secondary electrical distribution systems as well as the Ram Air Turbine (RAT), a back-up electrical generation system.

The primary electrical power distribution system is the heart of an aircraft's electrical system. It encompasses the energy generated by all power sources on the aircraft and ensures that this energy is available for all aircraft systems by intelligently managing the network. The secondary power distribution system provides electrical power for equipment that can be turned on or off as need according to the flight phase, such as interior/exterior lighting and the cabin air management system.

Other Safran companies are also working on the KC-390: Messier-Bugatti-Dowty was selected for the brakes and landing gear and Sagem for the horizontal stabiliser trim control system. SP

PHOTOGRAPH: Embraer

Cover:
The US-built Boeing CH-47F Chinook has emerged as the most competitive offering in a two-way race against Russia's Mi-26T2 for the Indian Air Force's heavy-lift helicopter requirement.

Cover image: US Army

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Securing India's porous borders

The task of securing India's borders is mammoth, as the country shares vast border areas with China (over 4,000 km); Pakistan (nearly 3,000 km); Bangladesh (over 3,300 km); Nepal (about 1,700 km); Burma (nearly 1,500 km); Bhutan (605 km); and Afghanistan (106 km). With infiltration into India continuing from some of the neighbours, adding to internal strife, the need to seal the borders is urgent, even while inter-country dialogues take place.

Recently, the Union Home Minister Sushil Kumar Shinde conceded that "infiltration from Pakistan into India is continuing and our security forces are 'very alert' in dealing with it". While commending the security forces, the political leadership has to take some hard decisions – invest in securing the borders. The example of the United States on how it took a number of stringent initiatives to secure its borders, post-9/11 has to be studied. It is not that the US has developed a foolproof system, but it is one which is very effective. Unlike the US, India is more at risk if the borders are not secured, considering the volatile situation in the neighbourhood.

The meeting of the Home Secretaries of India and Bangladesh in Dhaka recently wherein the two sides discussed issues such as border management, security, land boundary demarcation etc. have to be a continuous process and monitored regularly. The coordinated border management plan, we hope, will help in checking infiltration.

Taking the issue further, Lt General (Retd) P.C. Katoch in his fortnightly column, points out that China and Pakistan are busy synergising the insurgent outfits in India to create a compact revolutionary zone (CRZ), which sounds ominous. The Indian political leadership should take note of this and check infiltration before it takes on dangerous proportions. As such India is reportedly home for about 40 million illegal weapons, with annual trade of $4 million. They are certainly not coming through airports. The land and sea borders have to be sealed tight.

In this issue, we have two interesting features on tactical communication system (TCS) which the Indian Army badly needs. The TCS programme is estimated to cost about $1.8 billion and when fielded with requisite mobile terminals network, will fulfil a long-standing critical operational void of the Indian Army. Both Lt General Katoch and Lt General (Retd) Naresh Chand have outlined the advantages of the TCS, albeit delayed.

At the 23rd edition of Euronaval 2012 in Paris, Saudi Arabia was under the arclights. The Euronaval Show Report by R. Chandrakanth speaks about Western OEMs looking at emerging markets to shore up their dwindling revenues.

On the acquisition front, India has picked the US-built Boeing CH-47F Chinook for the IAF's heavy-lift helicopter requirement. Chinook pipped Russia's Mi-26T2 on price. The US may have lost out on the MMRCA deal, but they are winning in spurts as can be seen from Boeing getting orders for AH-64D Apache, P-8I Poseidon for the Indian Navy and Harpoon anti-ship missiles.

With sophisticated and costly procurements in defence and aviation growing considerably, the simulation industry is keeping pace and is huge. From this issue, we are introducing a section on simulation which will give updates, trends and insights into an industry which relies on precision, cost-saving, safety and training.

Jayant Baranwal
Publisher and Editor-in-Chief

Chinook wins Indian heavy-lift chopper competition

PHOTOGRAPH: US Army

It has been a close fight, but a winner has finally emerged. The US-built Boeing CH-47F Chinook has emerged as the most competitive offering in a two-way race against Russia's Mi-26T2 for the Indian Air Force's heavy-lift helicopter requirement. While both helicopters performed well in field evaluation trials (both were reported to have met requirements and were found compliant), it is understood that the Chinook won out on price—which includes a matrix of unit flyaway cost of each machine, ownership cost (which includes life-cycle and operating costs) as well as the cost of maintenance and transfer of technology.

The Ministry of Defence will shortly open contract negotiations with Boeing for a contract that could top $1-billion. The Chinook's victory is Boeing's second big win in just the last few weeks—earlier in October, IAF Chief Air Chief Marshal N.A.K. Browne announced that the government had chosen Boeing's AH-64D Apache Block III to meet a requirement of 22 attack helicopters. In that competition too, the American-built helicopter beat a Russian competitor, the Mi-28N Night Hunter. The IAF is said to have been impressed with both the Chinook and Mi-26T2, and was apparently equally willing to operate either aircraft. Indeed, it already operates a small number of old generation Mi-26s at its Chandigarh air force station. One of Boeing's strategies against the Mi-26 has been to focus on the advantages and inherent operational flexibilities of a tandem rotor helicopter, which allows mission commanders greater leeway for special operations and high altitude missions.

Concerns had already been prevalent in the IAF over maintenance and serviceability of the Mi-26 fleet. With the Chinook, Boeing's win register in India is positively ringing. The Chinook joins the AH-64D Apache, P-8I Poseidon for the Indian Navy (with more likely to be contracted) and Harpoon anti-ship missiles. SP

BrahMos fired from INS Teg

BrahMos has been test-fired from INS Teg, the Indian Navy's new stealth frigate, the first of the follow-on Talwar class warships built at the Yantar shipyard in Russia. The test off the Goa coast was said to be entirely successful—the INS Teg has fired a BrahMos once before during pre-induction trials in Russia. Her follow-on ships, the Tarkash and Trikand, will also be armed with the BrahMos in a vertical configuration.

In a related development, India's Cabinet Committee on Security has cleared a procurement of air-launched BrahMos missiles worth ₹6,000-crore for the IAF. The air-launched variant of the BrahMos has undergone carriage trials, but hasn't been test-fired yet. Sources say the modified missile could see a debut firing in the coming weeks, perhaps in December. The air-launched BrahMos sports a reduced booster and fins for stability during separation at air-launch.

Each Su-30MKI will be able to carry a single BrahMos on a belly hardpoint. The IAF hopes to modify at least 40 Su-30MKI air dominance fighters to be capable of deploying BrahMos. India and Russia are currently working on a hypersonic version of the BrahMos, designated BrahMos 2. SP

PHOTOGRAPHS: SP's Special Correspondent, IAF Aerospace Safety

Army scouts for heliborne AEW

The Indian Army is looking for brand new eyes in the sky, floating a requirement for an unspecified number of helicopter-borne early warning systems. It is understood that the Army will be looking for a system that can be integrated with the existing ALH Dhruv airframe, though it is unclear if this will be an all-new product on new airframes, or retrofitted on an existing number of Dhruv units already in service.

Principally a sensor package for full integration with the Dhruv platform, the Army is looking for a system for early warning of aircraft and land units, stand-off surveillance and intelligence gathering. AEW units will give the Army a valuable tactical battlefield asset, currently missing in its flying inventory. Smaller heliborne early warning units, like the Navy's Russian-built Ka-31 helicopters, will provide huge flexibility for precise applications. It is understood that the Army would prefer an indigenous solution, and has already begun discussions with companies including the Bharat Electronics Limited. SP

IAF for 12 more Cheetals

With the reconnaissance and surveillance helicopter (RSH) competition delayed interminably, the IAF has decided to contract for 12 Cheetal helicopters as a stop-gap for its logistics supply forces in northern Ladakh. The Cheetal created a world record for high altitude landings at Saser Kangri in November 2004 after which it was first made available to the Indian military.

A re-engined version of the Aerospatiale Alouette-II/Cheetah, Hindustan Aeronautics Limited (HAL) will build the dozen helicopters on a fast-track basis—the second such supply order from the IAF for the souped up light helicopter. The Cheetal had initially been met with some skepticism by the Indian military—owing mainly to the demand for a new transmission system failing to find its way into the final product. However, following certain field trials, the Army and IAF both appear convinced that the Cheetal is a viable stopgap ahead of the new RSH units, a decision on which, could be taken this financial year. HAL is also developing a light utility helicopter to address a requirement of 184 helicopters for all three services. SP

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New search and rescue systems for Indian military aircraft

Troubled by the inordinate time it takes in determining the location of a crashed aircraft, sometimes with a potentially human cost as well, the IAF has decided to go in for a large number of search and rescue systems. A global bid is being formulated at this time, and is likely to be a large tri-services effort for all aircraft in service.

Reports suggest that the equipment being scouted will involve a search and rescue module on all fighters, transports and helicopters of all three services, and will also include portable modules that will be part of all units, allowing for quick reaction during an emergency or accident. Sources say the equipment will include the now-standard ability to detach and float to the surface in the event of an accident over water—a mandatory requirement for naval aircraft. In the last two years, on two occasions, the IAF has had to spend days, if not weeks, hunting for crash sites, forced to keep the status of crew 'missing' since their fate could not be conclusively established. SP

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PHOTOGRAPHS: Wikipedia, US Army

Apache: Most potent attack helicopter

The avatar of the venerable Apache that the Indian Air Force has chosen – the AH-64D Apache Block III – as the winner in its 22 copter bid, is perhaps the most potent attack helicopter in the world today. While it is unclear how many of the 22 platforms will come with the Longbow sensor system, the US Army currently has one Longbow in every three Apaches. The Block III aircraft that has won the IAF competition has been designed for increased flight performance – this involves a new airframe, an improved drive system, a 701D engine with an enhanced digital engine control unit and, significantly, an upgraded main rotor with all composite rotor-blades. Boeing has also infused improved situational awareness through a cognitive decision-aiding system for pilots, allowing them to maker quicker decisions more easily. Improved survivability, targeting and fratricide prevention – crucial for a hot battlefield scenario – get a ramp up with integrated aircraft survivability equipment, instrument flight rules and meteorological conditions. The Block III is a notably lighter helicopter than its previous avatars – for instance in the Block III, a single mission computer replaces three separate systems on earlier models. The Block III also comes with additional fuel tanks, an integrated helmet and display sight system with an electromagnetic tracker. The Block III's communication suite has also been vastly improved with an enhanced data modem. A subtle, yet significant change, is also the forward avionics bay. Certain equipment that is likely to be withheld as a result of India not being a signatory to a CISMOA agreement with Washington will be replaced with Indian systems manufactured by BEL and certain private companies – some of these systems are in the process of being identified.

The Apache legacy is a formidable one. As of June 2012, the platform in its many variants has flown over 3.5 million hours over 28 years and spent 9,30,000 combat hours in ongoing operations in Afghanistan and Iraq – missing that include combat air patrol, convoy escort, rapid reaction, close-combat attack and armed reconnaissance. The US Army has an acquisition objective of 690 of the AH-64D Apache Block III , adding to 678 remanufactured aircraft and 54 new build aircraft in the Block I and Block II configurations. There are 11 international customers for the Apache, with Boeing identifying "significant ongoing international interest for new and remanufactured AH-64Ds." SP

LT GENERAL (RETD)
P.C. KATOCH

Fanning the fires

The recent (September 2012) recovery from Silodar forest (on border of Bihar and Jharkhand) of a US-made Colt and Hart-manufactured M-16 rifle (a prohibited bore by US Army), an Italian pistol and UK-made bulletproof jacket from an arms supplier Praful Malakar and CPIM/Maoist, Zonal Commander Anil Yadav needs to be viewed extremely seriously. Simultaneously, an AK-56 was recovered from Patna. Then was the news that the CEO of a Hyderabad-based company, Leckon Infra Private Limited, and seven employees of the same company were arrested while en route to supply 50 kg of explosives to the Maoists on the Andhra-Odisha border. The CEO (named Bhupal) was reportedly carrying the explosive in his own SUV in addition to mobile phones, batteries and Maoist literature in the form of books in Telugu. Leckon Infra Private Limited is working on projects worth ₹291 crore in the Maoist-affected areas of Odisha and Jharkhand. Possibilities of Leckon Infra Private Limited having been infiltrated by Maoists and/or coerced by Maoists to supply explosives under threat exist.

When insurgency broke out in the Kashmir Valley in 1989-90, some people talked about how long such a ragtag movement with country-made weapons could survive. What followed is for all to see. The same ragtag-cliché was being attributed to the Maoists over the years despite the Prime Minister describing it a major threat to national security all along. The Maoists may have earlier relied on weapons and equipment snatched from security forces aside from country-made ones but not anymore. Besides, the Maoists dubbed 'ragtag' had in their very opening rounds displayed deadly adeptness in use of explosives, their core group having had extensive training from the Liberation Tigers of Tamil Eelam (LTTE).

The manner in which they are expanding their ₹1,500-crore annual income through extortion and looting also has the telltale mark of the LTTE, with expanding poppy farming (Taliban style) perhaps on advice from Lashkar-e-Toiba/Al Qaeda. The manner, in which sophisticated and secure Chinese communication equipment was discovered from underground caches in Odisha few months back, carefully wrapped and sealed for future use, too had the LeT hallmark. Uzis and AK-47s had been discovered earlier in Maoists hideouts as well as a number of laptops albeit government liked to keep the latter under wraps. Now China is supplying assault rifles to the People's Liberation Army (PLA) in Manipur and the Maoists through Kachen rebels in north Myanmar. The Maoists have now commenced their operations in Assam as well.

Endeavour of both China and Pakistan is to synergise the insurgent outfits in India to create a compact revolutionary zone (CRZ) all along the foothills of Himalayas from Jammu and Kashmir to Assam and link this arch through the Maoist-affected states right down to Kerala in the South. Kerala is already infested by LeT and the Popular Front of India (PFI) having picked up weapons against the Indian state. There are already some 40 million illegal weapons circulating in India with an annual trade of $4 million.

Our enemies are hell bent on fanning our internal fires and contiguity to international borders is hardly pre-requisite for pumping weapons, fake currency, drugs and infiltration into India. The nexus between the CPI (Maoist) and PLA of Manipur is growing stronger and the latter is providing training to Maoists in Jharkhand and Saranda forests. Should Begum Khaleda Zia and her Bangladesh Nationalist Party (BNP) return to power in Bangladesh in 2014, the anti-India terrorist camps in that country are likely to be revived. India needs to make concerted efforts to address the Maoists insurgency. Mere statements that the issue will be resolved in next two to three years will not suffice. SP

The views expressed herein are the personal views of the author.

Our enemies are hell bent on fanning our internal fires and contiguity to international borders is hardly a pre-requisite for pumping weapons, fake currency, drugs and infiltration into India

PHOTOGRAPH: indianvanguard.wordpress.com

Tactical Communication System
Indian Army programme

[By **Lt General (Retd) P.C. Katoch**]

Why a Tactical Communication System (TCS) for the Indian Army approved in principle by two successive Defence Ministers years back was delayed by a decade plus and made forward movement only recently will remain a mystery. After every approval by a Defence Minister, the case was simply shut and a fresh file opened. Heads would have rolled in another country but in the cacophony that is India, everything is doable.

The project was originally scheduled to commence in year 2000 (christened TCS 2000) but never saw the light of the day. Later, this was given the name TCS 2010 but has really started moving forward only from year 2009. The Indian Army actually required a TCS more than two decades back with its requirement increasing exponentially to accommodate existing and future war-fighting concepts that encompass mobility, fast paced manoeuvres and rapid dispersion aside from Intelligence Surveillance and Reconnaissance (ISR), battlefield transparency, exchange of information, speedy target acquisition and the requirement to make quick decisions.

A flexible threat reaction demands very mobile units which may be spread over a large geographical area. If the forces are to operate under a centralised management and at the same time retain their mobility, heavy demands are put on the communication system. These demands will be in the form of security, survivability, and protection against electronic warfare. A TCS is used within/in direct support of tactical forces.

Since future military tactical communication networks must be highly mobile, survivable and reconfigurable, TCS for the Indian Army must be designed to meet changing tactical situations and varying environmental conditions, provide secure communications (voice, data and video) effectively linking mobile users of all tactical units in field.

TCS is a system that is meant for offensive operations, configured as a mobile system that can leapfrog in sync with rapidly advancing strike operations – covering offensive elements of both the 'strike' and 'pivot' corps. Important requirements for the radio system are: ESM and ECM resistance; integrated voice and data to the user; performance matching projected user demand (like error detection/correction, quality, delays); effective use of transmission medium; interoperability; flexibility in deployment; survivability; provision of user mobility (carry options, easy access etc).


Integrated Network Platform


Network Connect Centre

PHOTOGRAPHS: SP Guide Pubns

The overall network concept in the tactical battle area (TBA) is primarily divided into two main levels – static communications and mobile. The static communication part is being catered for by the Indian Army going full steam with a new optical fibre cable (OFC) network, especially since the military was made to surrender 3G spectrum in big way. Absence of TCS and patchy availability of OFC in TBA has also been adversely affecting trials and fielding of operational information systems even though we have had a full-fledged corps for undertaking field trials. The TCS when fielded with requisite mobile terminals network, will fulfill a long-standing critical operational void of the Indian Army.

Rolta Communication Network Architecture Transmission; (above) Network Operation Centre

With TCS for the Indian Army first announced in 2009, expression of interest (EOI) was sent out to number of domestic IT businesses seeking a consortium to develop an indigenous communications system. Present estimated cost of the TCS of about ₹10,000 crore (approximately $1.8 billion) may go up considerably going by past experience. The system is to be a robust, snoop-proof, mobile, cellular network for the Indian Army's voice and data communications during battle, allowing integrated communication, from battlefield to command headquarters and include everything from cellular telephones to equipment sensors.

The jinx of namesake private sector participation in defence sector and that too majority 'through' The Defence Research and Development Organisation (DRDO) and PSUs appears to have been broken in the case of the TCS that was classified as a 'make' project. In the case of the TCS too there were strong pressures to award the contract outright to the Bharat Electronics Limited (BEL) but better sense eventually prevailed and Indian Army's sustained recommendations to treat the DRDO, PSUs and private sector as level playing field were honoured.

Some media reports that there was intense debate among Indian Army officials about going public with the development of the system because of security concerns and it is the Indian Army who wanted BEL to head the project without going to tender were misleading and mischievous. Indian Army's stand all along has been for opening up indigenous private industry to the defence sector in order to get the best state-of-the-art products but erstwhile government decisions have had other considerations. The Indian Army, in fact, has been wanting the switch from 'best price' to 'best technology' for a long time but has evoked no government response. By seeking domestic design and manufacture of the system, the government is seeking to better integrate and improve the competitiveness of the private indigenous IT sector into defence production.

Few details of the EOI were released because of security concerns but it stated that "the contribution of the Indian industry in acquiring and developing technologies in critical areas shall be a key criterion in assessment of various proposals."

The documents were sent to five private companies and three PSUs. These five private companies are Tata Power's Strategic Electronics Division, HCL Infosystems, Wipro Technologies, Rolta India and L&T. Tech Mahindra, another major player in indigenous IT sector, failed to qualify as an Indian company because of foreign holdings higher than 26 per cent. Expectations are that indigenous components of the TCS will be at least to the tune of 80 per cent. Sensing the threat from PSUs, three private companies who were given separate invitations to bid – Larsen & Toubro; Tata Power (Strategic Electronics Division); and HCL joined forces (distribution of stakes in the consortium being L&T, 56.67 per cent; Tata Power (SED), 33.33 per cent; and HCL 10 per cent) to bid together. The TCS contract is India's first "make" contract with considerable financial outlay.

That means, in accordance with the Defence Procurement Policy (DPP), the government would select and fund two vendors, who will each build a prototype of the high-tech TCS system. The government will then select the winner, who will be awarded the contract to build seven TCS for seven corps of the Indian Army. The two developers selected by MoD are BEL and the consortium comprising L&T, Tata Power (SED) and HCL. The TCS will be a fully mobile communications grid, which can be moved anywhere during war providing an army corps a backbone network on which to communicate and transfer large volumes of data.

The exchanges and switches will be installed in high-mobility vehicles, large data like video streaming will be possible and security and ECM measures will be incorporated. The developers have reportedly submitted a detailed project report (DPR) defining every system, sub-system, and capability of the TCS. Development cost of the prototype is likely to around ₹300 crore of which the government would fund 80 per cent. This is a big opportunity for the indigenous private industry to prove their mettle and come up with state-of-the-art prototype. If they fail, it would have ramifications for them on other projects like the BMS (battlefield management system) that may have an eventual financial outlay that is 8-10 times the TCS by the time it is fully fielded. SP

The author is a veteran Lt General of the Indian Army retired as Director General Information Systems.

Tactical Communication Systems
ICTEC challenges and opportunities

[By **Lt General (Retd) Naresh Chand**]

"My vision of a military network is one in which the users are transparent to the complexities of network engineering and are a part of one universal space."

— Lt General S.P. Kochhar, SO-in-C, Signals

Technology has caused revolutionary changes in the field of defence communications, surveillance and weapon-handling capabilities. In modern and future battlefields, demand for real time/near real time situational awareness for decision-making has also increased considerably, which implies that the requirement of voice, video and data has become very large. In such a scenario, the successful integration of sensors, shooters and the decision-makers is achieved by networking numerous communications, electronic warfare and cyber elements using multiple media for various levels of operations and geographical boundaries. Military communications therefore translate information superiority into combat power and are a catalyst for operational success which is being achieved by networking the information communication technology (ICT) elements using multiple mediums including:

- Optical fibre cable and high capacity point-to-point wireless systems in the strategic sphere.
- High capacity point-to-point and point-to-multi-point wireless systems, mobile ad hoc wireless systems (based on numerous technologies like WiMax, Tetra, GSM and CDMA) and meshed combat net radio (based on IP and software defined radio) in the operational and tactical spheres.
- The access is achieved by using high capacity wideband wireless access systems, optical fibre cable and field cables in both.
- An overlay of satellite provides 'beyond line of sight redundancy'.

A network-centric force will have the ability to share and exchange information in near real time between various geographically distributed operational elements like: sensors, regardless of platform; shooters, regardless of service affiliations; and decision-makers and supporting organisations, regardless of location.

The management of such a large array of systems has many challenges. Spectrum management becomes complex as it is crowded with an increase in the applications which require larger bandwidths. Thus modern communication systems exploit information communication technology, electronics and cyber (ICTEC), as complex and complementary sub-systems of military communication networks. Therefore, as a part of the Army's transformation process, replacing civil-oriented ICT philosophy (primarily a systems framework) to a military-oriented ICTEC philosophy (a networks structure) is inescapable and will contribute immensely in developing and fielding the TCS.

Keeping the vision of transforming the Indian Army into a net-centric force, Corps of Signals, the communication arm of the army alongwith the Confederation of Indian Industry (CII) jointly is organising DEFCOM, an annual seminar-cum-exposition. This year DEFCOM 2012 will be organised on November 8-9 at the Manekshaw Centre, New Delhi for which the curtain-raiser event was organised on July 27, 2012, where the brochure of the seminar was released. The theme for this annual event has been aptly chosen as "Tactical Communication Systems: ICTEC Challenges and Opportunities". The objective of the seminar is to enable defence officers, academia and the industry to understand user requirements and propose befitting solutions for the tactical battle area (TBA). The seminar will be carried out in three technical and two workshop sessions. The session on "Robust Networks for Tactical Communications" will focus on the ability of tactical networks to adapt to rapidly changing conditions. The session on "Supporting Net-centric Operations through Wireless Technologies" will compare constraints in the current commercial 3G and 4G wireless networks with software defined radio-based wireless networks capable of self-organising themselves for broadband wireless access in the TBA. The session on "Mitigating Security Threats in Tactical Networks" will discuss measures to make tactical networks secure and robust. The session on "Human Capital Transformation in ICTEC Era" will focus on challenges and opportunities in this field. It will also recognise the strengths of military veterans who are a valuable, disciplined and trained force available to the industry. SP

Lt General S.P. Kochhar (centre) releasing the brochure of DEFCOM 2012

PHOTOGRAPH: DG Signals

Tactical Communication System

The need for a state-of-the-art tactical communication system (TCS) has been long felt and Project TCS was conceived to bridge the gap between the existing and contemporary technologies in this sphere. TCS will be the foundation of the Indian Army's communication network which will be a robust, snoop-proof, mobile, cellular network for voice and data communications during battle. It will allow integrated communication at multiple levels and include a broad range of sub-systems from cellular telephones to equipment sensors. With the selection of two development agencies, Bharat Electronics Limited (BEL) and a consortium of Larsen and Tubro (L&T), Tata Power SED and HCL Infosys Ltd, TCS, has become the first mega project to reach the design and development stage of the 'Make' procedure under the Defence Procurement Procedure 2011. The Indian industry is being given an opportunity to participate in the project and exhibit its prowess. SP

India and Indonesia to step up defence cooperation

India and Indonesia decided to significantly enhance their defence cooperation with the Defence Minister A.K. Antony declaring his meeting with his Indonesian counterpart Purnomo Yusgiantoro as a 'turning point' and an 'excellent beginning'.

This was the first Ministerial level biennial defence dialogue between the two countries. The two sides exchanged views on a whole range of issues relating to regional and global security, bilateral exercises involving Services, training, co-production of defence equipment and ammunitions and visits at high levels.

The defence dialogue mechanism at the highest level was agreed upon during the visit of Indonesian President Susilo-BambangYudhoyono to India in January last year.

Antony said the threat of terrorism perpetuated by State and non-State actors affects all of us equally. Antony said some times, the acts of individual terrorists and terrorist organisations are also actively or otherwise encouraged by allowing such organisations safe refuge and other forms of support. "It is seen that there are countries from where terrorists are free to launch their operations against other countries. This cannot be tolerated. The world is paying a heavy price for such mindless policies. No country should allow its territory to be used for any form of terrorism, directed against any other country or its people."

Dealing at length the power rivalries in the Indian Ocean region (IoR), Antony said although these are being conducted in local theatres, the impact is felt in the wider regional arena and also globally. He said, we have a stake in the maintenance of peace and stability in our immediate and extended neighbourhood. This includes the entire Indian Ocean region to our east and west. "We have a vital stake in the evolution of balance security and cooperation mechanisms through which we can build consensus and pursue dialogue. We seek to improve our partnership with all countries in the Indian Ocean Region on bilateral basis as well as through multilateral for a like IONS, IOR-ARC etc," he said. SP

New TOW missile achieves 100th direct hit

Raytheon Company and the US Army achieved excellence in recent flight tests of the tube-launched, optically-tracked, wireless (TOW) missile. In September, the team scored its 100th TOW hit, which marked the successful engagement of 100 out of 100 targets.

During the testing programme, which began in 2011, several missiles hit targets beyond 4,000 metres with zero inches of deviation from the aim point in either altitude or azimuth, demonstrating accuracy and reliability.

"TOW continues to build on its legacy as one of the most accurate and effective precision assault weapon systems in militaries around the world," said Scott Speet, Raytheon Missile Systems' TOW program director. "At the same time, it remains the most affordable missile in its category."

The TOW weapon system features a family of multimission missiles fired from a variety of ground and helicopter platforms. Wireless TOW missiles include an RF transmitter added to the missile case and an RF receiver located inside the missile. Since no launcher modifications were required for the transition to wireless, this growth in capability is transparent to TOW customers.

The tube-launched, optically-tracked, wireless weapon system, with the multimission TOW 2A, TOW 2B, TOW 2B Aero and TOW Bunker Buster missiles, is the premier long-range, precision anti-armour, anti-fortification and anti-amphibious landing weapon system used throughout the world today. TOW is in service in more than 40 international armed forces and integrated on more than 15,000 ground, vehicle and helicopter platforms worldwide. The TOW weapon system is expected to be in service with the US military beyond 2025. December 2012 marks the 50th anniversary of the TOW missile programme, with more than 6,50,000 missiles produced. SP

MDA conducts biggest missile defence test

The Missile Defense Agency (MDA), US Army soldiers from the 94th and 32nd Army Air and Missile Defense Command (AAMDC); US Navy sailors aboard the USS Fitzgerald (DDG 62); and airmen from the 613th Air and Space Operations Center successfully conducted the largest, most complex missile defence flight test ever attempted resulting in the simultaneous engagement of five ballistic missile and cruise missile targets.

An integrated air and ballistic missile defence architecture used multiple sensors and missile defence systems to engage multiple targets at the same time. All targets were successfully launched and initial indications are that the terminal high altitude area defence (THAAD) system successfully intercepted its first medium range ballistic target in history, and Patriot advanced capability-3 (PAC-3) near simultaneously destroyed a short range ballistic missile and a low flying cruise missile target over water.

The live-fire demonstration, conducted at US Army Kwajalein Atoll/Reagan test site, Hickam AFB, and surrounding areas in the western Pacific, stressed the performance of the Aegis ballistic missile defence (BMD), THAAD, and Patriot weapon systems.

An extended long-range air launch target (E-LRALT) missile was air-dropped over the broad ocean area north of Wake Island from a US Air Force C-17 aircraft, staged from Joint Base Pearl Harbor-Hickam, Hawaii. The AN/TPY-2 X-band radar, located with the THAAD system on Meck Island, tracked the E-LRALT and a THAAD interceptor successfully intercepted the medium-range ballistic missile. SP

PHOTOGRAPHS: PIB, MDA

Euronaval, good hunting ground for naval systems

[By **R. Chandrakanth**]

The Middle East is a hotbed of defence activity and two countries – Saudi Arabia and United Arab Emirates – are on a major buying spree. At the 23rd edition of Euronaval 2012 in Paris, which concluded recently, Saudi Arabia was under the arclights. Saudi Arabian Navy's intent to overhaul its French-built F-2000 frigates and oilers at an estimated contract worth $1.3 billion has enthused US and French companies.

Saudi Arabia's neighbour, another oil-rich country, the United Arab Emirates has expressed interest in buying a small, corvette-sized combatant and Lockheed Martin, Austal and Fincantieri have reportedly made their offers. Lockheed Martin has on offer a scaled-down version of its 116-metre littoral combat ships, while Austal has put forth its 80-metre multi-role vessel (MRV). Fincantieri from Italy has an edge as it is already fitting out the Abu Dhabi, 89-metre-long large corvette, besides building the first two 56-metre Falaj 2 class patrol boats.

Away from the Middle East, South Korea has ordered its 100th ship-borne Sigma 40 inertial navigation system from Sagem (Safran group), confirming its confidence in the system's laser gyro technology. The Sigma 40 is a high-performance ship-borne inertial navigation system. It is available in different versions to cover operational needs for warships, from corvettes to nuclear submarines.

This latest Sigma order consolidates Sagem's leadership with the world's most powerful navies. Part of the ship's combat system, the Sigma 40's high-precision measurements contribute to weapon accuracy and performance.

West Looking at East

That Western OEMs are increasingly looking at emerging markets to shore up their dwindling revenues is a truism and at Euronaval it became clear when there were nearly 76 official delegations from various countries. Organised under the joint patronage of the French Ministry of Defence and the Secretariat of State for the Sea, as in previous years, Euronaval reaffirmed its position as the leading international naval defence and maritime safety and security event.

The show covered spheres ranging from naval sovereignty to state action at sea with respect to maritime safety and security, including the enforcement of public order at sea, marine navigation and fisheries policing, and maritime and coastal surveillance. It sought to highlight innovations by French and international players in the naval sector and new technologies in what is a high-tech industry.

Le Bourget, the venue of Euronaval, gave adequate play for naval drone manufacturers—both underwater and aerial—and satellite applications in communications, navigation, defence and security. In all, Euronaval attracted close to 400 exhibitors from 35 countries and trade visitors from 100 countries with growing participation from Germany, Brazil, the UK and Russia, with, for the first time, a Korean shipyard among the exhibitors.

Over a period of five days, Euronaval attract market influencers and buyers from across the sector, 76 official delegations, and 300 guests of honour from over 60 countries, including high-ranking government figures, i.e. ministers and the equivalent, secretaries of state, navy chiefs of staff and national armaments directors. From an OEM perspective, there were key launches by several companies.

DCNS a World Leader in Naval Defence

DCNS was present in full strength at Euronaval and some of its innovative products at Le Bourget were surface combatants; submarines, besides its service offerings.

One of the highlights was FREMM-ER (Extended Range) with its enhanced anti-air capabilities. Thanks to its four-panel phased-array antenna and continuous hemispherical coverage, the new radar can detect and track threats at unprecedented ranges enabling the combat management system (CMS) to exploit the ship's current and future weapons systems to the full. These capabilities are particularly important for littoral operations, in bad weather and against increasingly stealthy threats.

Gowind range: DCNS is currently developing a Gowind version for mine countermeasures (MCM). The ship is being tailored to deploy unmanned vehicles designed specifically to detect, identify and destroy underwater mines.

Sagem's SIGMA 40 navigation systems surpass 8 million hours of operation in service

The SIGMA 40 shipborne inertial navigation system built by Sagem (Safran group) has passed the mark of 8 million hours of operation in service, demonstrating exceptional reliability as shown by feedback from many of the world's navies.

These results underscore the superiority of laser gyro technology for navigation systems being operated in harsh environments.

Part of the ship's combat system, the SIGMA 40 features high-precision measurements, reliability and performance stability over time. It significantly enhances the efficiency of a warship's sensors, weapons and self-defense systems.

Several versions of the Sigma 40 are available to cover the different operational requirements on all types of ships: surface vessels (from corvette to aircraft carrier), and the SIGMA 40XP version for conventional, AIP or nuclear submarines.

The SIGMA 40 has been chosen by 35 navies, and is now the best-selling naval inertial navigation system in the world.

The French navy has chosen the Sigma 40 for all major ships: FREMM and Horizon multimission frigates, Mistral command and force projection ships, Rubis-Améthyste class nuclear attack submarines and the future Suffren class nuclear submarine (Barracuda program), and most recently the Adroit ocean-going patrol boat from the DCNS. In international markets, the SIGMA 40 has been chosen for Baynunah corvettes (United Arab Emirates), Skjold patrol boats (Norway), the new stealthy frigates and Scorpène submarines (India), and PKX patrol boats, FFX frigates and, most recently, modernization of U-209 submarines (South Korea). SP

For the Gowind Combat, DCNS is designing a new superstructure module comprising, in a single building block, the bridge, ops room and enclosed mast. This module will be deliverable to partner shipyards as part of contracts calling for local shipbuilding.

Submarines: The Andrasta compact submarine is designed to operate in shallow littoral waters as well as deep ocean waters. A direct descendent of the Scorpene, it is remarkably effective in all roles close to coasts. Recent advances have focused on improved acoustic discretion, improved sonar detection capabilities, particularly in coastal environments, and additional provision for intelligence gathering; an essential role in coastal theatres. Endurance has also been extended to three weeks.

Services: The stand also presented the Group's global service offering. Drawing on experience acquired serving the French Navy and international customers, DCNS offers a range of services (technology transfers, teaching programmes, training, simulation solutions, etc.) to help client navies make the best use of their assets, maintain them (through-life support programmes, upgrades, etc.) and manage naval base infrastructure (design, construction, operation and/or maintenance, integration of defence-critical facilities, shipyard refurbishment, etc.).

Thales Introduces Vigile DPX Radar Systems

Following the successful deployment of the Vigile DPX radar electronic support measures system on the British Royal Navy's Type 45 class destroyers earlier this year, Thales introduced the system to the international market for the first time.

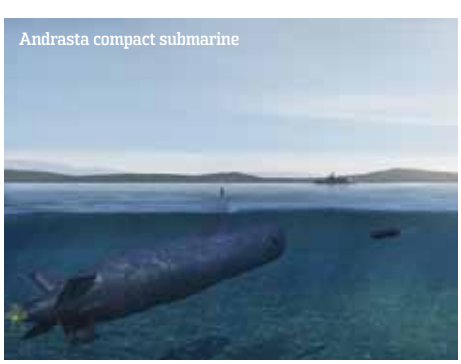
'This is a ground-breaking new radar system,' Phil Naybour, head of UK maritime activity at Thales UK, told a media briefing.

Navies now see themselves in a cluttered littoral environment due to radar use from both military and civilian operators, Naybour explained, so the DPX uses a wideband digital receiver to directly sample the full bandwidth of the radar RF spectrum instantaneously. Operators can then detect signals otherwise hidden behind this clutter.

Vigile DPX radar electronic support from Thales

FREMM-ER (Extended Range) with its enhanced anti-air capabilities

Eurocopter's NH90 NFH



Andrasta compact submarine

Eurocopter's Naval and Maritime Helicopters

Eurocopter's extensive range of helicopters for naval and maritime missions was on display. The company displayed models of the NH90 NFH, the AS365 N3+ and the AS565 MB/Panther.

Eurocopter's participation in this biennial event underscored the decades of experience the company has acquired in naval and maritime helicopters. With a diversified product line tailored to numerous operational requirements, Eurocopter helicopters are counted on for such missions as anti-submarine and anti-surface warfare, anti-piracy and anti-smuggling missions as well as coastal or deep-sea maritime search and rescue operations.

Built by NH Industries, a consortium formed by Eurocopter, AgustaWestland and Fokker, the NH90 was just one of the models on show. To date 122 NH90s have been delivered to customers, 18 of them the NFH naval version. The fleet has now clocked up a total of 30,000 flight hours, mainly in SAR missions performed in especially demanding environments and also in the Afghan theater of operations.

Raytheon Anschütz Launches Synapsis Command Bridge

Raytheon Anschütz launched the Synapsis Command Bride, an innovative system solution for OPVs, smaller naval and coast guard vessels. It is a combination of commercial-off-the-shelf navigation with command and control capabilities to a new, homogeneous bridge system.

The Synapsis Command Bridge aims to provide a solution that not only includes the Synapsis Integrated Navigation capabilities but also transfers enhanced command and control capabilities from the Raytheon Anschütz' SmartBlue surveillance system to a new sea-based application.

Thomas Lehmann, System Engineer at Raytheon Anschütz, said, "The Command Bridge comes as a scalable 'off-the-shelf' solution which is standardised to save unnecessary non-recurring engineering costs whilst at the same time remaining flexible enough to accommodate different sensors and weapon systems appropriate for different missions. Smaller vessels such as OPVs and fast attack crafts without requirements for a dedicated combat information centre can be easily equipped to handle a variety of threat scenarios and missions efficiently and effectively."

Atlas Electronik SeaSpider in the Front

Atlas Electronik showcased a SeaSpider and a SeaHake torpedo as models, besides the UUV SeaOtter. Also on demonstration was its "Low Frequency Active Towed Array Sonar" for surface ships ACTAS and a mine countermeasure container model. Furthermore the company exhibited its 'Expanded Flank Array Sonar' (EFAS), which ideally complements the submarine sonar sensor suit.

As said earlier, the highly advanced, sophisticated and scalable technologies are mainly coming from the Western OEMs, while the markets are elsewhere. Nonetheless, Euronaval will continue to be a good hunting ground for naval systems. SP

PHOTOGRAPHS: Thales, DCNS, Eurocopter

India thinking of slashing FGFA orders

The Indian Air Force is contemplating slashing the orders for the Fifth Generation Fighter Aircraft (FGFA) from 200 to 144, according to the Air Chief, Air Chief Marshal, N.A.K. Browne. India's order will be for the single-seat models.

The stealth aircraft is being jointly developed by the the Hindustan Aeronatics Limited (HAL) and Russian Rosoboronexport and Sukhoi in a 50:50 joint venture. Russia is currently testing a handful of prototypes of the T-50 aircraft, which is due to enter service with the Russian Air Force after 2017.

The first prototype is expected to be delivered to India in 2014, followed by two more in 2017 and 2019. Series production aircraft "will only be ordered based on the final configuration and performance of the third prototype," Browne said. SP

Cassidian develops engineering support system for Eurofighter

Cassidian is developing a new engineering support system (ESS) for German Air Force Eurofighter. The Cassidian ESS acts as an interface for the exchange of maintenance data with the aircraft, the analysis of aircraft and engine data, structural loads, and the interpretation of error messages from the Eurofighter avionic systems.

A successor to the present ESS – which is used by the four Eurofighter core nations – is needed in order to provide optimum support for future equipment upgrades to the Eurofighter as of software version SRP12 (P1E). In addition, the new system is fully connected to the Bundeswehr's logistics information system (SASPF – standard application software product families). The Cassidian ESS will also improve the operational capability of the German Eurofighter fleet, for instance significantly shortening the inspection times between consecutive missions.

The ESS has a modular design and contains a standard interface for linking it to various logistics systems. This not only enables it to support other weapon systems, but also to be tailored to the specific requirements of other nations.

Cassidian was awarded the development contract by the German Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw) in early October. The new system is being developed at the Military Air Systems Centre in Manching in cooperation with the German Air Force, and will be delivered to the customer in 2014. SP

KC-390 development cost savings of $42 million

The Brazilian Air Force (FAB) and Embraer have reduced contract costs of developing the KC-390 aircraft by about $42 million, after a reassessment of the contract held on October 19.

This reduction was only possible thanks to the joint efforts of the Coordinating Committee for Combat Aircraft (COPAC) of FAB and Embraer, which, through the Programme Executive of the KC-X Project, conducted analyses and used modern management tools to good effect. SP

Telephonics awarded contract for IFF systems

Telephonics corporation, a wholly-owned subsidiary of Griffon Corporation, has been awarded a $60 million multiyear contract from the Air Force Life Cycle Management Command (AFLCMC), Hanscom Air Force Base, Massachusetts.

Telephonics will supply the AN/UPX-40 identification friend or foe (IFF) Interrogator for integration on to the USAF E-3 sentry airborne warning and control (AWACS) aircraft including installation kits, installation, and sustainment support.

The Telephonics' family of interrogators is the only IFF interrogators to achieve DoD AIMS certification in all modes including mark XII, mode 5, mode S, and multi-channel ADS-B. The AN/UPX-40 provides the USAF AWACS aircraft with an unprecedented air surveillance capability in support of the integrated command and control battle management capability. The real-time air surveillance picture provides situational awareness of friendly, neutral and hostile activity, command and control of an area of responsibility, battle management of theatre forces, all-altitude and all-weather surveillance of the battle space, and early warning of enemy actions during joint, allied and coalition operations.

"With 50 years experience designing, developing and delivering IFF systems throughout the world, Telephonics is uniquely qualified to field the most advanced military surveillance radar on the world's premier airborne surveillance platform in support of the warfighter," said Kevin McSweeney, Chief Operating Officer of Telephonics Corporation. "We are very proud of our legacy of high performance surveillance and excited about the future of this important product line." SP

PHOTOGRAPHS: Sukhoi, Embraer, Cassidian

Saab India Technologies offers India state-of-the-art ISR and unmanned aerial vehicle systems

[By **Air Marshal (Retd) V.K. Bhatia**]

On October 31, Saab India Technologies gave a presentation on its latest state-of-the-art intelligence, surveillance, reconnaisance (ISR) and unmanned aerial vehicle (UAV) systems during a workshop in New Delhi. The workshop was organised as a part of the Sweden India Nobel Memorial Week 2012. Especially on offer was its latest Skeldar rotary-wing UAV which according to Joanna Sjolander, Marketing Director, Saab India Technologies Pvt Ltd, could adequately meet India's current and projected security requirements.

Skeldar has been developed as a fully autonomous and mobile short-to-medium range vertical take-off and landing (VTOL) unmanned aerial system (UAS). It is suitable for a wide range of sensor applications to perform missions such as reconnaissance, surveillance and identification. The Skeldar can reportedly hover for hours while providing real-time information to a control station or to a remote video terminal. It is controlled by high-level-commands such as "point-and-fly" and "point-and-look", and designed for a range of land, maritime and civil applications.

The Skeldar system consists of two air vehicles and a mobile SOS control station. Based on operational and technical requirements, the system may be integrated into a wide variety of segments and system environments utilising a common control concept and user interface in the context of command, control and payload management. The Skeldar UAS is a highly capable system and the system can be operated by just two to four people, owing to the ease of use, no take-off and landing equipment, and the low logistical footprint.

The Skeldar can perform a wide range of functions, including surveillance, reconnaissance, target acquisition, dissemination of target data, control of indirect fire and immediate assessment of battle damage. By being the primary system for these functions, day and night and in diverse weather conditions, the Skeldar UAS becomes the commander's 'dominant eye'.

Skeldar UAS can become a key collection asset in supporting near real-time visualisation of the battlespace. The agile flight envelope of Skeldar air vehicles provides key characteristics (see Table) for successful operations and missions, especially in urban areas and difficult terrain. Launch and recovery from easily accessible and small areas, keeping pace on the battlefield, as well as find, hold and maintain optimal aspect to area and point of interest, are all easily performed with ease due to its rotary wing design.

AIRFRAME	
Overall length (including rotor)	5.2 m
Height	1.3 m
Max take-off weight	235 kg
FLIGHT PERFORMANCE	
Payload	>40 kg
Service ceiling	>3.500 m
Max speed	>140 kmph
Endurance	6 hours
Mission radius	>100 km
Take-off/landing area	10 m diametre

In the Skeldar system instead of using a conventional 'joystick', the entire flight envelope is controlled by a set of 'buttons/switches'.

The operator initiates take-off by pressing a button, points at an appropriate ingress point, setting the Skeldar air vehicle's speed and altitude. This control technique is known as point-and-fly. If the straightest way to the ingress point is not possible, the operator can still easily set a route by pointing on the map to define a number of waypoints. During the mission the aircraft files autonomously and allows the operator to quickly investigate a large number of points or interest simply by pointing on the map. This control technique is known as 'point-and-see'.

The system can be effectively used for land, naval and civil applications. However, it was pointed out that the problem of take-off and landing from rolling (and pitching) marine decks, especially of smaller vessels, was still in the process of being sorted out through innovative ideas. A suggestion by the *SP's M.A.I.* representative to try out gyro-stablised platforms which could be supplied as add-ons to the main system and could be hooked on to a vessel's deck, when required, was well taken. SP

PHOTOGRAPH: Saab Group

India, Bangladesh security talks

The 13th meeting of the Home Secretaries of India and Bangladesh was held recently at Dhaka. The Indian delegation was led by R.K. Singh, Union Home Secretary, and the Bangladesh delegation was led by C.Q.K. Mustaq Ahmed, Senior Secretary, Ministry of Home Affairs.

The two Home Secretaries expressed satisfaction at the visit of both delegation to Agartala–Akhaura Integrated Check Post (ICP) to review the existing infrastructure, and noted that this would facilitate trade between Bangladesh and India, particularly Northeast. They also welcomed the opening of several land ports Integrated check posts for bilateral trade between Bangladesh and India. Both sides agreed to allow developmental work including construction of ICPs/LCSs within 150 yards of zero line. Both sides also agreed to constitute a high-level team to monitor development of border infrastructure.

They took note of the outcome of the 12th JWG meeting on security issues held on October15, 2012, wherein the two sides discussed issues such as land boundary demarcation, border management, security issues, implementation of agreements, visa and consular related issues and capacity building, etc.

Both sides expressed satisfaction at the smooth operation of coordinated border management plan (CBMP) and agreed to increase number of joint patrolling with a view to curbing criminal activities along the border.

They noted with satisfaction that the implementation of the CBMP has reduced the number of incidents along the border. They expressed confidence that increased number of coordinated patrolling would enhance cooperation between the border guarding forces of the two countries, and enable them to manage the identified vulnerable areas with a view to preventing criminal activities, illegal movement, acts of violence and loss of lives along the border areas. As an additional measure for better border management, both sides agreed to revive the mechanism for regular consultations between the Deputy Commissioner and the District Magistrate of border districts for resolving local issues.

Both sides agreed to further intensify the activities of the different nodal points in different areas of cooperation such as human trafficking, drugs, Interpol, etc. They expressed satisfaction at the regular interaction of different bilateral mechanisms, including BGB-BSF DG level meetings, Narcotics DG level meetings, JWG on security issues, etc. and noted that these regular exchanges helped to enhance understanding and resolve issues for mutual satisfaction. SP

Kanwaljit Deol appointed DG of NHRC

Kanwaljit Deol, IPS has been appointed as Director General (Investigation), National Human Rights Commission (NHRC). Her appointment will be on deputation basis from the date of assumption of charge of the post or till the date of her superannuation or until further orders, whichever is earlier. SP

Pranay Sahay to be new DG of CRPF

Pranay Sahay, IPS presently working as DG, SSB and holding additional charge of Director General, Central Reserve Police Force (CRPF) has been appointed DG, CRPF on regular basis with effect from the date of his taking over the charge of the post and till his superannuation or till furthers orders, whichever is earlier. SP

US testing blimps, surveillance towers on Mexican border

In 2011, the US Government ended SBInet, a major and unsuccessful attempt to build a virtual fence along the border that cost nearly $1 billion before it was killed; DHS is now testing aerostats, and an 80-foot tower with similar surveillance capabilities, for border security as part of an effort to exploit technologies that have been used in the wars in Iraq and Afghanistan.

The US Border Patrol is testing two blimp-shaped helium-filled balloons, which are on loan from the defense department, on the Mexican border. Congressional staff members joined DHS and

Defense Department officials recently near the border town of Roma, about 415 km south of San Antonio, to see what the aerostats can do. Members of the media were given a more limited glimpse of the devices' capabilities.

The technology has already proven successful in Iraq and Afghanistan. Now US officials think the blimps could be helpful in tracking drug smugglers and illegal immigrants on a rugged stretch of the Rio Grande that does not have a border fence. SP

PHOTOGRAPH: PID Bangladesh, United States Department of Homeland Security

A national model for **Cyber protection-Raytheon way**

[By **Lt General (Retd) Naresh Chand**]

In today's cyber security environment there is no way to prevent a determined intruder from getting into a network as long as one allows e-mail and web surfing. The reasons for this are due to the majority of information assurance architectures rely on patching and configuration control for protection. It also relies on signatures for both protection and detection. Therefore, when you have to let the attack vector (an e-mail or a web address) past your perimeter to the desktop, you are virtually guaranteed to have successful penetrations. Raytheon thus believes the best way to address this is to recognise that attackers will get into your network and expand our defensive actions to detect, disrupt, and deny attacker's command and control (C2) communications back out to the network. Such a strategy focuses on identifying the websites and IP addresses that attackers use to communicate with malicious code already infiltrated onto our computers. While some of these sites are legitimate sites which have been compromised, the majority are usually new domains registered by attackers solely for the purposes of command and control. There is little danger of unintended consequences from blocking these websites and their associated IP addresses for outbound traffic. Raytheon has had success with this strategy, but it requires a significant investment. It is of primary importance to measure the threat is the intruder's dwell time in the network then the number of penetrations thus the effort should be for making the effective dwell time zero.

Dwell Time

There are two ways to reduce the dwell time of an intruder, both of which are being pursued by Raytheon. The first is to detect the malicious outbound traffic in a network but requires a large investment. The other method is collaboration with other operational entities which is affordable by all. Many other organisations regularly report C2 channels which can be shared with others formally or informally through Information sharing and analysis centres, defence industrial base cyber task force, infraguard, etc. It is in the collaboration realm that Raytheon believes there is an opportunity for a national scale effort that can turn collective effort to our advantage in the cyber battle.

While there is no national-scale framework in place, there is a model that has already proven effective fighting other cyber security problems. The model involves a set of trusted entities developing threat information and reporting voluntarily (with non-attribution) to a central source, which consolidates the information and rapidly disseminates it to a very large user community which is already being used for the highly successful antivirus and spam filtering industries. Raytheon proposes the same model be used to disseminate information on attacker C2 URLs and IP addresses and automatically block outbound traffic to them. If attackers get into your network but cannot get back out the attack is effectively thwarted.

Raytheon thus proposes a model for setting up a National Cyber Threat Protection Service to implement a C2 disruption strategy. The model includes positive incentives for every participant. This is a voluntary Industry-Government Cooperative Model for Disrupting Malicious Cyber Command and Control which involve three types of entities:

- **Threat Reporters.** Threat reporters are organisations with the detection and analytical capability to discover command and control sites via malware reverse engineering or traffic analysis. Organisations, be they commercial, private, or governmental, would apply to be certified as threat reporters and have their reports of C2 channels accepted as valid.
  Some third party, presumably a government entity, an industry consortium or some hybrid of the two, would be responsible for certifying potential threat reporters against a moderate standard of in-house capabilities.
- **National Cyber Threat Response Centre (NCTRC)**. The role of the NCTRC is to serve as a central threat clearing house for processing reports of C2 URLs and IP addresses from threat reporters and rapidly distributing them to the community of firewall device vendors. By having a central point disseminating the information to all vendors equally we avoid the problem we face with antivirus today where not all vendors detect all threats. The NCTRC would also deconflict erroneous reporting that resulted in disruption to legitimate activities. The NCTRC would maintain a 'reputation index' (e.g. credibility rating) for each reporter much like seller ratings on eBay. By this feedback loop a threat reporter could be decertified (i.e. no longer have their reports accepted or be able to claim Threat reporter status in their marketing). The NCTRC must be a single organisation focused on rapid dissemination of actionable information.
- **Firewall Vendors**. Vendors for firewall devices (the term here being used in its most generic sense) would accept the new threat information and push it out to their devices in the field the same way antivirus and spam filtering vendors push new definitions today. Producers of devices that are capable of blocking outbound web traffic would accept the data from the clearing house, reformat it as appropriate for their device, and push it out to their customers as quickly as possible. Traditional desktop or network firewalls, web proxies, and routers would all be capable of performing this function, thus giving network owners a wide variety of products from which to select based on their architecture and investment tolerance. The vendors would differentiate themselves from each other not only on price, but also on their speed of updates and value-added services such as the ability of their customers to manually override the lists or their ability to provide reports to network owners.

Common Operational Picture

Perhaps one of the key side benefits of this model is that it could be the basis of a true Common Operational Picture (COP). If every firewall device supporting this model not only blocked the outbound traffic, but also—again, voluntarily—reported back to the clearing house that there was a blocked C2 attempt from their IP address it would, given the potentially hundreds of thousands of devices reporting in, represent a very accurate picture of the scope of any given attack or campaign. For example if the IP space of all nuclear power plants is known, a COP could show attempts to access the same C2 sites from multiple power plants which could indicate a concerted effort to compromise the plants.

Risks

The main risk associated with this model is the risk of blocking a legitimate website that has been taken over by an attacker for use as a C2 site or downloader site but this risk will be small compared to the gain. SP

Bharat Dynamics pays highest dividend

S.N. Mantha, Chairman and Managing Director, Bharat Dynamics Limited (BDL) presented a dividend cheque of ₹47 crore for the financial year 2011-12 to the Defence Minister A.K. Antony recently.

The dividend by BDL, a Hyderabad-based public sector unit under the Ministry of Defence, works out to 40.87 per cent on the paid-up share capital of ₹115 crore.

This is the highest-ever dividend paid by Mini-Ratna Category–1 Company, which has achieved a record turnover of ₹959 crore during the financial year 2011-12.

To meet the growing demands of the Indian armed forces, BDL has embarked on an expansion drive. The company is setting up shortly its fourth manufacturing unit at Amravati in Maharashtra and the fifth one at Ibrahimpatnam in Andhra Pradesh.

Recently, the company has signed two contracts with the armed forces for refurbishment of vintage missiles held by the services. With this, BDL has added another business line to its field of activity.

In its pursuit of self-reliance in the field of critical technologies, BDL has productionised imaging infrared seekers for Nag anti-tank guided missile. The ToT was given by DRDO. With this, BDL has joined the elite group of companies producing Seekers in the world. SP

GE Aviation ties up with Brazilian maintenance companies

A mobile app developed by Northrop Grumman Corporation that quickly calculates transportation requirements for large quantities of operational rations is available for free through the Apple App Store.

Boeing Super Hornet partner GE Aviation recently signed memoranda of understanding (MoUs) with Brazilian companies to become potential suppliers for the programme's global supply chain, strengthening the in-country component of Boeing's F/A-18 offering for the Brazilian F-X2 fighter jet competition.

The MoUs with Grauna Aerospace S.A., Increase Aviation Service Ltd., TAP Maintenance and Engineering and AKAER provide local expertise in different areas of aircraft maintenance, manufacturing and engineering.

The memoranda outline the potential for GE Aviation to develop programmes with the Brazilian companies to establish long-term aircraft support within Brazil. The programmes would include technology transfer as well as training in maintenance and assembly and engine inspection and testing. SP

Saab to acquire Medav

Defence and security company Saab AB has acquired 100 per cent of the German company Medav, specialised in the application of signal processing, pattern recognition and information technology, for approximately MEUR 27 (about MSEK 229). The acquisition strengthens Saab's product portfolio within radio monitoring and intelligence fusion systems.

Medav is a leading provider of signal, electronic and communication intelligence. The acquisition advances Saab's position in radio monitoring and intelligence fusion systems and strengthens the market presence globally as well as in Europe. The acquisition provides a growth platform from which Saab can build on the combined installed base and skills in systems engineering, design and integration. Medav customers and partners will benefit from Saab's overall product portfolio and global support operations.

Medav will continue operations in Germany as a fully owned subsidiary within the Saab Group. SP

Cassidian to provide TETRA radio communication system to Jaipur Metro

Cassidian, an EADS company, and its Indian system integrator partner Fibcom India Ltd. have been selected to provide digital TETRA radio communication coverage for the new Jaipur Metro Rail in Rajasthan. The TETRA radio communication system will support train dispatching, operations and management, thus ensuring an efficient and safe running of the Jaipur Metro. Deliveries will begin in November 2012 and the system will be in place in time for the planned opening of the new metro by mid-2013.

As the system and technology supplier, Cassidian will provide state-of-the-art DXT3c switch with five TETRA base stations (TB3), a Network Management Software (NMS) and an Automatic Vehicle Location Service (AVL). In addition, 350 specialised TETRA radios (THR9i & TMR880i) will be deployed on the trains. Cassidian will also be in charge for training and onsite technical support services and will join forces with the system integrator, Fibcom India Ltd. to meet the special needs of metro operations of the Jaipur Metro Rail Corporation (JMRC).

"This landmark win has positioned Cassidian as a leading supplier of TETRA communication system for the emerging mass transportation market in India. We are committed to contribute to further developments of secure mission critical communication solutions for public safety in India." says Peter Gutsmiedl, Cassidian India CEO.

"We will draw on our wide experience in deploying advanced TETRA-based mission critical communication systems for metro rail networks internationally to make the Jaipur Metro project a success. Our team based in India is building local expertise in collaboration with our partners and is delivering customised TETRA solutions to our Indian customers on time and on budget," adds Ehud Weizman, Head of Sales for Mission Critical Communication Solutions, Public Safety, Indian Subcontinent. SP

PHOTOGRAPH: PIB

CAE wins contracts from Kuwait Air Force

CAE has announced that it has won a series of military contracts valued at approximately C$200 million, the majority of which involves long-term, recurring training services.

They include a contract from the United States Navy to develop a KC-130J full-mission simulator for the Kuwait Air Force under a foreign military sales (FMS) programme and the United States Air Force exercising the option for the third-year of KC-135 tanker aircrew training services in addition to contract modifications to perform a range of KC-135 simulator upgrades. CAE has also signed long-term training services contracts with an Asian military customer.

"We are pleased to welcome the Kuwait Air Force to the long list of customers who have selected CAE as their provider of C-130 training systems and services," said Gene Colabatistto, Group President, Military Products, Training and Services, CAE. "The Middle East and Asia are markets that are increasingly offering a solid pipeline of opportunities, and we are seeing some good potential for upgrade business as defence forces look to leverage simulation-based training for more of their training requirements. Global militaries continue to believe in the fundamental value of simulation-based training, and CAE is well-positioned around the world to deliver a range of solutions designed to enhance efficiency and save money while helping to maintain readiness."

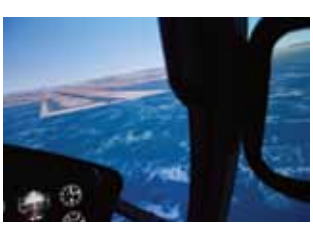
CAE has won a United States Navy contract to design and manufacture a KC-130J full-mission simulator for the Kuwait Air Force. The contract was awarded to CAE USA under the United States FMS programme. Under terms of the contract, CAE USA will design and manufacture a KC-130J full-mission simulator that will be delivered in 2015 to Al Mubarak Air Base near Kuwait International Airport.

The simulator will feature the CAE true electric motion system, CAE Medallion-6000 image generator, and common database (CDB) architecture, which enables real-time mission training and rehearsal capabilities. The KC-130J full-mission simulator will be certified by the European Aviation Safety Agency (EASA) to Level D, the highest qualification for flight simulators.

"This KC-130J full-mission simulator will support initial, recurrent and mission training in-country for Kuwaiti KC-130J aircrews, and importantly, enable the Kuwait Air Force to focus their fleet of KC-130J aircraft on operational requirements," said John Lenyo, President and General Manager, CAE USA. SP

Thales's Reality H simulator achieves dual qualification

Thales has announced that its Reality H helicopter simulator installed at the training centre recently opened by helicopter operator SAF group in Albertville, France, has been granted FTD (flight training device) Level 3 and FFS (full flight simulator) Level B qualification by the French Civil Aviation Authority, in accordance with European Aviation Safety Agency (EASA) criteria.



FTD Level 3 and FFS Level B qualification allows this latest-generation system to be used for EC135 helicopter type-rating training, and confirms its proven capacity (1) for recurrent training to support annual revalidation of pilot licences, annual operator proficiency checks (OPC) and line checks (in place of an actual helicopter). It can also be incorporated as part of an ab-initio training programme leading to a commercial pilot's licence for helicopters (CPL H) or air transport pilot's licence for helicopters (ATPL H), including instrument rating (IR) and corresponding proficiency checks (PC).

The Reality H system provides highly realistic simulations of flight conditions in a range of natural and man-made environments (including mountainous terrain, coastal and urban areas), making it suitable for training personnel to conduct specific assignments such as SAR (search and rescue) and EMS (emergency medical services), which are the main activities of the SAF Group's EC135 fleet.

The qualification of the Reality H EC135 simulator was achieved thanks to a powerful database built up from a series of real helicopter test flights conducted in partnership with SAF. Thales uses the data to model the flight mechanics and equipment represented in the simulator. SP

Quantum3D bags order for Mantis 3D software

Quantum3D, Inc., a leading provider of visual computing solutions for government and commercial applications, announced today that it has received an order from Lockheed Martin Aeronautics for its Mantis real-time scene management software.

Quantum3D's Mantis software is a powerful simulation application, providing fixed- and rotary-wing flight, ground vehicle, tank, mission rehearsal, and sensor simulation, as well as simulation of a wide range of other commercial and military real-time 3D environments.

The Mantis software ordered by Lockheed Martin will equip their Simulation Systems Integration Labs (SimSILs) at Fort Worth, Marietta, and Palmdale. The Labs provide engineering simulation services to internal and external customers for development of control laws and avionics, verification testing of operational flight programmes, analysis of lethality and survivability, and business development. The SimSIL facilities support Lockheed Martin's F-22, F-35, F-16, C-130, and C-5 platforms.

"Lockheed Martin's decision to expand its Mantis footprint is a testament to both the scope and integrity of Mantis' extraordinary real-time 3D scene management capabilities," said Arthur Yan, President, Quantum3D. "As the complexities of global defence and commercial aerospace increase, Quantum3D is committed to providing the highest-quality, most powerful, effective and cost-efficient simulation solutions anywhere in the world." SP

PHOTOGRAPHS: CAE, Thales Group

Drunken neighbour breaks into Tom Cruise's home

Tom Cruise's drunk neighbour was apprehended by a security guard after accidentally breaking into the actor's estate. Officers were called to the star's home in Beverly Hills recently after the man was spotted climbing a fence to gain access to the property.

The guards fired a stun gun at Jason Sullivan to stop him in his tracks and then called cops to the scene. When officers arrived they found the sozzled intruder attempting to flee and arrested him for trespassing. Sullivan was taken to a local hospital for injuries caused by the stun gun.

When cops grilled the tipsy trespasser they discovered he lived next door to the actor and had tried to break into the wrong house. Tom wasn't at home when the incident took place. SP

UK Home Secretary greets double-murder suspect in security breach

Recently, the UK Home Secretary Theresa May greeted a double-murder suspect from Pakistan in her home office which has been termed as a shocking case of security failure. Reports said that Nasir Butt, a native of Pakistan, had moved to UK in 1996 after he was accused of murdering his two brothers and that a Pakistani court had condemned him to death.

The UK Home Secretary who was unaware of his antecedents shook hands with Nasir Butt, who is said to have 'managed to slip' in with two official Pakistani delegates who were on a prearranged visit. Subsequently, the Home Secretary demanded explanation for the security lapse.

According to reports, Butt who came to UK in 1996 has been granted asylum and he runs a dry cleaners and furniture store. SP

Out on bail only to break into a politician's home

Recently in Kuala Lumpur, four men who were out on bail on house break-in and car theft charges were arrested again while trying to break into Malaysian Crime Prevention Foundation Chairman Tan Sri Lee Lam Thye's house.

Cheras OCPD Asstistant Commissioner of Police Mohan Singh said the policemen saw two of the men attempting to climb a wall into Lee's house while the other two waited in a nearby Mercedes-Benz.

"When my men approached, the two quickly got into the car and all four drove off at high speed," The chase ended less than a kilometre away at a condominium. "In their desperation, they crashed through the boom gate at the condo's security guard house. "They then tried to escape by trying to ram into the police car chasing them," he said. ACP Mohan Singh said the policemen fired seven shots at the speeding car. SP

Security breach at Offutt AFB

Recently this year, a man was dead after being shot by Offutt Security Force members. The suspect took off after Sarpy County Sheriffs Deputies stopped him in a possibly stolen car. The man tried to flee cops by driving onto the Offutt Air Force base in Bellevue, but was shot three times after he used the vehicle as a weapon towards guards.

Brigader General Donald Bacon responded, "Well, he ran through the gate without stopping and with the equipment that we have there there's nothing else we could have done today."

Brig General Bacon explained the SAC Gate only has speed bumps and security force members to slow unwanted visitors down. "We do have very important security concerns on the base. We practice these incidents and we work hard to get this right. We think our security force members did do this right," he added. SP

PHOTOGRAPHS: wordpress.com, 3bp.blogspot.com, Wikipedia

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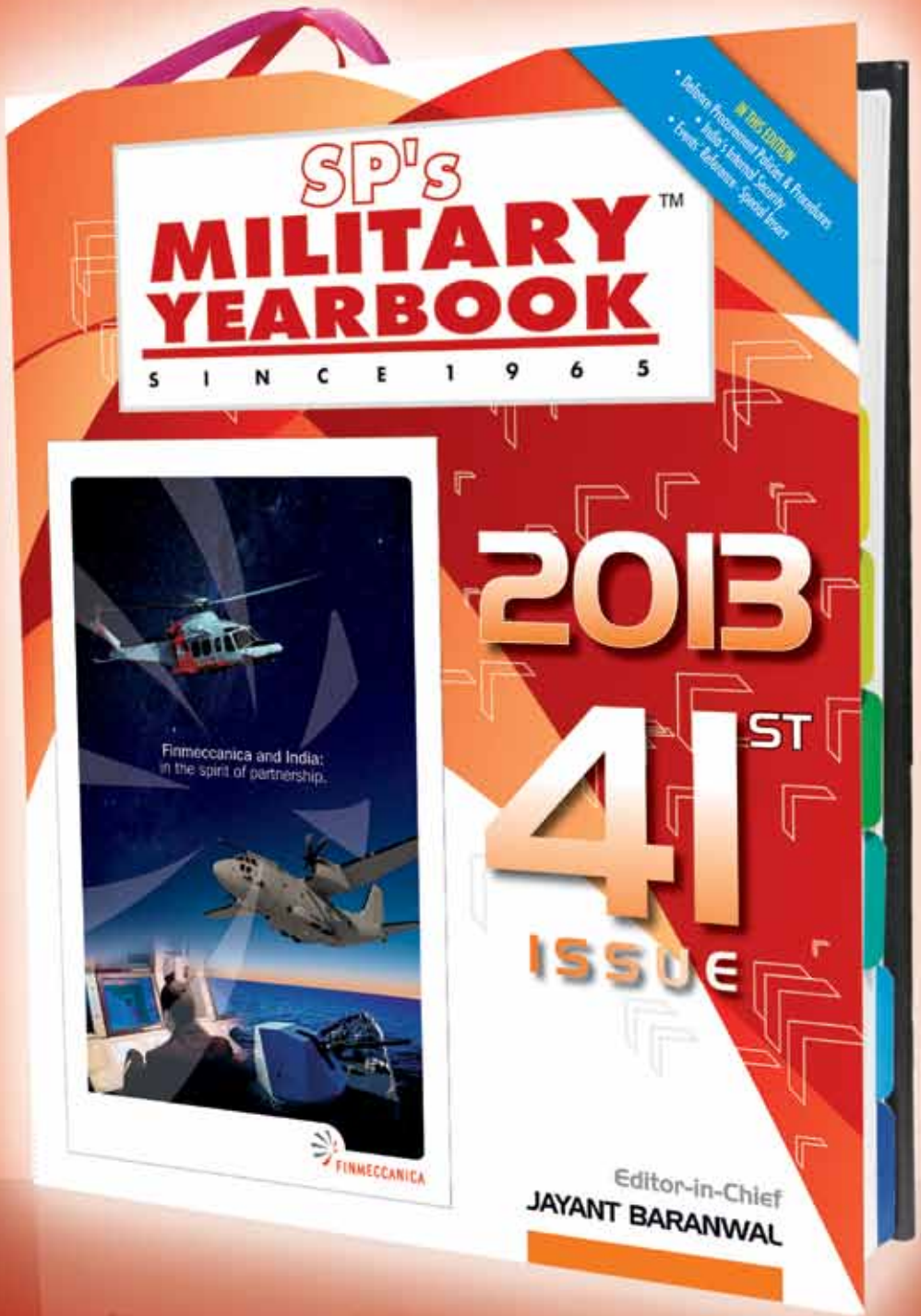

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