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November 16-30 • 2011

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# Defining Partnership

Over the past decade, there has been a rapid transformation in the India-US relationship. The US Department of Defense has committed to build the support structures necessary to ensure the maturation of a robust and mutually beneficial defence relationship with India.

DELENG/2010/34651



# Pratt & Whitney F135 propulsion powers sea trials for F-35 programme

Sea trials have concluded for the F-35B Lightning II's short takeoff and vertical landing (STOVL) aircraft. Flying under the power of Pratt & Whitney's F135 propulsion system, two STOVL variants conducted 72 short takeoffs and vertical landings, for a total of 260 vertical landings in the programme.

The three-week sea trial period was conducted aboard the USS Wasp sailing from Norfolk Naval Base in Norfolk, Virginia.

Colonel Roger Cordell, Director, Test & Evaluation for F-35 Naval Variants, F-35 Integrated Test Force, said "The first time you bring a new aircraft to the maritime environment is complex and dangerous, and keeping risks at an acceptable level requires an enormous collective effort. The incredible teamwork by the crew of the USS Wasp, the Integrated Test Force, Lockheed Martin, BAE, Pratt & Whitney, and Rolls-Royce was essential to trial's tremendous success. We're looking forward to



getting this aircraft in the hands of the warfighter." Key events included operating two F-35B aircraft on deck, at the same time, in both landing and takeoff operations.

"This is a significant and historic achievement for the F-35 programme and the F135 propulsion system," said Chris Flynn, Vice President F135/F119 engine programmes. "Beginning with the 'first ever' F-35B vertical landing to take place on a ship on October 3, the F135 provided dependable performance throughout the series of rigorous tests. We are meeting our goals on performance and affordability at this critical time for the F-35B programme."

The P&W F135 powers the F-35 Lightning II and the engine is in production. P&W has delivered all 18 F135 flight test engines required for the programme as well as 32 production engines. The F135 propulsion system has powered more than 1,400 flight tests, 2,150 flight hours and more than 260 vertical landings. 



**Cover:**

*Over the past decade, there has been a rapid transformation in the Indo-US relationship. The US Department of Defense has committed to build the support structures necessary to ensure the maturation of a robust and mutually beneficial defence relationship with India.*

*Cover image: The White House*

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**ANNUAL SUBSCRIPTION**

Inland: ₹1,150 • Foreign: US\$ 325

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# Strengthening Indo-US defence ties

**T**he US President Barack Obama during his visit to India last November had succinctly termed India-US relationship as a “defining partnership of the 21st century”. The manner in which the relationship is being strengthened by both sides augurs well for both the democracies. Post the Cold War and the disintegration of the Soviet Union, India slowly started veering out of overwhelming Russian influence.

In recent years, India-US security relations have touched remarkable heights, though the discomfiting part has been the latter's alliance with Pakistan, although, of late, it has hit a new low. That Osama bin Laden was holed up in Pakistan and Pakistan becoming a safe haven for terrorists has not gone down well with the US administration. Pakistan cozying up with China is another matter of concern and seemingly the US is warming up relations with India to counter such moves in the region.

President Clinton's visit to India in March 2000 was a turning point in the ambivalent US-India relations. Subsequently President George W. Bush strengthened the ties and in May 2002, US and Indian military took part in joint exercises, the first between the two nations after a hiatus of 39 years.

Now the strategic partnership is being further strengthened as reflected in various overtures of both countries. The US Department of Defense in its report to the US Congress has committed to be a reliable and transparent defence supplier to India.

It would be relevant to mention the paragraph wherein the US has said: “Over the next five years, we will continue to build the support structures necessary to ensure the maturation of a robust and mutually beneficial defence relationship with India in the Asia-Pacific and globally. We will advance the defence relationship by deepening people-to-people ties through continued military-to-military engagements, implementing agreed upon cooperation and pursuing new avenues of collaboration with particular emphasis on maritime security and counterterrorism activities, and expanding defence trade and armaments cooperation.”

It is in this background, the positive approach of the US, despite losing out on the MMRCA (medium multi-role combat

aircraft) deal, has to be noted. The Indian defence market is huge and no country, more so the US, can afford to ignore. It is not only geopolitics but also the enormous market opportunities that have tempered Indo-US relations.

In the technology section, we have run a story on how Lincoln Lab of the Massachusetts Institute of Technology (MIT) has developed technologies which enable seeing ‘whats behind the wall’. The system may be used at a range of up to 60 feet away from the wall. And, it gives a real-time picture of movement behind the wall in the form of a video at the rate of 10.8 frames per second. These are amazing developments which will go a long way in helping combat terrorism.

Worried about cross border terrorism, retired Lt General P.C. Katoch in his forthright fortnightly column has called for taking the military into confidence on strategic affairs. Lack of strategic thought and keeping the military deliberately out of strategic decisions, matters military and even national security has been the bane of independent India. We hope it is not so... **SP**

**Jayant Baranwal**  
Publisher and Editor-in-Chief



## India-Japan cooperation in maritime security

**M**aritime security, anti-piracy measures, freedom of navigation and maintaining the security of sea lanes of communication to facilitate unhindered trade by the sea routes were some of the issues that dominated the India-Japan Defence Ministers' meeting in Tokyo recently.

The delegation level talks, led by the Defence Minister A.K. Antony and his Japanese counterpart Yasuo Ichikawa, recognised the importance of sea lanes and decided to "actively pursue consultations and cooperation in the field of maritime security both bilaterally and in association with all other countries in the region".

The Indian delegation included the Defence Secretary Shashi Kant Sharma, the Indian Ambassador to Japan, Alope Prasad, the Vice Chief of Naval Staff Vice Admiral R.K. Dhowan

and GoC-in-C, Central Command, Lt General V.K. Ahluwalia.

Antony said maritime security challenges are becoming increasingly complex and varied and India has substantially increased its anti-piracy deployment in the East Arabian Sea since November 2010. He, however, felt that concerted efforts of the world community, under a UN mandate, are necessary to effectively address the problem.

"There is a need to not only have a legal framework for prosecuting the pirates, but concerted efforts are also necessary to track the money-trail and to stop it from being channelised for funding terrorist activities, worldwide," he said.

Antony expressed happiness at the fact that both navies are exchanging escort schedules of their naval vessels deployed in the region to coordinate the anti-piracy efforts. He expressed the hope that the respective organisations from both sides, viz MLIT and DG Shipping, would be able to establish a mechanism to share the escort schedules with the merchant ships flagged with them.

Antony said the other serious issue in maritime security concerns the freedom of navigation and maintaining the security of the sea lines of communication (SLOC) to facilitate unhindered trade by the sea routes. This is of vital importance to all countries which depend on maritime trade. "India supports freedom of navigation in international waters and the rights of passage in accordance with accepted principles of international law, including the United Nations Convention of the Law of the Sea [UNCLOS]. These principles should be respected by all."

The Japanese Defence Minister will visit India early next year. Both sides will implement the Japan-India Defence Policy Dialogue in Tokyo, also early next year. Both sides will implement staff talks between the Japan Ground Self Defence Force (GSDF) and Indian Army in 2012. Staff exchanges between Japan Air Defence Force (ASDF) and Indian Air Force will be held in 2012 and be developed to staff talks at the earliest date. **SP**

## 2nd regiment of BrahMos missiles

**T**he Indian Army has commissioned the second regiment of the 290-km-range supersonic BrahMos cruise missiles with 16 weapon systems.

"I am glad to know that this regiment is being delivered, ahead of schedule. This shows BrahMos's commitment to its customer," Minister of State for Defence M.M. Pallam Raju said at a function to mark the commissioning of the regiment into the Army's Corps of Artillery.

The Director General Artillery Lt General Vinod Nayanar said, "We have guns for near range and Smerch Rockets for range of 75 km. But beyond 75 km range, BrahMos is the only system which has added tremendous firepower capability to Indian armed forces for targets as deep as 300 km."

Observing that the capabilities of Army will increase manifold with the induction of world's only supersonic cruise missile, BrahMos Aerospace Chief A. Sivathanu Pillai said, "We have formed a missile industry complex which is tirelessly working for



producing BrahMos missiles for meeting the demand of all the three services."

Two more regiments of the BrahMos will be commissioned in the near future including the Block III, which will be deployed in the North-east along the China border. **SP**



## 'e-bomb' in the making

**C**handigarh-based Terminal Ballistic and Research Laboratory (TBRL) is developing an 'e-bomb' or 'electromagnetic bomb', a lethal weapon after nuclear bombs. The project is due for completion in the 12th Plan period.

According to media reports TBRL has developed the technology and is working on a weapon, which would be capable of neutralising the command, control and communication systems of the enemy. The Director of TBRL, Dr. Manjit Singh, has said that the technology would be based on explosive-driven high-energy pulse power technology and can be deployed against enemy's other establishments like civil utility networks and power generation networks. **SP**

## DRS Technologies MMS programme wins award

**D**RS Technologies, a Finmeccanica company, announced its Reconnaissance, Surveillance and Target Acquisition (RSTA) Group in Dallas, Texas has won the 2011 Aviation Week Programme Excellence award in the category of "Sub-System Level Sustainment."

The recognition acknowledges the decade of work carried out by DRS RSTA in consistently updating and maintaining its mast mounted sight (MMS) that is deployed on the OH-58D Kiowa Warrior helicopter. DRS gained finalist status in its category and was the only winner in the sub-system sustainment area.

The MMS is a surveillance system that incorporates a high-resolution TV camera, thermal imaging sensor and laser rangefinder/designator, along with a system processor, power supply, protective shrouds and other components. The system was initially designed more than 30 years ago, and over the past decade DRS has produced and repaired electronics and sensors for the MMS to keep it up to date, replacing and evolving components at 16 field service sites in the US and overseas. Among them are forward repair activity (FRA) sites in Iraq and Afghanistan.

DRS has maintained the operational readiness for the MMS at more than 95 per cent throughout its contract, enabling the MMS to avoid obsolescence and significantly reducing overall costs for the army. **SP**

## BAE Systems supports warrior upgrade

**B**AE Systems will provide two vital inputs for the warrior capability sustainment programme: Its Anglo-French joint venture with Nexter Systems, CTA International, has designed a revolutionary new 40mm cannon and ammunition for this and the FRES Scout programmes. The UK Ministry of Defence mandated this weapon system for both programmes in March 2008; BAE Systems' munitions business will produce the ammunition for the CT40 cannon under licence.

In addition, BAE Systems will continue to provide support to Warrior in the form of maintenance, repair, upgrade and integration work. A major £30 million armour and mobility upgrade it delivered earlier this year for Afghan service follows many earlier upgrades.

Charlie Blakemore, Managing Director of BAE Systems Global Combat Systems, said: "We are committed to supporting CTA International in designing the cannon and ammunition to provide unmatched lethality on this class of vehicle, and enable the Warrior to continue serving in its vital role well into the future. In addition we offer our 30 years of experience in the design, development, support and upgrade of Warrior to help ensure a smooth integration of new systems onto the vehicle and give our troops the kit they need." **SP**



## ATK receives contract from US Army

**A**TK has received a \$24 million contract modification to provide the US Army with additional ammunition, hardware, test and analysis support further user assessments of the XM25, individual semi-automatic airburst system (ISAAS). In March 2011, ATK received a \$65.8 million engineering and manufacturing development (EMD) contract from the US Army's programme executive office (PEO) soldier for the XM25.

In 2010, the US Army began a forward operational assessment (FOA) of the XM25 with soldiers in Afghanistan to determine its capabilities through use in actual combat operations. Based on the weapon's initial success throughout the FOA, the Army has requested the items necessary to continue further weapon assessments. Information gathered during the ongoing operational assessment will provide valuable user feedback that will ultimately support the EMD process.

"The XM25 provides the individual soldier with an advanced capability to quickly engage targets hidden behind walls or in defilade," said Bruce DeWitt, Vice President and General Manager for ATK Advanced Weapons. "By putting smart technology into the soldiers' hands, we're able to provide them with a distinct battlefield advantage by taking away an adversary's ability to hide behind cover."

The ISAAS consists of a rifle that fires a 25mm airbursting round that is programmed by the weapon's integrated target acquisition and fire control system to detonate directly above an intended target. The system allows soldiers to quickly and accurately engage targets by displaying an adjusted aim point based on range, environmental factors, and user inputs. The weapon's target acquisition and fire control integrates a thermal capability with direct-view optics, laser rangefinder, compass, fuze-setter, ballistic computer, laser pointer and illuminator. These capabilities enable the weapon's use during day or night and in all weather conditions. **SP**



## Harris extends tactical networking to dismounted warfighter

**H**arris Corporation, an international communications and information technology company, has introduced the Falcon III AN/PRC-152A, the first and only NSA Type-1 certified handheld radio to put the power of wideband tactical networking—including the capability to send and receive voice, video, images and data—in the hands of the dismounted warfighter.

The introduction of the AN/PRC-152A will transform tactical communications through the expanded use of network-enabled missions in areas such as mission planning, intelligence gathering, force protection and checkpoint security.

Harris began deliveries of the AN/PRC-152A after receiving Type-1 certification from the National Security Agency. The radio is the next generation of the widely deployed AN/PRC-152(C) handheld and addresses wideband communication requirements of teams operating at the tactical edge of the battlefield.

The Falcon III wideband handheld serves as an interoperable companion to the Harris AN/PRC-117G multiband wideband manpack radio.

The AN/PRC-152A allows the US Department of Defense to extend tactical networking across the entire battlefield and offers warfighters the broadest set of capabilities in a handheld radio. In addition to wideband networking, initially provided by the Harris adaptive networking wideband waveform (ANW2), the AN/PRC-152A operates SINCGARS, VHF/UHF Line-of-Sight (VULOS), HaveQuick, IW for tactical satellite communications and other combat net radio waveforms. This makes the AN/PRC-152A the only wideband networking handheld radio that is also fully interoperable with deployed DoD radios.

“The introduction of the AN/PRC-152A revolutionises the effectiveness of the dismounted combat soldier,” said Dana Mehnert, Group President, Harris RF Communications.

“This new radio extends the tactical network to the edge, allowing for reliable connectivity across all levels and delivering vital command and control, situational awareness and critical ISR information. With the introduction of the AN/PRC-152A, the Harris Falcon III family of vehicular, manpack and hand-held radios now addresses networking requirements from brigade and battalion levels down to the squad.” **SP**



## Nexter Systems-Renault Trucks Defence cooperation for VBMR programme

**N**exter Systems and Renault Trucks Defence (RTD) have signed a cooperation agreement to offer a unique solution to fulfil the request for proposal for the VBMR programme.

The VBMR programme is intended to provide the French Army with a modernised capability in the multirole/medium-range wheeled armoured vehicle segment (20-tonne class, 6x6 design suitable for mission variants).

RTD armoured vehicles and trucks are in service in more than 65 countries. RTD is a long-term partner of Nexter-led projects, such as the VBCI armoured vehicle and the Caesar truck mounted artillery system. RTD has various brands worldwide among them ACMAT. **SP**

## Cassidian develops the most powerful ground surveillance radar

**C**assidian, the defence and security division of EADS, has developed the world’s most powerful radar for battlefield surveillance for use by the German armed forces.

Owing to a combination of the latest technologies, this ground surveillance radar under the German Army designation “Bodenüberwachungsradar” (BÜR) can track movements on the ground, in the air close to the ground and over water, with previously unattainable precision, speed and reliability.

“The BÜR system represents a quantum leap in the area of battle field surveillance,” explained Dr Elmar Compans, Head of Cassidian’s Sensors & Electronic Warfare unit. Compans said, “With this, the German Army can close a gap in its capabilities in the area of intelligence gathering and reconnaissance, thus significantly increasing its performance and the protection of its soldiers.”

The BÜR system is based on the latest electronic scan control technology active electronically scanned array (AESA), which opens up completely new possibilities for detection and surveillance. Thanks to delay-free electronic beam scanning, the radar can perform multiple reconnaissance tasks at the same time, thus achieving a much greater level of efficiency and reliability in comparison to mechanically scanned radars. Each BÜR system can therefore assume the tasks of several conventional radars. **SP**





## Raytheon reduces time required to build SDB II Seeker

**R**aytheon Company engineers have reduced the time required to build the small diameter bomb II uncooled tri-mode seeker from more than 75 hours to 40 hours.

“Reducing the amount of touch labour required to build the seekers keeps us on track to meet our price commitment to the customer,” said Harry Schulte, Vice President of Air Warfare Systems for Raytheon Missile Systems. “By leveraging the cutting edge technology available in the world’s first automated tri-mode seeker factory, Raytheon is able to meet its cost commitments while ensuring we deliver the warfighter a consistently reliable and accurate weapon.”

One time-saving technique Raytheon used was to reduce the cable bundle for the seeker’s wiring harness. This cut the amount of time required to install the seeker’s cabling from seven hours to less than 30 minutes. **SP**

## General Dynamics awarded contracts for medium-calibre ammunition

**T**he US Army Sustainment Command, Rock Island, has awarded General Dynamics Ordnance and Tactical Systems the major share of the third option on a previously awarded multi-year contract for the production of 20mm PGU-27A/B training practice (TP), the PGU-30A/B training practice with tracer (TP-T) and the PGU-28A/B semi-armour piercing high explosive incendiary tactical round.

In addition, the company was awarded a contract from an international customer for the production and delivery of 20mm PGU-28A/B combat ammunition. The combined contracts are valued at approximately \$64 million.

Tim McAuliffe, Vice President and General Manager of medium calibre ammunition programmes, said, “General Dynamics has a long legacy of producing 20mm PGU ammunition for the US military. We developed all three rounds at the request of the US Navy to replace the ageing M50 series and we are proud to continue to support our customers in providing this superior combat and training ammunition.”

The tactical PGU-28 A/B SAPHEI is a semi-armour piercing, high-explosive incendiary multi-purpose round with a pyrotechnic delay fuze. By delaying the round’s detonation until after it has entered the target, the PGU-28 provides greater performance and lethality over its predecessor, the M56. The PGU-28 A/B also has a significantly increased velocity and range over the M56 and is used to support close air-to-ground support operations. **SP**



## M.S. Dhoni, Abhinav Bindra and Dr Deepak Rao get honorary rank in Territorial Army

**M**.S. Dhoni, Abhinav Bindra and Dr Deepak Rao were pipped in by the Army Chief General V.K. Singh recently. Dhoni and Bindra have been commissioned as Honorary Lt Colonel and Dr Rao commissioned as a Honorary Major in the Territorial Army.

Dhoni and Bindra have been bestowed the honour for their outstanding contribution in the field of sports and their commitment to the Army on various occasions. Dhoni has set an example by his unstinted hard work, discipline and supreme dedication. His leading the team from the front, remaining ultra cool in adversities, maintaining



excellent physical standards, and giving all credit to his teammates, is very synonymous to the Army way of leadership.

Bindra is youth icon and his qualities as a valiant fighter, dedication, hardwork, supreme concentration and perseverance are synonymous to an Army leader.

Deepak Rao is the first Indian to specialise in modern close quarter battle training (CQB) and has imparted his expertise for 17 years to train soldiers from various Indian forces.

As Brand Ambassadors of the Indian Army, they will strengthen the citizen-soldier bonds. Colonel (Honorary) Anil Habbu, Lt Colonel (Honorary) Kapil Dev and Lt Colonel (Honorary) Mohanlal are the other Honorary officers of the Territorial Army. **SP**



# Indo-US security cooperation gets boost

**T**he US Department of Defense in its report to the US Congress has stated that the relationship between the United States and India – what President Obama has called one of the defining partnerships of the 21st century – is a priority for the US Government and for the US Department of Defense (DoD).

It said in its report that “The US and India are natural partners, destined to be closer because of shared interests and values and our mutual desire for a stable and secure world. A strong bilateral partnership is in US interests and benefits both countries. We expect India’s importance to US interests to grow in the long-run as India, a major regional and emerging global power, increasingly assumes roles commensurate with its position as a stakeholder and a leader in the international system.”

## Current state of US-India security cooperation

“Over the past decade, there has been a rapid transformation in the US-India defence relationship. What was once a nascent relationship between unfamiliar nations has now evolved into a strategic partnership between two of the pre-eminent security powers in Asia. Today, US-India defence ties are strong and growing. Our defence relationship involves a robust slate of dialogues, military exercises, defence trade, personnel exchanges, and armaments cooperation. Our efforts over the past 10 years have focused on relationship-building and establishing the foundation for a long-term partnership. The strong ties between our two militaries reflect this.

“The US remains committed to a broad defence trade relationship that enables transfers of some of our most advanced technologies.”

## Frameworks for cooperation

“The 2005 New Framework Agreement provides the overarching structure for the US-India defence relationship. The Defence Policy Group (DPG), chaired by the US Under Secretary of Defense for Policy and the Indian Defence Secretary, is at the apex of the bilateral defence relationship. In addition to facilitating dialogue on issues of mutual interest, the DPG sets priorities for defence cooperation, reviews progress annually, and directs adjustments as necessary. The 2011 DPG prioritised maritime security, humanitarian assistance/disaster relief (HA/DR), and counterterrorism cooperation.

“Under the DPG umbrella, we have seven subgroups to discuss and advance defence trade, service-to-service cooperation, technical cooperation, and technology security.

“The US-India Counterterrorism Cooperation Initiative (CCI), signed on July 23, 2010, further calls on our countries’ coast guards and navies to increase exchanges on maritime security and cooperate in addressing maritime threats like piracy and terrorism.

## Military-to-military relations

“US-India military exercises have grown dramatically in size, scope and sophistication. We now have regular exercises across all services that help to deepen our military and defence relationships. In fiscal year 2011, there were 56 cooperative events across all Services – more than India conducted with any other country.

**Navy and Coast Guard:** “Naval cooperation between the United States and India helped to lay the groundwork for military-to-military cooperation and our exercises continue to evolve in complexity. Our navies conduct four exercises annually: Malabar, Habu Nag (naval aspects of amphibious operations), Spitting Cobra (explosive ordnance destruction focus), and Salvex (diving and salvage).

**Air Force:** “Cope India, meant to be held bi-annually, is the primary exercise between our air forces. The last Cope India, held in Agra, in October 2009, focused on mobility operations in a humanitarian assistance scenario. The IAF intends to participate in Red Flag Nellis in 2013, likely with both fighters and airborne warning and control system aircraft.”

## Operational cooperation

“The US and India have partnered closely on HA/DR. We have incorporated disaster relief scenarios and elements into existing exercises and have established a working group to coordinate disaster relief activities more effectively.

**Defence sales:** “The US remains committed to being a reliable and transparent defence supplier to India. Since 2002, India has signed more than 20 foreign military sales (FMS) cases for defence articles and services such as C-17 and C-130J aircraft, TPQ-37 radars, self-protection suites (SPS) for VVIP aircraft, specialised tactical equipment, Harpoon missiles,

“Sensor-fuzed weapons, and carrier flight and test pilot school training. In less than a decade, and starting at zero, we have seen the FMS programme grow to a combined total case value of approximately \$6 billion.

“The last five years have given us several opportunities to reach a new level of interaction between our militaries through defence trade. The C-130Js delivered beginning in February 2011 are the first US military aircraft to have been delivered to India in half a century.

“Once the C-17 contract is fulfilled, India will operate the second largest fleet of C-17s in the world.

“US and India continue to seek ways to educate each other on our respective procurement and acquisition systems to enable further compatibility. We are working to find ways to adopt processes that will improve efficiency and make it easier for us to cooperate on defence trade.”

**Armaments cooperation:** “Armaments cooperation is another key component of our defence engagement with India.



India's capabilities in technology are rapidly improving, particularly in the private sector. In the defence sector, India has over 50 defence laboratories, presenting opportunities for collaboration over a broad range of defense technologies and systems.

"To date, acquisition and technology cooperation between India and the US has been primarily in the exchange of science and technology (S&T) information and collaboration in S&T projects."

### Enhancing US-India security cooperation

"Over the next five years, we will continue to build the support structures necessary to ensure the maturation of a robust and mutually beneficial defence relationship with India in the Asia-Pacific and globally. We will advance the defence relationship by deepening people-to-people ties through continued military-to-military engagements, implementing agreed upon cooperation and pursuing new avenues of collaboration

with key partners, like India, to share the burdens of our common security goals. In doing so, we will seek to expand counterterrorism cooperation with India, and our current special operations engagements in the region will continue to focus on the mutually beneficial ways in which we can enhance each other's capabilities."

**Counterterrorism:** "The 2010 Counterterrorism Cooperation Initiative opened the door for increased cooperation and collaboration on counterterrorism (CT) issues. We will continue to seek greater cooperation in information-sharing activities as well as in our training, exercises, and exchanges between CT specialists and on CT capabilities. USPACOM seeks to increase its joint combined exchange training exercises with India."

### Expanding defence trade and armaments cooperation

"Over the next five years, the United States will continue to establish itself as a reliable defence supplier to India and look for opportunities to enable further training and exchanges between our militaries as India continues its military modernization. The DoD, along with the Departments of State and Commerce, will advocate for US solutions to Indian defence needs. We recognise that India is also seeking to build its own indigenous defence industry, and is looking for the best technologies to use in its defence sector. The US wants to develop deeper defence industrial cooperation with India, including a range of cooperative research and development activities. The United States is committed to providing India with top-of-the-line technology."

### Joint strike fighter and potential co-development of military weapons systems

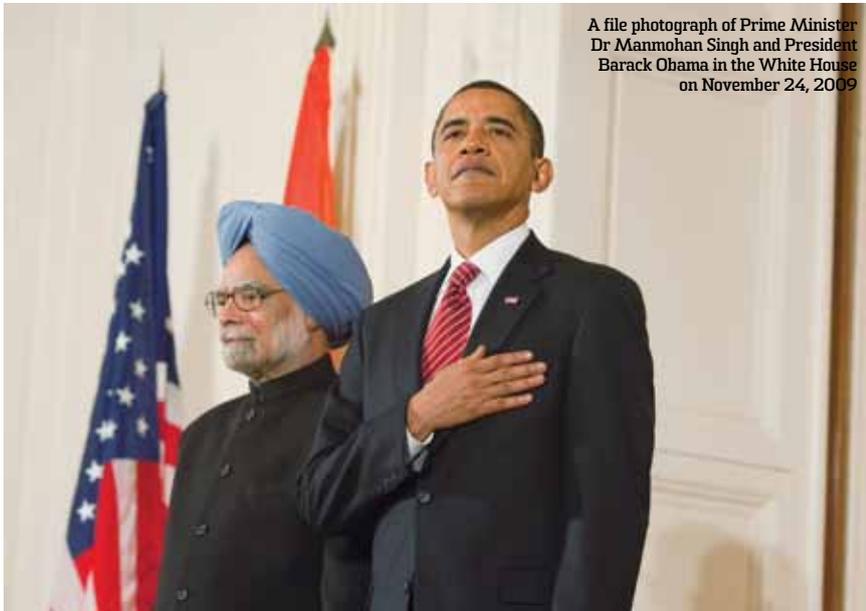
"The DoD is continually looking for ways to expand defence cooperation with India. We are seeking opportunities for increased science and technology cooperation that may lead to co-development opportunities with India as a partner.

"India has demonstrated its interest in upgrading its inventory of fighter aircraft. The US F-16 and F-18 competed, but were not down-selected, in the medium multi-role combat aircraft (MMRCA) competition in April 2011. Despite this setback, we believe US aircraft, such as the joint strike fighter (JSF), to be the best in the world. Should India indicate interest in the JSF, the United States would be prepared to provide information on the JSF and its requirements (infrastructure, security, etc.) to support India's future planning.

"The US has taken many steps in recent years to facilitate science and technology and research and development cooperation with India. In so doing, we have signaled our unambiguous intent to pursue cooperative opportunities on increasingly sophisticated systems.

"As our relationship continues to mature, we expect co-development of armaments to become a reality." **SP**

A file photograph of Prime Minister Dr Manmohan Singh and President Barack Obama in the White House on November 24, 2009



with particular emphasis on maritime security and counterterrorism activities, and expanding defence trade and armaments cooperation."

### Bolstering military-to-military engagements

**Combined Exercises:** "We plan to conduct increasingly complex joint and combined exercises with a focus on counterterrorism, maritime security, and HA/DR across all of the Services.

"On the counterterrorism front, the US continues to focus on Al-Qaeda and other terrorist threats that emanate from South Asia. For some of these groups, particularly Lashkar-e-Toiba (LeT), India remains the primary target. LT's activities continue to threaten US interests and South Asian regional stability. Therefore, we will continue to follow the guidance of our National Strategy for Counterterrorism which calls for joining



LT GENERAL (RETD)  
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# Facilitating Kargil II

**F**acilitating Kargil II just got delayed, though may not be fully called off given the propensity of our polity to create goof ups, especially when every now and then someone rises in the morning dreaming he has turned a security strategist. Civilian strategists often think they understand use of force better than the military.

After failing to kill Osama bin Laden with some 80 cruise missiles fired into Khost during 1999-2000, Clinton thought that Al-Qaeda could be dealt with “a bunch of black ninjas rappelling down into their camp.” When Musharraf stated that many more Kargils would follow, he obviously took into account this trait of the polity. A major reason why the Kargil intrusion was launched was terrorism in the Valley had gone below levels of the liking of Musharraf.

The Kargil intrusions forced shift of one Mountain Division from the Valley to Ladakh post haste, lifting pressure on terrorists and facilitating infiltration. Currently, the Army has brought the situation to a level wherein powers that be should have gone full throttle to improve administration and ensure automatic writ of the State, ameliorating feelings of alienation. The Army Chief rightly pointed out that the civil administration had not capitalised on violence levels brought down by the Army – a factual statement which made a veteran politician of Jammu & Kashmir (J&K) go ballistic whereas he should have done serious introspection.

The present incumbent in J&K now gets the same feeling one fine morning and talks of removal of Armed Forces Special Powers Act (AFSPA) ‘without consulting the Army’, because of whom his administration is secure. Whatever made him take such a decision is beyond comprehension especially when the Prime Minister and the Defence Minister have been stating that terrorist infrastructure in Pakistan Occupied Kashmir (POK) is fully active and a large number of terrorists are waiting

to infiltrate. Even the US now openly acknowledges that Pakistan is the mother spawning terror. To top it, the Chinese are offering Pakistan full support in anti-India jihadi activities, having invested Pakistan’s rear with PLA garrisons in POK and Pakistan in the garb of construction workers.

Ayaz Mir, senior Pakistani journalist, writes that China wants to also establish military bases in North Waziristan and FATA. Chinese State TV has been showing the map of India with J&K not a part of India, continues giving stapled visas to people of J&K and claims whole of Arunachal Pradesh. In such environment, removing AFSPA from parts of the Valley simply implies providing safe havens to terrorists in those areas. Before

making such an announcement, the Army should have been consulted unless the intention actually is to provide respite to terrorists and prolong the existing state of affairs.

Whether in J&K or the North East, the urgency and will to resolve the security situation has been lacking, as witnessed over decades. After all look at the plusses of such insecurity—crores of rupees pour in from the Centre with no accountability, everything is subsidised, no one (less the military) has to pay income tax and attention gets diverted from the timber mafia and drug cartels. Lack of strategic thought and keeping the military deliberately out of strategic decisions, matters military and even national security has been the bane of independent India. That is why we now face a two-and-a-half front or rather a three-front war. Nehru’s pleas to the US during 1962 fetched only some machine guns. The situation is not going to be different in future too. Everyone looks after their own national interests. We obviously do not because we are yet to even define them. **SP**



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

**Lack of strategic thought and keeping the military deliberately out of strategic decisions, matters military and even national security has been the bane of independent India. That is why we now face a two-and-a-half front or rather a three-front war.**

PHOTOGRAPH: Freepress Journal



## C-130 Hercules programme hits another historic milestone

**L**ockheed Martin recently celebrated the rolling out of the 250th C-130J Super Hercules built at its facility here. This C-130J is destined for Dyess Air Force Base, Texas, which is scheduled to receive a total of 28 C-130Js. This aircraft is the 2,404th C-130 of all makes and models to be built in Marietta.

“The C-130 Hercules has been setting aviation records for nearly 60 years,” said Lorraine Martin, Lockheed Martin Vice President for C-130 programmes. “As the longest continuously operating military aircraft production line in history, the C-130 has always been the benchmark for airlift around the world. High demand for the C-130J Super Hercules continues as it is able to demonstrate its proven, multi-mission capabilities on a daily basis.”

The C-130J programme continues to deliver new capability to new countries and existing operators. India and Qatar recently joined the global C-130J operator family, while the US Air Force recently received HC-130J personnel recovery and



MC-130J special operations aircraft. Aircraft are currently in production for the US Air Force and Marine Corps, Iraq, Israel, Republic of Korea, Kuwait, Oman and Tunisia. C-130Js are also flown by Australia, Canada, Denmark, Italy, Norway, the United Kingdom and the US Coast Guard. **SP**



## Russia ships first Mi-17V-5 Helos to India

**R**osoboronexport has supplied the first batch of Mi-17V-5 multirole utility helicopters to India as part of the contract signed in 2008. The aircraft were assembled at the Kazan helicopter factory.

The contract is another proof to the fact that the rotary wing aircraft sector is emerging rapidly as a priority for the Russia's defence exporter. Indeed, helicopter sales are rising annually, with the latest modifications of the Mi-17 family accounting for a significant part of them.

The Mi-17V-5 helicopters are entering the Indian Armed Forces. One of the leaders on the emerging market of the Asia-Pacific region, India has been Russia's strategic partner, including in defence sphere, ever since 1961 – for exactly 50 years – when the first Mi-4 helicopter was shipped to the country. The trend that is traced back then, continues today: both nations attach paramount importance to this cooperation. **SP**

## Kuwait - technical/logistics support for F/A-18 aircraft

**T**he Defense Security Cooperation Agency has notified the US Congress of a possible foreign military sale (FMS) to Kuwait for continuing logistics support, contractor maintenance, and technical services in support of the F/A-18 aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$100 million.

The Government of Kuwait has requested a possible sale of continuing logistics support, contractor maintenance, and technical services in support of the F/A-18 aircraft to include contractor engineering technical services/contractor maintenance services, hush house maintenance support services, etc. **SP**

## India mulls additional AWACS procurement

**T**he Indian Air Force is seeking government approval to order two additional Israeli Phalcon AWACS aircraft at a cost of \$800 million. The order is a follow-on to the \$1.1 billion tripartite agreement among India, Israel and Russia in 2004, under which IAF inducted three Phalcon AWACS in 2009-10. **SP**





## NH90 reaches milestone as TTH90 development ends

**A** cceptance of final operational configuration marks the end of TTH's development, and enables deliveries to begin by year-end in full operational standard. The NH90 programme has reached a major milestone with the declaration of compliance for the NH90 TTH (tactical transport helicopter) variant's final operational configuration. This marks the NH-90 TTH's development completion, and enables deliveries to begin before year-end in the helicopter's full operational definition.

"The milestone marks the most important achievement in the life of the NH90 programme. NH90, the most modern rotary-wing aircraft in



its class and the largest military helicopter programme ever undertaken in Europe, offers now its full range of operational capabilities to the military forces" stated Lutz Bertling, the President and CEO of Eurocopter, which is a member of the NH90 industrial team. "Completing the NH90 TTH's compliance process confirms this multi-role helicopter will meet the specifications and operational requirements of the founding customers."

The new-generation NH90 TTH is designed for use in a wide range of demanding missions, including logistics and utility transport, combat search and rescue, casualty and medical evacuation, electronic warfare, special operations and counter-terrorism. In its approved final operational configuration, the helicopter offers a matured avionics system, allowing day and night missions with no major restrictions; full military communications system functionality for interoperability in foreign operations; a complete set of technical publications; and the approval for over-seas deployments by ship. **SP**



## Alenia wins support deal for Italian ATR-72MPs

**F** inmeccanica, through its company Alenia Aeronautica, has been awarded a EUR 100 million contract by the General Directorate of Air Armaments of the Italian Defence Ministry for the supply of logistical support services for the four ATR 72 MP (Maritime Patrol) aircraft ordered by the Italian Air Force in 2008.

The contract envisages the supply of technical and logistical support services for five years and the implementation of a series of configurations designed to improve the capabilities of the aircraft when deployed on maritime patrol and surveillance activities. The ATR 72 MP, based on the ATR 72-600 regional transport aircraft platform, is a maritime patrol version specifically developed by Alenia Aeronautica.

The Italian Air Force's ATR 72 MP aircraft are equipped with the Airborne tactical observation and surveillance system (ATOS) built by Selex Galileo, a Finmeccanica company, which includes an electronic scanning radar and a sensor for the visual identification of sea-going vessels and people in any weather condition. **SP**

## PAK FA aircraft have performed 100 flights

**T** he Advanced Tactical Frontline Fighter (PAK FA) flight testing programme recently reached an important milestone – completion of 100 flights. At present, two fighters are involved in the flight test trials.

PAK FA performed its maiden flight on January 29, 2010, in Komso-molsk-on-Amur. In the beginning of March 2011, the second fighter took to the skies. Today, both aircraft participate in ground and flight test trials. The aircraft was presented to the public for the first time on August 17, 2011 at MAKS-2011, International Aviation and Space Salon, in Zhukovsky.

The PAK FA programme includes creation of the fighter, setting up its serial production and introduction into service by the Russian Air Force. This will enable to enhance the combat capabilities of the Russian Air Force. This programme is of top priority for Sukhoi and UAC, as it provides for development and introduction of materials, element base and technologies of high innovative potential for the aviation industry and the economy of the country, as well as for development of new generation projects. **SP**



PHOTOGRAPHS: Eurocopter, Alenia-Aeronautica, Sukhoi



## Lockheed Martin F-35 flight test

**L**ockheed Martin's F-35 flight test programme continues to make progress. Since the last flight test update issued on September 20, the F-35 Lightning II 5th Generation multirole fighter conducted 185 test flights, bringing the total number of test flights for the year to 837.

A major highlight for October was the completion of F-35B short takeoff/vertical landing (STOVL) ship suitability testing aboard the USS Wasp (LHD-1) off the coast of Virginia. The test began when BF-2 executed the first shipboard vertical landing on October 3. The next day, BF-2 executed the first short takeoff from the Wasp. During the third week of sea trials, BF-2 and BF-4 operated simultaneously on the ship. Combined, they accomplished 72 short takeoffs and 72 vertical landings during the three-week testing period.

The F-35 Lightning II is a 5th generation fighter, combining advanced stealth with fighter speed and agility, fully fused sensor information, network-enabled operations and advanced sustainment. Lockheed Martin is developing the F-35 with its principal industrial partners, Northrop Grumman and BAE Systems. **SP**

## US Army rolls out first Apache Block III helicopter

**T**he first Apache Block III helicopter was delivered to the US Army recently during a ceremony at the Boeing plant here in which the aircraft was rolled out on stage under bright lights and a wisp of generated smoke.

Hundreds of industry, government and military officials attended the event in which two of the new AH-64 aircraft were actually delivered to the army ahead of schedule. The first Block III helicopter was finished about a week early and the second about a month ahead of schedule, according to David Koopersmith, Boeing Attack Helicopter Program Vice President.

The Block III Apache features a 701D engine, composite rotor blades, a "rotorcraft drive system of the 21st century" known as RDS-21, face gear transmission and high performance shock strut advanced landing gear. **SP**

## Boeing wins \$1.4 billion order for second P-8A production lot

**B**oeing is being awarded a \$1,377,823,556 modification to a previously awarded firm-fixed-price-incentive contract (N00019-09-C-0022) to procure seven P-8A multi-mission maritime low rate initial production II aircraft. The work is expected to be completed in January 2013. Contract funds will not expire at the end of the current fiscal year. The Naval Air Systems Command, Patuxent River, is the contracting agency. **SP**

PHOTOGRAPHS: Lockheed Martin, Elettronica

## Elettronica system protects ATR-72 platform

**T**he Italian Ministry of Defence has selected Elettronica S.p.A.'s ELT/800 system for the protection of its ATR-72 platforms. For an overall value of 12 million Euro, the contract was signed with Alenia Aeronautica and consists of equipping four ATR-72 platforms; delivery of the first system is scheduled between the end of 2012 and starts of 2013.

"The ELT/800 features an innovative design concept for the ELINT systems equipping both fixed and rotary wing platforms. This high performance equipment is based on an advanced architecture that combines a wide open receiver



with the unique capabilities of a superhet digital receiver, implementing specific system design solutions and advanced technologies. The system consents tactical surveillance (ESM function) and fine detail data processing for signal analysis (ELINT function). The ELT/800 represents a compact and light weight solution with a high level of installation flexibility.

"Elettronica is particularly proud to announce this signature of this contract in the year of its 60th anniversary. Once again this success confirms ELT's excellence and support to the Italian defence administration," said Giovanni Zoccali, Vice President, Domestic Sales of Elettronica.

With the celebration of its 60th anniversary, Elettronica continues to maintain its leadership in this high-tech sector. Committed to its core business, the company is increasingly pursuing research and development of new technologies and solutions to apply to its electronic defence systems. **SP**



## The UAV payload and subsystems market 2011-21

**T**he global surge in unmanned aerial vehicle (UAV) use in recent years has led to leaps in development and spending on sensors, radars, cameras, signals intelligence (SIGINT), detection, communications and attack capabilities included in their payloads.

Companies engaged in manufacturing payloads for their own UAVs or for upgrades of deployed aircraft are finding a ready market across a growing number of states. Visiongain calculates that the global UAV payload market—including weaponry, electro-optical/infrared (EO/IR), radars and lasers, intelligence sensors, communication devices, navigation sensors and detection sensors—will reach \$2.9 billion in 2011.

Moreover, the pressure on manufacturers to produce payloads and sensors that are capable of delivering more advanced imagery, stronger processing power, higher-capacity storage solutions, intensified electronic warfare (EW) capabilities and sharper intelligence grows continuously. State buyers increasingly demand sensor systems that can provide more on-board autonomy, less burdensome weaponry and more sensitive intelligence, surveillance and reconnaissance (ISR) without an exponential jump in costs or weight. This remains the case for the medium- and long-term despite the fact that the use of payloads and subsystems to conduct ISR still dominates UAV deployment globally in the short-term.

Although the unmanned-system payload market is naturally constrained by the development and direction of UAV size, weight and power (SWaP), Visiongain sees payload development outpacing vehicle development on a technological level. In terms of sale volumes, the use of multiple sensors and the stocking of substitute sensors for changes on the field divorce the respective unit sale figures of sensors and their carriers.

Indeed, over the longer term, payload manufacturers—particularly at the higher end—must continue to struggle to meet the key unique selling point of UAVs, that is to say their ultimate expendability, while meeting demand for more advanced technology and suppressing costs. Visiongain believes this will remain a determinant of the size of UAV payload market—and the UAV market itself—going forward. **SP**



## Rustom-1 completes fifth successful flight

**I**ndigenously designed and developed Rustom-1 made its fifth successful flight recently while flying at an altitude of 2,300 ft above ground level (AGL) and at a speed 100 knots during a 25 minute of cruise near Hosur.

It may be noted that this medium altitude long endurance unmanned aerial vehicle (MALE - UAV) is developed by DRDO with Aeronautical Development Establishment (ADE) Bangalore as the nodal laboratory. It had its maiden flight in 2010.

P.S. Krishnan, Director, ADE said that the flight was successful as all the modifications done worked well and all the parameters were achieved by the UAV weighing 661 kg and the total performance was good. In specific the objective of testing modified lift off scheme, modified altitude and speed hold logics worked excellently well.

This UAV can attain a maximum speed of 150 knots, 22,000 ft of altitude and endurance of 12-15 hours with an operating range of 250 kms when fully developed. **SP**

## DCNS and Thales demonstrate automatic deck-landing of UAVs

**D**CNS and Thales announced the launch of a supplementary phase for the technology demonstration of a system for automatic landing and deck-landing of UAVs (D2AD), which has just been notified by the French Defence Procurement Authority (DGA).

Sea trials of the demonstrator are planned for 2012 using a French Navy frigate and a Boeing, H-6U unmanned little bird rotorcraft.

This notification follows on from the successful landing and deck-landing trials conducted in the United States last June and July using a moving platform. This new design study is to be conducted in the context of risk reduction for future tactical UAV programmes to be managed by the DGA on behalf of the French Navy and the French Army.

The next trials are aimed at demonstrating automatic deck-landing of a UAV on the deck of a frigate in total safety even in high sea state and low visibility.

The system must demonstrate its capability for integration of all the operational constraints inherent in deck take-offs and landings, similar to those of piloted helicopters, but in fully automatic mode.

This automatic system for take-off, landing and deck-landing of UAVs is the fruit of the joint expertise of Thales and DCNS. Thales is responsible for the positioning system and its interface with the UAV system, the supply of a UAV demonstrator system and slaving of the flight path along a trajectory. DCNS is responsible for predicting the vessel motions, the harpoon system as well as the interface and integration with the vessel. **SP**



## Navy to arm Northrop Grumman-built Fire Scout unmanned helicopter

**N**orthrop Grumman Corporation has started work outfitting the US Navy's MQ-8B Fire Scout unmanned helicopter with a weapons system. The advanced precision kill weapons system laser-guided 70mm rocket—in production for the Navy since 2010—will allow ship commanders to identify and engage hostile targets without calling in other aircraft for support.

“By arming Fire Scout, the Navy will have a system that can locate and prosecute targets of interest,” said George Vardoulakis, Northrop Grumman's Vice President for tactical unmanned systems. “This capability shortens the kill chain and lessens the need to put our soldiers in harm's way.”

Northrop will develop and deliver the equipment needed to control the weapons system under a \$17 million contract awarded to the company September 23 by Naval Air Systems Command. Final delivery of an operational system is expected by March 2013.

Once delivered, Fire Scout will be Navy's first sea-based unmanned system to carry weapons. Its ability to operate at low ground speeds makes it particularly well suited for supporting littoral missions such as drug interdiction, antipiracy actions, search and rescue, reconnaissance and port security.

Fire Scout features a modular architecture that accommodates a variety of electro-optical, infrared and communications payloads. These payloads provide ground- and ship-based commanders with high levels of situational awareness and precision targeting support. **SP**

## Turkish UAV Anka successfully completes test flights

**T**urkish Aerospace Industries (TAI) has announced that Turkish MALE UAV 'Anka,' produced at TAI's facilities in Ankara has completed its fifth test flight recently, marking the beginning of the envelope expansion process during which the aircraft is demonstrated to perform safely and match the system's performance requirements over a broad range of altitudes, airspeeds and operating weights.



After reaching planned altitude of 10,000 ft, a series of test points were executed to check and gather data regarding the aircraft and autopilot performances.

Over the next few flights, the expansion will be completed and the test campaign will continue with demonstrations of a series of systems improvements, including the automatic takeoff and landing system. **SP**

## Boeing looking at revolutionary drone

**B**oeing is reportedly working on a revolutionary drone that can stay in the air for up to four days at 65,000 feet.

According to media reports, the 'Phantom Eye,' made by Boeing's Phantom Works division, is a high-altitude long endurance unmanned airborne system, which is powered by hydrogen. The inaugural flight of the new drone is expected to happen soon at Edwards Air Force Base in California.

“Phantom Eye is the first of its kind and could open up a whole new market in collecting data and communications,” Darryl Davis, President of Boeing Phantom Works, said.

The Phantom Eye had completed 12 days of ground vibration and structural mode interaction tests in June this year at NASA's Dryden



Flight Research Center at Edwards Air Force Base, California.

Drew Mallow, Phantom Eye programme manager for Boeing, said, “The hydrogen propulsion system will be the key to Phantom Eye's success. It is very efficient and offers great fuel economy, and its only byproduct is water, so it's also a 'green' aircraft.”

Phantom Eye is powered by two 2.3-litre, four-cylinder engines that provide 150 horsepower each. It has a 150-foot wingspan, will cruise at approximately 150 knots and can carry up to a 450-pound payload.

According to reports, Boeing is also developing a larger unmanned plane that will stay aloft for over 10 days and 'Phantom Ray,' a fighter-sized unmanned aerial vehicle that will be a test bed for more advanced technologies, which made its inaugural flight in April 2011. **SP**



Nassir Abdulaziz Al-Nasser with K. Rahman Khan, Deputy Chairman of the Rajya Sabha



## India urges UN to adopt anti-terror convention

India recently said adoption of the comprehensive convention against international terrorism (CCIT) would provide a legal base for the fight against the global scourge, noting that United Nations' global counter-terrorism strategy would be incomplete without such a convention.

In an address to the 66th session of the UN General Assembly, Rajya Sabha Deputy Chairman K. Rahman Khan termed terrorism as a "scourge of humanity" and a global problem that has spared no country or region in the world be it "New York, London, Abuja or Mumbai."

"India believes that adoption of the Comprehensive Convention on International Terrorism (CCIT) would provide a solid legal basis for the fight against terrorism. In our view the UN global counter-terrorism strategy is incomplete in the absence of such a comprehensive convention," Khan said. **SP**

## IFSEC India to focus on homeland security

IFSEC India 2011 returns to Pragati Maidan, New Delhi from December 8-10, 2011. IFSEC India 2011 is the one of a kind B2B exhibition which has gained a stronger foothold as the most prominent and important exhibition on the commercial and homeland security sector in the country.

The recent spate of incidents involving repetitive terrorist attacks across various cities has pushed India into the limelight on account of its need for enhanced security systems. The security lapses have been noted not just in defence-related aspects but in home and civilian regions as well.

With the constantly growing threat of terrorism gaining new levels, it has become very important to put into place mechanisms involving technology, human & intelligence based applications that will provide a all round sense of protection and security.

IFSEC India 2011 is aimed at bringing together under one the security experts from various industries including financial services, infrastructure, public safety, law enforcement retail, realty and hospitality—all searching for the latest products and servic-

es in the security market. This year IFSEC India, in partnership with ASSOCHAM will feature the Homeland Security India Conference titled "War Against Terror—A Challenge to Our Homeland Security". The conference will focus on the advice, solutions and systems required for vigilance and security. **SP**

## Shoe scanning device

IDO Security recently exhibited MagShoe shoes-on scanning device at Israel's Defence and Security Expo, ISDEF 2011. The MagShoe has already been successfully installed, among other places, at the Israeli Parliament House - (Knesset), Ben Gurion - Israeli International Airport and at the Israeli Prime Minister's Office.



IDO Security also announced that it has completed its first order of its new MagShoe 3G series by the Thailand Royal Navy to supply and install shoe-metal detectors systems in its airports throughout Thailand. Utapao International Airport in east of Thailand is the first military airport in Thailand that has installed the new MagShoe 3G shoe scanning device. **SP**

## ManTech bags contract from DHS

ManTech International has received a US Department of Homeland Security contract for continued information technology services in support of the Support Anti-Terrorism by Fostering Effective Technology (SAFETY) Act of 2002. It is a programme that provides legal liability protections for providers of anti-terrorism products and services. ManTech said the contract is worth \$5.9 million and has a base period of performance of one year and three option years.

"We are proud to continue supporting (Homeland Security's) mission to administer the SAFETY Act," said L. William Varner, President and Chief Operating Officer of ManTech's Mission, Cyber and Technology Solutions Group. **SP**

## UH-72A with new mission equipment enters service

EADS North America's first UH-72A Lakota light utility helicopter (LUH) equipped with the security and support (S&S) battalion mission equipment package (MEP) has entered operational service with the Mississippi National Guard's Company C, first of the 114th security and support battalion.

This first S&S battalion UH-72A Lakota was built and retrofitted in Columbus, Mississippi, by the company's American Eurocopter business unit. The UH-72A Lakota is one of the US Army's most successful acquisition programmes and is repeatedly recognised by DoD officials for its on-time and on-budget deliveries.

The S&S battalion MEP is the latest operational evolution of the UH-72A Lakota and provides National Guard units with the ability to seamlessly interface with and support federal, state and local law enforcement and first responders during disasters or emergencies.



## Need to develop robust aviation security

The second meeting of the Security Advisory Council to Civil Aviation (SACCA) was held in Delhi recently under the chairmanship of the Secretary, Dr Nasim Zaidi. The meeting was attended by Vayalar Ravi, Union Minister of Civil Aviation and Overseas Indian Affairs.

Addressing the meeting, the Minister said that the challenge in aviation security is to develop a robust security system for tackling the security challenges posed by criminals with the help of advanced technologies and methods. He said that the Ministry of Civil Aviation is constantly examining the need for infusion of new modalities and technologies for fast and secure clearance of passengers and their baggage.

He further said that the meeting was significant as the inputs and interaction of stakeholders, users regulatory authority and Government bodies would create an environment of aviation security, while ensuring the passenger facilitation.

Highlighting the initiatives taken by the Ministry on aviation security, Dr Zaidi said that the new Aircraft (Security) Rules, 2011 was framed for the first time, which is under process of notification. He said that the anti-hijack Act of 1982 is being amended to include severe punishment to those indulging in such acts. He suggested that the passengers' convenience and passenger friendly aspects should also be part of the security mechanism.

The Commissioner of Bureau of Civil Aviation Security (BCAS) highlighted initiatives taken with regard to airport security and that includes around 16,000 persons getting training in civil aviation security this year to compared to 9,000 last year.

SAIC to upgrade scanning systems for TSA Science Applications International Corporation (SAIC) announced it has received a \$25 million order from the US Transportation Security Administration (TSA) to upgrade 210 Reveal Imaging CT-80 systems to its next-generation CT-80DR.



The CT-80DR is based on Reveal's proven CT technology and performance and will provide the TSA with enhanced capabilities in checked baggage screening. Reveal, a wholly-owned subsidiary of SAIC, developed and has deployed hundreds of reduced-sized explosive detection systems in the United States and internationally. The Reveal CT-80DR system features proprietary dual-energy computed tomography (CT) X-ray technology that provides enhanced detection and false alarm rate performance at an economical price.

"We are pleased to continue to support TSA in enhancing aviation security through advanced technology deployment," said Alex Preston, SAIC Senior Vice President and business unit General Manager. "As threats to aviation grow and evolve, we remain a committed partner with TSA in the inspection and detection of these threats and the protection of the aviation community." SP



PHOTOGRAPHS: Wikipedia, EADS North America

The mission equipment package includes an electro-optical infrared sensor with an eight-kilometre range that provides still imagery and real-time streaming video to ground stations or command centres, while an onboard computer can archive the footage for later use by law enforcement. Mission performance is augmented with enhanced radios, touch-screen monitors, GPS with street address capability and a 30 million candle power search light.

Lakotas equipped with the S&S Battalion MEP will be operated by Army National Guard units across the country and will soon enter operational service with units in Louisiana, Florida and North Carolina. Currently 69 of the 100 anticipated S&S Battalion MEP installations are on contract. Fifty-two of the 68 S&S Lakotas on contract will be built with the MEP integrated during production, and 16 Lakotas already in service with the Army National Guard will be retrofitted at the company's American Eurocopter facility in Columbus, Mississippi. In addition, the S&S MEP prototype was delivered and fielded to the National Guard unit in Tupelo, Mississippi. SP



## DARPA increases investment in cyber research by 50 per cent

**D**ARPA Director, Regina E. Dugan, has reinforced that the advent of the Internet more than 40 years ago created both tremendous opportunities and risks.

At DARPA's colloquium on "Future Directions in Cyber Security" she said that "DARPA's role in the creation of the Internet means we were party to the intense opportunities it created and share in the intense responsibility of protecting it. Our responsibility is to acknowledge and prepare to protect the Nation in this new environment," said Dugan. "We need more and better options. We will not prevail by throwing bodies or buildings at the challenges of cyberspace. Our assessment argues that we are capability limited, both offensively and defensively. We need to fix that."

Since 2009, DARPA has steadily increased its cyber research efforts. The Agency's budget submission for fiscal year 2012 increased cyber research funding by \$88 million from \$120 million to \$208 million. Over the next five years, the agency plans to grow its top line budget investment in cyber research from eight per cent to 12 per cent.

"We are shifting our investments to activities that promise more convergence with the threat and that recognise the needs of the Department of Defense," explained Dugan. "Malicious cyber attacks are not merely an existential threat to our bits and bytes; they are a real threat to our physical systems, including our military systems. To this end, in the coming years we will focus an increasing portion of our cyber research on the investigation of offensive capabilities to address military-specific needs."

The DARPA Cyber Analytic Framework, completed over a period of months through original research and detailed investigation, concluded that "the US approach to cyber security is dominated by a strategy that layers security on to a uni-



form architecture. We do this to create tactical breathing space, but this approach is not convergent with an evolving threat," said Dugan.

Over the past 20 years, using lines of code as a proxy and relative measure, the effort and cost of information security software has grown exponentially—from software packages with thousands of lines of code to packages with nearly 10 million lines of code. By contrast, over that same period, and across roughly 9,000 examples of viruses, worms, exploits and bots, the analysis revealed a nearly constant average of 125 lines of code for malware.

"This is not to suggest that we stop doing what we are doing in cyber security. On the contrary, our existing efforts are necessary," said Dugan. "These efforts represent the wisdom of the moment. But if we continue only down the current path, we will not converge with the threat."

Informed by these insights and with a willingness to accept the Agency's responsibility to contribute, DARPA has recruited a cyber team composed of experts from diverse fields including the "white hat" hacker community, academia, labs and non-profits, and major commercial companies, in addition to the defence and intelligence communities.

"I should emphasise," said Dugan, "that national policy-makers, not DARPA, will determine how cyber capabilities will be employed to protect and defend the national security interests of the United States. But the agency has a special responsibility to explore the outer bounds of such capabilities so that our nation is well prepared for future challenges."

The agency's activities are part of a larger collection of efforts within national security at the National Security Agency, the newly formed US Cyber Command, within the military Services, the private sector, universities, non-profits, and as appropriate, Department of Homeland Security. **SP**

## EU & US conduct readiness tests for cyber attacks

**T**he first test of trans-Atlantic responses to cyber incidents, including cyber attacks, took place in Brussels recently. Experts from the US Government joined counterparts from EU member states to simulate how cyber security authorities on both sides of the Atlantic would cooperate in response to attacks.

Two hypothetical scenarios were tested: a cyber-attack which attempts to extract and publish online sensitive information from the EU's national cyber security agencies, and an attack on supervisory control and data acquisition (SCADA) systems in EU power generation equipment.

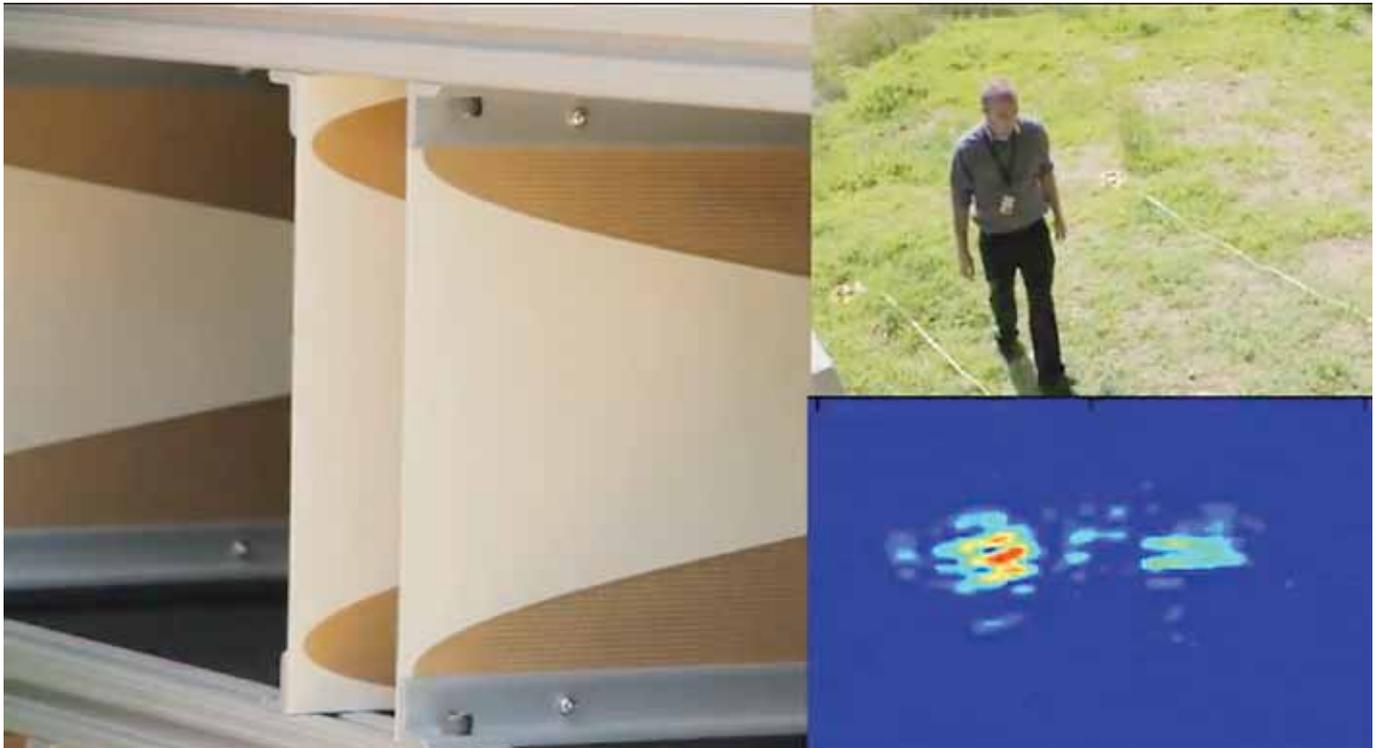
Neelie Kroes, European Commission Vice President for the Digital Agenda, said: "Recent high profile cyber-attacks show that global threats need global action. The exercise provides

valuable lessons for specialists on both sides of the Atlantic."

Sony Playstation, the EU Emissions Trading Scheme, European Commission and European External Action Service have all been subject to cyber attacks in recent months.

In practical terms, the EU contribution to Cyber Atlantic 2011 has been enabled by the European Commission, with key support from ENISA, the European Network and Information Security Agency, which has facilitated the exercise with the vital technical contributions provided by EU member states. The Department of Homeland Security has been in the lead for the US. The EU CERT (IP/11/694) also participated as an observer.

Cyber Atlantic 2011 grew out of the EU-US working group on Cyber Security and Cyber Crime, which was established in November 2010 to tackle new threats to the global networks upon which the security and prosperity of our free societies depend. Initial findings of the exercise will be taken into account in the working group's report which will be presented to the EU-US summit later this year. **SP**



# MIT's radar 'sees through walls'

[ By Emily Finn ]

**T**he ability to see through walls is no longer the stuff of science fiction, thanks to new radar technology developed at MIT's Lincoln Laboratory. Much as humans and other animals see via waves of visible light that bounce off objects and then strike our eyes' retinas, radar "sees" by sending out radio waves that bounce off targets and return to the radar's receivers. But just as light can't pass through solid objects in quantities large enough for the eye to detect, it's hard to build radar that can penetrate walls well enough to show what's happening behind. Now, Lincoln Lab researchers have built a system that can see through walls from some distance away, giving an instantaneous picture of the activity on the other side.

The researchers' device is an unassuming array of antenna arranged into two rows—eight receiving elements on top, 13 transmitting ones below—and some computing equipment, all mounted onto a movable cart. But it has powerful implications for military operations, especially "urban combat situations,"

says Gregory Charvat, technical staff at Lincoln Lab and the leader of the project.

## Waves through walls

Walls, by definition, are solid, and that's certainly true of the four- and eight-inch-thick concrete walls on which the researchers tested their system.

At first, their radar functions as any other: Transmitters emit waves of a certain frequency in the direction of the target. But in this case, each time the waves hit the wall, the concrete blocks more than 99 per cent of them from passing through. And that's only half the battle: Once the waves bounce off any targets, they must pass back through the wall to reach the radar's receivers — and again, 99 per cent don't make it. By the time it hits the receivers, the signal is reduced to about 0.0025 per cent of its original strength.

But according to Charvat, signal loss from the wall is not even the main challenge. "[Signal] amplifiers are cheap," he says. What has been difficult for through-wall radar systems is achieving the speed, resolution and range necessary to be useful in real time. "If you're in a high-risk combat situation, you don't want



## RFI/RFP/TENDERS

### Indian Army

Tender: **Passive Night Vision Binoculars**

Army Commander Special Financial

Power Cell Northern Command

Publication date: October 13

Last date: November 23

Tender: **Unit Load 155 Charge M4A2**

Army Ordnance Corps

Publication date: October 18

Last date: January 13

### Indian Air Force

Tender: **Skydiving parachutes and accessories**

Air Hqrs

Publication date: September 6

Last date: December 4

Tender: **Spares for MI Helicopters**

Air Hqrs

Publication date: September 16

Last date: November 24

### Indian Navy

Tender: **3D CD Band Air Surveillance Radar**

Directorate of Staff Requirements

Publication date: November 3

Last date: December 1

### Ministry of Home Affairs

Tender: **Night Vision Device**

CISF

Publication date: November 9

Last date: December 5

Tender: **X-ray baggage scanning simulator**

CISF

Publication date: October 28

Last date: December 7

Tender: **X-ray baggage system (small)**

CISF

Publication date: October 28

Last date: December 8

one image every 20 minutes, and you don't want to have to stand right next to a potentially dangerous building," Charvat says.

The Lincoln Lab team's system may be used at a range of up to 20 metres away from the wall. (Demos were done at seven metres, which Charvat says is realistic for an urban combat situation.) And, it gives a real-time picture of movement behind the wall in the form of a video at the rate of 10.8 frames per second.

### Filtering for frequencies

One consideration for through-wall radar, Charvat says, is what radio wavelength to use. Longer wavelengths are better able to pass through the wall and back, which makes for a stronger signal; however, they also require a correspondingly larger radar apparatus to resolve individual human targets. The researchers settled on S-band waves, which have about the same wavelength as wireless Internet—that is, fairly short. That means more signal loss—hence the need for amplifiers—but the actual radar device can be kept to about eight and a half feet long. "This, we believe, was a sweet spot because we think it would be mounted on a vehicle of some kind," Charvat says.

Even when the signal-strength problem is addressed with amplifiers, the wall—whether it's concrete, adobe or any other solid substance—will always show up as the brightest spot by far. To get around this problem, the researchers use an analog crystal filter, which exploits frequency differences between the modulated waves bouncing off the wall and those coming from the target. "So if the wall is 20 feet away, let's say, it shows up as a 20-kilohertz sine wave. If you, behind the wall, are 30 feet away, maybe you'll show up as a 30-kilohertz sine wave," Charvat says. The filter can be set to allow only waves in the range of 30 kilohertz to pass through to the receivers, effectively deleting the wall from the image so that it doesn't overpower the receiver.

"It's a very capable system mainly because of its real-time imaging capability," says Robert Burkholder, a research professor in Ohio State University's Department of Electrical and Computer Engineering who was not involved with this work. "It also gives very good resolution, due to digital processing and advanced algorithms for image processing. It's a little bit large and bulky for someone to take out in the field," he says, but agrees that mounting it on a truck would be appropriate and useful.



### Monitoring movement

In a recent demonstration, Charvat and his colleagues, Lincoln Lab assistant staff John Peabody and former Lincoln Lab technical staff Tyler Ralston, showed how the radar was able to image two humans moving behind solid concrete and cinder-block walls, as well as a human swinging a metal pole in free space. The project won best paper at a recent conference, the 2010 Tri-Services Radar Symposium.

Because the processor uses a subtraction method—comparing each new picture to the last, and seeing what's changed—the radar can only detect moving targets, not inanimate objects such as furniture. Still, even a human trying to stand still moves slightly, and the system can detect these small movements to display that human's location.

The system digitises the signals it receives into video. Currently, humans show up as "blobs" that move about the screen in a bird's-eye view perspective, as if the viewer were standing on the wall and looking down at the scene behind. The researchers are currently working on algorithms that will automatically convert a blob into a clean symbol to make the system more end-user friendly. "To understand the blobs requires a lot of extra training," Charvat says.

With further refinement, the radar could be used domestically by emergency-response teams and others, but the researchers say they developed the technology primarily with military applications in mind. Charvat says, "This is meant for the urban war fighter...those situations where it's very stressful and it'd be great to know what's behind that wall." SP

(Source: MIT News Office)



## ITT completes separation plan

**I**TT Corporation has completed the previously announced spinoffs of its defence and information solutions business and its Water Technology and Services business. With the spinoffs complete, ITT is now a \$2 billion company with four businesses that deliver highly engineered and customised products and services to the industrial, aerospace, transportation, and oil and gas industries.

"ITT's businesses are focused on providing reliable and durable technologies for customers across balanced end markets and geographies, and our global portfolio is highly aligned with the global macro trends that will drive premier growth," said Denise Ramos, Chief Executive Officer and President. As a standalone company, ITT is now better positioned to focus on the key drivers that are specific to its businesses and that will accelerate growth, including a strong global footprint and profitable aftermarket business; commitment to innovation, customer service and operational excellence; and focus on capital deployment that fuels growth both organically and through targeted acquisitions.

In addition, a 1:2 reverse stock split for ITT will become effective in which every two common shares of ITT will be converted into one common share of ITT. As a result, ITT will have approximately 92.5 million common shares outstanding after the reverse stock split. SP

## SECURITY EVENTS

### Airborne Early Warning and Control

28-29 November

The Prince Hotel

Kuala Lumpur

<http://www.tangentlink.com/airborne-early-warning-malaysia-28th-29th-november-2011/>

### Security Middle East Show

28-30 November

BIEL, Beirut

Lebanon

[www.smesbeirut.com](http://www.smesbeirut.com)

### Defense Logistics 2011

29 November-2 December

Marriott Crystal,

Arlington, USA

<http://www.wbresearch.com/defenselogisticsusa/home.aspx>

### Global MilSatCom 2011

November 29 - 1 December

London, United Kingdom

<http://www.smi-online.co.uk/2011globalsatsatcom3.asp>

### Military Airlift: Rapid Reaction and Tanker Operations

5-6 December

Amsterdam, Netherlands

<http://www.smi-online.co.uk/military-airlift8.asp>

### Vehicle Protection and Survivability

6-8 December

Washington, D.C., United States

<http://www.marcusevansdefense.com/CACHC313>

### Langkawi International Maritime & Aerospace Exhibition

6-10 December

Langkawi, Malaysia

<http://www.lima.com.my/>

### Homeland Security India

8-10 December

Pragati Maidan

New Delhi

<http://www.homelandsecurityindia.in/index1.asp>

## Rockwell Collins Q4 earnings up

**R**ockwell Collins has reported fourth quarter fiscal year 2011 net income of \$175 million, an increase of \$25 million, or 17 per cent, from \$150 million in the same period last year. Earnings per share for the quarter were \$1.13, an increase of \$0.19, or 20 per cent, from earnings per share of \$0.94 in the fourth quarter of 2010.

It reported a sales increase of \$25 million, or 2 per cent, to \$1.296 billion for the fourth quarter of 2011 compared to sales of \$1.271 billion for the same period in 2010. SP

## General Dynamics to acquire Force Protection

**G**eneral Dynamics and Force Protection have announced that they have entered into a definitive merger agreement under which General Dynamics will acquire Force Protection for a price of \$5.52 per share of common stock, or approximately \$360 million. Force Protection will become a part of General Dynamics Land Systems, the Sterling Heights, Michigan-based designer and manufacturer of Abrams main battle tanks and Stryker infantry combat vehicles.

"Force Protection complements and strategically expands General Dynamics' armoured vehicle business, adding new products to the expansive portfolio of combat vehicles that we currently manufacture and support," said Mark C. Roualet, President of General Dynamics Land Systems. SP

## Finmeccanica's 147 million euros contracts

**F**inmeccanica wins new contracts, worth a total of 147 million euros, through its companies Ansaldo STS, Ansaldo Energia, SELEX Integrated Systems and Alenia Aeronautica.

Selex Integrated Systems has received orders worth about 25 million euros. It has signed several contracts with the Navy and the Air Force in Thailand for the provision of surveillance radar systems Kronos version transportable earth, besides the contract signed with the Unidad Especial de Aeronautica Civil Administrativa de Colombia, for the modernisation of the radar system of Cerro Santana. The last contract for the supply of Bristol Airport, United Kingdom, has a primary radar ATCR 33 for the air traffic control.

Alenia Aeronautica has signed a contract worth around 10 million euros with the armed forces of the Republic of Lithuania for logistic support of the C-27J supplied to the Lithuanian Air Force. SP



## Keeping Mona Lisa 'secure and smiling'

**T**he Mona Lisa painting which hangs in the Musée du Louvre in Paris has had many security scares. It was first stolen on August 21, 1911.

French poet Guillaume Apollinaire who had once called for the Louvre to be "burnt down," came under suspicion; he was arrested and put in jail. Apollinaire tried to implicate his friend Pablo Picasso, who was also brought in for questioning, but both were later exonerated.

At the time, the painting was believed to be lost forever, and it was two years before the real thief was discovered. Louvre employee Vincenzo Peruggia had stolen it by entering the building during regular hours, hiding in a broom closet and walking out with it hidden under his coat after the museum had closed. Peruggia was an Italian patriot who believed Leonardo's painting should be returned to Italy for display in an Italian museum. Peruggia may have also been motivated by a friend who sold copies of the painting, which skyrocketed in value after the theft of the original. After having kept the painting in his apartment for two years, Peruggia grew impatient and was finally caught when he attempted to sell it to the directors of the Uffizi Gallery in Florence. It was exhibited all over Italy and returned to the Louvre in 1913.

The use of bulletproof glass has shielded the Mona Lisa from more recent attacks. In April 1974, a handicapped woman, upset by the museum's policy for the disabled, sprayed red paint at the painting while it was on display at the Tokyo National Museum.



On August 2, 2009, a Russian woman, distraught over being denied French citizenship, threw a terracotta mug at the painting and it shattered against the glass enclosure. In both cases, the painting was undamaged. **SP**

## Escape from Alcatraz

**I**f there was ever an inmate who was destined to escape from Alcatraz, it was Frank Lee Morris. In the movie entitled *Escape from Alcatraz* starring actor Clint Eastwood, Morris was accurately portrayed as the keen and brilliant mastermind of one of the most famous prison escapes in history.

Morris was sent to Alcatraz prison where he meets his old friends, brothers John and Clarence Anglin, and makes acquaintance of the prisoner in the cell next to his, Charlie Butts. After a series of negative experiences involving the warden of Alcatraz, Morris decides to escape and persuades the other three men to join him. The inmates dig through the walls of their cells with spoons, making papier-mâché dummies to act as decoys, and construct a raft out of raincoats. On the night of their escape, Butts gets frightened and does not go with the others. Morris and the Anglin brothers make it out of the prison and paddle their raft towards Angel Island, never to be seen again. **SP**



PHOTOGRAPHS: Wikipedia

## Singapore's biggest manhunt

**A**ccording to Wikipedia, Mas Selamat bin Kastari, an Indonesian-born Singaporean, was for more than a year Singapore's most-wanted fugitive after escaping from detention on February 27, 2008.

The search for him was described then as the largest manhunt ever launched in Singapore. He was eventually recaptured in Skudai, Malaysia, on April 1, 2009.

Earlier in January 2006, Mas Selamat was arrested by Indonesian anti-terror squads in Java and deported to Singapore as he was suspected of plotting to bomb Singapore Changi Airport in 2002. According to Singapore police, he was initially planning to do so by crashing a plane into the airport. **SP**

# TREASURE HOUSE

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