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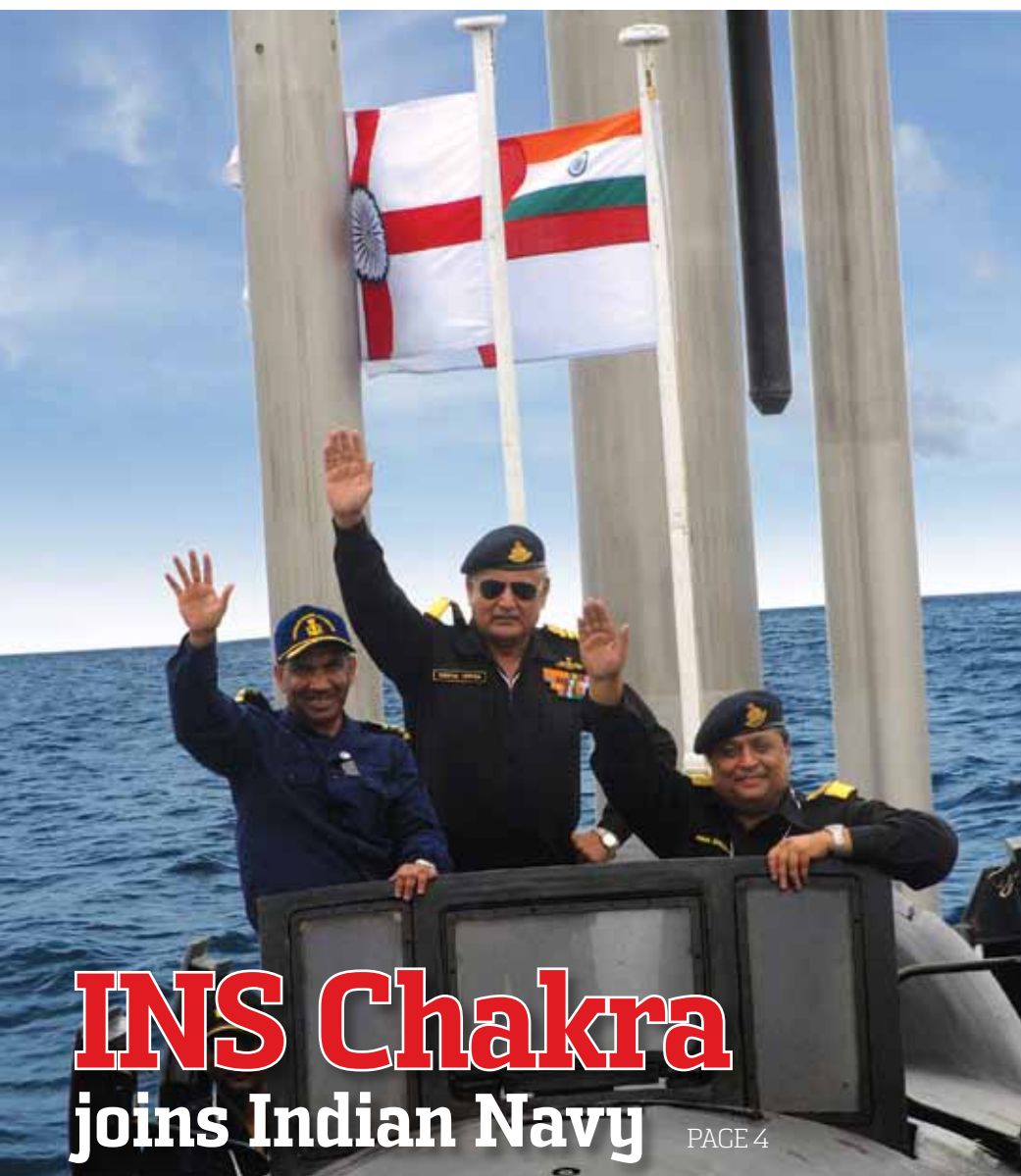
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INS Chakra joins Indian Navy

PAGE 4



Defexpo India 2012: Highlights

PAGE 7



Airbus Military A400M to visit Asia

PAGE 21

FROM THE
EDITOR'S DESK

3

SP'S EXCLUSIVES

4

SECURITY BREACHES

30

MILITARY

Updates

15

Viewpoint

20

AEROSPACE

Developments

21

Unmanned

25

INTERNAL SECURITY

News

26

Cyber News

27

CORPORATE

News & Events

28

Technology

29

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Fast-track indigenisation

Amidst the many controversies surrounding defence deals, Defexpo 2012 stayed on course attracting hordes of business visitors, reflecting industry sentiments that the show must go on. It did. Defexpo 2012 from March 29 to April 1 saw unprecedented participation from global defence players and Indian industries keen on firming up partnerships.

While Defexpo boldly showcased India's capabilities in land, naval and security systems, it was candid enough to declare that partnerships was the way ahead. Inaugurating the biennial event, the Minister of Defence A.K. Antony said, "It is our endeavour to showcase India's capabilities in land, naval and security systems, as well as its emergence as an attractive destination for investment in defence sector. We are open to enter into mutually beneficial agreements with friendly countries in the field of critical and state-of-the-art futuristic defence technologies. We would welcome all such proposals in our endeavour to modernise our armed forces."

One of the key takeaways from Defexpo is (which Antony also referred to) increased private sector participation and revitalisation of the public sector in the pursuit of enhanced indigenisation of defence production. India continues to heavily rely on defence imports and the reasons for that are

many—one Indian industry is not up to it, private sector is just getting into defence production, etc. India, according to the Stockholm International Peace Research Institute (SIPRI), is the largest arms importer, driven by the necessity to modernise its armed forces.

The government has initiated measures, including 'Buy & Make (Indian)' category in Defence Procurement Procedures which is aimed at encouraging proactive participation of the Indian industry with foreign partners. And there is promise that the Defence Offset Policy would be in sync with industry needs.

In this issue, we have also indicated on the technology trends that are happening.

In his frank and forthright column, Lt General (Retd) P.C. Katoch has been vocal on the issue surrounding the Army Chief, General V.K. Singh. The factual position today is that no retirement orders have been issued for General Singh and his statutory complaint remains

unanswered by the government. India is about to attain the distinction of sending an Army Chief home without any retirement orders and without responding to his statutory complaint. The biggest loser is the military with an ambivalent government and a gloating Clique.

The President, he states, can ask for the Supreme Court verdict on the General's petition, his statutory complaint, documents connected with the age row and ask the apex court to examine the same to fix 'this conspiracy against General V.K. Singh.'

Jayant Baranwal
Publisher and Editor-in-Chief



ALL SMILES: SP Guide Publications CMD and Editor-in-Chief Jayant Baranwal welcoming Defence Minister A.K. Antony to SP's booth at Defexpo 2012

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INS Chakra joins Indian Navy, Govt considers lease of second submarine

The 8,140-tonne Russian Akula-II class nuclear powered attack submarine (SSN) INS Chakra has joined the Indian Navy, pushing the service back into an exclusive club it got a brief membership to almost a quarter century ago: countries that operate nuclear powered submarines. The Chakra will operate under the Eastern Naval Command and unlike its predecessor namesake, a Charlie-I SSGN that was leased mostly as a training lab and testbed, the new submarine will very much be part of the Navy's warfighting arsenal. Reputed to be among the stealthiest, quietest submarines ever built, the Chakra comes armed with anti-ship/submarine torpedoes, anti-ship and land attack missiles and surface to air missiles. The 110-metre-long vessel, powered by a pressurised water reactor that churns out 190 MW, can stay submerged for over 100 days, theoretically limited only by the endurance of its 100-strong crew and the inventory levels of its rations and consumables.

Among assertions from the strategic community that while the induction of the SSN was good news, India actually needed at least five more such boats to truly be able to project power. Defence Minister A.K. Antony confirmed that the country was considering a proposal to lease a second Akula-II class SSN from Russia, but did not indicate the status of the proposal. Asked about the default comparisons with China's healthier nuclear submarine fleet, the Defence Minister said, "The INS Chakra is not aimed at any country. It is for our national security."

India's indigenous SSBN programme is to make progress this year, with the first vessel Arihant to enter a crucial phase of sea trials and a planned induction into service two years from now. Antony called upon the Arihant programme to ensure that he was invited back to Visakhapatnam soon to witness the ballistic missile submarine enter service. **SP**

—By SP's Special Correspondent from Visakhapatnam



Defence Minister A.K. Antony, flanked by Chief of Naval Staff Admiral Nirmal Verma and MoS Defence M.M. Pallam Raju on the upper deck of INS Chakra during its induction ceremony



The aft portion of INS Chakra at its induction ceremony, showing the towed array sonar pod. Landing ship INS Jalashwa can be seen in the background

Lockheed Martin funded student UAV project on course

The Next Generation Urban Unmanned Air System Development Project (NGUUAS) at Delhi Technological University (DTU), co-sponsored by Lockheed Martin, is making healthy progress. The unmanned air vehicle (UAV), named Arush X1, has been prototyped and all sub-systems have been integrated. It has been test flown over eight times with total flight time exceeding two hours. "This research project aimed at developing a UAV could provide reconnaissance and surveillance over an urban scenario persistently. Besides the UAV has been designed and built to meet design specifications that were put down by the Lockheed's engineers in 2009," says Gaurav Gupta, project leader of the NGUUAS programme at DTU.

"Lockheed has provided the student team with their financial support and engineering mentorship," says Gupta. The team is currently conducting regular test

flights and expanding the capabilities of the system. The Army has intermittently expressed interest in unmanned surveillance capabilities for urban areas. With an endurance of over eight hours and a mechanical range of 400 km, the Arush X1 has a cruise speed of 37 knots powered by a two-cycle gasoline engine.

The UAV sports a fully autonomous navigation system, triple redundant on board power system and high resolution video surveillance sensor. Plug and play payload possibilities include gimbaled electro-optical sensors or day/night infrared sensors, encrypted COFDM telemetry of video downlink. The UAV, built with Indian conditions in mind, is capable of short take-offs from dirt tracks, is operational in cross winds up to eight knots and temperatures as high as 50° Celsius, and has a crucial mid-air engine restart capability for silent gliding operations. Future research on the project includes catapult and car launch, arrested and net recovery (for ships), fully electric propulsion, target locking and tracking and endurance of over 16 hours. **SP**



Maiden flight of the second indigenous AEW&C

India's indigenous AEW&C programme is moving along nicely, with the second prototype taking to the skies soon, just four months after the first prototype flew. The flight took place on April 4 on San Jose dos Campos in Brazil. All mission systems and components, including the dummy active antenna array unit are fitted on Embraer EMB 145I aircraft. The crucial second flight, which now gives the programme a pair of aircraft in flight testing, comes just two months before both airframes are flown to India. The other mission systems will then be integrated on the aircraft and mission system flight trials (MSFT) are scheduled from November 2012.

Sources say that test pilots are extremely pleased with handling qualities of the EMB 145I and are looking forward to testing it with all systems on.



G. Elangovan, Distinguished Scientist and Chief Controller Resources & Development (Avionics) at DRDO, in his message after the successful flight, congratulated the entire team of Centre for Air borne Systems (CABS) and associated work centres and the team at Embraer for their effort. Dr S. Christopher, Director CABS, & Programme Director at AEW&C, stated, "The AEW&C system has been indigenously developed in a consortium mode with the help of DRDO labs and Indian industrial partners. Apart from the external

mission systems developed indigenously and fitted on this aircraft, rest of the internal systems will be integrated into the aircraft on arrival in India. DRDO has contracted to procure three EMB 145I from Embraer and this aircraft will be the first delivery towards meeting this endeavour". The Bangalore-based CAB, is the nodal laboratory entrusted with the task of delivering the AEW&C system. CABS, is developing all sensors and system with other DRDO labs, public and private sector companies. **SP**

Basic trainer deal with Pilatus to be pushed through

In what will be a huge relief to the IAF, particularly Air Chief Marshal N.A.K. Browne, who has tried hard to prioritise training infrastructure in view of the ad hoc arrangements currently on training establishments, the long-delayed deal for basic trainer aircraft for the IAF is likely to be pushed through according to indications emerging from a meeting. Defence Secretary S.K. Sharma held with the Parliamentary Standing Committee on Defence on April 9. Asked about the state of pilot training and reasons for the delays in concluding a deal for basic trainer aircraft after Switzerland's Pilatus had been deemed lowest bidder for its package of 75 Pilatus PC-7 Mk.3 trainers, Sharma said that deal was being expedited and also suggested that Indian instructors could be sent to Switzerland to convert the PC-7 type with the intention to speed up the entire process. He said that the new curriculum, based on ab initio training on PC-7 propeller trainers, would be fully in place by 2014. This is, of course, given the delivery lead time, induction phases, conversion for instructors and phased roll-in of new type for pilot cadets. The Hawk advanced jet trainers, for instance, began deliveries a few years ago, but the December 2011 batch was the first to move completely onto the Hawk for lead-in training, dispensing with the MiG-21 for the first time in decades. **SP**



ment should map the bottom topography/obstacles and store all parameters/complete information obtained from various sensors in the memory for retrieval later for detailed analysis. The principal components of the DNS should be a doppler velocity log, digital compass, depth gauge, integrated GPS, sonar, LCD display screen, electronic maps/charts. The system also needs to have a rechargeable battery and data portability. The Navy has stipulated that the DNS needs to function down to a depth of 30 metres. DNS systems are standard issue devices with US Navy SEAL marine crack teams. The Indian MARCOS have tested DNS systems in the past, but purchases of such systems has been limited to a small number. With hydrography, restoration, search and rescue, covert operations and anti-sabotage missions calling focus, the Navy has decided to arm its divers with the equipment they need for efficient execution. **SP**



IAF looking for surveillance radars

As part of its mammoth surveillance ramp-up, the Indian Air Force (IAF) has announced its interest in acquiring an unspecified number of surveillance radars to monitor its airfield areas, perimeter security, surface movement and all activities in and around airfield area to prevent potential sabotage. The IAF has stipulated that the radar should have range not less than 5 km, scan rate not more than 5 seconds in 360 degrees, it should have infrared/electro-optical camera slewed with radar with a cueing capability and a detection range of 2 km or more and identification range of 1.5 km. Keeping with the expansion of its air bases, and new airfields coming up for full operations in the North and North East, the IAF will be looking to acquire the best possible surveillance cover. A similar large tender for CCTV cameras will look to install such cameras at all air bases and installations with the intention to leave no area blinded to security staff. The threat perception at airfields has built up over the years, and peaked in 2007-08 when a series of incidents involved the apprehension of suspects who were found to possess detailed maps and directions to air bases, some with commercial satellite photos as well. **SP**

Navy for DNS for MARCOS

In a long overdue procurement of essential diver-navigation systems the navy is in the market for an initial purchase of 42 diver navigation systems (DNS). The DNS, is a portable hand-held device which allows a diver to navigate underwater to predetermined waypoints/targets by indicating his position in real time on a software-based electronic map. The DNS should integrate the data received from various sensors and display the information on a LCD screen allowing a diver to map the sea bottom topography, navigate accurate grid patterns, mark and relocate waypoints and indicate position, depth, direction and distance to the target/waypoint. The equip-

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Blacklist may affect Arjun Mk.2 development

Questions are up about the improved Arjun Mk.2 main battle tank (MBT) ahead of its scheduled user trials in June after Israeli Military Industries (IMI), a consultant on the programme and dealing with the most crucial aspects of the tank's performance, stands blacklisted by the Indian MoD. IMI was deeply involved in a complex technological consultancy for Arjun Mk.2 battle tank, a platform the DRDO is depending on to amortise the investments it has made in the overall Arjun MBT programme.

IMI was hired as a consultant to help improve the overall design of the Arjun Mk.2, specifically its turret and hull for more accurate and reliable firepower. Importantly, the firm was also helping the programme team optimise fuel consumption and mobility by bringing down overall weight of the tank, a key requirement by the Army and a complaint it had about the Arjun Mk.1, 124 of which are in use with two tank regiments. Finally, it was to provide assistance in optimising production line processes at the OFB's Heavy Vehicles Factory outside Chennai.

The Arjun Mk.1 production line had experienced quality control issues that have since been sorted out. The Arjun Mk.2 incorporates 93 improvements on the original tank platform including a crucial capability to fire missiles from the 120mm gun tube, a night-capable



panoramic sight, containerised and protected ammunition, better penetration by the primary weapon, the ability to deploy new ammunition types, explosive reactive armour, a turret mounted air-defence gun to engage helicopters, mine plough, an advanced land navigation system and a laser counter-measure system. **SP**

IAF Mirage 2000s still grounded



Grounded for over a month—perhaps their longest down time ever—the Indian Air Force is still grappling with putting its Mirage 2000H/TH fighter fleet back in the air. Out of action following two crashes in two weeks in February-March, teams are still working to ensure that the fleet is ready to resume operations. The IAF is steeped in systematic technical checks, and the chief Air Chief Marshal N.A.K. Browne is hopeful that the aircraft will be airborne by the end of the month.

Teams from Dassault Aviation and M53 engine maker Snecma are both embedded with the investigation teams and courts of inquiry of both crashes to arrive at why both jets went down in strangely similar circumstances within two weeks of each other. Prima facie, the two jets experienced engine flame-out and the pilots on both occasions failed to relight. IAF sources said that the Inspection & Safety Directorate at Air HQ would shortly receive a report on the Mirage fleet, after which a decision would be taken on any procedures that need to be laid down for the resumption of flight. The cost of the ongoing Mirage upgrade effort, valued at \$2.4 billion, is likely to be adjusted, since the two lost aircraft were also in line for the upgrade, that would give the aircraft a new radar, an all-new cockpit, new avionics and sensors and new guided weapons capabilities. While two aircraft are currently in France undergoing the upgrade, the remaining will be souped up by HAL under licence from Dassault and Thales in Bangalore starting next year. **SP**

Navy commissions 3rd UAV squadron

The Indian Navy has raised its third unmanned aerial vehicle (UAV) squadron INAS 344 at INS Parundu naval air station in Tamil Nadu's Ramanathapuram district, and will operate IAI Heron and Searcher Mk.2 surveillance UAVs from there. While the base will initially operate assets on detachment, it will receive new UAVs as they are inducted. The Navy commissioned its second squadron INAS 343 at Porbandar in January last year. The Navy is currently in the market for high altitude long endurance (HALE) UAVs and shipborne unmanned rotorcraft. The Navy has so far lost two UAVs in accidents, the most recent being in February this year when a Searcher Mk.2 crashed into a hillside in Visakhapatnam.

IAI is currently pitching its advanced capability Heron and Searcher variants to the Navy. The decision to deploy UAVs on the Eastern seaboard was taken before the commissioning of the second squadron last year after the Eastern Naval Command put down a requirement. The three squadrons will be operationally equipped to meet the surveillance requirements of the Navy, but will need to be augmented with more UAVs and infrastructure. The Navy is therefore in the process of acquiring new capabilities. The commissioning, coincidentally, came on the same day that a tsunami alert was sounded in the Indian Ocean region. In the event of such an eventuality, UAVs from the INAS 344 will be airborne to conduct surveys and map areas to coordinate disaster relief and rescue operations. The new squadron also comes up at a time when reports suggest the Chinese Navy has begun deploying UAVs on its ships. **SP**





The Defence Minister A. K. Antony inaugurates Defexpo 2012 by lighting a lamp in New Delhi on March 29, 2012



The Defence Minister A. K. Antony addressing the audience at the inauguration of Defexpo 2012



Minister of State for Defence Dr M.M. Pallam Raju addressing the audience



SP Guide Publications CMD and Editor-in-Chief Jayant Baranwal presenting a bouquet of flowers to Defence Minister A.K. Antony at SP Guide Publications booth



Jayant Baranwal welcoming the Minister of State for Defence Dr M.M. Pallam Raju to SP Guide Publications booth



Defence Minister inspecting a model of light weight torpedo



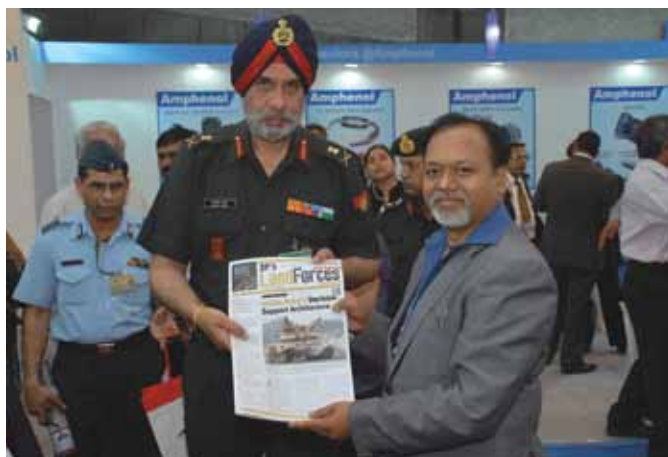
Air Marshal K.K. Nohwar, Vice Chief of Air Staff with Vice Admiral Shekhar Sinha, Chief of Integrated Defence Staff to Chairman, COSC (CISC) at the inauguration



The Defence Minister poses on top T-90 main battle tank



Delegates during the inauguration



Jayant Baranwal presenting a copy of *SP's Land Forces* to Lt General Kuldip Singh, Director General, Army Air Defence



Lt General Vinod Bhatia, DG Infantry, in conversation with Jayant Baranwal and Lt General (Retd) Naresh Chand of SP Guide Publications



Lt General Dalbir Sidhu, DG Mechanised Forces, in conversation with Jayant Baranwal and Lt General (Retd) VK. Kapoor of SP Guide Publications



Dinesh Keskar, President, Boeing India and Jayant Baranwal full of smiles



Vice Admiral Paras Nath, Controller of Logistics, IHQ, MoD (Navy) with Jayant Baranwal and Rear Admiral (Retd) Sushil Ramsay of SP Guide Publications



Major General B.K. Dhingra, MCGS Northern Command at SP's stand



Raj Kumar Sharma, President, Defence Punj Lloyd and Rear Admiral S.M. Vadgaonkar, IHQ, MoD (NAVY) with Jayant Baranwal and Rear Admiral (Retd) Sushil Ramsay



Air Vice Marshal Shouvik Roy of Aviation Research Centre (ARC) with Jayant Baranwal

Defence Minister emphasises on public-private partnership and indigenisation

The seventh edition of Defexpo India 2012, held at Pragati Maidan, New Delhi from March 29 to April 1 had an overwhelming and unprecedented response both from the private and public sector. Inaugurating the expo, Defence Minister A.K. Antony emphasised on the need for indigenisation in defence sector. "Our emphasis is on public-private sector partnership in the defence industry. Our defence industry is now open up to 100 per cent for Indian private sector participation, while foreign direct investment (FDI) is permissible up to 26 per cent." Addressing the media, the Defence Minister said that India is fast moving towards 40 per cent indigenisation of defence production from the present 30 per cent.

Minister of State for Defence Dr M.M. Pallam Raju said that the government is in the process of streamlining defence procurement and export procedures. He mentioned that the government plans to enhance partnerships between public and private sector and looks forward to design state-of-the-art defence technology in India. SP Guide Publications was the sole official media partner of Defexpo India 2012. **SP**

Saab to leverage India's strong technology base for the world market

In an interaction at Defexpo 2012, Inderjit Sial, Managing Director Saab India Technologies Pvt Ltd, stated that with Saab's exports rising steadily, the company is exploring options worldwide. However, as India was clearly emerging as a market with immense potential, Saab intended to not only penetrate the vibrant and versatile Indian market but also to leverage India's strong technology base and manufacturing capabilities in such a way so as to create new opportunities to meet the demands of the growing world market. To this end, Saab will be exploring opportunities for partnership with private and public defence industry in India as the way forward for business here. Saab had already entered into a contract with the Hindustan Aeronautics Limited for manufacture of the airborne electronic warfare equipment for the advanced light helicopter programme for the Indian Army as well as the Indian Air Force.

At Defexpo 2012, Saab showcased cutting-edge technologies and solutions for the Indian armed forces, paramilitary forces, civil aviation and homeland security apparatus. As per Inderjit Sial, given the importance of the Indian market and the opportunities the country has to offer, Saab regarded the Defexpo as an event crucial to its business interests.

At the exhibition this year, Saab's primary focus was on land and naval systems, with emphasis on the RBS 70 NG missile system. Saab also displayed its underwater AUV systems and the C4I systems, along with camouflage and a variety of other parts of the product portfolio. Saab has responded to an RFP for electronic defence systems for the Indian Army's T-90 upgrade programme. **SP**

—Air Marshal (Retd) B.K. Pandey



ATK's aerospace systems and missile products

During Defexpo 2012, ATK conducted an exclusive briefing for SP's M.A.I. covering a wide range of products in different disciplines such as aerospace systems, armament systems, missile products and security and sporting. The company claims to be the world's top producer of solid rocket propulsion systems. It manufactures advanced composite structures and components and supplies satellite components and sub-systems. It is a world leader in missile propulsion, warheads, fuzing, missile warning systems and next-generation, anti-radiation homing missile systems. It also provides missionised aircraft with weapons and intelligence, surveillance and reconnaissance (ISR) capabilities.



Aerospace Industry

For over 50 years ATK has developed advanced composite manufacturing technologies to produce lightweight and reliable structures for today's high-performance aircraft. Whether it's the skeletal structure of the Airbus A350XWB airframe, business jet fuselage structures, or the fan containment sections of the latest commercial airliner engines, ATK marks their presence by delivering affordable, high-quality components as required and on schedule.

Space

ATK's human space capability includes solid rocket boosters, engineering services, astronaut tools and solar arrays. Its reusable solid rocket motors (RSRM) – part of the world's largest product line of solid rocket motors – provided most of the thrust that launched the space shuttle since the beginning of the programme more than three decades ago. **SP**

—Air Marshal (Retd) V.K. Bhatia

ITT Exelis and Tata Advanced Systems join hands

ITT Exelis and Tata Advanced Systems Limited (TASL) have formed a strategic alliance to support Generation (Gen) 3 night vision requirements in India.

Under a memorandum of understanding, Exelis and Tata Advanced Systems will partner to supply manufacturing capabilities in India, maintenance and life-cycle support for Gen 3 night vision products. To start with, Exelis will provide TASL with the latest Gen 3 night vision image intensifier tubes, kits and other materials required to build night vision devices in India, to expedite the delivery of the systems to customers in India. This will be followed by manufacture of high precision components and sub-assemblies of the devices by TASL. **SP**





Mahindra forges partnership

Making use of Defexpo as a platform, Mahindra & Mahindra Ltd and Israel's Rafael Advanced Defense Systems Ltd, entered into a memorandum of understanding which will lead to the formation of a joint venture in India that will develop and manufacture advanced military systems, including anti-torpedo defence systems, electronic warfare systems, advanced armouring solutions and remotely operated weapon stations for futuristic infantry combat vehicles (FICV). **SP**

Raytheon to help IAF Jaguars acquire high-end precision teeth



At Defexpo, Raytheon also revealed that it has started procuring components required to build munition control units (MCUs) for 126 of the IAF's Jaguar Darin II strike aircraft. Once installed on the Jaguar, the MCUs would enable integration of modern weapons on legacy aircraft with minimal to no modifications to aircraft wiring and the flight or store management software. Compact in size, the MCU can easily be located in a weapon's pylon or avionics bay of a legacy aircraft from where it can interface 'smart weapons' and the existing software of a legacy aircraft. For example 'MCU' will give the 'Jaguar' the capability to employ 'smart' or 'advanced' weapons like the JSW (joint standoff weapon), Maverick missile, Paveway precision guided munition and AIM-9M Side-winder air-to-air missiles. **SP**

—Air Marshal (Retd) V.K. Bhatia

RBS 70 NG of Saab

Saab's RBS 70 NG (Next Generation) was featured at Defexpo 2012. The all-new RBS 70 NG very short-range air defence (VHSORAD) system is a versatile air defence system on offer to the Indian Army.

"We believe that the RBS 70 NG meets and exceeds the requirements of the Indian Army for a system that has multiple target seeking and tracking capabilities, multi-launcher capability, ability to deploy from high mobility vehicles and ship and submarine naval vessels, ability to engage aerial targets by day and night and aerial target detection capability," said Bo Almqvist, Campaign Director RBS 70, Saab India. Saab's all-new RBS 70 NG VSHORAD system with integrated 24/7 all-target capability has been developed for any combat situation. Its integrated sighting solution, enhanced missile operator aids, unbeatable range and unjammable laser guidance combine to produce a system with world-leading capabilities. With the latest generation of missile—the BOLIDE—the RBS 70 NG is directed at the complete air and ground threat spectrum, from fixed and rotary wing aircraft and helicopters down to small targets such as cruise missiles, UAVs and armoured ground targets like APCs. It is an accurate, unjammable missile system which is immune to countermeasures, heat sources and clutter. Its salient features are: automatic target tracking, integrated thermal imager, visual target assignment, simplified aiming functions, simultaneous detection of several targets and all-target capability. **SP**

—Lt General (Retd) Naresh Chand



WASS unveils Flash Black NextGen lightweight torpedo



On the first day of Defexpo 2012, Finmeccanica company Whitehead Alenia Sistemi Subacquei (WASS) unveiled the Flash Black, which according to the company, is the world's first next generation lightweight torpedo. The torpedo, which is yet to be developed has finished the design stage and the company has made its first presentation in India. WASS is talking to the Defence Research and Development Organisation for possible collaboration. **SP**

Rossell India, CAE joint venture gets nod from FIPB



Rossell India Limited announced that it has received approval from the Indian Foreign Investment Promotion Board (FIPB) to form a joint venture company with CAE to provide synthetic training solutions for the Indian defence market. Rossell India will hold a 74 per cent share, while CAE will hold the rest. **SP**

Raytheon 250-pound Paveway reaches a new production milestone



AT-6 weapons launch with Paveway missiles

Raytheon Company's Paveway programme has achieved a major milestone by completing production of the 1,000th 250-pound Paveway laser-guided precision munition. Paveway is a kit that transforms free-fall iron (dumb) bombs into precision guided weapons. The Paveway family of weapons is integrated on more than 25 different types of aircraft in 43 countries, including the Indian Air Force (IAF) Jaguar and to be acquired the 'Rafale' aircraft.

The GBU-58, which is available via direct commercial sale, offers warfighters a small, precision-guided munition that reduces collateral damage. But the kits can be mated with bigger calibre bombs as well to meet specific mission requirements. For example, the IAF Jaguars can carry the indigenous 1,000 lb bombs with Paveway kits for precision strikes by day and night. Paveway II and Paveway III are laser-guidance kits, while the Enhanced Paveway II, Enhanced Paveway III and Paveway IV use both laser and GPS guidance. **SP**

—Air Marshal (Retd) V.K. Bhatia



Ceradyne body armour plates, not a single failure

In the 26/11 Mumbai terror attacks, one of the casualties was the anti-terrorist squad chief Hemant Karkare. He was said to be wearing a 'bullet-proof' jacket and yet the bullet pierced through. That speaks volumes of the importance of the 'right' kind of equipment. At Defexpo India 2012, US-based Ceradyne Armor Systems claimed to have a 100 per cent fail-safe body armour plates. Marc A. King, President of Ceradyne, proudly proclaims "not one of the US Army or Marine Corps wearing a Ceradyne body armour plate has lost his life either in Afghanistan or Iraq. There has never been a failure." **SP**

DCNS signs cooperation agreement with IIT Bombay

DCNS has signed a memorandum of understanding (MoU) with the Indian Institute of Technology (IIT) Bombay. It has been signed by Dr Alain Bovis, Executive Director of DCNS Research and Professor Shiva Prasad, Dean of Academic Programmes in IIT Bombay. This MoU opens new cooperation avenues to DCNS in India for education and research programmes in naval defence and energy. Considering their respective domains of expertise, DCNS and IIT Bombay expect a rapid deployment of several projects and will include sponsoring research and development programmes to be carried out cooperatively by IIT Bombay and DCNS Research teams, sponsoring Indian student projects and fellowships at IIT Bombay, training DCNS personnel through "continuing education programmes" conducted by IIT Bombay. **SP**

Selex Galileo and Data Patterns join hands on defence electronics

Selix Galileo and Data Patterns have signed a head of terms agreement with a view towards forming a joint venture (JV) later this year. At a press conference organised on the second day of Defexpo, Selex officials informed that the JV would be based in Chennai, which will focus on a broad range of defence electronic products and state-of-the-art technology developments. **SP**



Oto Melara all set to participate in Indian Navy's large calibre gun tender

Finmeccanica company Oto Melara is looking for a greater share of the Indian naval, land and defence market and is eyeing the larger calibre gun segment besides the unmanned turret for the armoured vehicles.

Addressing a press conference at Defexpo, Oto Melara officials stated that the company will participate in a tender for the supply of a large calibre gun to be installed on board the new Indian Navy vessels. The gun is a state-of-the-art system deploying advanced technologies in the field of naval artilleries, including capability to fire the extended range Vulcano guided ammunition with a range of over 100 km. The supply would also include transfer of technology (ToT) on the lines of its collaboration with the Bharat Heavy Electricals Limited (BHEL) for manufacture of the 76/62 SR naval gun. The company showcased its 127/64 LW large calibre gun at the show.

At Defexpo, the company highlighted the 30mm OWS unmanned turret suitable for installation on armoured infantry combat vehicles because of its reduced weight and no penetration inside the hull. The turret is fit for installation on two anti-tank ground missiles. Oto Melara has already tied up with Pipavav, which involves ToT to India, if the turret is selected by the Indian Ministry of Defence. **SP**

General Dynamics with a range of products at Defexpo

General Dynamics was at Defexpo with display of combat vehicles and systems, security and surveillance systems, battlefield management and tactical communications systems, toughened laptop computers and a variety of other specialised products and services that are responsive to the requirements of India's national security and defence. **SP**



Autonomous vehicles on top for India's DRDO

The star attractions at Defexpo 2012 by India's Defence Research and Development Organisation (DRDO) was its brand-new missile interceptor simulator and a 3D virtual reality theatre, but the organisation has placed special focus on autonomous vehicles this year. For the first time, DRDO put on display MUNTRA, an unmanned tracked ground vehicle, a platform that the Army is greatly interested in for operations in a nuclear-biological-chemical environment, surveillance and mine clearance. The DRDO is in discussions with the Army to finalise all contours of the \$100-million programme soon. Remotely operated vehicle (ROV) Daksh was featured after a high-profile showing in 2010. On January 31 this year, the first batch of five Daksh ROVs entered operational service with the Army. **SP**



Raytheon's Project Athena multi-domain awareness system

During the recently conducted Defexpo 2012, Raytheon carried out an exclusive briefing for *SP's M.A.I.* to highlight the benefits of its Project Athena as a robust 'multi-domain awareness system' and its suitability in the overall architecture of the IAF's under development integrated air command and control centres (IACCS) for the conduct of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) operations.

Athena is a network-centric, multi-domain C4ISR system for high performance situation awareness, fusion, analysis and knowledge management. By exploiting information from global sources—including sensors, databases and intelligence—Athena delivers persistent surveillance, situational awareness and anomaly detection aids to reduce operator workload.

Athena uses a modern, extendable and open C4ISR enterprise-grade framework allowing the integration of a wide range of sensors and supports collaboration across command centres. It employs user-friendly and role-based methods of managing correlated information and sharing across local, regional or global joint command interests. Athena delivers fast and flexible multi-domain awareness for rapid operational deployments using proven components. It also has applicability to other homeland security missions. **SP**



—Air Marshal (Retd) V.K. Bhatia



LT GENERAL (RETD)
P.C. KATOCH

The clique, the media and the military

India is about to attain the distinction of sending an Army Chief home without any retirement orders and without responding to his statutory complaint. The biggest loser is the military with an ambivalent government and a gloating Clique.

ILLUSTRATION: Anoop Kamath

The susceptibility of the fourth estate to the intelligence community had tied our hands down. They are one of the too many holy Indian cows. Some of them, as described by a senior member of the fourth estate, 'taxi on hire.' Any paymaster can hire this particular brand," thus wrote M.K. Dhar, former Joint Director IB in his book *Top Secret - India's Intelligence Unveiled* some years back.

Involvement of high profile media personalities in the Nira Radia episode too is open secret. This is what is being exploited by The Clique - an appallingly deplorable group in the government, linked to arms mafia, that feeds on political unilateralism-cum-favouritism and is hell bent on breaking the cohesion of the military. Editor of a national daily front-paging an attempted military coup should be no surprise. He must have compulsions - links, skeletons? *The Sunday Guardian* talks of the story having been fed to the editor by a high profile Union Minister whose relatives are linked with the arms mafia.

The editor cites a "reliable source". Perhaps the same "reliable source" on whose basis, the same editor front-paged news of retirement orders of the Army Chief having been issued when there was none. Describing this editor, Ambassador (Retd) K. Gajendra Singh wrote on April 5, 2012, "...A top US/Mumbai corporate interests count, who also disseminates the ruling party's line and is suitably rewarded by invitations to official dinners, etc. Like many others who have prostituted the profession of journalism,.... will probably be nominated to Rajya Sabha."

The Clique has misused the media with impunity, subverting propriety of some high profile members of the fourth state. Recently, an inebriated former NSA was brought in for a TV debate, slurring in full public view and stooping to lowest levels of propriety - pay-back time for Padma Vibhushan courtesy the Boston Bailout, as per Dr Subramaniam Swamy. The interviewer, unable to rid his ghosts of 1962, obviously con-

siders his dad (1962 fame) the "worst chief" and wants the label passed on to someone else any which way notwithstanding the atmosphere of total political unilateralism and political favouritism prevailing in 1962 and is no different from today.

The Clique has also unleashed few loose cannons (mostly diplomats and bureaucrats) that fire talcum powder smelling of lies instead of gunpowder. The loosest of them all is a 1974 batch former diplomat (another rumoured Rajya Sabha nominee) who keeps up the monologue that General V.K. Singh should resign. He had the audacity to say on national TV on February 3, 2012, that the series of trashy articles against the Army Chief in a newspaper published ex-Chandigarh were

authorised by the Prime Minister himself. Look at the arrogance of this fellow. On another occasion, he said the Army Chief should be worried about Maldives knowing full well when required to assist the military will be there in a matter of hours but it is his own colleagues in the foreign office who are clueless to happenings even in our immediate neighbourhood - difficult to find a bigger fake and he has the gumption of labeling General V.K. Singh a "loose cannon". Others keep harping on strictures by Supreme Court to General V.K. Singh, which is completely false.

The Clique aided by government silence has continuously heaped muck on General V.K. Singh, hoping he will resign in disgust. The factual position today is that no retirement orders have been issued for General V.K. Singh and his statutory complaint is unanswered by Government of India. India is about to attain the distinction of sending an Army Chief home without any retirement orders and without responding to his statutory complaint. The biggest loser is the military with an ambivalent government and a gloating Clique. **SP**

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





Defence Minister reviews acquisition proposals

The Defence Minister A.K. Antony recently reviewed various issues and proposals relating to acquisition for the Indian Army on capital and revenue accounts. The meeting was attended among others by the Chief of Army Staff General V.K. Singh, the Defence Secretary Shashi Kant Sharma, DG Acquisition Vivek Rae and the top brass of Indian Army.

During the meeting Antony directed the Army to streamline its acquisition process in such a manner so that accountability can be fixed in case of any slippages. He also asked the officials of MoD and the Army to examine the possibility of compressing the time taken for technical evaluations and trials. He favoured delegation of more financial powers to Service headquarters if it can lead to speedier acquisition of equipment, platforms and systems for the Services.

Another meeting will be held in May to review the progress made on the decisions taken.

A separate meeting of the Defence Acquisition Council (DAC) was also held in which the Army Chief as also the Navy Chief Admiral Nirmal Verma and Air Force Chief, Air Chief Marshal N.A.K. Browne were present.

The DAC, the apex body of the Defence Ministry, discussed procurement proposals relating to the three Services, DRDO and the Coast Guard. The DAC also discussed the long-term integrated perspective plan (LTIPP) and changes in the offsets policy under the Defence Procurement Procedure. **SP**

ReconRobotics acquires Xollai LLC

ReconRobotics, Inc., the world leader in micro-robot systems for defense and law enforcement, recently announced that it has acquired Xollai LLC, a systems engineering firm with a broad base of intellectual property in automated guidance technology, optics-based autonomous control systems, and image processing and recognition. Xollai was the 2011 winner of the prestigious Architect of Defense award given annually by the Minnesota-based Defense Alliance, which represents more than 85 regionally based defense industry organisations.



"We have a strong history of listening to customer requirements and successfully providing them with sublimely simple and robust solutions," said Alan Bignall, President and CEO of ReconRobotics. "This strategic acquisition will give us access to technologies that solve unmet needs in our current markets, as well as entirely new solutions in advanced manufacturing, image processing and unmanned aerial systems. We are extremely excited about the strength of the Xollai engineering team and their intellectual property portfolio, each of which meshes perfectly with our stated goals of technological leadership and diversification within autonomous systems."

"In a short period of time, ReconRobotics has created an entirely new class of police and military robots that has revolutionised tactical operations," says Robert Malecki, Co-Founder and CEO of Xollai. "Our technologies hold similar groundbreaking potential in entirely new sectors and we are delighted to now be working with ReconRobotics to successfully commercialize these solutions for a worldwide market."

ReconRobotics plans to fully integrate Xollai into its product engineering and design operations by the end of April 2012, and maintain Xollai's current headquarters in Saint Paul, Minn. **SP**

Selex Galileo to provide support services and training to Indian Navy until 2022

Sexel Galileo has signed a contract with the Indian Navy to provide support and service solutions through to 2022 worth £21 million (€25 million). The agreement will see Selex Galileo supporting the avionics facility at the Centre for Avionics Repair and Software Development (CARES) at India's Naval Aircraft Yard at Kochi. The deal will see Selex carry out a comprehensive update of the CARES facility to meet future test requirements.

"The CARES facility is seen as a benchmark repair facility within the Indian Navy, and we're proud to be behind this success," said Alastair Morrison, Senior Vice President Radar & Advanced Targeting for Selex Galileo,

adding "To carry out this new contract we'll be working with Indian suppliers to develop test programme sets (TPS) for the upgrade and will be transferring technical expertise to Indian Navy personnel. It's all part of our strategy to partner with India in the long term."

The contract includes knowledge transfer packages that will train Indian Navy personnel in activities including repair techniques, avionics and test equipment technologies. **SP**

British MoD selects Sagem's JIM LR binoculars

The UK Ministry of Defence (MoD) has selected Sagem's JIM LR (long range) multifunction infrared binoculars for its long range thermal imager programme. The contract is worth a total of £5 million.

Developed and produced by Sagem, JIM LR incorporates in a single portable optonics package a number of advanced features, including day and night (infrared) vision, rangefinding, laser pointer, North seeker, GPS and data transmission. Used for intelligence, surveillance, target acquisition and reconnaissance missions, JIM LR binoculars will significantly expand the capabilities of British infantry units. **SP**



Second Italian multipurpose frigate launched

Following the launch of the Carlo Bergamini in 2011, Riva Trigoso (Genoa) shipyard recently celebrated the launch of the frigate "Virginio Fasan", which is due for delivery at the end of 2012. The vessel is the second of a series of Fremm vessels – multimission European Frigates – which were ordered from Fincantieri by the Italian Navy within the framework of an Italo-French programme of cooperation.

Godmother to the ship was Gina Fasan, daughter of the officer Virginio Fasan. The frigate was named in honour of the 3rd Class Chief Mechanic of the Navy who drowned in the waters of Asinara on September 9, 1943, on board



Carlo Bergamini

the destroyer Vivaldi. Virginio Fasan took part in all the war operations carried out by the vessel and was awarded a silver medal for his service in the waters of Pantelleria in June 1942.

Present at the ceremony were, Gianluigi Magri, Undersecretary for Defence, Vice Admiral Luigi Binelli Mantelli, Commander in Chief of the Navy, Giuseppe Bono, CEO of Fincantieri and Corrado Antonini, Chairman of Fincantieri.

The vessel, which will be delivered in mid-2013, will feature a high degree of flexibility, capable of operating in all tactical situations. With a length of 139 metres, a beam of 19.7 metres, the ship will have a displacement at full load of approximately 5,900 tonnes. The Virginio Fasan will have a maximum speed of over 27 knots and will provide accommodation for a crew of 145. **SP**



French Navy frigates get Sagem optronic system

Sagem (Safran group) has signed a contract with French naval shipyard DCNS, under the French defence procurement agency DGA as contracting authority, for the modernisation of fire control systems on six Floréal class surveillance frigates. The modernisation will be based on Sagem's new-generation Electro-Optical Multifunction System (EOMS-NG).

Developed and produced by Sagem, the EOMS-NG is a high-performance optronic system. It is a single unit, integrating day-night IRST (infrared search and track) type passive panoramic observation, identification, tracking and fire control. It will be oper-

ated from a dedicated work station of the operations room.

Replacing the current Najir optronic system, the EOMS-NG will provide fire control for the Floréal class ships' 100mm gun, their main artillery piece, and will contribute to their tactical situation awareness and the self-defense of the ship. The system features very short reaction time between detection and engagement, and is particularly well suited to fighting piracy and illicit traffic. Its panoramic observation concept is the equivalent of 100 fixed cameras.

This contract from DCNS, prime contractor for the modernisation of the fire control system on Floréal class frigates, is a significant success for Sagem's new range of shipborne optronic systems. The first Floréal class frigate will be outfitted by the end of 2012. **SP**

MKU and EIS Electronics JV

MKU, India's leading manufacturer and supplier of ballistic protection and surveillance equipment for armed forces, paramilitary forces and police worldwide announces a 50:50 joint venture with EIS Electronics GMBH from Germany to form EIS Electronics India Pvt. Ltd.

The joint investment made by both the companies will be \$5 million to manufacture their cable harness products. As the first step towards the joint venture, there was a signing of MoU between MKU Pvt. Ltd. and EIS Electronics India Pvt. Ltd. These cable harness products will be manufactured at EIS Electronics own manufacturing facility which will be set up in a 5,500 square feet area in Kanpur.

Neeraj Gupta, MD, MKU Pvt. Ltd, said, "As a strategic decision towards consolidation of our business we have entered into two new business ventures, NVDs and cable harness as this synergises with our existing product line and they will be new growth drivers for the company given the global demand and offset opportunities in India." He added, "This joint venture will give us an opportunity to further strengthen our business alliances with our clients."

Thomas Hauschild, MD, EIS Electronics GMBH, said, "India has been a pioneer in manufacturing of defence products and systems. We are proud to be associated with an Indian company like MKU as it is one of the leading manufacturers and suppliers of defence equipments globally. I am confident that this joint venture will result in producing quality cable harness products and increase our market share globally." **SP**

IMI unveils new multi-purpose tank round

As 125mm main battle tanks (MBTs) such as the T-72, T-80 and T-90 are in widespread use by armies worldwide and as the battlefield is becoming more and more asymmetric - there is a great demand for advanced 125mm tank ammunition, and in particular, multi-purpose (MP) ammunition.

As one of the world's leading developers and manufacturers of tank ammunition, Israel Military Industries Ltd. (IMI), has implemented its advanced technologies and expertise in developing and producing 105mm, 120mm and 125mm tank rounds for Eastern smoothbore tank guns.

Recently, IMI developed a new 125mm HE-MP-T (high-explosive multi-purpose tracer) tank round, dubbed M710. The M710 is the latest of IMI's family of MP tank ammunition, first introduced as the M117/1 for 105mm rifled guns of the M-60 and Merkava Mk. 1 & Mk. 2 tanks. The combat proven M329 was later developed for the modern 120mm smoothbore gun used with current Merkava Mk. 3 & Mk. 4 and is also compatible with NATO 120mm smoothbore tank guns.

An additional MP round, the M339, has been developed primarily for western tanks using NATO 120mm smoothbore guns, such as the M1A1, Ariete, Leopard 2 and more.

The M710 provides an ultimate solution for fighting in urban scenarios, as it



M710 tank round

is designed to engage various targets at extended ranges, including bunkers, vehicles and fortifications, as well as anti-tank (AT) squads and infantry in the open, in a foxhole or behind a corner. Similar to the M339, M710 uses an electronic fuzing system and has three different modes of operation: PDD (point detonation delayed), PD (point detonation/ super quick) and air burst. The tank's fire control system (FCS) feeds the target information and the programmable electronic fuze is set by wireless data link while the round is in the chamber. SP

IAI presents RAM MK3 'AT' configuration-armoured tank hunter vehicle

Israel Aerospace Industries (IAI) presented its new armoured tank hunter/killer system: the RAM MK3 'AT' (anti-tank) configuration at the Fidae Air Show in Santiago, Chile.

The new configuration is based on the fielded RAM Mk.3 light-weight and high-terrain capability armoured vehicle, developed and manufactured by IAI's



RAMTA division. As its main weapon system it carries four NIMROD SR (short-range) missiles on pop-up launchers. NIMROD SR weapon system, developed by IAI's MBT Missiles division, is a semi-active laser guided missile. It can be designated by the firing RAM-AT or by an indirect designation, by helicopter, UAV, forward observers etc. The NIMROD SR missile has a range of up to 8 km when launched from the RAM-AT platform.

"This powerful combination high-maneuvrable capability and firepower allows a mobile combat force to use extreme terrain to its tactical advantage by bringing the sum of these two proven battlefield assets to bear on enemy armour wherever it may be found", said an executive of RAMTA. SP

Saab improves vehicle protection system

As part of its continuing quest to provide customers with cutting-edge solutions defence and security company Saab has successfully tested a third generation high speed directed launcher (HSDL-306). The directed launcher is an important sub-system of the land electronic defence system (LEDS) that enables the system to guarantee hemispherical coverage and multiple shot capabilities to the installed platform.

The tests were carried out mid-March in Centurion, South Africa, and mark an important milestone in enhancement of Saab's active protection offer for ground vehicles.

"The tests went very well and the evaluation showed good result. All our test objectives were met which verifies we are on the right track and that our efforts to remain the international benchmark active protection concept have been successful", says Cobus van der Merwe, Executive Manager, Business Development for LEDS at Saab.

The tests included deployment of GALIX



13 multispectral smoke from Etienne Lacroix, France. The tests included a combination of coverage angles and different dispensing sequences.

The HSDL was mounted on a Piranha protected vehicle variant to also test integration design and monitor aspects like recoil and power consumption reduction. It also offers future design flexibility in terms of different payload options and operational mission applications. The HSDL-306 is a joint effort by Curtiss-Wright Antriebstechnik GrnbH of Switzerland and the Saab business area Electronic Defence Systems. SP

Rolta aiming at Indian Army's BMS, F-INSAS, tactical communication systems programmes

Rolta which is one among the leading suppliers of a host of products—from sensors to shooters—to the Indian Army, is now looking ahead to bagging the Indian Army's tactical communications systems, battlefield management systems (BMS) and the future infantry soldier as a system (F-INSAS) deals. The company has already tied up with Selex Communications for tactical communication system and is looking for international partners for the other two programmes.

Speaking to *SP's M.A.I.* during Defexpo, Atul D. Tayal, Joint Managing Director and Chief Operating Officer, Domestic Operations, Rolta, said that the "Make Indian" concept would give Rolta an edge over the others in getting the orders. Defexpo is a good platform which enables us to showcase our range of products before the decision-makers.



While the company has trade relationship with other countries for its engineering and enhanced IT capabilities, the company's defence sector relationship is restricted to India only. "We have business in Middle East, Europe and many other countries on our engineering capabilities but our defence and security sector relationship is only in India," said Tayal. Besides the BMS, F-INSAS and tactical communications system, Rolta is also looking at Indian Army's command and control (C2) systems, intelligence surveillance and reconnaissance (ISR) programmes.

The company which started three decades back as a data processing company eventually went into 'mapping' and tied up with the Survey of India. "We started with military mapping for the Indian Army and expanded with times." Apart from the Indian Army, the company is working with the Indian Air Force (software and digital display for heads-up display), Indian Navy (hydrographic mapping), homeland security agencies and is also into nuclear engineering, space, business intelligence, etc. Besides working with agencies under the Ministry of Home Affairs, it has tie-ups with many state police forces too. "We started with the Mumbai Police seven years back and today we are working with many state police forces," said Tayal. **SP**

US Army orders more Oshkosh FMTVs



Oshkosh Defense, a division of Oshkosh Corporation, will produce more than 2,500 additional family of medium tactical vehicles (FMTV) trucks and trailers for the US Army following an order from the US Army TACOM Life Cycle Management Command (LCMC). The Army has now ordered more than 29,000 FMTV trucks and trailers from Oshkosh.

"Over the first three years of this five-year contract, we have delivered superior-quality trucks and trailers for soldiers for their combat operations, relief efforts and unit-resupply missions at home and abroad," said Mike Ivy, Vice President and General Manager of Army Programs for Oshkosh Defense. "We will continue to offer fleet improvements by developing prototypes with upgraded technology, such as our TAK-4 independent suspension system

that improves off-road mobility, ride quality and protection capabilities." **SP**

Cassidian protects convoys against IEDs

Cassidian, the defence and security division of EADS, has developed a new-generation Convoy Protection Jammer that significantly enhances the protection of vehicle convoys against attacks by radio-controlled improvised explosive devices (RCIEDs).

The Vehicle Protection Jammer uses the ultra-fast SMART Responsive Jamming Technology developed by Cassidian to substantially enhance protection compared to conventional systems. It detects and classifies radio signals in the 20 MHz to 6 GHz frequency range used to detonate roadside bombs. After detection and classification, it transmits real-time jamming signals, which precisely match the hostile frequency band, thus interrupting the connection between assassin and bomb.

Thanks to new digital receiver and signal processing technologies, the system can achieve reaction times of well below a millisecond. Up to 1.5 million threat signals on all common frequency bands can thus be detected and jammed each second. By concentrating the jamming energy on the frequency that is active in each case, the system requires considerably less energy. Moreover, communication between own-side personnel is still possible while using the jammer.

Legacy jamming systems, in contrast, try

to disrupt the bombs' detonation mechanisms by permanently emitting a powerful burst of energy over a wide frequency spectrum. The disadvantages inherent in these systems are that they require a lot of space, primary energy and cooling power and disable own-side radio communications while on patrol. **SP**

Thales integrates VL MICA missile with Tactics

Thales has announced that the first operational naval VL MICA missile worldwide has been successfully integrated with the Tactics combat management system. This system is now operational on the Royal Moroccan Navy's RMNS Tarek Ben Ziad, Thales said.

The VL MICA missile system is a short range fire-and-forget system that relies on data from the SMART-S Mk2 surveillance radar to be launched in the direction of the threat. The missile's integrated sensor subsequently directs the missile to the threat.

Other Thales systems on the Moroccan frigate include: SMART-S Mk2 3D medium to long range surveillance radar, LIROD Mk2 tracking radar, KINGKLIP sonar system, IFF system, Integrated communication system comprising external communication system and FOCON internal communication system, two Target Designation Sights, VIGILE ESM system, SCORPION ECM system, and the integrated navigation system. **SP**

ATK's defence solutions for army

ATK Defense is an industry leader in ammunition, precision and strike weapons, missile warning solutions, and tactical rocket motors across air-, sea-, and land-based systems. The group is the largest US producer of small-calibre ammunition, as well as a leading producer of medium- and large-calibre ammunition and medium-calibre chain guns. The group is home to ATK's Advanced anti-radiation guided missile (AARGM), next-generation GPS-guided mortar and artillery projectiles, joint and allied threat awareness system (JATAS), AAR-47 missile warning system, fuzes and warheads, propulsion and controls for missile defence interceptors, weaponised special mission aircraft and advanced propulsion. Some of its contributions in land systems are:

Small calibre systems

ATK Small Caliber Systems is the world's leading producer of high-quality military small calibre ammunition and links. During the 11 years ATK has operated the Lake City Army Ammunition Plant in Independence, Missouri, ATK has delivered more than 11 billion rounds of 5.56mm, 7.62mm and .50 calibre ammunition for use by United States and international military services. In partnership with the Army, ATK is successfully executing a \$276 million modernisation project at the Lake City plant. This will ensure the plant remains a viable national asset for another 70 years.

Surface-to-surface missiles

Javelin: ATK is under contract to the Javelin joint venture (Lockheed Martin and Raytheon) to supply the composite launch tube assembly for the Javelin missile, the world's premier shoulder-fired, multi-purpose combat system.

Long-range land attack projectile (LRLAP): ATK produces the rocket motor and tail fin assembly for the Long-Range Land Attack Projectile (LRLAP) for the Advanced Gun System (AGS). The AGS is a 155mm gun system for the US Navy's new DD(X) surface combatant ships. It will provide flexible, sustainable, and affordable firepower



against a wide range of littoral and inland targets as well as for anti-surface warfare.

Precision attack missile: ATK is designing, developing, and manufacturing the rocket motors for the Non Line of Sight - Launch System Precision Attack Missile (NLOS-LS PAM) programme under a contract from Raytheon Missile Systems. The US Army will use the PAM primarily against tanks, armoured, lightly-armoured, and other stationary or moving targets. The US Navy plans to integrate the system as a weapon module on the littoral combat ship and unmanned surface vehicle to defeat threats such as small moving boats.

Tube-launched, optically-tracked, wire-guided (flight motor): ATK has been the sole source supplier of the TOW flight motor since the early 1980s. The motor uses the proven minimum smoke propellant to propel the missile down-range. The flight motor incorporates dual canted nozzles that vent the exhaust gases at an oblique angle to the missile line of flight to avoid damage to the trailing control wires. In addition to the flight motor, ATK manufactures the TOW launch motor. SP

—Lt General (Retd) V. K. Kapoor

DCNS' ₹310 crore Scorpene deal with SEC Industries

Scorpene manufacturer DCNS' Indian arm has a contract with SEC Industries worth ₹310 crore to indigenise equipment for Project 75 submarine line currently producing six Scorpenes for the Indian Navy. The contract with SEC Industries involves the manufacture of hull hatches, cofferdam doors, knuckle hoses, ballast vent valves, high pressure air cylinders, weapon handling and storage systems. In a statement, DCNS said, "Over the coming years, SEC will manufacture equipment under a transfer of technology provided by DCNS India and they will be progressively delivered to our customer, Mazagon Dock Limited (MDL), for integration onboard the P75 Scorpene submarines."

While indigenising equipment on the P75 pro-



gramme has had its glitches leading to certain delays, the effort is back on track. The contract with SEC is part of the purchased materials (MPM) contract programme. "Through this indigenisation effort, we are developing strong industrial partnerships and capabilities for the P75 and future programmes. Together with our partners, we are positioning ourselves for the long term," says Bernard Buisson, Managing Director of DCNS India.

A contract was also recently signed with Indian firm Flash Forge for the manufacture of certain equipment for the Indian Scorpene. Over 40 SEC Industries personnel will be trained shortly in France for a year in the manufacture of the equipment. D. Vidyasagar, Managing Director of SEC Industries, said, "Through this contract, our company will gain in technology terms, infrastructure and trained manpower. Several more contracts with Indian firms are expected through the year. SP

—SP's Special Correspondent



LT GENERAL (RETD)
P.C. KATOCH

Back to the future

As the Supreme Commander of Armed Forces, the President can ask for the Supreme Court verdict on General V.K. Singh's writ petition, his statutory complaint, documents connected with the fabricated age row and ask for a Supreme Court bench to examine and fix this conspiracy against General V.K. Singh

PHOTOGRAPH: PIB

The general belief that the biological date of birth is unalterable may not be true in future. In case of India, this may happen in the immediate future—may be before the end of May 2012. This can be the only reason why the government is not replying to the statutory complaint of General V.K. Singh even after the Supreme Court has forced the government to withdraw the government letter rejecting the said statutory complaint on grounds that “natural justice” has been denied to the General Officer—leaving the date of birth issue (fabricated by design) in the lap of the government.

Possibly, scientists of the DRDO have been tasked to work overtime to come up with ‘back to future’ technology that can alter the date of birth of General V.K. Singh from May 10, 1951 to May 10, 1950. Because of this stupendous futuristic research commitment to be completed in record time leaving behind all advanced nations, axiomatically the entire band of scientists must be buried in deep research. This would also explain why the DRDO has not even been able to come up with a worthwhile carbine or light machine gun for the infantry. Though understandably, utmost secrecy is warranted in such a project, government would have kept appropriate constitutional bodies in generic picture. That is possibly the reason that while the Supreme Court of India granted redress to General V.K. Singh on his writ petition in terms of his statutory complaint to the government, it left the affixing of the date of birth issue to the government.

Hiccups in the ongoing research have even delayed issue of retirement orders of General V.K. Singh. Some three hundred very senior Army, Navy and Air Force veteran officers have sent a memorandum to the President, the Supreme Commander of Armed Forces last month, requesting to intervene to ensure provision of natural justice to General V.K. Singh and asking the government to respond to his

statutory complaint. Though the President of India is the constitutional head of India, as per verdict given by Justice V.R. Krishna Iyer that remains valid till date, the President is empowered to ask for any document and seek review. As the Supreme Commander of Armed Forces, the President can ask for the Supreme Court verdict on General V.K. Singh's writ petition, his statutory complaint, documents connected with the fabricated age row and ask for a Supreme Court bench to examine and fix this conspiracy against General V.K. Singh (to retire him 10 months before his tenure) and hold in abeyance appointment of the next Chief of Army Staff. However, it is possible that the government would have

appraised the President of the ongoing ‘back to future’ research. It will be simply fabulous if this research fructifies. Not only would it be possible for the government to shift the biological date of birth of General V.K. Singh from 1951 to 1950, the possibilities being enormous, it may be possible to even prove that V.K. Singh never joined the Army. If he still remains stubborn not to demit office, he could be even declared an imposter and arrested.

‘Back to future’ technology could relieve the next Army Chief of any pending inquiries whatsoever (because no such incidents

would have happened) and even give him unlimited tenure by rewinding every time his tenure is about to be over. In future, it will not be possible to accuse the government of political unilateralism or political favouritism since the path-breaking technology will do it all. But jokes apart, if this research does come through, would it not be great to get B.R. Ambedkar back to help us come out from this terrible reservations mess or for that matter Sardar Vallabhbhai Patel to chalk out a national security strategy for India? **SP**

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





Eurocopter to supply six EC725 to PT Dirgantara Indonesia

A contract has been signed between Eurocopter and PT Dirgantara Indonesia/Indonesian Aerospace for the supply of six EC725. To be received in 2014, Indonesian Aerospace will customise and deliver these combat search and rescue configured helicopters to the Indonesian Air Force under a contract signed with the Indonesian Ministry of Defence last month.

The aircraft, for delivery from Eurocopter starting in 2014, will be shipped to Indonesian Aerospace's facility in Bandung, West Java, Indonesia, where they will be reassembled and customised before delivery to the Indonesian Air Force under a contract signed, between

the Ministry of Defence and Indonesian Aerospace, on March 12, 2012. The EC725, a combat-proven multi-role helicopter in the 11-tonne class, was selected by the Air Force in 2011 to meet its requirements for a combat search and rescue capable helicopter fleet.

"The selection of the EC725 by the Air Force is a renewed demonstration of the confidence that the Indonesian Air Force has in the Super Puma family of helicopters and enables Eurocopter to further strengthen its long-standing relationship with Indonesian Aerospace relating to the Super Puma family," said Olivier Lambert, Eurocopter's Senior Vice President for Sales and Customer Relations.

The EC725, a member of Eurocopter's successful Super Puma/Cougar family, will further extend Indonesian Aerospace's involvement with the type. As well as building several SA330 Puma and AS332 Super Puma under licence in Bandung for the Air Force, Indonesian Aerospace has held a contract with Eurocopter since 2008 for the manufacture of EC225 and EC725 tail booms and complete air-frame assemblies.

"This contract for the EC725 will propel Indonesian Aerospace into a new era of cooperation with Eurocopter, enhancing the company's capabilities at the forefront of rotorcraft technology," stated Budi Santoso, President of Indonesian Aerospace.

The twin-engine EC725/EC225 rotary-wing aircraft family features high-performance navigation and mission systems, including a unique digital four-axis autopilot. Offering excellent flight autonomy, this powerful machine is also great for tactical transport as it has a large cabin with seating for 25 persons. As a result, the EC725 military version and its EC225 civilian/parapublic variant have become the reference for civil and military search and rescue, offshore and passenger transport missions around the world. **SP**

Lockheed Martin gets \$1.05 billion contract from US Navy



The US Navy recently awarded Lockheed Martin a \$1.05 billion, five-year contract to provide more than 200 digital cockpits and integrated mission systems and sensors for the Navy MH-60R "Romeo" and MH-60S "Sierra" helicopters.

Specifically, the new multi-year contract includes 162 cockpits, integrated missions systems and sensors for MH-60R "Romeo," an anti-surface and anti-submarine warfare helicopter. It also funds 62 digital cockpits

to complete the Navy's programme of record for Sierra aircraft, used for ship-to-ship cargo resupply, search and rescue, and close-in defence of Navy ships.

"This contract award ensures uninterrupted, on-time deliveries of the MH-60R and MH-60S helicopter to the US Navy fleet," said Dan Spoor, Vice President of aviation systems for Lockheed Martin's Mission Systems & Sensors business. "Plus the multi-year structure, versus an annual contract, allows us to provide our customer with more than 10 per cent savings annually, surpassing Pentagon cost predictions."

Lockheed Martin provides the digital cockpit common to the MH-60R and MH-60S, and integrates the mission systems and sensors aboard the MH-60R helicopter in Owego, New York. Both aircraft are designed and manufactured by Sikorsky Aircraft, Stratford, Connecticut. **SP**

Airbus Military A400M to visit Asia for first time in April

The Airbus Military A400M new generation airlifter for the 21st century, is to visit Asia between April 14 and 20.



Malaysia, an A400M customer, is the first and longest stop of its three-nation Asia tour, with the aircraft staying there from April 14-17. The tour continues with visits to Jakarta, Indonesia, and Chiang Mai and Bangkok, Thailand, before returning to Europe.

The visit, the first time that the A400M will be seen in Asia, will give the Malaysian Government and Air Force a chance to see the A400M at first-hand. The Malaysian Government has ordered four of the new aircraft which has as its launch customer nations Belgium, France, Germany, Luxembourg, Spain, Turkey and the UK.

The aircraft that will be flown for the Asia-Pacific tour is Grizzly 4, one of the five development aircraft. **SP**

Thales delivers RBE2 AESA radar to Dassault Aviation



In February, Thales delivered the first series-produced RBE2 radar with active electronically scanned array (AESA) to the Dassault Aviation facility in Mérignac, France. The radar will now be installed on Rafale C137, the first Rafale with this new capability, which is scheduled for delivery to the French defence procurement agency (DGA) this summer.

A comprehensive three-month flight test programme conducted with the first production RBE2 AESA radar at the Istres air base demonstrated the qualities of the radar and confirmed the expected levels of performance prior to delivery to Dassault Aviation.

The RBE2 AESA will give the Rafale a number of key advantages: Extended range for full compatibility with the latest-generation long-range missiles, such as the Meteor, combined with the ability to detect low-observable targets; higher reliability for reduced cost of ownership (no major maintenance is required on the active array for 10 years) and waveform agility for high-resolution synthetic aperture (SAR) imagery and

increased resistance to jamming.

The Rafale will be the only European combat aircraft under full-scale production with an active-array radar. **SP**

Airbus Military A400M performs high-altitude tests

The Airbus Military A400M new generation airlifter recently visited La Paz, Bolivia, as part of a series of high-altitude performance tests. Grizzly 2 completed a number of flights from the airport at La Paz which is more than 13,000 ft above mean sea level.

Operations from high-altitude airports like La Paz are challenging because of the low air density. The tests took place shortly after the aircraft visited the FIDAE airshow in Chile, and Lima, Peru during its first deployment to Latin America.

Airbus Head of Flight and Integration Tests, Fernando Alonso said: "High-altitude testing is a critical part of the overall flight-test programme which will ensure that we deliver on our performance guarantees to customers. I am pleased to say that the early results from these trials have been very positive." **SP**



£446 million Typhoon contract will help sustain 600 UK jobs



BAE Systems has received a contract worth £446 million to support the fleet of Typhoon jets. The five-year support contract will provide a range of engineering services and contribute to the customer's 30 per cent savings target on Typhoon support. It will also help to sustain UK engineering capability and jobs.

The in-service support agreement, known as Contract 1 will introduce significant efficiencies by bringing together a number of legacy contracts and proposed new work into an overarching umbrella contract. It demonstrates a commitment by all parties to the continued development of Typhoon's outstanding capabilities.

The order will help to sustain around 600 jobs at BAE Systems' Warton and Samlesbury sites in Lancashire focused on engineering, supply chain and project management. **SP**

US Navy unveils first fleet P-8A Poseidon to public

The US Navy made history March 28 when the newest multi-mission maritime aircraft, P-8A Poseidon, made its first public appearance as a member of the patrol and reconnaissance community, and opened the doors to its Integrated Training Center.

"We are making history today as we officially roll out the P-8A Poseidon to the maritime community," said Rear Adm. Michael Hewitt, Patrol and Reconnaissance Group commander, at the ceremony in Patrol Squadron (VP) 30's hangar in Naval Air Station Jacksonville, "The P-8 is going to bring the latest technology into the hands of our smartest young men and women, and we can't wait to see what they're going to do with it." **SP**



Embraer sells Super Tucano to African countries



Embraer Defense and Security disclosed that it has signed contracts with three African nations for the acquisition of the A-29 Super Tucano light attack and advanced training turboprop.

The Burkina Faso Air Force, the first operator of this model in Africa, has already received three aircraft that are used on border patrol missions. The Angola Air Force recently acquired six of this aircraft for the same mission, and the first three will be delivered in 2012. Also, the Air Force of Mauritania chose the A-29 Super Tucano to carry out counter-insurgency missions.

The total value of the contracts – including an extensive logistical, training, and replacement parts package – comes to more than \$180 million.

“The Super Tucano is highly efficient and presents low operating costs. Its capability for surveillance and counter-insurgency missions makes it ideal for service on the continent of Africa,” said Luiz Carlos Aguiar, President, Embraer Defense and Security.

With these orders, nine air forces have now chosen the A-29 Super Tucano in Latin America, Africa and Southeast Asia. **SP**

Boeing to build 8th C-17 Globemaster III for UK

Boeing announced that the UK Ministry of Defence has signed an agreement for the acquisition of one C-17 Globemaster III, bringing the Royal Air Force (RAF) fleet of the world's most advanced airlifters to a total of eight. Boeing is scheduled to deliver the eighth C-17 later this year.

“The tremendous teamwork of Boeing and US Government officials has made it possible to announce this acquisition so quickly after we determined the need for this additional C-17,” said UK Ministry of Defence Head of Commercial for Air Support Robin Philip. “This C-17 will be a welcome addition to the RAF fleet.” **SP**

MHI begins assembly for advanced technology demonstrator aircraft project



Mitsubishi Heavy Industries, Ltd. (MHI) began assembly of a full-scale structural-testing model of an advanced technology demonstrator (ATD). The ATD, which MHI is building under the contract with the Japan Ministry of Defence, will be used to prove the airworthiness of advanced technologies, including stealth capabilities and high manoeuvrability, for

future Japanese fighters.

With the commencement of assembly, the ATD project has now moved into the production phase.

The ATD prototype project was launched in Japanese fiscal year 2009 (April 2009-March 2010) in the situation of next-generation fighter development programmes in neighbouring countries. Through flight tests of advanced technologies relating to stealth and high manoeuvrability, the project aims at the empirical research of the advanced fighter technologies and air defence systems that are capable of coping with the stealth fighters that may soon be deployed around Japan. **SP**

Pratt & Whitney and Boeing sign engine contract to power USAF's KC-46 Tanker



Bennett Croswell, President of Pratt & Whitney's Military Engines division, and Maureen Dougherty, Boeing Vice President and Programme Manager, KC-46 Tanker Programme, hosted a ceremonial engine contract signing event at Boeing's Tanker Program Office in Mukilteo, Washington, for contracts previously awarded to Pratt & Whitney.

The contracts support PW4062 engine purchases to power Boeing's KC-46, the US Air Force's new airlift tanker. **SP**

Rockwell Collins establishing joint venture with AVIC LETRI in China

Rockwell Collins and China Leihua Electronic Technology Research Institute (LETRI), a subsidiary of the Aviation Industry Corporation of China (AVIC), are establishing AVIC Leihua Rockwell Collins Avionics Company. This joint venture will focus on bringing the latest surveillance products to the Commercial Aircraft Corporation of China Ltd. (COMAC) C919 aircraft.

“While this is our first joint venture with AVIC, it demonstrates a deepening and broadening of our trusted and collaborative

relationship, which spans nearly three decades,” said Kent Statler, Executive Vice President and Chief Operating Officer, Commercial Systems for Rockwell Collins.

Once the agreement conditions, have been satisfied and approval is obtained from the Peoples Republic of China examination and approval authorities, AVIC Leihua Rockwell Collins Avionics Company will develop, manufacture and deliver integrated surveillance system products for the C919 programme in China. By introducing Rockwell Collins' advanced avionics technology and international avionics technical services into China, the joint venture will boost the development and prosperity of the country's commercial aviation sector. **SP**

4,500th F-16 Fighting Falcon delivered

Lockheed Martin commemorated the 4,500th F-16 Fighting Falcon delivery on April 3 with a ceremony for employees, customers, former executives and elected officials, including US Rep. Kay Granger and Fort Worth Mayor Betsy Price.

The F-16 is recognised as the world's most successful modern-day fighter. Since the F-16's first production orders in 1975, it has been produced in partnership with five countries and has been selected as the front line fighter for 26 nations. The 4,500th F-16 is an advanced Block 52 aircraft destined for Morocco.

"The F-16 is the world standard for evolutionary fighters today, and it will continue to secure the freedom of the United States and its allies in peace and combat for decades to come. This milestone demonstrates that Lockheed Martin has the finest aerospace workforce, and it is our privilege to serve air forces worldwide," said Larry Lawson, Executive Vice President of Lockheed Martin's Aeronautics business area.

The F-16 programme has been characterised by unprecedented international cooperation among governments, air forces



and aerospace industries. The current F-16 backlog includes aircraft production for Turkey, Morocco, Egypt, Oman and Iraq. **SP**

EADS unveils latest Armed Aerial Scout proposal



EADS North America has unveiled its Armed Aerial Scout 72X+ (AAS-72X+) at the annual Army Aviation Association of America convention in Nashville.

The AAS-72X+, an armed derivative of the Army's UH-72A Lakota light utility helicopter will be manufactured by the company's American Eurocopter business unit in Columbus, Mississippi.

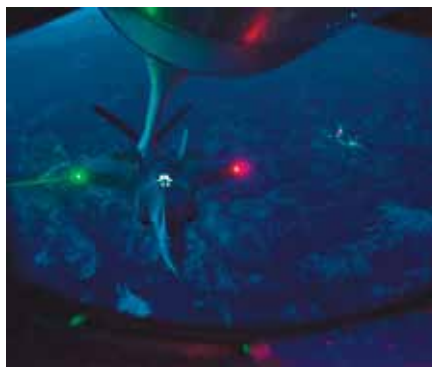
The AAS-72X+ helicopter builds on the three Armed Aerial Scout technical demonstrator aircraft (TDA) already developed, tested and flown, using the company's own research and development investment.

"This latest evolution of the Armed Scout gives us the option of offering an even more capable system, to ensure our combat troops have the very best aircraft available to

meet their demanding missions," said Sean O'Keefe, EADS North America Chairman and CEO. "We look forward to demonstrating the advanced performance of the AAS-72X+ during the Army's voluntary flight demonstration this summer."

The AAS-72X or AAS-72X+ could be built and delivered at a cost competitive with the upgrades planned for the Vietnam-era OH-58 Kiowa Warrior and fielded to Army units as early as 2016. **SP**

Lockheed Martin F-35A completes first night refuelling mission



The first night refuelling in the history of the Lockheed Martin F-35 programme was completed March 27 at Edwards Air Force Base, California, Piloted by US Air Force Lt Colonel Peter Vitt, AF-4, an F-35A conven-

tional takeoff and landing variant, rendezvoused with an Air Force KC-135 tanker and successfully received fuel through the F-35's boom receptacle. Vitt's sortie lasted more than three hours. In addition to qualifying with the KC-135, the F-35 Integrated Test Force at Edwards AFB will also conduct night refuelling tests with the KC-10. **SP**

Boeing, Elbit Systems simulation for Super Hornet

Boeing and Elbit Systems are collaborating on a joint distributed simulation project that will link a Boeing F/A-18E/F Super Hornet simulator in St. Louis with an AEL Avionics Laboratory simulator in Porto Alegre, Brazil.

The effort brings together Boeing's and Elbit's expertise in order to demonstrate current simulation and network technology as well as the capabilities of the Super Hornet. The demonstration also will explore the potential for other technology collaborations, such as Super Hornet interoperability with Brazilian fighter aircraft. The distributed simulation project is expected to be completed this summer.

Boeing and Elbit Systems are developing a robust plan for technology exchange in the areas of simulation and avionics support for Brazil's F-X2 programme. Boeing and Elbit Systems have signed a memorandum of understanding that supports the development of advanced avionics capabilities in Brazil that will be introduced to AEL Sistemas. **SP**

Fire Scout team takes steps to arm unmanned helicopter

A team at nearby Webster Field Annex is working briskly to support an urgent Navy request to weaponise the MQ-8B Fire Scout, marking the first time the Navy will arm an unmanned aircraft.

The Fire Scout team and NAVAIR's structures rotary-wing division personnel conducted the first of a series of tests March 7 on the newly installed hardware, which will gauge how the system will operate in the shipboard environment.

"This is the very first weaponisation programme on this aircraft," said Jeremy Moore, Fire Scout weapons system integration lead. Part of the rapid deployment capability (RDC) acquisition process, "it was identified by the fleet as an urgent need for joint forces, so we are pressing forward as hard as we

can to get it out there."

The Navy plans to arm the MQ-8B Fire Scout with a laser-guided rocket, the advanced precision kill weapon system (APKWS), in just 18 months. Typically, this type of development would take two to three years at a minimum, Moore said. Arming the Fire Scout with a guided rocket will enable the fleet to engage hostile threats with the Fire Scout independent of air support from carrier or shore-based aircraft. This capability will keep the warfighter out of harm's way, Moore said.

Bill McCartney, Fire Scout's Air Vehicle flight test lead, said the weaponisation of any aircraft is an intricate process, particularly in this case since it is the first time the Navy will arm an unmanned aircraft.

"We had a very tight timeline to conduct trade studies and complete design reviews," McCartney said. "Now, we are starting to execute tests, and there is little time in the schedule for repeats." SP



Early delivery of Shadow 200 UAS



Australia's first Shadow 200 UAV system is currently working up in Afghanistan, while delivery of the second, 5-aircraft system has been brought forward to mid-2012.

The Minister for Defence, Stephen Smith and Minister for Defence Material, Jason Clare announced that a second Shadow 200 tactical UAS (TUAS) will be delivered for use by Australian troops preparing to deploy to Afghanistan, almost one year ahead of schedule.

The first of the two Shadow 200 tactical unmanned aerial systems was delivered in August 2011 and is currently operational in Afghanistan.

The Shadow 200 system captures full motion video during both day and night operations which can be sent back to a ground control station up to 125 kilometres away. It

can recognise targets on the ground while operating at an altitude of up to 8,000 feet.

Each Shadow 200 System comprises five aircraft, ground control stations, a launch and recovery element, and associated equipment, logistics and training. The two Shadow 200 systems are being acquired through Joint Project 129 (Phase 2) at a total cost of over \$90 million. SP

IAI upgrades UMT-advanced UAS mission simulator

Israel Aerospace Industries (IAI) presents the comprehensive and high-quality mission trainer: UMT UAS (unmanned aerial systems) Mission Trainer.

Based on IAI's vast experience in UAS development, operation, training and simulation UMT is designed to enable the operator in training to control the UAS flight as well as operate its systems in a professional manner. UMT systems simulate complex operational scenarios in which a separate or coordinated operation is required as well as control of various payloads, changing targets and extreme weather conditions.

Various avionics and payload modules are integrated in UMT's design with high-end off-the-shelf commercial systems and specially developed IAI's products, including the unique IOS (Instructor Operating Station). UMT's architecture is based on modular components that might be

replaced and upgraded easily. It allows connection to other HAL-based trainers and execution of multi-training scenarios.

UMT is currently in use by various IAI's customers around the world. IAI develops UMT simulation systems tailored for specific customer requirements. UMT enables training for a variety of UAS by different manufacturers. SP

Rustom-2 MALE UAV timeline

Rustom-2, the medium altitude long endurance (MALE) unmanned aerial vehicle (UAV) being developed by the DRDO, is scheduled to make its first flight in February 2014, according to the Defence Minister A.K. Antony. He informed the Parliament recently that development of other UAVs are included in the 12th Five Year Plan proposal.

Designing of Rustom-2 is complete and purchase orders have been placed, ADE Director P.S. Krishnan had told press in February this year during the two-day international Conference on Autonomous Unmanned Vehicles. Ten Rustom-2 UAVs and spare vehicles are scheduled to be completed by August 2017. The UAV is budgeted to weigh 1.8 tonnes with a payload of 350 kg. It is designed to acquire a wing span of 21-odd metres and an endurance of above 24 hours.

The 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 km when fully developed. SP



Nine militant outfits surrender

On January 24, 2012, 1,695 cadres of nine different militant outfits, namely, Adivasi Cobra Militant of Assam (ACMA), Birsha Commando Force (BCF), Adivasi People's Army (APA), All Adivasi National Liberation Army (AANLA), Santhal Tiger Force (STF), Kuki Revolutionary Army (KPA), United Kukigam Defence Army (UKDA), Kuki Liberation Organisa-

tion (KLO)/Kuki Liberation Army (KLA) and Hmar People's Convention (Democratic) (HPC-D) laid down arms in the presence of Union Home Minister P. Chidambaram and the Chief Minister of Assam to find out solution of their demands through negotiation with the Government.

State Government of Assam has been requested to take action for rehabilitation of the militants who had surrendered in a time bound manner. Action has also been initiated to address their grievances,

according to the Minister of State for Home Affairs Mullappally Ramachandran. **SP**

Anti-human trafficking units strengthened

The Ministry of Home Affairs has been implementing a comprehensive scheme for coordinating the national and international response to human trafficking, including strengthening law enforcement response in India through capacity enhancement of responders, including training of trainers (TOT) programme and establishment of integrated anti-human trafficking units (AHTUs).

Under this scheme, funds to the tune of ₹8.72 crore were released to all the states for establishment of 115 AHTUs during the year 2010-11. 104 AHTUs have been made operational. For the year 2011-12, an amount of ₹8.338 crore has been released to all the State Governments for establishment of 110 more AHTUs. Establishment of AHTUs in the state has shown results at the ground level resulting in increase in the number of cases registered, number of rescue operations and more convictions, according to the Minister of State for Home Affairs Jitendra Singh. **SP**

Malaysia's new law on internal security

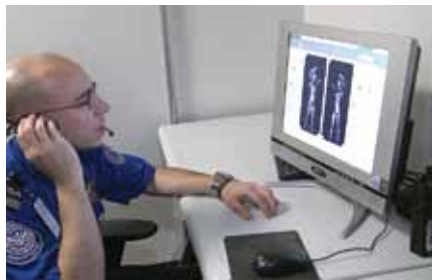
The Malaysian Government has introduced a new law to replace the Internal Security Act that allows indefinite detention without trial. The law has been introduced for the first reading at the Malaysian parliament as part of a civil liberty reform.

The Security Offences Bill bars police from arresting individuals solely for their political ideology and mandates all security offenses to be tried at the court. It allows detention without warrant for 24 hours for investigation purposes and an extension of no more than 28 days with permission from a court. The new law grants public prosecutor rights to enter any premises. It also allows the public prosecutor to apply for the acquitted to remain in prison until all appeals are disposed of.

"This is a historic day for Malaysia and another major step forward on the road to reform," said Malaysian Prime Minister Najib Abdul Razak in a statement, describing the new law as a balance between protecting national security and ensuring civil liberties.

Home Minister Hishammuddin Hussein has informed the media that the government would propose more amendments and replacement to the existing security laws. **SP**

TSA Pre-screening benefits in more airports



The Transportation Security Administration (TSA) has announced new details regarding the expansion of the TSA Pre initiative. Since its launch in October 2011, more than 6,40,000 passengers have been screened through TSA Pre.

By changing procedures for those travelers the agency knows more about, through information they voluntarily provide and combining that information with TSA's multi-layered system of aviation security, TSA can better focus limited resources on higher-risk and unknown passengers.

TSA Pre is currently operational at 11 airports and is expanding to additional air-

ports and airlines, as well as additional TSA Pre lanes at existing locations. Alaska Airlines, United Airlines and US Airways will begin offering TSA Pre screening benefits at select locations in the coming months. TSA anticipates TSA Pre will be operational at many of the nation's largest airports by the end of 2012. **SP**

Pay \$100 for expedited security screening

Those who wish to avoid body scanners and pat-downs at airports can pay \$100 to opt into a Transportation Security Administration (TSA) expedited security screening programme. Currently, only selected frequent flyers and Customs and Border Protection trusted travellers are eligible to participate in the TSA's PreCheck programme.

Those who are accepted can keep their shoes, belts and jackets on as they walk through a metal detector. They are also allowed to keep laptops and liquids in carry-on bags. Nearly 1,00,000 American Airlines passengers have already signed up.

The TSA has faced a slew of criticism for its airport screening methods, which critics say are far too invasive and sometimes result in abuses. **SP**

Chinese hackers target India

According to latest reports, Chinese hackers have become very active, specifically targeting various Indian military research bodies. Also on the hit list are Tibetan activists.

Tokyo-based Trend Micro has reported that the hacking campaign dubbed 'Lucky cat' targeted Indian military research institutions, entities in Japan as well as the Tibetan community. The campaign, active since June 2011, has been linked to 90 attacks against targets in Japan and India as well as Tibetan activists. In all, the Lucky cat campaign managed to compromise 233 computers in systematic attacks.

Victims of the attack also include Indian shipping companies, Japan's aerospace, energy and engineering companies



and at least 30 computer systems of Tibetan advocacy groups. Trend Micro said each malware attack involves a unique campaign code that can be used to track which victims were compromised by which malware attack.

Trend Micro tracked elements of the cyber attack campaign to hackers based in China. **SP**

DOD needs industry's help to catch cyber attacks

The US Defense Department needs private sector cooperation in reporting computer network attacks in real time to stop what has been the "greatest transfer of wealth in history" that US companies lose to foreign hackers, the head of US Cyber Command, General Keith B. Alexander told a Senate Committee.

The General, who is also the National Security Agency director, told the Senate Armed Services Committee that he supports legislation that would require private companies to report attacks, and



Oxford is one of the centres of excellence in cyber security

Oxford and Bristol are among eight universities recognised as centres of excellence in cyber security research. GCHQ, one of Britain's three intelligence agencies, is awarding these universities the Academic Centre of Excellence in Cyber Security Research status in partnership with the Research Councils' Global Uncertainties Programme (RCUK) and the Department for Business Innovation and Skills.

Besides Oxford and Bristol, the other universities recognised are Imperial College London; Lancaster University; Queen's University Belfast; Royal Holloway, University of London; University of Southampton and University College, London.

Minister for Cyber Security Francis

Maude said: "We want to make the UK one of the most secure places in the world to do business, by investing in the best expertise to keep pace with technological change. The eight centres of excellence are expected to benefit the UK by enhancing the UK's cyber knowledge base through original research; providing top quality graduates in the field of cyber security; supporting GCHQ's cyber defence mission; and driving up the level of innovation. The centres will open for business on July 1, 2012 for a period of five years. During this time GCHQ will encourage further universities to develop their capabilities in order to meet the stringent criteria for recognition.

This will position the UK cyber research community as the pre-eminent environment in which to conduct leading edge research and in turn attract the best academics and research students in the UK and from overseas, a university release said. **SP**



added that such reporting needs to happen before an attack is complete.

"We need to see the attack," he said. "If we can't see the attack, we can't stop it. We have to have the ability to work with industry - our partners - so that when they are attacked, they can share that with us immediately."

Many cyber defence bills have stalled in Congress over concerns about privacy, overregulation and the military's role in cyber protection, Alexander and the senators noted.

The General compared the current situation to a missile being fired into US airspace with no radars to see it. "Today, we're in the forensics mode," he said. "When an attack occurs, we're told about it after the fact." **SP**

HAL revenues up seven per cent

Hindustan Aeronautics Limited (HAL), a Navratna defence public sector unit, has declared an impressive financial performance for the year 2011-12. The provisional financial results are: Sales for the year 2011-12 is ₹14,001 crore registering a growth of 6.74 per cent over the previous year; profit before tax (PBT) for the year is at ₹3,200 crore.

An interim dividend of ₹747.7 crore has been paid for the year 2011-12, which is 620 per cent of the paid-up capital. The company for the 11th year running has met all the targets set in "Excellent" category in respect of the MoU concluded with the Government of India, for the year 2011-12. **SP**

Finmeccanica takes €3.2 billion charges, posts €2.3 billion loss for 2011

Chairman and CEO of Finmeccanica Giuseppe Orsi said: "2011 was an extraordinarily difficult year during which we carried out a comprehensive but necessary review of the Group's industrial strategy and business and technological approach.

Inevitably the balance sheet we are presenting reflects this and represents the first important step to setting Finmeccanica on a new trajectory. 2012 will be characterised by an improvement in our key balance sheet indicators and will be a year of calibrated transition towards a new Finmeccanica."

The new orders totalled €17.434 billion and the order backlog was € 46 billion. The net loss of €2.3 billion was due to 'exceptional events' and non-recurring charges of €3.18 billion. **SP**

Russian Helicopters announces 32 per cent EBITDA increase

Russian Helicopters, JSC, a leading global designer and manufacturer of helicopters, and producer of some of the world's most iconic, innovative and widely operated models, announced its consolidated operating and audited financial results for the year ended December 31, 2011.

According to a release, helicopter deliveries increased by 22.4 per cent and reached 262 units; firm backlog doubled and totalled 859 helicopters as of December 31, 2011; revenue grew by 27.8 per cent to RUB 103.9 billion; EBITDA surged 31.7 per cent to RUB 18.0 billion, representing a solid EBITDA margin of 17.3 per cent; profit was up 12.7 per cent and totalled RUB 7.0 billion.

Dmitry Petrov, CEO of Russian Helicopters, commented: "I am delighted to report such strong results for 2011 – a clear demonstration of our ability to achieve our targets and to deliver on our commitments to our stakeholders.

"The company maintains solid growth momentum and continues to develop. During the year, we consolidated our position as one of the leading players in the global helicopter industry. We increased deliveries by 22.4 per cent to 262 helicopters to our customers from 19 countries, which allowed us to achieve a market share of 14 per cent of the world's helicopter market in money terms. Moreover, we succeeded in doubling company's firm backlog, which reached 859 helicopters with a value in excess of RUB 330 billion by year-end.

"Our strategic goal is to continue strengthening the company's global market position by increasing our competitiveness and operational efficiency, and to continue building shareholder value. In 2012, we intend to build a strong platform for future growth through our intensive research and development programme. We will also continue to modernise our production facilities, to develop our aftermarket service network and to streamline management structures." **SP**



Kamov Ka-60

Security events

DSA 2012

16-19 April

Defence Service Asia

Putra World Trade Centre,
Kuala Lumpur, Malaysia

<http://www.dsaexhibition.com/>

Surface Warfare Summit

23-25 April

Sheraton Norfolk Waterside Hotel,
Norfolk, Virginia

<http://www.surfacewarfaresummit.com/Event.aspx?id=680536>

Info Security Europe 2012

24-26 April

Earls Court

London, UK

<http://www.infosec.co.uk/>

Counter Terror Expo

25-26 April

Olympia, London

<http://www.counterterrorexp.com/>

Miltech 2012

8 May

Avenue Conference Centre, Airport City
Israel

<http://www.technologies.co.il/beta/en-us/Conference.aspx?Id=46>

Black Sea Defence & Aerospace 2012

16-18 May

Romaero, Bucharest

<http://www.bsda.ro/>

Undersea Defence Technology (UDT)

29-31 May

IFA, Spain

<http://www.udt-global.com/>

Eurosatory 2012

11-15 June

Paris

<http://www.eurosatory.com/#/home>

Airborne Early Warning and Control Conference & Exhibition 2012

13-14 June

New Delhi

<http://www.tangentlink.com/>

Military Airlift Asia Pacific

9-10 July

Grand Copthorne Waterfront Hotel
Singapore

<http://www.smi-online.co.uk/events/overview.asp?is=1&ref=3748>

Vertical-lift aircraft design expected soon



The military services expect to unveil performance specifications this summer for a new joint vertical-lift aircraft, Major General William T. Crosby told Congressmen.

Crosby, director of the Army's Programme Executive Office Aviation, testified to the House Armed Services Committee, subcommittee on Tactical Air and Land Forces at a hearing on rotorcraft modernisation programmes. His counterparts from the Navy, Marine Corps and Air Force also testified.

Crosby said a consortium, which includes industry partners, has been working with the military on ideas for a joint vertical-lift aircraft. Two demonstrator aircraft have been developed, wind-tunnel tests have been conducted and other studies completed.

A joint attack-utility variant is the first aircraft the military will invest in under the programme, Crosby said.

"Some people are saying it's going to be rotary-wing. We don't know that..." Crosby said. "It may be a tilt-rotor of some sort that we're going to go to. But based on the wind-tunnel studies and the demonstrators that we've done and the input of this team, including the consortium, we hope to have a deliverable this summer of a specification that will guide us towards what the next step will be that we're going after."

The effort to design a next-generation aircraft has been called the joint multi-role programme. This Army-led programme has included input from the Office of the Secretary of Defence, all military services, including the Coast Guard, Special Operations Command, NASA, and others.

Those involved envision the aircraft having vastly improved avionics, electronics, range, speed, propulsion, survivability, altitudes and payload capacity. Some have said it should be able to sustain speeds in excess of 170 knots, have an overall combat range greater than 800 kilometres and be able to hover with a full combat load at altitudes of 6,000 feet in 35-degree heat.

Under questions about industry reps being included in the

consortium planning the aircraft, Crosby defended this partnership, stating the consortium has been primarily a technology advisory panel. "There was no commitment to award contracts of scope or anything like that," Crosby said. "What we were trying to preclude is duplication, where we had a bunch of people going after the same technologies."

"The other thing is, we in the government, we don't do a lot of development, cutting-edge development. Our partners in industry, that's what they do. So we wanted to bring them on to look at these enabling technologies we needed to go to the future, to prevent us from going down a 'rat hole' and getting after something that really wasn't achievable."

Modernisation is more of a challenge today because technology is turning over so fast, Crosby said. As science and technology dollars become tighter, the Army may rely more on consortiums to help develop new technologies for its future aircraft, he inferred.

A future vertical-lift study will soon be released to provide a way ahead for aviation modernisation, Crosby said. "It lays out a roadmap for all of us services together looking forward. It identifies kind of a scalable architecture of rotary-wing or future vertical lift platforms."

Another programme Crosby cited as showing a lot of potential is the improved turbine engine programme, or ITEP. This programme's objective is to develop technologies for a 3,000-horsepower engine that reduces fuel consumption for the AH-64 Apache and UH-60 Black Hawk helicopters.

"What a great capability," Crosby said of the ITEP tech demonstrators. He said they were demonstrating "all of the improvements that we're asking for," including a 30 per cent increase in power and a 25 per cent decrease in fuel.

The improved turbine engine programme is expected to come out of its science and technology phase this summer, Crosby said, adding that the Army intends to continue carrying two vendors for the programme if budget realities permit. **SP**

Near escape from Colditz in a glider

The greatest escape that never happened was ready to take flight—literally—when Allied troops occupied the castle a few weeks before the end of Second World War in 1945. Behind a dummy wall high in an attic above the chapel, British prisoners had spent months secretly cobbling together a glider. They built it in sections from wooden shutters, mattress covers, and mud fashioned out of attic dust.

A German discovered the dummy wall at one point but was silenced with a bribe of 500 cigarettes. After the war, locals broke up the glider. As is chronicled in the NOVA programme “Nazi Prison Escape,” a replica of the glider recently built by ex-Colditz POWs flew successfully, proving that the inmates’ most extraordinary escape vehicle ever may very well have worked, if only given the chance.

Colditz Castle was a forbidding medieval edifice near Leipzig, Germany, was supposed to be the Nazis’ most escape-proof prison. Incurable Allied officers who had repeatedly escaped from other camps were sent to Colditz, the only German POW camp with more guards than prisoners. Yet English, French, Polish, Dutch, and other inmates managed to sneak out in surprising numbers.

Escaping from the castle was only the beginning, however, and while at least 130 got out during the course of the war, only 30 got clean away. **SP**



Le pigeon aux petits pois by Pablo Picasso is one of the paintings that was stolen

Masterpieces disappear from Paris Museum

A series of security blunders allowed a lone thief to pull off one of the biggest art heists in history, in May 2010. Five masterpieces by artists including Picasso and Matisse – worth up to £430 million – were stolen from the Paris Museum of Modern Art.

But officials admitted that during the raid a £15 million alarm sys-

tem was broken, and had been for three months, guards were said to be ‘dozing’ and external CCTV cameras were all focused on the museum roof. With the alarm out of action, the intruder was able to slip into the museum by removing a window on the ground floor, where he was not recorded by the ineffective outside CCTV.

He then spent 15 minutes inside, where three guards were said to have inexplicably missed him as he was filmed by an array of cameras. Investigators believe the staff may have been taking a nap. The crime was not discovered until 7 a.m., three hours after the intruder made his getaway. **SP**

Plot to kill Obama

Norwegian mass murderer Anders Behring Breivik planned to bomb President Barack Obama when he went to collect his Nobel Prize in 2009.

The right-wing terrorist who went on to kill 77 in July last year had plotted to attack the Nobel prize award ceremony with a car bomb.

Breivik, 33, used a similar plan, when he attacked the centre of Oslo in July 2010, exploding a car bomb near government buildings, before going on a shooting rampage at a youth camp on nearby Utøya Island.

He told police that he had earlier planned to bomb the Nobel prize ceremony as a symbolic target with millions watching across the world. But he scrapped the plan, reasoning security would be too tight to get the bomb close enough to Oslo City Hall where award are presented. **SP**

Man coolly walks at IGIA airside

In a shocking revelation, a 50-year-old man was recently arrested for security breach at the Indira Gandhi International Airport (IGIA). Ram Lakhan, a native of Patna, said the two personnel of the Central Industrial Security Force (CISF) were sitting at the gate and did not even ask him for a pass when he entered from gate number 11 at the airport.

Sources said Lakhan spent nearly 45 minutes at the airside before a Jet Airways’ employee noticed him. CISF personnel have been pulled up for the lapse. **SP**



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