SHOW DAILY

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Ministry of Defence

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DAY TWO
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India comes of age with Defexpo

The sun was shining over Asia's largest Defence show as Defexpo 2008 kicked off on Saturday morning-with Defence Minister AK Antony declaring the doors open on the mega arms show.

Global acceptance of India as a major defence products market had finally arrived, Antony said, while opening the show. "With a record 475 participants from 30 countries-the Defexpo has emerged as a big platform to showcase the vast range of products, he said. The Defence Minister said that on an unprecedented scale, "the Defexpo also endeavours to showcase India's land and naval capabilities".

A host of dignitaries, both military and civilian, were told of India's emerging might as a defence industry power. Antony also lauded the growing synergy between industry, government and the military. He said a key attraction of the event would be the Defence technology forums.

Contd. on page 02

Hon. Defence Minister A.K.Antony with the dignitaries at the inauguration of Defexpo2008

Hon. A K Antony on a whirlwind visit to the stalls after the Defexpo08 inauguration

Defense Minister A K Antony made a surprise stop to hear about the advanced capabilities of the F/A-18 Super Hornet from Boeing India President Ian Thomas, during the minister's whirlwind tour of the American pavilion at Def Expo 08, which opened today (Saturday) at Pragati Maidan. The Boeing F/A-18 simulator, which replicates much of the experience of flying this advanced combat fighter, is a popular feature of the Boeing exhibit at the show. Boeing will formally offer India 126 F/A-18 Super Hornets when it submits its proposal on March 3 in India's MMRCA fighter competition.

Policy On The Move

India's Defence Procurement Procedure has evolved on its own and not copied any other model. This assertion was made at the first session of the Indian Defence Industry summit at the Defexpo on Saturday afternoon. Stating that policy makers were keeping a view on requirements and the realities of the market, the DG, Acquisition, Ministry of Defence, Mr. SK Sharma, said that the procedure was stabilized with DPP-2006 and factored in "the highest degree of public accountability".

While debating India's defence industrial policy and procurement process, Mr. Sharma emphasized that transparency; impartiality, level playing field and healthy competitiveness were the watchwords.

He said policy was now moving towards encouraging Indian industry to develop high category complex systems. Deals were being seen in the light of cost-effectiveness and high technology availability. In an interesting question asking how elaborate procedures could be counter productive due to stretching

Contd. on page 02

India comes of age with...

From Page 01

DEFEXPO 2010 ANNOUNCED

Reiterating the record turn-out at Defexpo 2008, Antony said that the mega event would provide huge business opportunities and an insight into global advances in technology. It was on that note that he declared that the next Defexpo would be held between 15th and 18th February, 2010.

BIG LEAGUE PLAYER

With the involvement of the private sector, the industry was now booming and India had moved from being a supplier of sub-systems to a big league player. The Defence Minister said with the Government being the sole purchaser of defence goods-policies were now being fine-tuned in accordance with both the military and the private industry's requirements.

OFFSET POLICY 'EVOLVING'

Speaking on the sensitive offset policy, Antony admitted that it was still at a nascent stage and evolving. Important issues like credit banking, technology transfer and licensing were being thrashed out by the Government with all parties concerned-but a revised Defence Procurement Procedure policy was once again promised by April this year. The Defence Minister assured that as the industry was moving forward, appropriate decisions were in the offing to provide a boost to the sector-specifically the foreign and domestic private players. Ultimately, the government was committed to transparency and in finding the best quality at the right price. Beneficial tie-ups with friendly countries were on the agenda and India's own competitiveness in a rapidly expanding Asian market was poised to reach a new high.

PARADIGM SHIFT

Speaking earlier, Secretary, Defence Production, Mr. Pradeep Kumar, declared that Defexpo 2008 represented a paradigm shift in India's defence and business capability.

In all, 48 delegations from the world over had accepted invitations to visit the show. He said India's defence production capabilities were moving towards high quality and performance. Kumar said that Defexpo offered an excellent opportunity to evaluate emerging technologies and provide collaboration platforms.

THE SECOND COMING

In his Vote of Thanks, Chairman of the CII National Committee on Defence, Mr. Atul Kirloskar, said that CII's partnership with the Ministry was indicative of the new trajectory which the country was moving in. With an open environment, the industrial base was poised for strengthening through new opportunities. The offset policy also offers new vistas for industry, Kirloskar said. The magnitude of India's opening up of the defence sector to private industry under new dynamics was parallel to a second opening of the economy after the liberalization era.

-Amitabh Joshi

Policy On...

From Page 01

timeframes and ever changing technologies, Mr. Sharma agreed that there did exist a bottleneck but the only way out was to simplify and make procedures more transparent.

A very pertinent point brought up by one delegate was that as long as the 26% FDI embargo remained, foreign companies will be reticent to part with high end and developing technology. With 65% of weapons systems now driven by software-the point was considered a crucial one. Secretary Defence Production, Mr. Pradeep Kumar countered the contention by pointing out that India had come a log way since opening up the defence sector to private players and that focus should not be lost. Efforts to get the best technology remained top priority, despite the blocks. A suggestion was put forward that FDI ratio should be increased in relation to technology transfer issues.

Some foreign delegates sought greater clarification on the offset policy-specifically in the co-relation between offset regulations and the level of technology on offer. Mr. Kumar replied that at present, the preference was to decline the transfer of technology factor from the offset deal.

He also said the government is prepared to share a proportion of the development costs in competitive bids to front-runner parties.

Bangladesh Army Chief likely to visit India

The Chief of Bangladesh Army Staff, General Moeen U. Ahmed, is likely to visit India later this month, two leading Dhaka dailies reported recently.

They said the visit was for holding meetings with top officials of the Indian government and the military.

The Daily Star, quoting sources reported that General Moeen was likely to leave Dhaka on February 24 and return on March 2. However, the dates and time of his meetings were yet to be finalised. The daily claimed to have contacted the Indian High Commission in Dhaka and said "an important official" of the embassy confirmed General Moeen's visit. It also published a programme of the Army Chief's visit, saying General Moeen was expected to pay a courtesy call to President Pratibha Devisingh Patil, Prime Minister Manmohan Singh, External Affairs Minister Pranab Mukherjee and Defence Minister A.K. Antony.

He will also hold meetings with the Indian Chief of Army Staff, General Deepak Kapoor; the Chief of Naval Staff, Admiral Sureesh Mehta; and the Chief of Indian Air Force, Air Chief Marshal Fali Homi Major, said the daily. The general is also expected to visit Ajmer Sharif and the Taj Mahal in Agra.

General Moeen U. Ahmed

The English daily reported that the visit was considered significant as the Army-backed caretaker government was now carrying out various important tasks, including anti-corruption drives, reforms and proceeding towards the general elections by December this year.

Leading Bengali daily *Prothom Alo* said the proposed visit of the Army chief to India was seen as a significant step.

pg no. 3
AD

MBDA to co-develop missile systems for India

MBDA, the leading missile systems company is showcasing a varied range of products including the orders placed by the Indian armed forces as well as those which are aimed at future needs at this year's DEFEXPO exhibition.

In this former category of systems ordered is the Mistral missile-equipped ATAM air-to-air weapon for the Army and Air Force's ALH (Dhruv) helicopters. This lightweight system provides helicopters with the capability of intercepting both rotary and fixed wing aircraft at ranges of up to 6,500 metre as well as light armoured ground targets. The project is moving ahead with vibration tests currently being planned. These vibration tests will use an instrumented missile to measure the forces that come into play when the weapon and the helicopter are in flight and the latter undertakes a series of manoeuvres.

Talking about MBDA's presence at Defexpo08, Jean-Luc Lamothe, MBDA's head of export, says: "Our relationship with the Indian Armed Forces as well as with Indian industry has been established over several decades of working closely together in partnership. We are now looking forward to establishing an even deeper cooperation by not only carrying on supplying our weapons to the three Services but also co-developing advanced missile systems for both Indian and export markets".

Exocet SM39 is also under order for the Indian Navy's Scorpene submarines. This submarine launched variant of this world renowned range of anti-ship missiles is fired from the submarine in a special VSM container. This serves to propel the missile well away from the submarine to keep the vessel's location secret when the missile eventually breaks the surface to carry out its planned mission.

Exocet also has potential in a future projected need associated with the Navy's planned MRH (Medium Range Helicopter) and LRMPA (Long Range Maritime Patrol Aircraft). The Exocet in question is the AM39 variant, proven operationally and offering a highly potent anti-ship capability.

MBDA's extensive range of products (that uniquely includes weapon systems for each of the armed forces – in the air, on land and at sea) offers its customers flexibility and options when considering how best to meet their operational requirements. Thanks to this MBDA is also able to offer an alternative to the Exocet for the MRH in the shape of Marte MK2/S. This is the latest

MBDA's Wares displayed at the event.

version of the MK2 and now features extended range, an advanced seeker and excellent discrimination and resistance to electronic counter measures. With these added features Marte MK2/S is ideal for both littoral as well as blue water operations.

Also looking at India's helicopter requirements, MBDA is displaying PARS 3 LR on its stand. Already ordered by Germany and in production for its Tiger helicopter, PARS 3 LR is being promoted to add a lethal ground attack capability to the Dhruv (ALH). The PARS launcher (the helicopter would have two launchers mounted on either side of the fuselage) houses four missiles that can be fired individually and in salvo. Importantly, the system is fire-and-forget allowing for immediate disengagement after the missile or missiles has been launched – a vital asset for crew and platform survivability.

PAGE 5 ADD

Euro

L&T designs New radar for ISRO

Larsen & Toubro is displaying its Precision Monopulse Tracking Radar at this year's Defexpo. Speaking to *International Aerospace Show Daily* J D Patil, Vice President, Larsen & Toubro Ltd said, "We have developed this new precision radar for ISRO which helps in tracking satellite launch vehicles." This one of its kind radar is specifically designed for ISRO.

Precision Monopulse Tracking Radar (PMTR) is a state-of-the-art auto tracking system for tracking satellite launch vehicles and re-entry vehicles. PMTR is designed for fast acquisition and tracking of targets and can share the track data with cluster of other Radars over digital data network.

There are not many such types of radar available in India at the moment; hence, it is surely an export commodity. The other specialty of this radar is that it has an accuracy of 7 arc seconds, which is a technology by itself and its way beyond the normal military radars.

However, due to the current aerospace policy, this radar cannot be sold to any other company at the moment. The day the nuclear deal is finalized and a similar kind of deal in aerospace is signed we will be able to sale it to others, said Patil.

L&T took 3 ½ years to complete developing this radar for ISRO. It is worth mentioning that L&T had never worked on a basic radar RF technology as a company before this. This time, the company has developed the technology as well as hardware and has put it all together. Under the Public-Private-Partnership (PPP) model, L&T and BEL are involved in designing naval system radar and mixed radar.

J D Patil V.P., L&T and Trupti Tarte, developer of the PMT radar

PMTR is available in C-band and S-band version.

Multi-Functional Displays:

A-Scope – Expanded trace (+ - 4 km form TP); multiplexed A-Scope – Simultaneous display of Skin and Beacon signals; Additional Scopes - J-Scope /PPI; Parameter Display – A, E, R, T, H with tracking errors; Optical Display – CCD Camera /IR Sensor; Range Tracker; Maximum Range 4300 km in Beacon mode; Clock OVCXO with 50 ppb stability; Resolution 0.5 meter; Accuracy 4 metre (16 Db SNR);Tracking Rate up to 15km/sec and Tracking Acceleration up to 2Km/sec2.

-Rojita Tiwari

IAI's navigational systems Unveiled

Israel Aerospace Industries' Tamam Division (IAI/TAMAM) has unveiled the new Reference and NAVigation Inertial, Position, Orientation & Navigation (RNAV-IPON) system. RNAV-IPON is Tamam's third generation of successful precision terrain navigation systems. The system is suitable for tanks, mobile mortars, air-defense systems, command and Special Forces vehicles and surveillance vehicles.

RNAV-IPON is an Inertial Navigation System/Global Positioning System (INS/GPS). The INS/GPS navigation system which provides inertial data for control and stabilization. It has Ring-Laser-Gyro (RLG) technology integrated to the INS/GPS.

The company has also has unveiled its new small, lightweight Advanced NAVigation (ADNAV) system.

ADNAV is an Inertial Navigation System/Global Positioning System (INS/GPS) that provides position, heading and orientation data. The system is suitable installation for a range of military and paramilitary vehicles including tanks, armor, reconnaissance, logistics, command and Special Forces and surveillance.

PAGE 7
ADD

BEL showcases latest electronics products

Defence PSU Bharat Electronics Limited (BEL) will display some of its latest equipments and systems for global markets at Defexpo08 event. BEL is also showcasing its contract manufacturing and offset capabilities in electronic assemblies, precision mechanical components/ assemblies, shelters, GPS modules as well as electronic assembly facilities and software capabilities at the four-day exposition, according to a BEL release.

Amarendra of BEL told *International Aerospace Show-daily* that the company is trying to showcase its capabilities in traditional potential areas like radars, solars and defence equipment systems and new opportunities like offset.

Some top products on display are Battle Field Surveillance Radar- BFSR (Short Range), portable radar for surveillance of battlefield developed by LRDE and Central Acquisition Radar (CAR), medium range 3-D surveillance radar for the Air Force.

BEL will also showcase some of the turnkey system solutions it has provided like the countrywide police network (POLNET), EDUSAR, convergent billing project for MTNL and Andhra Pradesh statewide network (APNET).

BEL Stall

"We are trying to focus on this opportunity and leverage through Defexpo so that we can ensure our customers and show our capability on contract manufacturing on the offset", he added. BEL is looking forward to take advantage of this platform where number of foreign delegations is present with an invitation from government of India. This is an opportunity that the company is taking to tell its customers what BEL is all about.

Not revealing much about the forthcoming MoU, he said, "We are already working on a few leads and we are confident that it will fructify into a MoU in the coming 2-3 days".

- Rojita Tiwari

USA, France major participants

Telecom and IT companies are displaying their products and services for the first time in the Defexpo2008.

According to Pradeep Kumar, Secretary, Defence Production, 'The United States with 46 exhibitors is the largest participant while 43 exhibitors will represent France. Major participants include Russia and UK, besides Israel, South Africa, Germany, Italy, Czech Republic, Poland, Ukraine, Sweden and South Korea.

Reflecting the increased role of private sector in the defence industry, the Defence Production Secretary said over 200 Indian private sector companies besides defence undertakings would participate in the exhibition. Dedicated to global land and naval systems business activity – from suppliers to manufacturers, technology providers to services – the Defexpo also offers an opportunity to the international defence industry to promote and showcase their products and services. As many as 90 products would be launched by domestic and foreign companies during the Defexpo, Pradeep Kumar said.

Kumar informed that Defexpo would project the emergence of India as an attractive market as well as an investment destination for joint ventures in defence industry. The exhibition has generated attention globally and has carved a niche amongst major defence exhibitions around the world, he added.

For the first time, the CII will be hosting a Golf Tournament for the participants, coinciding with the Defexpo.

The Defexpo was conceptualized in 1998 with an objective to promote defence exports from India and exhibit the capabilities of Indian defence R&D and production. The first exhibition was held in 1999 and subsequently in 2002, 2004 and 2006. While a modest 197 exhibitors participated in the first Defexpo, the biennial event will feature 475 companies in its 5th edition this year. Delegations from 47 countries including Afghanistan would attend the deliberations.

BAE Systems' NLOS Cannon Fires 1,000th Round

BAE Systems recently fired the 1,000th round from the Future Combat Systems' Non-Line-of-Sight (NLOS) Cannon firing platform.

BAE Systems will continue NLOS Cannon firing platform testing with a goal of firing 4,400 rounds through the system by 2008 in order to receive a safety certification for the fully automated howitzer. The NLOS Cannon, being developed in partnership with the Lead Systems Integrator team of Boeing and SAIC, will be the first of the eight Manned Ground Vehicle (MGV) variants .

page no. 9

AD

Indo-US Pact on Missile Defence Likely

India may be ready to look into possible US-Indian collaboration on ballistic missile defense. According to Richard Kirkland, Lockheed Martin's top executive on South Asia, 'I would not be surprised if over the next couple of months we begin to have some exploratory discussions with various members of the government and with Indian industry'.

Indian missile-defense cooperation with the United States could complicate relations with China, Russia and Pakistan. Until now, India's policy has been to develop its missile shield domestically, closing a potential multibillion-dollar market to Boeing, Lockheed, Raytheon and Northrop Grumman the biggest players in the emerging ground, air, sea and space based US missile defense system.

But this may be changing in line with a "watershed" Indian decision made formal to buy Lockheed's C-130J military transport aircraft, Kirkland said. It may be noted that India signed a deal with the United States last month end to buy six C-130Js worth $1 billion, a shift from its previous heavy reliance on Russian transport planes. "This kind of puts us in a new environment," James Clad, deputy assistant US secretary of defense for South and Southeast Asia, said on the C-130J deal.

More than 50 US companies doing defense-related work are now represented in India, which is shaping up to be one of the world's biggest arms importers, Clad said. The United States has been eager to boost strategic ties with India as a precaution against China's growing military power.

Washington already has held technical talks with New Delhi on missile-defense capabilities such as Lockheed/Raytheon Patriot Advanced Capability-3 anti-missile batteries, according to Richard Lehner, a spokesman for the Pentagon's Missile Defense Agency. However, Indian embassy officials were not available for comments. Kirkland was bullish on Lockheed Martin's chances to win India's potential $10.2 billion market for 126 multi-role fighter jets.

He called it "the largest single competitive fighter purchase that has been around for 30 years" since a combined European F-16 purchase in the mid 1970s. Lockheed is tailoring an F-16 Fighting Falcon proposal to meet Indian requirements, including advanced radar known as active electronically scanned array, he said. Proposals are due on March 3. Also in the race are Boeing, which is offering its F/A-18 Super Hornet, Russia's MiG-35, France's Dassault Rafale, Sweden's Saab KAS-39 Gripen and the Eurofighter Typhoon, made by a consortium of British, German, Italian and Spanish companies.

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REGD. OFFICE: 13/D, Laxmi Industrial Estate, New Link Road, Andheri (W), Mumbai - 400 053. INDIA Tel: 91-22-2635 8083/84
Fax: 91-22-2630 5184/85 Email: sappl@bom8.vsnl.net.in, www.sapmagazines.com

DELHI OFFICE: F-22, Green Park, New Delhi - 110 016. INDIA. Tel: 91-011-26863028. Fax: 91-011-26863028. Email: sappl@nda.vsnl.net.in

SINGAPORE OFFICE: Sap Media Singapore Pte. Ltd. Merchants Building, 76, South Bridge Road , #03-00 Singapore - 058706
Tel. : (65) 62967613 / 64382341 / 64384881 Fax. (65) 64384886

page no. 11

AD

The 1,000-ship World Navy

A Strategic Concept

CNO Admiral Michael (Mike) G. Mullen, the out-going Chief of Naval Operations (CNO) of the largest navy in the world made his maiden visit to the capital last year. While his visit was a little less than an year back, his primary purpose of touching the Indian shores was to canvass and convince India to become part of his 1,000-ship Navy idea.

Now that he has been recently promoted and taken over as the powerful position of Chairman Joint Chiefs of Staff and has been relieved by Admiral Gary Roughhead who has also made earlier visits to India as the Pacific Fleet Commander and continues to support this strategic idea.

CONCEPT

The 1,000 ships Navy concept has been devised and accepted as a move to achieve world stability in an era of terrorism so that the world does not see any more surprises like the unfortunate events of 9/11. This US Navy concept is an informal arrangement of friendly navies to evolve common inter-operability procedures to face the scourge of asymmetric warfare (terrorism), and be ready to act jointly in disasters like tsunami and emergencies, and the hidden unstated agenda for democratic nations to be 'fighting partners'.

However, there are some nations including China that view this move with suspicion since it has been mooted by the US in its capacity as the uni polar leader pushing for US style democracy in all nations. In a small beginning the recent IONS in New Delhi is on similar lines to seek cooperation and interoperability among navies in the Indian Ocean Region.

Mullen, as the guest of Navy Chief Admiral Sureesh Mehta called on Defence Minister A.K. Antony, and met the other service chiefs during his visit to the capital and Mumbai. His visit was also well timed since the Indian and the US Navy had successfully completed the ninth in the series, a five-day exercises off Okinawa coast from 6th April,07 and Exercise Trilatex off Yokosuka coast, Japan.

The Indian Navy fielded three missile ships: the home built 7,600-tonne destroyer INS Mysore, two 4,000-tonne Kashins, INS Rana and Ranjit, the fleet tanker INS Jyoti, and corvette INS Kuthar, under fleet commander Rear Admiral Robin Dhowan, who has recently turned over the Eastern Fleet to Rear Admiral Satish Soni. The Indian warships acquitted themselves well. The US Navy fielded five of its latest Arleigh Burke-class guided-missile destroyers USS John S. McCain, Mustin, Curtis Wilbur, Fitzgerald and Stethem. There were the 4,100-tonne ASW frigate USS Gary and the 6,900-tonne Los Angeles-class nuclear attack submarine USS Greenville.

Three US Navy SH-60B and one SH-60F helicopters and a P-3C maritime patrol aircraft also took part in the exercise. This set the scene for the the bigger five nation Malabar 07 in September in the Bay of Bengal. The Navies exercised again in multiple skill areas. These included boarding of ships for search and seizure on the lines of the Proliferation Security Initiative; surface missile action groups; formation steaming and air defence and anti-submarine underwater warfare. The Indian Navy has established good links with the US Navy.

Since then the Indian Navy has acquired the refurbished 17,500-tonne Landing Platform Deck LPD INS Jalshawa (ex-USS Trenton) with six Sikorsky Seaking SH-3 helicopters after refurbishment at Norfolk transferred to India at just $ 50 m. The ship recently took part in TROPEX, and is based in the east and will provide India's armed forces an amphibious lift capability of over one combat brigade in the East as the centre of gravity is shifting eastwards.

The Eastern Command of the Indian Navy is gaining importance.

In recent years, the Indian government has supported Indian Navy's close interaction with the US Navy, and powered the Navy's ambitious ship acquisition programmes. The Navy's order book includes two aircraft carriers, 33 warships and six Scorpene submarines on order in what is billed the largest naval expansion in the East.

Navy Chief Mehta has also asked private industry to set up shipyards, and Larsen & Toubro Ltd, which already constructs sections of ships, has offered to construct submarines for the Navy, and set up a Greenfield shipyards. The company has many products it has successfully supplied to the Indian Navy and these include torpedo tube launchers, stabilisers, steering gear, BrahMos launchers, and helicopter deck fittings and has assisted India's ATV nuclear submarine project.

L&T employs over two dozen former naval officers and has bid to build the second line of submarines and has displayed a model with midget attachments at Defexpo along with advances in submarine periscopes and Revathi radar at Defexpo. Next to L&T pavilion in Hall No 11 is the other supplier of the Navy and the TATA pavilion also has naval applications and command and control module.

Two landmark events have contributed to this climate of change and need to be cited as well. The Indian Navy has set about indigenisation in a big way and supported all moves both in house and by Naval Dockyards as a policy. A full Directorate of Indigenisation has been set up in NHQ and exposure to the US and other navies in this 1,000 ship navy concept has given the younger Indian Navy officers confidence that India's own Navy can move ahead as a modern force in the coming years.

`-Ranjit B. Rai

page no. 13

AD

AgustaWestland Displays Modern Military Copters

AgustaWestland, a Finmeccanica company, is featuring its range of modern military helicopters on the Finmeccanica stand at Defexpo 2008. From 2.8 ton single engine AW119 Ke up to the 16 ton three engine AW101 AgustaWestland has a complete range of helicopters to meet future requirements of the Indian Armed Forces.

The AW119 Ke, the new enhanced version of the Koala, is a high performance single engine helicopter ideally suited for a range of utility and communications roles, especially for operations in hot and high conditions, thanks to its powerful 1,002 shp (747 kW) Pratt & Whitney PT6B-37A engine. The AW119 Ke can carry up to seven passengers in its 3.45 m3 (121 ft3) cabin, the largest cabin of any helicopter in its class.

The AW139 is the world's best selling medium twin engine helicopter with over 300 sales. In addition to its success in the commercial market the AW139 has become the leading helicopter in the government and public service market in the 5-7 ton class. The AW139 is ideally suited for government transport duties as well as SAR, law enforcement, maritime patrol and medical rescue roles. Powered by two Pratt & Whitney PT6C-67C turboshaft engines the AW139 is the fastest helicopter in its class with a cruise speed of 165 knots (306 km/h). It also has the best hot and high performance of any helicopter in its weight class and is the only helicopter in its class designed to the latest safety standards.

The AW129 is a possible contender for the upcoming Indian Air Force attack helicopter requirement. Having recently won the Turkish Armed Force attack helicopter competition that included both European and American competition, the AW129 could be a strong contender, offering the best compromise of cost and capability. The AW129 has the performance to operate with minimal restrictions even in hot and high conditions, thanks to its two 1015 kW LHTEC CTS800 engines with FADEC. With four weapon stations the AW129 can carry an impressive range of weapons and a substantial weapon load.

The NH Industries NH90 is the best selling helicopter in the 10-ton market with over 500 sales confirmed so far. AgustaWestland is leading the marketing of the naval version of this helicopter for future Indian Navy requirements. The NH90 is designed to operate from ships performing a wide range of naval roles including anti-submarine warfare, anti-surface warfare and maritime patrol.

The AW101, the largest helicopter in the AgustaWestland range is being evaluated for the Indian Air Force's VVIPO transport requirement. The AW101 cabin is 30% larger than its nearest competitor providing increased space and passenger comfort. Equipped with three engines the AW101 has superior safety in the event of an engine failure, when compared to twin engine designs, especially when operating in hot and/or high conditions. The VH-71, a version of the AW101, will enter service in late 2009 as the new US Presidential Helicopter having been selected as the winner in 2005.

page no. 15

AD

Thales Opens Further Grants for Indian Students

Mr. Francois Dupont

As part of its corporate responsibility programme Thales is persuing its Thales Academia initiative by increasing its educational grants to the Indian students in 2007.The initiative, launched in 2006, is designed to attract the world's best talent to continue and complete their education within France's higher education establishments. The establishments already signed up to the initiative include some of Europe's most prestigious graduate schools, such as members of the ParisTech network (Polytechnique, Telecoms Paris), HEC and ESSEC.

If needed, the students receive free intensive French-language training from their local Alliance Françoise before they leave for France. They are then invited to follow an advanced specialised course in engineering science or business management at a renowned French university or graduate schools of their choice.

Country corporate director for India, François Dupont, comments, "We hope to see this programme develop from strength to strength each year, with even more possibilities opening up to talented Indian students. It is important to create such links between France and India and also between higher education and industry. Students have the opportunity to spend work placement time with us, which along with giving them a very useful experience of industry also allows them to create a network of contacts with the company."

Thales Academia's first year was very successful with a total of 21 students involved in courses as varied as a Masters of Computer Science to a Masters of International Risk Management. Indian students represented 20 per cent of the 2006 intake. In 2007-08, eight students from India availed of the Thales Academia initiative.

In 2008-09, 30-35 students will be targeted including about 15 from India. Brazil will be added to the list of countries apart from China, Russia and India.

Each student receives a Thales Academia grant of €13,000, in addition to the foreign ministry's benefits package (visa, social security and housing support). They will be personally mentored by a Thales manager and proposed an internship with the Group.

As a world leader in electronic systems for aerospace, defence and security, Thales is contributing to the programme as part of its "Technology for the benefit of Youth and Education" sponsorship policy.

For further details contact:
www.thalesgroup.com/academia
www.france-in-india.org

Enterprise Platform Integration

BAE Systems Wins $242m U.S. Navy Deal

BAE Systems has been awarded a $242 million Enterprise Platform Integration Contract (EPIC) from the U.S. Navy to provide integration, engineering, procurement, fabrication, assembly, test, inspection, delivery, and limited installation of integrated Command, Control, Communications, Computers and Intelligence (C4I) capabilities aboard new construction ships.

The indefinite-delivery/indefinite-quantity performance-based contract – issued by the Space and Naval Warfare Systems Command on behalf of its organizational partner, the Navy's Program Executive Office for C4I systems – is valued at $242 million over a 5-year base period and includes three 1-year options bringing the total potential value to $344 million.

"This is an important and strategic win for BAE Systems," said Doug Belair, President of the company's Technology Solutions & Services line of business. "We have an outstanding partnership with the Navy and we look forward to continuing to grow in the Charleston area." Belair added that the award ties directly to the core capabilities of the company's Technology Solutions & Services business and will bring the full resources of BAE Systems to the effort to the benefit of the Navy.

BAE Systems will provide the technical expertise and personnel for execution of these services in Charleston, San Diego, California, and various shipyard locations throughout the United States. The company will also support various Navy and other United States Government shipbuilding programs including modernization and Refueling Complex Overhaul (RCOH) efforts, which require fully integrated C4I capabilities to provide robust systems to support operations, maritime missions and flight safety.

The integrated capabilities of distributed systems that provide network capabilities, C4I, and non-tactical data will provide a given command or ship an extension of the tactical horizon, provide threat indications and warnings, tactical threat analysis and the capability to target the threats.

BAE Systems Technology Solutions & Services provides services and solutions that support Department of Defense and Federal Agency customers across the entire life of their programs, from technical and professional services and solutions, to system and subsystem integration and testing, sustainment, and operations and maintenance of major ranges and facilities.

BAE Systems is the premier global defense and aerospace company delivering a full range of products and services for air, land and naval forces, as well as advanced electronics, information technology solutions and customer support services. With 96,000 employees worldwide, BAE Systems' sales exceeded $27 billion in 2006 on a pro forma basis, assuming BAE Systems had owned Armor Holdings Inc for the whole of 2006.

page no. 17

AD

Rheinmetall:

Right Products to Meet Special Requirements

Although the Defexpo 2008 might be the first time that Rheinmetall is participating at the show, many are unaware that the company has its operations in India since 1970's. Gerhard Hoy, Senior Vice President & Marketing Head, Rheinmetall Representative Office, India spoke to Bhavya Desai about the company's participation at the show. Excerpts:

Rheinmetall Defence is taking part in the Defexpo trade fair for the first time this year but isn't India really a new market for you?

It's true that we're already familiar with the Indian market. our subsidiary Oerlikon Contraves has been active here since the 1970s. In cooperation with Bharat Electronics Ltd in Bangalore, we've produced hundreds of fire control units for the Indian Army. A large number were also produced for export, and the standard of quality met the requirements 100%.

In partnership with Bharat Electronics, we're currently supplying the Indian Navy and other international customers with the Sea guard naval close-in weapon system.

You have recently set up shop in India. How do you rank the Indian market, and what kind of opportunities do you see here?

Rheinmetall attaches a great deal of importance to the Indian market, which is why we've set up a local office in the country. In the next ten to 15 years, the Indian military plans to modernize the bulk of the country's ground forces, especially its artillery and air defence capabilities will present a number or opportunities for global players.

At Rheinmetall we're convinced that we have the right products to meet the special requirements of the Indian armed forces. To cite just one example, we can offer various items such as air defence radar, weapons and ammunition components as integrated solutions.

What new products do you have in store for India at Defexpo?

In the field of army air defence, we'll be presenting our new Skyshield 35mm revolver gun, which we developed in cooperation with the Indian Ordnance Factory Board, by the way. We will also be presenting the turret and weapon of the Skyranger mobile air defence systems as a candidate for replacing the SHILKA regiments.

Mr. Hoy_Gerhard

What is the sort of interest that the 155 mm ordnance and ammunition have created?

The Artillery Corps plans to launch a number of programmes, including towed and self-propelled systems. Our 155mm ordnance and ammunition have sparked considerable user interest in India. Since everybody knows we can guarantee a compelling level of system performance, we're already considered to be serious contenders for the future tendering process.

Can you tell us something about your business in the main battle tanks sphere?

Various initiatives on future tank development with the Indian defence contractors are already underway. We're currently in talks to review the production status of the ARJUN programme. The results and experience gained here will obviously come in handy in the event of possible cooperation on the MBT 2020.

What is your company's position when it comes to offset and technology transfers?

As far as offsets are concerned, Rheinmetall naturally intends to comply fully with Indian government requirements and may even be able to exceed them. And thanks to our longstanding ties with Indian cooperation partners, we're extremely well positioned to take on future joint projects. In the past, we've already had very positive experiences with regard to technology transfers and the Indian defence industry, and we have every reason to expect that we can go on successfully transferring our leading edge technology in this way in future.

page no. 19

AD

French President Witness India's Military Might

India's Republic Day is celebrated every year by inviting a foreign dignitary to be the country's Chief Guest at the magnificent event down the Rajpath on 26th January. India's military might is showcased with pomp with military bands accompanying the colorfully attired troops in regimental regalia. The event also features the Armed Forces parading their latest achievements and hardware additions which gives pride to the nation.

President Nicholas Sarkozy of France and Prime Minister Manmohan Singh

Indian Army's Latest Acquisition The Smerch Multi Barrel Rocket Launcher

The military parade is then followed by depiction of the country's rich cultural heritage with tableaus and dances from selected states and ministries. Children from schools and colleges perform theme dances and a place of honour is given to awardees of gallantry, some posthumous. The salute this year was taken by Shrimati Pratibha Deviingh Patil who was sworn in as President on July 25, 2007 and is also the Supreme Commander of the Indian Armed Forces. President Nicholas Sarkozy of France was the chief guest on the dais seated with Vice-President Hamid Ansari and Prime Minister Manmohan Singh amidst tight security. The parade ended with a grand fly past by the transport 'Big Boy' formation led by an IL-76 and AN-32s and Dorniers, after which formations of Jaguars, MiG 29s and three SU-30MKIs

Contd. on page 22

Drdo Showing Of Vertical Launched Brahmos Now Operational On Ins Ranvir

Bmp-2 Modernised And Produced In Numbers

A Model Of India's Icbm The Agni 111 Tested By Drdo

flew over head at 500 metres and then the SU-30s zoomed in to the skies in a 'Vertical Charlie' enthralling all.

But the most interesting additions that were featured this month parade from India's Inventory included the DRDO showed a model of a ship with a vertical ready to launch BrahMos Missile (See Photo 1). A nestle of 8 BrahMos have been successfully fitted out in the Kashin INS Ranvir by Naval Dockyard Vishakapatnam with trials have proved that the Indian Navy will be the first Navy in the world with VLS supersonic missiles.

At Defexpo 08 Larsen and Tuobro have displayed a model of the launcher and the fire control of the BrahMos in Hall No 11, which they have manufactured. All the Rajput class is slated for this modification which has been ingeniously achieved by removing the after aging VOLNA (RZ61) SAM system which is the equivalent of the IAF's Pechora. DRDO also displayed a gleaming model of the AGNI 111 India's nuclear capable ICBM, which was successfully flight tested in 2007 and is to under go under further trials, prior to induction. (See Photo 2). DRDO also displayed the Ex tank which is its offering of a T-72 with an Arjun 120mm Turrret.(See Photo 3).

Indian Army's Latest Acquisition The Smerch Multi Barrel Rocket Launcher

The Indian Army proudly displayed its latest acquisition from Russia the SMERCH multiple barrel 300mm rocket-launcher system, which has a firing range of 90km and can be controlled from a remote Battle Command Post. The rockets are in canisters and the automated firing to achieve accuracy to pulverize the enemy in a small CEP radius is controlled by a Baget-41 Computer, Odmeters and self orienting gyroscope. The system is mounted on a 9A52 vehicle with GPS for shoot and scoot facilities for survivability. The crew are safely housed in the cabin to operate the system and also have limited video facilities.(See Photo 4) In addition BMP-11s and a Bridge Layer of the Army were displayed as two Army ALH's flew over head. (See Photo 5 and 6).

Text: Ranjit B Rai
Images: VK Singh AFPD MOD

AD LOCKKHEED MISSILES BETWEEN VUL

Navy Refuses to Take Delivery of INS Sindhuvijay Sub

Citing poor performance, the Indian Navy has refused to accept the delivery of Russian made sub INS Sindhuvijay.

On the heels of the deadlock over the pricing of Russian aircraft carrier Gorshkov, India has refused to take delivery of the latest submarine INS Sindhuvijay from Russia, saying its cruise missile had not performed up to parameters.

The Navy refused to take delivery of the INS Sindhuvijay, which completed refit at a shipyard near St Petersburg, after its missiles failed to find their targets in six consecutive test firings, according to media sources.

The pre-delivery test firings were carried out between September and November. The 50-man crew sent to Russia to sail back with the submarine is set to return to India, with the naval brass taking a stern line by asking the shipyard to rectify the problem, before it takes delivery of the sub. The land attack cruise missile flies over 300 km and delivers a 400 kg warhead to its target with pinpoint accuracy. Naval officials said it would take another year to rectify the defects and prove it in firing trials. In a contract signed in 2001, India had sent ten Kilo class submarines to Russia for up gradation to make them capable of firing the Klub class land attack cruise missiles.

INS Sindhuvijay was only the second Indian submarine to be fitted with land attack variants of the missiles. India had purchased 28 Klub class missiles, worth Rs. 844 crores, from Russia in 2006. Anti-ship variants of the missiles failed in repeated test firings in Indian waters. Defence Minister A K Antony had said recently that though negotiations were on, the deadlock over the delivery of the Gorshkov still remained to be resolved.

Citing time and costs overruns, Russia had asked for a whooping extra US $ 1.2 billion for the warship, which was scheduled to be delivered in August this year. The delivery of the carrier has already been pushed back to 2012-13. India and Russia had a similar spat, over the delivery of the upgraded IL-38 maritime reconnaissance aircraft, when the Navy complained that its dragon suites were not working up to the parameters. The deliveries were only taken after Russia rectified the suites.

AD

EADA CASA

Are Conventional Wars Passé?

Global Wars of the 20th century variety are virtually unthinkable today, but then has conventional warfare gone into the attic of history? It is a dilemma most nations face because of the huge costs of keeping conventional forces in being. A look at India's neighbourhood brings this dilemma out best. Does Pakistan's 'Bomb' provide it the consolation it sought when creating it? Does it place Pakistan on an even footing with its larger and better equipped neighbour? Answers to such questions are never easy.

Today worldwide scrutiny of WMD's is so tight that it is unlikely that a nation could engage in nuclear warfare without facing intense pressures from nations with prying eyes. And even if a conventional engagement does start these same nations would apply all necessary pressure, and force if needed, to halt such an engagement the moment they perceive it escalating into a nuclear exchange. So the question remains, are conventional forces passé? Do nuclear capabilities provide the necessary deterrent against conventional threats?

The South Asian dilemma has indeed been resolved for post nuclearisation of the subcontinent Pakistan sought to leverage its nuclear capability in 1999 by launching an adventure in the Kargil region and India drove back the intrusion with conventional forces, albeit with one hand tied behind the back because of political compulsions. The international community kept a very close watch indeed and reined in Pakistan when she was driven out and may have sought to threaten on nuclear retaliation. Both neighbors came to a head again in 2002-3 when India threatened to punish Pakistan for continued support to terrorist elements who threatened India's Parliament, a symbol of her nationhood. So nuclear armed neighbours may engage in sabre-rattling but only to the extent acceptable to international watchdogs.

As long as territorial problems exist conventional forces will always be required. Armchair strategists who proclaim the demise of conventional warfare are doomed to be disappointed for flash points continue inexorably around the world. One might even say it serves the purpose of developed nations with large military-industrial complexes to keep such hotspots on a simmer, and raise them to a boil whenever work orders reduce unacceptably or when local instability suits their purpose. Notice how quickly western powers rush in to fulfill the needs of nations soon after a conflict in a region. One wonders at times if some of these are not engineered to create threats that did not exist. West-Asia, the Middle-East, South Asia, South-East Asia are prime examples of arms markets generated for these conglomerates that feed on regional conflicts, especially when these nations are cash-rich.

There is a perception that large unwieldy armies are uneconomical to sustain, especially where developmental needs are the crying necessity of nations. That despite the intense scrutiny of the earths surface for hotspots, nations must keep forces in being is inescapable. There is also a perception that the capability of precise attacks by air power can provide the necessary sinews to deter any aggressive plans of neighbours. But, Bosnia, Iraq and recently the Israeli intrusion into Lebanon have all proved that holding ground by highly mobile armies is in fact an inescapable necessity. A nation can forego composite ground forces only to its own grief. Whereas air power can be very effective in any action, its ability to deny or hold ground is still highly suspect, though some would like to see it otherwise. It is possible only for very short periods and even then at great cost in terms of air effort which could prove prohibitively expensive.

No nation knows this better than the Israelis who are virtually constantly at war. One of the major lessons that have come out of the 2007 war in Lebanon has been the need to be very careful when restructuring forces to try and bring about savings of manpower and costs. It is necessary to have adequate land armies to protect sovereign territory and create pockets of excellence like Special Operations Forces to deal with smaller specific actions that may arise. Conventional wars, and therefore, conventional forces will never be passé as long as human conflict is possible.

-Air Marshal Gandhi

AD

BEL NEVY

Indian Ordnance Factories now Offer Warranties

The Indian ordnance factories have started offering warranty on their products including small ammunition, bombs, rockets and weapon systems, Disclosing this at a news conference on the eve of the 5th Defexpo, 2008, the Ordnance Factories Board (OFB) Chairman Sudipta Ghosh said all the 40 ordnance factories spread across the country have recently earned the ISO-9002 certificate. Refuting concerns about the quality of OFB products, Ghosh assured that the malfunctions, if any, are attended to by experts or the product is replaced to the customers' satisfaction.

In another milestone in the OFB's history of over 200 years, the OFB Chairman will hand over the first batch of an upgraded Pinaka rockets, developed in collaboration with the DRDO, to the Indian Army on February 27. The Vice Chief of Army Staff Lt. Gen. Milan Naidu will receive the rockets at a ceremony at Ordnance Factory, Chanda in Maharashtra. The OFB will supply 300 Pinaka rockets to the Army this year and 1,000 next year. The Ordnance Factory, Trichy, only yesterday handed over at a ceremony the first consignment of 10 Anti-Material Rifles to the BSF. Revealing plans for the future, Ghosh said the Ordnance Factories are open to the idea of joint ventures as foreign vendors scout for partners to fulfil the offset clause in defence purchases above 300 crore rupees stipulating for ploughing back 30 percent of the contract money into the country. The 40 Ordnance Factories, participating in a big way in the DefExpo, the Naval and Land-based weapon systems exposition, will showcase their products alongside major foreign companies in a bid to grab a slice of the emerging markets, he added. Ghosh said the OFB has raised its R&D budget over the years to upgrade an array of guns, rockets, launchers, tanks and APCs. Towards this end, about 20 engineers are undergoing training abroad, he said.

Keeping itself abreast of the changing patterns in modern warfare, Ghosh said the OFB is upgrading existing land systems to adapt to a net-centric environment. Several new products are being developed either in-house or in collaboration with the DRDO and foreign partners. OFB is also developing new ammunition with longer range for the artillery in various calibers. The new or upgraded weapons and systems which have already been evaluated, include the 155 mm ERFB BB Ammunition, 130 mm Cargo Ammunition, Kavach Launcher Mark-2, Mine Protected Vehicles, 5.56 mm Excalibur Rifle, Anti-Material Rifle, 100-120 kg Air Bomb, CRN-91 Naval Gun, T 90 tanks, AK 630 Naval Gun, 84 mm Rocket Launcher Mark-3, Pinaka Rocket, Armoured Ambulance, Armoured Engineering Reconnaissance Vehicle, NBC (Nuclear-Biological-Chemical) Recce Vehicle and Combat Free fall Parachute. The new products and upgrades under evaluation include the 155 mm artillery gun upgrade, 105 mm mounted gun, 130 mm artillery upgradation to 155 mm calibre gun, T-72 mobility upgrade, Armoured Recovery Vehicle (ARV) on T-72/T-90 chassis, 40 mm L70 gun upgrade, 35 mm Skyshield Air Defence Gun, 5.56 mm carbine, Remote Controlled Weapon Station (RCWS), 5.56×30 mm protective carbine, 5.56×45 mm 'Kalantak' Micro Assault Rifle, 105 mm HE BB Extended Range ammunition, 155 mm Cargo ammunition, Light Specialist Vehicle, Armoured Amphibious Dozer and Namica.

Ghosh said that many of the new products developed or under evaluation would be displayed at the DefExpo. The OFB chairman said that the Kalantak Micro Assault Rifle would be the best in the class and become the next generation gun of the foot soldier. The OFB will cross a turnover 6,900 crore rupees this year and expect it to jump 10 percent annually to touch the 10,000 crore rupees in less than 5 years, he added.

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US to Shoot Down Runaway Satellite

The Pentagon says it will try to shoot down a dying, bus-size U.S. spy satellite loaded with toxic fuel on a collision course with the Earth.

Officials said at a Pentagon briefing that the military hopes to eliminate the satellite as early as next week — before it enters Earth's atmosphere. The operation will be with a single missile fired from a Navy cruiser in the northern Pacific Ocean.

The high drama operation may trigger concerns, and Washington has begun notifying other countries of the plan.

It has underlined that this does not mean that America has launched an anti-satellite weapons programme.

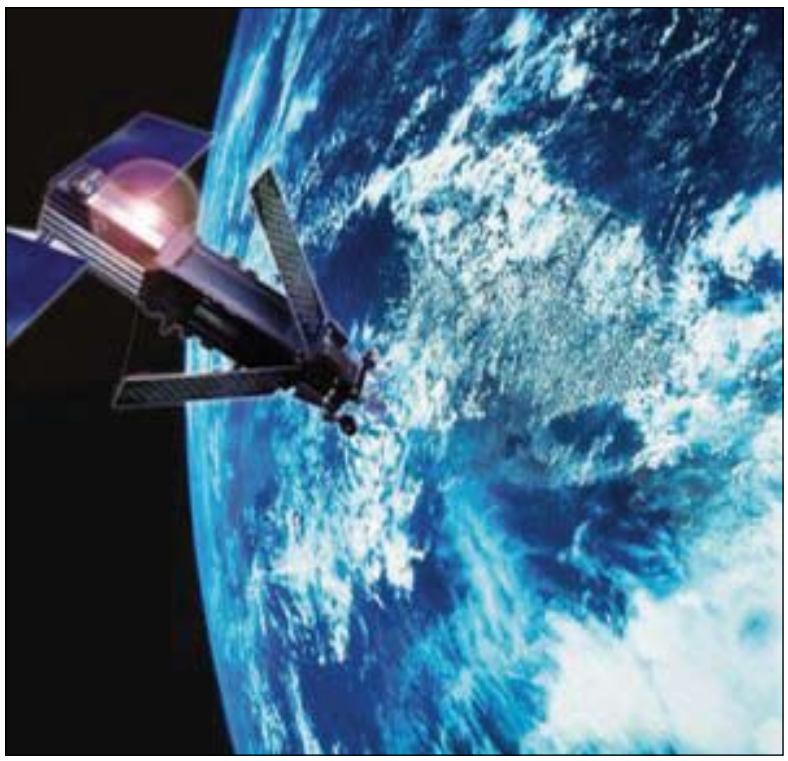
The satellite is carrying fuel called hydrazine that could injure or even kill people who are near it when it hits the ground. This led President Bush to order the shoot-down.

'ONE SHOT & ASSESS'

Gen. James Cartwright, vice chairman of the Joint Chiefs of Staff, predicted an 80 percent chance of hitting the satellite, which will be about 150 miles up when the shot is fired. The time-frame for shooting the satellite commences in three or four days and lasts for about a week.

"We'll take one shot and assess," he said. "This is the first time we've used a tactical missile to engage a spacecraft, said Gen Cartwright"

During the Pentagon briefing, Deputy National Security Adviser, James Jeffrey, put aside comparisons to an anti-satellite test conducted by the Chinese last year-which prompted strong international reactions. Jeffery said the US action was driven solely by humanitarian concern. Observers, however, believe covert US military plans could be at play. A key issue when China shot down its redundant weather satellite was that it created an enormous amount of space debris.



"All of the debris from this encounter, as carefully designed as it is, will be down at most within weeks, and most of it will be down within the first couple of orbits afterward," said Jeffrey.

Without intervention, the satellite was expected to hit Earth during the first week of March. About half of the 5,000-pound spacecraft would survive its descent through the atmosphere and would scatter debris over several hundred miles. If the missile shot is successful, officials said, much of the debris would burn up as it fell. A US Navy missile known as Standard Missile 3 would be fired at the spy satellite.

Known by its military designation US 193, the satellite was launched in December 2006. It lost power and its central computer failed afterward, leaving it out of control. It carried a state-of-the-art secret imaging sensor.

Elisra to provide Paw Technology to Civilian Airports

Elisra recognized worldwide as a standard setter in EW, is known for its proven air and ground forces PAWS systems IR solutions to detect and identify missile threats. Now Elisra is drawing on this robust, highly effective technology to provide civilian airports as well with powerful protection.

Drawing on its all-in-one concept for cost-effectively integrating multiple capabilities, Elisra's IR solutions offer:

- Missile Approach Warning
- Panoramic display
- Collision avoidance
- Small arms fire warning and detection

Software integration of these powerful capabilities does away with the need for multiple units on airborne platforms, saving space and considerably reducing costs.

PAWS for air and ground applications PAWS is the first family of operationally deployed staring IR Missile Approach Warning Systems for attack and support helicopters, fighter and transport aircraft, civilian cargo and commercial passenger as well as for combat vehicles, tanks, AFVs, APCs and more.

Operating in the mid-IR range, PAWS is a family of advanced Passive Missile Approach Warning Systems that integrates IR sensors with advanced processing capabilities. These features allow PAWS to analyze incoming missile IR signatures, and warn pilots or vehicle crews of the direction, type and Time-To-Impact. PAWS can automatically cue directional IR countermeasures (DIRCM) as well as activate the on-board Chaff and Flare Dispensing system.

One of Elisra´s major innovations to PAWS is the new SAPIR system. Featuring capabilities of true IR panoramic (360 degree) day and night vision even in adverse weather conditions of heavy fog, SAPIR offers new levels of pilot or driver safety.

The entire IR line of products – including the new G-Force – features superior ultra-accurate real-time identification of incoming missile direction, even when launched from a short range.

G-FORCE: a long-awaited protection solution for airports Creating a half-hemisphere protection "protection-umbrella", G-FORCE, the latest entry in the PAWS family, features MWS sensors installed on high pillars to avoid ground obscuration. These sensors are spatially separated in order to enable precise tracking and ranging of the threat, using a triangulation methodology. Sensors detection data, such as inertial azimuth and elevation towards threat, are synchronically gathered and discriminated by the main unit processor. Direct countermeasure alignment by this processor is performed following positive threat discrimination.

Advertorial

«Motor Sich»

JSC is The Reliable Partner of Indian Ministry of Defence

Zaporozhye «Motor Sich» JSC celebrated the 100-th anniversary in 2007 and it is actually one of the largest enterprises providing implementation of all the stages of the life cycle of the produced products – from marketing investigations, designing and manufacturing to the follow-up in operation and overhaul.

The Enterprise offers for the Customers the most up-to-date aviation engines for civil and military designation, industrial and gas turbine drives, gas turbine electric power stations and gas transfer units.

The basic products produced by the Enterprise are the aviation engines. Dozens of thousands of engines with company logo – the falcon with globe in the background – lift to the sky airplanes, helicopters and unmanned flying apparatuses designed by world known design bureaus.

The honorary place in the list of these is occupied by Republic of India with which the Enterprise is cooperating as the military supplier during many years. At present more than 1,500 engines with the trade mark «Motor Sich» successfully operate on aviation and missile articles of the Indian armed forces, such as combat and transport helicopters «Mi» and «Ka», antisubmarine patrol aircraft Il-38, transport airplanes An-32 and also anti-ship complexes «Uran».

With the aid of «Motor Sich» JSC at 3BRD IAF (Chandigarh), the overhaul of the engines AI-20, TV3-117 and AI-9V operated in India was mastered and for this purpose the supplies of the spare parts and the required production equipment are systematically carried out from Ukraine.

About a great deal of attention paid by «Motor Sich» JSC to the further mutually beneficial cooperation with the Republic of India testifies to the fact, that the contact office is working in Delhi for many years and technical representatives of the Enterprise stay in various regions of the country, where the aeronautical engineering with our engines is operating. All this makes it possible to serve our Indian Customers better and more actively.

It is necessary to point out the invaluable assistance rendered to us in our work with MoD by military attaches of India in Ukraine Gp. Capt. VS Bharti and Capt. S. Nedunchezziam.

Our relations with MoD of India are marked by the stable tendency of the increase of the scopes of the products to be supplied and the services to be rendered. Thus in 2007 we signed a number of Contracts, including the long-term ones, for fulfillment of the overhauls and delivery of new engines, which made it possible to develop the success achieved. These contracts provide for overhaul and delivery of the new engines, supply of spare parts and equipment for provision of operation and overhaul of engines and overhaul of engines at 3BRD rendering engineering services regarding extension of engine service life.

Below follow the potential perspective trends of development of our cooperation with MoD of India:

Modernization of military transport aircraft An-32.

One of the modernization stages provides for possibility of utilization of new propeller AB-68KM, which has six blades made of composite materials and the reduced diameter. New propeller should essentially reduce noise and vibrations in the pilot's cockpit and improve the thrust characteristics of the power plant. Jobs on adaptation of the engine and the propeller shall be carried out with participation of our Enteprise.

Re-enginening of the helicopters «Mi» and «Ka» .

Our offer provides for the replacement of the engines fitted on the helicopters belonging to the family TV3-117 for the new one TV3-117-SBM1B, created at our factory or to convert Indian engines into profile TV3-117-SBM1B during their overhaul at «Motor Sich» JSC.

This engine has takeoff power from 2000 to 2500 h.p., depending on the adjustment of ASC, essentially increased service life indices and higher characteristics for maintaining power at high temperatures of the ambient air. Thus, the takeoff power 2200 h.p. is maintained at the temperature up to +44◦C. This makes it possible to improve helicopter characteristics under conditions specific for Republic of India i.e. mountains and hot climate.

In our opinion it is perspective to utilize engine TV3-117-SBM1B for the project of helicopter of the class 10 to12 of takeoff mass.

Engines for unmanned flying vehicles

«Motor Sich» JSC has more than 50 years experience of manufacturing engines for unmanned flying vehicles and it is one of the few in the world capable to manufacture engines for aviation, ground and naval cruise missiles. The engines are produced in series, within the framework of the export supplies primarily to Russia. As it was mentioned earlier, the MoD of India operates the anti-ship complexes «Uran» with rockets equipped with our engines P95TM-300.

Within the framework of constraints imposed by the appropriate export control authorities for unmanned flying vehicles, we are ready to cooperate with Indian Enterprises regarding production for the sake of Indian MoD, equipping unmanned flying vehicles with our engines or engines jointly created with our Indian partners.

Engines for training and training/combat aircraft

Practically during its long history our Enterprise delivers engines for training and training/combat aircraft. At present more than 3 thousand of our engines are operated in 38 countries on the most mass- produced training and training/combat aircraft L-39 and on the Chinese УТС K-8. Engines AI-222-25, created in cooperation with our partners, are fitted on the most modern aircraft УБС Yak-130 and their modifications AI-222-25-Ф equip the Chinese supersonic УБС L-15.

The available wide range of the specialized engines makes it possible to implement jointly with the HAL any project of the aircraft required for the MoD of India for initial, average or advanced training and also trainer or light combat aircraft.

Having long-term experience of cooperation with the MoD of India, our Enterprise intends not only to multiply but also to make the essential breakthrough in the field of cooperation with Indian industry represented by HAL. This company needs reliable modern engines and the latest technologies of their manufacture. «Motor Sich» JSC is ready to propose both of them and we'd like to become long-term Supplier and HAL partner.

We are sure that in the result of our cooperation with HAL the new samples of the aeronautical engineering will appear the MoD of India.

Deputy Chief Designer
Yu. Kurchenko

Tata Motors Unveils Specialist Light Vehicle

Tata Motors unveiled its new range of tactical and armoured vehicles at the Defexpo08. According to a company official this range showcases the company's expertise in providing a wide range of military mobility solutions.

The Tata Light Specialist Vehicle (LSV) is a 1.2 tonne payload single platform, built to latest military standards, to undertake diverse missions such as reconnaissance, counter insurgency operations for special forces and even as an ambulance. The Tata LSV's versatility enables it to perform on the major parameters of mobility, survivability, stealth, lethality, transportability and maintainability as per the demands of a modern military force.

Tata motors have been providing defence solutions for over five decades. The company's range of products on display at the expo showcases the company's expertise in developing vehicles that meet the entire spectrum of the needs of the Para military and military forces.

The Tata LSV has an adaptive automatic transmission, 60 per cent gradeability, 300 mm vertical obstacle climbing ability, 45 per cent approach angle, and can operate in temperatures varying from -20degree to +55 degree Celsius. The vehicle has a maximum speed of 105 km/hr.

Other vehicles of the company that are on display include:

Light armoured troop carrier (LATC) with remote controlled weapon system (RCWS), which is designed for movement of troops of section strength for counter insurgency operations. The LATC isd fitted with suspended seats and the fuel tank filled with explosive suppression material.

Armoured Safari which is NIJ Level III protection vehicles for the VVIPS and equipped with features like hand grenade protection for under belly, extra wide footsteps for escorts and RYG indicator for escort vehicles. The vehicle has run flat tyres.

The Tata 8x8 platform, versatile battle mobility solutions capable of being configured to a host of military applications for missile/ weapon stations.

Over 1,00,000 vehicles have been supplied to the Indian military and paramilitary forces so far. The company has the rare distinction of providing the defence forces with customized solutions for specific defence applications.

GE Rolls-Royce Completes F136 Design

The GE Rolls-Royce Fighter Engine Team has successfully completed its Critical Design Review, a major milestone in the F136 engine development program. The F136 engine is a 40,000+ lb. thrust combat engine that will be available to power all variants of the F-35 Lightning II aircraft for the US military and eight partner nations.

During Critical Design Review (CDR), the US Government's Joint Program Office for the F-35 Lightning II validates and approves the design of the engine. During that review, every aspect of the engine design is analyzed and evaluated in order to proceed with the building of the first full development engines. The process involved 80 detailed component and module design reviews, involving technical experts from the JPO, General Electric and Rolls-Royce.

Completion of CDR is an important step that signifies the F136 program is moving from early design phases toward production.

Said Mark Rhodes, Senior Vice President of the Fighter Engine Team "This represents a major achievement for one of the greatest engine design teams ever assembled, striving to provide the best engine to the warfighter. Now, we move on to delivering the first production configuration engine within a year, with first flight in the F-35 Lightning II scheduled for 2010."

"The CDR, held at the GE Evendale facility, was the culmination of over four months of detailed component, module and system reviews between the Fighter Engine Team and JPO propulsion teams. The F136 met the milestone requirements and this serves as an important step on the path towards a competitive engine for the F-35, which is on course to power their first F-35 flight by 2010. Challenges exist, but the F136 is well positioned to meet them," said John White, Director of Engineering for the Joint Program Office.

Said Jean Lydon-Rodgers, President of the Fighter Engine Team,"This milestone demonstrates that two global leaders in propulsion can combine their experience and their best technologies, resulting in an innovative design and one of the most advanced combat engines ever created. The GE Rolls-Royce Fighter Engine Team has reached that goal while staying within its budget and staying on schedule,"

EXAMPLES OF

THE ITALIAN AEROSPACE AND DEFENCE INDUSTRY AT DEFEXPO 2008

Hall No. 11

16th to 19th Feb, 2008 — Pragati Maidan, New Delhi

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NEW DELHI
Italian Trade Commission
50-E, Chandragupta Marg,
Chanakyapuri, New Delhi – 110 021
Tel: 011 - 24101272
Fax: 011 – 24101276
Email: newdelhi.newdelhi@ice.it
Website: www.italtrade.com

MUMBAI
Italian Trade Commission
115, Maker Chamber VI
Nariman Point, Mumbai – 400 021
Tel: 022 – 2282 1125/1214,228 15654
Fax: 022 – 22821086
Email: mumbai.mumbai@ice.it

CHENNAI
Italian Trade Commission
208, 2nd Floor, Prince Towers
25/26 College Road
Chennai – 600 006
Tel: 044 – 2821 4941
Fax: 044 – 2821 4942
Email: ice99@md4.vsnl.net.in

KOLKATA
Italian Trade Commission
C/o. Consulate General of Italy
3, Raja Santosh Road, Alipore
Kolkata – 700 027
Tel: 033 – 24382474, 2479 2428
Fax: 044 – 2479 3892
Email: calcutta.calcutta@ice.it

ROME
Italian Institute For Foreign Trade
Via Liszt, 21
00144 Rome, Italy
www.italtrade.com
www.ice.gov.it

Italian Trade Commission

Land Rover unveils 6x6 prototypes

With nearly 60 years' experience, Land Rover provideds armed forces the globe over with light 4x4 vehicles designed to meet a wide range of defence and peacekeeping roles. The standard defence vehicle line-up within Land Rover's range is based on the Defender heavy-duty 4x4 platform. In addition, the company manufactures Freelander 2, Discovery 3, Range Rover and Range Rover Sport.

DEFENCE VEHICLES

Military versions of Defender are based on the civilian version, having the same basic chassis, power train, axles and bodywork. Features have been developed and adapted for military use over many years to meet NATO standards and the requirements of our customers and, currently, there are over 70,000 Defenders in service with armed forces around the globe. Defender military "platforms" are manufactured in the Land Rover factory at Solihull. These include General Service and dedicated Communications vehicles, with 12V or 24V electrical systems.

The Defender military vehicle meets NATO standard and has features fitted as standard that military customers demand. All Defender military vehicles have "JATE" rings fitted to chassis for air- and heli-portability. (JATE is UK MOD's Joint Air transport Executive and has formally approved Defender for these purposes). Defender has also been approved for air drop in the medium-stressed platform. Defender with roll-over bar and hood frame removed can fit in a CH-47 and CH-53.

THE FUTURE

The Land Rover 6x6 prototype vehicle is being displayed at Defexpo. The Land Rover 6x6 is Land Rover's proposed solution for the new operational environment faced by many of the world's light forces. The Land Rover 6x6 delivers greater payload and volume capacity whilst retaining the legendary all terrain ability, adaptability, robustness and longevity of Land Rover military vehicles.

In the late 1980s Land Rover developed a specialist 6x6 vehicle for the Australian Defence Force's 'Perentie' project. The Land Rover 6x6 was developed to meet the requirements of the Australian Army for a high payload cross country vehicle. Based on core Land Rover Defender 110 parts, the vehicles were assembled in Australia under licence. In total 1000 Land Rover 6x6 were supplied to the ADF. The Land Rover 6x6 continues to be used by the Australian Army and current deployment includes the Middle East.

Land Rover believes recent changes to forces' operational requirements have crated an opportunity to re-life the Land Rover 6x6. Offering operational flexibility will be central to the new project. The new Land Rover 6x6 is conceived in basic form as a chassis cab. It will be designed for modular rear bodies to meet mission/customer requirements.

KEY PRODUCT ATTRIBUTES

Defender 2.4 litre common rail diesel engine mated to a six speed manual gear box and 2 speed transfer box;
Permanent 6x6 drive;
More load capacity – up to 4000 kg payload;
More volume capacity than Defender 110 – wider by 190mm, longer by 1400mm;
Lower loading height, lower visual profile, and more stable defence systems platform than 'truck' type architecture;
Shares a high replacement parts commonality with other Land Rover Defender vehicles and has similar driving characteristics – providing significant advantages when operating in conjunction with other Land Rovers; Designed for modular rear bodies which will allow fitting of the appropriate 'pod' to meet mission/customer requirements.

Pics by Samira Khan

Eurocopter Proud to Showcase Strong Input

Eurocopter, the world's leading helicopter manufacturer, is having a dominant presence at the four day Defexpo event, organised jointly by the Defence Exhibition Organisation and the Confederation of Indian Industry (CII).

Eurocopter's presence at Defexpo is one more step towards continuing a long successful partnership with India, which started more than 45 years ago with the licensing agreement to produce the "Alouette" and "Lama" helicopters in India, where they became the famous "Chetak" and "Cheetah" models.

Armed by a centennial sales record year in 2007, Eurocopter would be showcasing the specifications and mock up models of its most comprehensive mode range of helicopters like Armed Reconnaissance & Observation AS 550C3 Fennec and its naval version, the twin engine AS555SP, together with the state of the art multi role 10 tonne class EC 725 in a highly sophisticated Combat SAR (CSAR) configuration.

SOLUTION PROVIDER

Commenting on Eurocopter's participation at Defexpo 2008, Mr. Norbert Ducrot, Senior Vice President Sales & Customer Relations, Asia Pacific Eurocopter said, "India's aviation and defence sector is on the verge of embarking one of the most impressive modernisation campaigns ever and Eurocopter provides the biggest range of solutions that are suitable to fulfill the needs of not only the country's civil aviation sector but also the highly specific requirements of various upcoming RFP's from all three wings of the Indian Armed Forces. We at Eurocopter are proud to be here to witness the building of India's future".

In the military environment, Eurocopter currently has a market share of 55% in India, comprising of HAL-made Cheetah / Chetak helicopters. Considering the current market size of about 740 military helicopters in India and in light of the latest requirements of Indian Army and Air Force for light helicopters; Eurocopter, which is known for its ability to deliver large orders for state-of-the-art military products on time, is well poised to cater to these huge fleet renewal demands. Over the recent years, Eurocopter's Tiger combat helicopter has earned the reputation of being the most sophisticated multi-role attack & combat support helicopter in the world.

In the civil market, Eurocopter currently has a fleet of 64 helicopters flying in India, representing a share of 40 percent. Eurocopter covers about 50 percent of the oil & gas segment, with 27 of its aircrafts being in service with Pawan Hans and Vectra. The company has 12 aircrafts in VIP/State Government operations with leading groups like Reliance, Raymond, Jindal and Sahara. Charter and tourism helicopters amount up to 6 helicopters, in a fast growing sector. 19 Cheetah/Chetaks are currently flown by civil customers.

In 2007, Eurocopter doubled its objectives in India and sold 15 new aircrafts, equivalent to a value of 100 million US $. For 2008, the organisation intends to reach a growth rate of 30 percent by selling more than 20 aircraft, representing a value of approximately 150 Million US$. Main focus segments are Oil & Gas, Corporate & VIP as well as Charter/Heli-Tourism.

Eurocopter has also further strengthened its worldwide industrial footprint by setting up additional subsidiaries in key markets. The company is well-positioned to take up the 2008 industrial, technological and international challenges, and pursue its growth, in a market which is expected to keep on expanding. Bonds with Indian industry are tense, as HAL is part of Eurocopter's global supply chain for Ecureuil/ Fennec airframe components. Thus, Eurocopter contributes to the development of highly-skilled workforce in India, especially in the Bangalore area.

AD

LANDROVER

30 per cent growth expected by 2010

Indian Defence Market to Touch US$ 700m

The current defence market for private sector firms in India is estimated to cross over US$ 700 million and expected to register a growth of 30 per cent by 2010, according to a Study brought out by The Associated Chambers of Commerce and Industry of India (ASSOCHAM) and Ernst & Young.

The highlights of the study released by ASSOCHAM President, Venugopal N. Dhoot reveals there are more than 5,000 companies supplying around 20 per cent to 25 per cent of components and Sub-assemblies to state owned companies.

Currently about 70 per cent of the procurement in value terms, is from foreign sources because the Indian public sector cannot deliver in terms of quality or speed on either research or production. And only about 30% of the orders placed in India - or 9% of the total - goes to the private sector.

The study observed that barring the Air Force, there is an equal distribution of procurement towards imports & indigenisation. Navy has increased its share of imports over the years whereas the Air Force has started focussing on indigenisation as well. As far as the spending pattern of the Army is concerned, the focus has shifted between imports & indigenisation over the period 2001 to 2005 and the government has set a 70% target for procuring its defence requirements from indigenous sources by 2010.

The public-private partnership PPP enables the MoD to exploit industry's comparative advantage and expertise where the generation of in house military capability is less cost effective, thereby ensuring value-for money, through life defence support. PPP reduces incentives for ex post supplier opportunism because contracts are configured to create forms of 'gainshare' or 'incentivisation' that provide 'value-added benefits for both MoD and industry'. Through 'mutual trust', the combining of complementary assets and the identification of shared objectives.

Mr. Dhoot says, the survey of the various advantages of increasing public private participation and it's leading to indigenisation shows that it is definitely one of the favourable measures of defence production prevalent in the global defence industry. One of the most distinguished advantages of indigenisation of defence production was witnessed in the case of Germany wherein more than 50% of money spent on equipment inside Germany came back to the state in one form of tax or another.

Since the mid-1990s, the arms industry has been characterized by increasing concentration through mergers and acquisitions (M&As). As a result of the merger and acquisition activity since the end of the cold war, there has been a clear change in the structure of the industry. At the end of the cold war the international arms industry was not very concentrated, with the top 5 companies accounting for 22 per cent of the total arms sales of the SIPRI Top 100. By 2005, the study observed arm industry this had changed significantly, with the top 5 firms accounting for 43 per cent of total arms sales.

Globally, companies based in Europe are looking to capture market share from US firms. Airbus and Boeing have a long-standing rivalry; the satellite launch industry is becoming dominated by European firms, with other space opportunities migrating there; and European defence contractors are becoming more aggressive in bidding for Pentagon contracts. In defence, the European incursions have included acquisitions of US companies as well as strategic partnerships.

The IT sector which has in the recent times become a major partner for the defence forces across the world has also seen active transaction activity in its midst. Cisco Systems' acquisition of BroadWare Technologies, while small in dollars, highlights the rising demand for companies that make video surveillance gear. Driving that trend is the confluence of US homeland security concerns and the spread of sophisticated security networks based on Internet technologies.

In 2006, venture capitalists and other investors poured $100 million into late-stage video surveillance technology companies. Experts think the market is ready for consolidation. To date, most of the buyers have ranged from companies that offer security and building infrastructure services, such as GE and Honeywell, to defence companies such as L-3 Communications, Inc. Defence contractors are expected to seek out opportunities for growth beyond traditional defence businesses, especially in civilian government technology services and homeland security. A number of companies have strong balance sheets, which give the companies the means to acquire the right deal. High multiples for acquired companies, however, may make it difficult for companies to make acquisitions pay off.

Boeing, Northrop Showcases Extensive Portfolios

US aerospace majors Boeing and Northrop Grumman are showcasing their extensive portfolio of defence products and services at the four-day Defexpo-2008 international defence exposition. Says Vivek Lall, vice-president and India country head for Boeing Integrated Defence Systems, 'We will be engaging with customers throughout the show to demonstrate Boeing's vast portfolio of programmes and platforms offering advanced technology and capability that is available today.'

'The F/A-18E/F Super Hornet multi-role combat fighter, the P-8I maritime patrol aircraft, the CH-47 Chinook medium-to-heavy lift helicopter and the AH-64D Apache Longbow attack helicopter are just some of Boeing's defence products that uniquely match India's current and foreseeable defence needs," says Lall.

The Boeing exhibit is also showcase the Harpoon, JDAM and SLAM-ER missiles, and an F/A-18E/F simulator. Northrop Grumman will highlight its range of key capabilities including airborne early warning and control systems, fire control radars, unmanned aerial vehicles, ships and naval systems.

According to John Brooks, president of Northrop Grumman International Inc. and vice-president (business development) for Northrop Grumman Integrated Systems, 'India represents one of Northrop Grumman's largest potential growth markets for defence products in Asia and our capabilities across the company are well matched to meeting India's growing defence and aerospace requirements'.

Among the exhibits on Northrop Grumman's stand will be an E-2 Hawkeye airborne warning and battle management system crew workstation and flyable cockpit simulator aimed at demonstrating maritime reconnaissance.

Also on display will be Northrop Grumman's world-leading capabilities in advanced airborne early warning and fire control radar sensors for a variety of platform applications, the statement said.

The Fire Scout vertical take-off and landing unmanned aerial vehicle will also be featured.

Northrop Grumman is showing the LPD 17 San Antonio class amphibious transport ship, which has superior capability for Indian Navy requirements, and its corvette patrol frigate, developed as an affordable frigate-sized ship based on the National Security Cutter being built for the US Coast Guard.

IAI's TecSAR Satellite Transmits First images

Israel Aerospace Industries' (IAI) TecSAR satellite transmitted its first images recently. The images, transmitted during a stormy night, were of exceptional quality.

"All the satellite's sub-systems work perfectly. This is a tremendous achievement that places IAI in an exclusive and short list of satellite manufacturers around the world," said Itzhak Nissan, IAI's President & CEO, while viewing the images.

The TecSAR was successfully launched into orbit on January 21, 2008 on an Indian Polar Satellite Launch Vehicle (PSLV). The launch was part of a cooperation agreement between the Government of India and IAI relating to space activities.

The TecSAR is the first satellite of its kind developed in Israel, and ranks among the world's most advanced space systems. It carries a SAR payload, designed to provide images during day, night and all weather conditions, including under cloud cover. The satellite is controlled and monitored by an IAI-based ground station.

British Army Demos Allen-Vanguard ROV

British Army personnel are demonstrating Allen Vanguard's new digital Remotely Operated Vehicle to their Indian counterparts at Defexpo 2008 on stand number: 10.6 in the UK Pavilion. Global security specialist Allen-Vanguard is introducing a digital version of its mini ROV, the Vanguard™, to the Indian defence industry at the exhibition.

Says Glyn Buckler, sales director at Allen-Vanguard, 'Defexpo is the ideal platform for presenting our bomb disposal and counter terrorism equipment to the Indian market.'

Delegates will be able to experience first hand the combined touch screen and hard controls that enable simultaneous manipulation of all features, including lights and cameras. The digital command console brings 'plug & play' accessory functionality and its intuitive design means straightforward tasks can be mastered within 30 minutes. In addition, the console can be used as a laptop, allowing operators to compile reports and embed images recorded during incidents.

The Vanguard will be put through its paces by British Army personnel on the DESO stand as part of regular live demonstrations. This new version of the Vanguard™ is fully interoperable with its sister ROV the BombTec™ Defender, which will also be on show on the Allen-Vanguard stand.

Samples of Allen-Vanguard's signature HAL® kits for semi-remote access in high risk search and improvised explosive device disposal (IEDD) will also be on display.

New `Atlas` Well Represented in India

As a leading system supplier for naval electronics, Atlas Elektronik from Germany is strongly positioned at the Defexpo 2008. The company is presenting its wide spectrum of products and capabilities at the German Pavilion. For Atlas, India is one of the most important future markets. The impressive growth and increasing political significance of India and the entire region provide an excellent opportunity for Atlas to enter into fruitful new partnerships with Indian customers.

New Atlas Elektronik group stands for maritime and naval solutions above and below the ocean surface. The company holds an undisputed "pole position" in all fields of maritime high technology, from survey echo sounders to heavyweight torpedoes, from coastal protection systems to mine hunting sonars, and from command & control systems including radio & communication systems for submarines, surface combatants and mine warfare systems to in-service support.

The electronics specialist for maritime and naval systems, now a joint company of ThyssenKrupp and EADS, has established an extensive worldwide customer portfolio. The sound technology basis and product range based on "sensor-to-shooter" chains for naval and maritime assets meets the challenges of many navies, port authorities and other institutions around the globe.

Today, the company's capability and product range also allows it to play a leading role in addressing the new and growing asymmetric threats generally covered under the heading of "Maritime Security".

Radio and communication systems from Atlas connect naval ships and land based platforms into network-based environments.

Atlas is the established leader in the development of integrated sonar and command & control systems for submarines with its ISUS has been delivered to more than a dozen navies to date. The company's heavyweight torpedoes, found in more than 150 submarines around the world today, complete the submarine "sensor-to-shooter" chain.

A similar "sensor-to-shooter" capability exists in mine warfare. Complete mine warfare systems, from the sonar through to the mine disposal weapon, and many of the ships in the German inventory have been supplied by Atlas as well as mine hunting solutions to many world navies.

The company provides command & control systems for OPVs, Corvettes and Frigates as well as integrated navigation systems. For surface combatants, Atlas also supplies state-of-the-art, passive and active sonars for ASW (Anti Submarine Warfare) – hull mounted and towed arrays.

Atlas' underlying technology and know-how in sensors, signal processing, command and control and underwater vehicles (including torpedoes) has taken the company into a number of adjacent markets in which its technology has been applied to other applications. The market for coastal surveillance systems (CCS) is only one example. With well over 100 Vessel Traffic Systems (VTS) operational world-wide the company has also established a significant position in VTS for the authorized control and monitoring of shipping within sea lanes, ports and harbours and their approach areas. Another example is hydrography with products and solutions for applications in port and waterway survey, hydrographic survey for charting and in naval warfare as well as in offshore and marine research activities.

Today the Atlas Elektronik Group employs nearly 2000 specialist in naval and maritime systems whose skills cover the complete life cycle – from design and development through production to in-service support. The company today is a key player in the German maritime scene with its headquarters in Bremen and several further German locations. A network of subsidiaries and joint ventures around the globe ensures proximity to customers worldwide. Currently this network consists of Hagenuk Marine-kommunikation (Germany), Atlas Elektronik UK (Great Britain), Sonartech Atlas (Australia), Atlas Hydrographic (Germany + Australia), Atlas Naval Systems MY (Malaysia), and Atlas Maridan (Denmark).

E-2D Hawkeye Programme Well Underway

With the successful testing of the first prototype E-2D Hawkeye completed last year and the second prototype also in the testing programme, Northrop Grumman is very optimistic about the success of its new variant, which already has 75 firm orders from the US Navy.

Speaking exclusively to the *International Aerospace Show Daily* about the current status on the programme, Tom C. Trudell, Manager, International Business Development, AEW & BMC2 Programmes highlighted that both the prototype aircraft are currently in the vehicle and systems testing programme phase at the St. Augustine, Florida production facility of the company. “The test programme will continue until the end of the year and then head to the Naval Air Test Center to complete its final testing.”

With the initial operational capability set to 2011, the company plans to roll out four aircraft a year for the US Navy. While on the outside the aircraft looks very much the same, it is the avionics system that has been given a complete facelift from the earlier version.

At the heart of the E-2D is the Lockheed Martin APY-9 radar system with an ADS-18 antenna, which rotates like the earlier Hawkeye radars offering electronically scanned phased array, allowing great versatility in beam-shaping and direction. The biggest advantage that the rotating antenna with its capability offers is that no matter, which way the aircraft is pointing the antenna provides optimum performance. Since positioning the aircraft correctly for the radar may not always be possible, depending on the scenario, this capability increases its versatility.

Bruce J. Wais, Programme Manager, Airborne Surveillance Radar, Lockheed Martin said that the APY-9 increases the aircraft capability to cover a wider spectrum and visibility over clutter.

The E-2D’s nose has also been completely redesigned to fit in a co-pilot who can work as an operator. While the conventional instruments on the earlier version were fitted with analogue instruments, this has been replaced entirely by an electronic cockpit in the E-2D variant.

The aircraft features new glass cockpit, based on three 17-inch colour displays, one in front of each pilot and one between them. While both pilots are fully occupied during takeoff and approach, one pilot is needed to fly the aircraft once it reaches its operational area. Consequently, the E-2D is configured so that the co-pilot can use his or her display as a tactical screen and act as a fourth mission system operator.

To cope with the extra weight of the new equipment, the E-2D has upgraded to the Rolls-Royce T56-A-427A engines.

When asked about the clearance on offering the E-2D variant to the other countries John E. Beaulieu, U.S. Navy, PEO(T), EC/C2 FMS New Business Manager said that currently the programme is under review for export, which should conclude by the end of this year or early next year. There have been a lot of interest from many countries in the Hawkeye, but we can only engage with them once the clearance is obtained from the government.

Some of the countries that have shown keen interest include UAE, who has shown considerable interest and has issued a request for information India and Malaysia are also considered to be export prospects.

Speaking on the Indian issue he stated that there have been numerous dialogues between US and Indian counterparts as early as 2005, whereas the earlier version of the Hawkeye has already been cleared from exporting from the US Government.

Currently the aircraft is expected to come into operational capability in 2011 and deliveries to the US Navy might commence by 2009, which will go into service immediately. On the other hand should the export clearance from the Department of Defence come as early as this year end, the E-2D could be in the hands of an international customer by 2012 or 2013.

-Bhavya Desai

Army 'Information Warriors' Mark the 97th Anniversary

To mark the 97th anniversary of the Corps of Signals, the "Information Warriors" of the Indian Army, presented a colourful daring display of martial arts (Taekwondo, Kalaripayattu), and motorcycle stunts and their latest communication equipment, recently.

Corps of Signals is responsible for planning, establishing and managing entire Information and Communication Technology (ICT) set up for the Indian Army. The ICT infrastructure apart from catering for the communication requirements for conventional operations also provides communication support to our forces involved in Counter Insurgency operations, United Nation Missions and for emergency communications during natural calamities.

Under the guidance of Lieutenant General S P Sree Kumar, Signal Officer-in-Chief, Corps of Signals has taken active measures for stabilizing, fine tuning and consolidating the architecture and performance of various communication networks fielded in the recent past. The process of consolidation is aimed at effectively providing secure, reliable, real time communications, round the clock by creating a pan Indian consolidated Army network of networks, which ensured that the aim of transforming Indian Army into a Network Centric Force in near future is fulfilled.

Successful implementations of Project Mercury Connect, an OFC project in rugged North Eastern Sector and Project Mobile Cellular Communication System (MCCS) for extending mobile services to our soldiers in Counter Insurgency Operations in Northern Sector are a few major steps taken by the Corps in achieving the aim.

The Corps of Signals with its responsibility to provide Cyber Security for the Indian Army has ensured Information assurance to the field formations with its trained personnel and resources to thwart any cyber threats. Electronic Warfare and Signal Intelligence units are force multipliers and valuable assets for all future wars. The Corps has also enhanced the technology savvy image of our Army internationally by establishing Computer Training Laboratories in friendly foreign countries.

Signals have always been at the forefront of sports and adventure activities. Sportsmen of the Corps have achieved distinction in Hockey, Wrestling, and Athletics at various national and international level competitions. Motorcycle display team of the Corps famously known as "Dare Devils" holds the distinction of having their feat mentioned in Guinness Book of World records. In the recently concluded 4th Military World Games conducted at Hyderabad and Mumbai the responsibility of Communication, Information Technology and Accreditation was entrusted to Corps of Signals and was executed to perfection. SHOW DAILY

KMW Showcases Howitzer PzH2000, MBT Leopard 2

Krauss-Maffei Wegmann (KMW) Europe's market leader for armoured wheeled and tracked vehicles exhibiting artillery systems such as the AGM (Autonomous Gun Module) and the PzH2000. KMW presents the main battle tank Leopard 2 family with some of its various versions like Leopard2 PSO and the Leopard 2A?.

The autonomous Gun Module (AGM) represents a generational change in the field of intelligent gun construction technology.

A key element of the newly developed 155mm artillery module is an all-automatic, remote-controlled loader for shells and charges, retaining the universally unique firing characteristics of the PzH2000.

The fully automated AGM, as a stand-alone module, can be flexibly integrated on a large number of existing and future carrier platforms.

The available options range from applications on wheeled, tracked and rail vehicles to static ground-based mounts all the way to ship borne platforms.

The AGM on-board ammunition supply includes 30 fuzed 155 mm shells and the corresponding amount of charge modules. A rate of fire of up to 6 rounds per minute has already been demonstrated. Despite a marked reduction in weight and size, the gun platform is operational on the AGM system demonstrator without any additional stabilization and provides a 360-degree azimuth range.

The PzH2000 Howitzer System is currently the most modern tube artillery system in the world. It is used by Germany, Greece, Italy, and the Netherlands, which is why the PzH2000 is also referred to as the Euro-howitzer. A superior technical concept makes this system so successful. The howitzer system is characterized by a complete autonomy in navigation and fire control, high firing cadence, and a range of more than 56 kilometres. A highly precise weapon aiming system and stable weapons platform enable a high cadence and precise striking position. The PzH2000 is therefore an essential element of combat support, even in future application and crisis scenarios.

The MBT Leopard 2 is a worldwide success story. Like no other allied main battle tank it serves with the armed forces of 16 nations. It's surpassing combat effectiveness, consisting of an optimal combination of 120mm firepower, protection, mobility and state-of-the-art control capabilities, sets standard worldwide. The Leopard 2 is also characterized by a modular design down to subassembly and component levels. Together with reserve performance for the running gear and drive – the facilities modernization upgrades and combat efficiency. With the new variant for peace support operations (Leopard PSO) KMW supplies the future-proof response to the new range of deployment for the allied armed forces. This new version of version of the worldwide leading Leopard 2 main battle tank family is specially designed to serve within Military Operations in Urban Terrain (Urban Operations) with its various and asymmetrical threats. Fitted with highly effective all-round protection, a secondary weapon station that is operable under protection, an option for equipping with non-lethal effective means and an enhanced reconnaissance ability, the Leopard 2 PSO is assertive and sustainable in both built-up and non-built-up terrain. Further more it is equipped with a high-performance camera system for close observation, search light and dozer-blade for barricade removal. A high-performance cooling unit and APU (auxiliary power unit) accomplish assignments as well as equipment for a 24-hour battle day.

-Sameer Gadkari

Thales Shows Positive Results

From L-R: Francois Hubert-Habart; Patrick Schutz; Christophe Robin

Achievement of Thales in India showing positive results during the previous years, lead the company to equip Indian Army T-90 battle tanks with more than 1,000 Catherine FC thermal imagers. Recently, the announcement of a new order will bring India to dispose of more than 1,000 units built by Thales. Catherine FC certification on the T-90 by Russian defence equipment company Rosoboronexport and the creation of Thales India Private Ltd as a local maintenance facility were decisive factors in this success.

This growing relationship places Thales as the main partner of the Russian industry within the optronics field.

Concentrating on the thermal imaging technologies. Thales recently launched the Catherine XP thermal imager, which uses an LWIR detector based on the company's propriety quantum-well infrared photodetector (QWIP) is also said to be the most compact thermal imager in its class.

Thales optronics reported to do well in Land, Air and Naval are said to have more focus on Land in India, since it has more relevance. "We are proud to have this opportunity to work with such a demanding customer as the Indian army. Cooperation between us is excellent. The difficulties we encountered at the outset were quickly resolved by getting the right structures in place- particularly a maintenance facility in India that guarantees an extremely fast and efficient service. This new illustration is also a prime illustration of our commitment to develop a growing long-term relationship with the Army," says François Hubert-Habart, Sales Director for Asia from Land & Joint Systems activity of Thales.

Thales has created Thales India Private Ltd. which provides maintenance and repairs on a local basis for the thermal images supplied to the India army. Excellent performance of Thales has been noticed in India and for another two years it will be on consolidation mode. Business from aerospace side has increased to 60% in civilian against 40% in defence. The company has also enrolled several clients like Air India, Kingfisher etc for its latest In-flight Entertainment System.

AVIO Carves a Niche

Carving a niche for itself in the aerospace sector, Italian company, Avio is a manufacturer of auxiliary of turbines and also involved in both, aircraft maintenance and delivery and naval application. The Turbine Control System (TCS) designed and manufactured by the Avio, performs the control and monitoring of the LM2500 Gas Turbine (GT).

Carlo Ameli, Aero Engine Business, Automation Business, Technical Proposals and Sales, said that their activity in particular is for the naval application for which stirring control system for auto pilot and also surface for the ship are important. "Our main application is that we are controller for the submarine for which we have the control system U 212, which is the last programme for the German and Italian navy and the new one, which is the S80 program for the Spain navy," added Carlo Ameli.

The company's highlights for the Defexpo this year includes Stirring control system and and itemized system for the surface ship which is the automation which controls all the machinery which are on board. Also the turbines the LN 2500 and the Jipper which is the enhanced version of the LN 2500 which has much more power and which is installed on the Italian new program on frigates.

Avio's presence is witnessed in all segments of commercial air transport and also from business jets to regional air transport, from aero engines for large commercial airline fleets (medium-and long-range) to new generation engines to power the future long-range and high-capacity aircraft. The most recent engine programmes for which Avio is partner are the GENx for the Boeing 787 Dreamliner, the Trent 900 for the Airbus A380, and the Sam146 for the Russian Sukhoi aircraft. It is also present in all phases of the life cycle of the product, from R&D to production and assembly, as well as the technical assistance and the MRO.

From L –R: Roberto Pala; Carlo Ameli

The Italian company has been participating in the defexpo for the last two years in order to establish a relationship with the Indian market. "We have some agreement with the local company called Bharat Heavy Electrical limited for which we are bidding for 2-3 tenders for P 28 which is a new program for frigates and hopefully P 71 – we will look for other opportunities as well," explained Ameli.

Ashok Leyland Showcases All-terrain Army Vehicle

Ashok Leyland aims to help the army in getting through difficult terrains and drive through the night in complete darkness. The company has been involved in the design, development and manufacture of defence vehicles over three decades. It has been instrumental in serving the armed forces in the GS role as a dozen carriers, torpedo carriers and for mounting of sophisticated communication equipment.

The company's highlights at the exhibition this year are the LSV (Light Specialist Vehicle), Stallion 6x6 (fitted with innovative Night Vision System) and Field Artillery Tractor (FAT) (6x6).

The LSV is an all-wheel drive (4x4) multi-purpose, all-terrain vehicle. With a power-to-weight ratio in excess of 25kW/tonne, striving to enhance driver comfort in the worst terrains. The vehicle can carry a crew of four besides the driver and the design lends to adaptation to a number of applications such as Observation Post, Reconnaissance and Surveillance vehicle, Ambulance, Field artillery tractor and a host of other applications.

An alternative to the Stallion 4x4 is the high mobility Stallion 6x6 for extremely difficult underfoot conditions, including deserts. The transmission consists of a hydraulically operated 380 dia Valeo clutch and a 6-speed synchromesh ZF gearbox (6S 850). THE Night Vision System fitted in the Stallion offers the driver Vision Enhancement during night and the ability to detect, recognize and identify the objects on road in zero light conditions. It also aims to facilitate manoeuvrability in the degraded visual condition caused by smoke, fog, dust and such like for carrying out logistics as well as front line operations.

Reaching out to the future needs of the Defence sector the Field Artillery Tractor (FAT) (6X6) is designed for towing the 155-bore artillery with the Armed Forces the world over moving towards more sophisticated artillery. SHOW DAILY

Trishul SAM Project Closed

Trishul SAM project has been successfully closed with Indian Air Force receiving an undisclosed number of units.

The Trishul is a short-range, quick-reaction Surface-to-air missile. It is designed to counter low-level targets (including aircraft and missiles) at ranges upto 9 km. Operating in K-band (20-40 GHz), with three-beam guidance, it is highly resistant to countermeasures. The Trishul weighs 130 kg, is 3.1 m long and possesses a 5.5 kg High-explosive warhead to destroy the target.

The Qualitative Requirements of Trishul for the three Services have gone through substantial change which has lead to entirely different class of short range surface to air missile system. Having put in maximum effort to realize the Air force version, the Air Force has inducted the missile in small quantity to meet their partial requirement of such class of surface to air missile systems.

Trishul SAM along with five other projects of The Integrated Guided Missile Development Programme (IGMDP) have been successfully closed. Akash SAM has been accepted by the Indian Air Force, Indian Army is yet to test it. Nag Anti Tank missile will be tested by Indian Army in middle of 2008.

Nag and Agni missiles have been broken up as a separate project for further development. SHOW DAILY

IAI Demonstrates UAV Systems

IAI (Israel Aerospace Industries ltd), the leading Israeli company which develops and produces satellites for space operation, has a lot to offer in this year's Defexpo exhibition. From Low Earth Orbit (LE0) observation satellites like Ofeq, Eros, TECSAR, OPSAT and communication satellites Geostationary (GEO) AMOS series to Unmanned Aerial Vehicle (UAV), IAI is looking to serve army as well as navy.

Speaking to *International Aerospace Show Daily*, Yair Ramati, Corporate Vice President, IAI said, "We are the largest industry in Israel in defence and aerospace and we are focusing to serve Army as well as the Navy". Apart from the other products, IAI is also highlighting its UAV activities in this exhibition.

IAI is a world leader of fully integrated UAV solutions that are verified – by more than 400,000 operational hours of intelligence gathering, and dissemination and targeting missions. IAI will demonstrate Mini UAV Systems and Tactical UAV Systems.

IAI has several UAVs from the very small half a kilogram to the largest one 5 ton. I-VIEW FAMILY – new generation of tactical UAV systems comprises of three sizes of platforms: I-VIEW MK50, I-VIEW MK150, I-VIEW MK250.

The company is also showcasing BIRDEYE 400 MINI UAV. It is an advanced affordable Mini UAV system, providing real-time imagery for military and law-enforcement squads. The system provides "over the hill" reconnaissance covering a typical area of up to 10 Km. The fully automated flight path with "in-flight" waypoints practically nullifies the operational workload. The "flying wing", electrically powered platform is extremely quite and has very low visual and practically no acoustic signature at all.

"We have electro optical day and night radars which can see pictures of radars. This is of extremely high resolution, in the navy we have radar censored electro optical, missiles, laser guidance systems, and we have low range artillery and variety of other systems", said Ramati.

EL/M – 2258 - ALPHA – Advanced Lightweight Phased Array Naval Radar is a multi-function solid-state active phased array radar system for the new generation of medium-sized combat ships.

The ALPHA Radar antenna consists of a lightweight, rotating/scanning, two-dimensional, active array in S-band that is suited for installation on-board a variety of ship classes such as corvettes, frigates and larger vessels.

The radar system delivers high quality naval theater situation awareness pictures and supports the ship's weapon system, under the toughest target/environmental conditions in the current and future naval arena.

Featuring advanced technologies and robust system architecture, the EL/M-2258 ALPHA employs multi-beam and pulse Doppler techniques as-well-as robust ECCM techniques to extract fast, low RCS targets in complex clutter and jamming environments.

The hardware architecture and technologies ensure high system availability and low life cycle cost. IAI has been working in cooperation with government as well as private organizations since few years.

In the field of sensitive radar system, IAI is looking forward to tie up with a private sector company during this year's Defexpo.

Appreciating the Indo-Israel relations, Ramati said that there is a comfort factor which is present during the two countries while doing business and we should strengthen our co-operation.

- Rojita Tiwari

Tata, EADS Join Hands to Bid for Tact COM System

TATA and EADS Defence and Security unveiled plans to form a high tech team partnership to bid for the Indian Army's US $1 billion advanced tactical communications system project.

The project is expected to be announced later this year.

Tata Advanced Systems, a wholly owned subsidiary of Tata Industries along with leading Tata technology companies (TataConsultancy Services and Tata Power SED) is joining forces with EADS Defence & Security, (EADS DS) a global defence Lead Systems Integrator. Further technology partners complementing the team are other Tata entities, Raytheon and Precision Electronics Ltd.

The proposed $1 billion Indian Army Tactical Communications System is intended to replace its current AREN system and will make use of state-of-the-art technology. The new fully mobile communications system will be contemporary when fielded and will put the Indian Army on par with the most sophisticated tactical mobile systems currently in development for deployment around the globe.

Mr. Ratan N Tata, Chairman, Tata Group said, "The Tatas recognize the significance of this project of national importance and therefore with a view to leveraging the capabilities of several Tata companies, we propose to implement the project through a new umbrella company - Tata Advanced Systems Limited (TASL). We believe that the above approach will synergize the Group's relevant capabilities for the project and provide a single interface for the Indian Army. The teaming arrangement with EADS DS would ensure that the solution proposed is cutting edge, best-in-class and meets all the requirements of the Indian Army."

Mr. Stefan Zoller, CEO of EADS Defence and Security said, "India holds an important place on the world's stage and this programme recognises the need for India's armed forces to have the latest available technology. EADS Defence & Security and Tata can design and deliver one of the most sophisticated battlefield communications systems in the world, and at the same time, will make a significant contribution to India's high tech economy."

Tata Advanced Systems, as the lead on the programme, along with other Tata partners will be responsible for project management, security, software development, production, integration and delivery. EADS DS will act as system design authority and be responsible for the network architectural design and integration on the programme through its Chief Technical Officer from their Systems Design Centre. Raytheon will be responsible for radio systems design and Precision Electronics for support in production, ruggedization, security and integration.

This innovative approach means that Tata Advanced Systems and EADS DS, along with the other team partners have the expertise to prepare a solution that meets the operational requirements of the Indian Army at the correct time, price and technology. It also ensures the project will be truly indigenous in procurement, integration and delivery. An Indian lead like TATA will ensure life time commitment through engineering support and obsolescence management, and also meet the requirements of national security.

The Indian Army issued a detailed Request for Information to over 40 defence industry companies in 2007. Using the Defence Procurement Policy 2006 guidelines, the Indian Ministry of Defence requested responses from global systems integrators experienced in delivering tactical systems, and local Indian systems integrators with the financial capability and necessary technical background.

DS is a systems solutions provider combining military air systems, missile systems, communications and intelligence systems, global security solutions, sensor and avionics systems, as well as test and support solutions into a single effective network. In 2006, DS – with its around 23,000 employees – achieved revenues of € 5.9 billion.

EADS is a global leader in aerospace, defence and related services. In 2006, EADS Tata Advanced Systems is a wholly owned subsidiary of Tata Industries focused on providing integrated solutions for Defence and Aerospace. The Tata Group is one of India's largest and most respected business conglomerates, with revenues in 2006-07 of $28.8 billion (Rs129,994 crore), the equivalent of about 3.2 per cent of the country's GDP, and a market capitalization of $65 billion (as on Feb 8, 2008). Tata companies together employ over 300,000 people.