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[snapshots]



NEXT DEFEXPO INDIA IN 2016

The Defence Minister A.K. Antony who inaugurated the 8th edition of Defexpo 2014 at Pragati Maidan in New Delhi, announced that the 9th edition would be held from February 11 to 14, 2016 at the same venue.

GOLDEN OPPORTUNITY

To collaborate and partner in indigenisation of defence production



DEFENCE MINISTER A.K. ANTONY LIGHTING THE LAMP TO INAUGURATE THE DEFEXPO-2014 AT PRAGATI MAIDAN IN NEW DELHI ON FEBRUARY 6, 2014. THE MINISTER OF STATE FOR DEFENCE, JITENDRA SINGH, THE DEFENCE SECRETARY, R.K. MATHUR, THE SECRETARY (DEFENCE PRODUCTION), G.C. PATI, THE SCIENTIFIC ADVISOR TO RM, AVINASH CHANDER AND THE PRESIDENT, FICCI, SIDHARTH BIRLA ARE ALSO SEEN.

BY R. CHANDRAKANTH

Non-State actors are a greater risk and need greater attention, said the Minister of Defence, A.K. Antony, inaugurating the Eight Defexpo 2014, the Land, Naval & Internal Homeland Security Systems Exhibition which got under way at the Pragati Maidan in New Delhi.

Stating that global security is undergoing massive changes post the Cold War, the Defence Minister said that conflict and violence were getting accentuated, calling for defence preparedness. "Peace cannot come at the risk of our security concerns." Territorial integrity and sovereignty are key and to ensure that the armed forces are being equipped with the most modern and sophisticated equipment.

Calling upon the private sector to make 'meaningful and substantive contribution' to defence production, Antony said that the pace of indigenisation had been accelerated through various initiatives. There have been constant reviews of the Defence Procurement Procedures (DPP) as to develop a robust base of Indian defence industry. The emphasis would be on 'Buy' and 'Buy and Make Indian' acquisitions. The revised offset guidelines of 2012 gives a degree of flexibility to the foreign original equipment manufacturers.

This was a golden opportunity to showcase products and India had commenced on a new chapter in collaborations and partnerships. The Defexpo, he mentioned, which was among the top international defence exhibitions, is becoming a platform for Indian companies to demonstrate, design, develop and deliver a wide range of defence and civil products.

The Minister of State for Defence, Jitendra Singh, said the Technology Capability Perspectives of the armed forces gives the equipment requirements of the armed forces which is helpful for the industry to plan their strategic moves. The emphasis is on self-reliance and the government is putting in place measures to facilitate increased private sector participation to enhance the industrial base in defence. The level of participation in the Defexpo is a clear reflection of the growing strength and capability of the Indian industry.

The Secretary, Defence Production, G.C. Pati, in his welcome address stated that Defexpo 2014 had attracted 624 exhibitors, a record. There are 12 country pavilions and 178 official delegations from 43 countries. He went on to reiterate that the primary objective of Defexpo is to upgrade indigenous industry.

The President of the Federation of Indian Chambers of Commerce and Industry (FICCI), Sidharth Birla, proposed a vote of thanks. •

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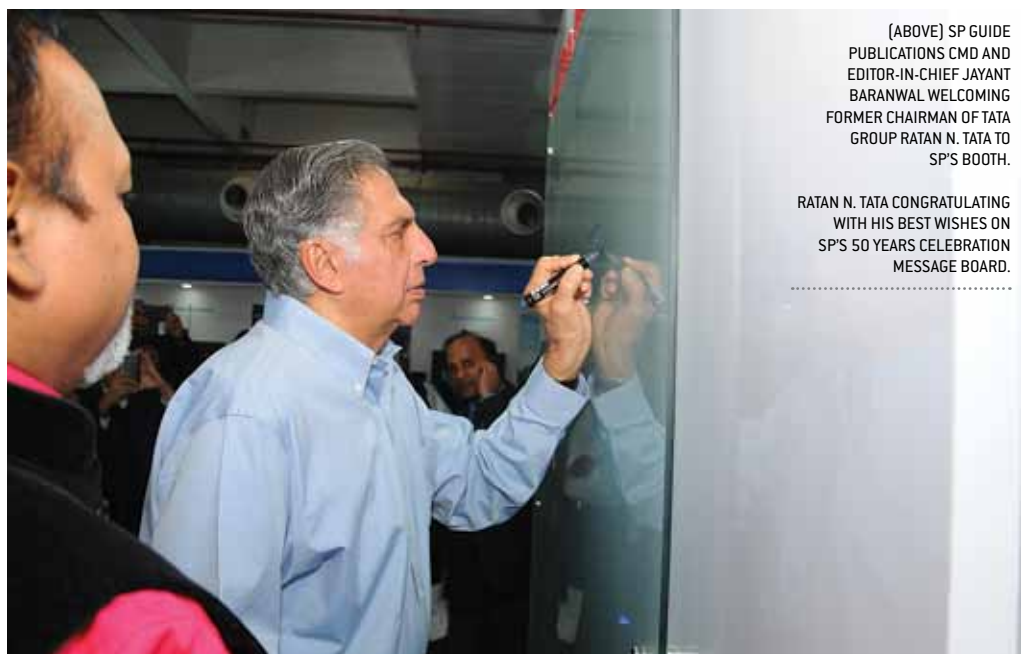
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(ABOVE) SP GUIDE PUBLICATIONS CMD AND EDITOR-IN-CHIEF JAYANT BARANWAL WELCOMING FORMER CHAIRMAN OF TATA GROUP RATAN N. TATA TO SP'S BOOTH.

RATAN N. TATA CONGRATULATING WITH HIS BEST WISHES ON SP'S 50 YEARS CELEBRATION MESSAGE BOARD.



Clear-cut Signal to Defence Vendors in India and Overseas

BY R. CHANDRAKANTH

The Indian Minister of Defence, A.K. Antony, today reiterated that by banning few foreign original equipment manufacturers (OEMs), the Indian Government had sent a 'clear-cut signal' to the vendors in India and overseas that all acquisitions will be above board. The Indian law and also the Defence Procurement Procedure are very clear that any company found indulging in 'malpractices' would be banned/blacklisted.

Addressing a press conference after the inauguration of the Eighth Defexpo 2014, the Defence Minister said that such actions may have created 'some delay' in the defence acquisition process, but mentioned that it was helping 'streamline' the system itself. "Anybody found guilty, we will be very strict". Unlike in the US and the UK where a company found committing malpractices had to pay huge financial penalties, in India, it was blacklisting and banning them. "We are in the process of cleaning up the system. We may not have succeeded 100 per cent, but we are in the process. There is no political decision in the acquisition process, but all done on merit. If there is any prima facie evidence against any company, it would be referred to the Central Bureau of Investigation (CBI) or other agencies. We are acting on complaints."

As regards cancellation of the AgustaWestland helicopter deal, he assured "we will find alternatives for the helicopter programme." Assuring that while the government would speed up not only the

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process of defence procurement, but also indigenisation, he said that there would be no compromise on transparency.

ALL MAJOR ACQUISITIONS IN 2014-15

On the delay in acquiring the Dassault's Rafale combat jet under the medium multi-role combat aircraft (MMRCA) programme, Antony clarified that there is no 'inordinate delay' and that the issue of life cycle support cost is being discussed, before it goes to the Cabinet Committee on Security. Another reason, he attributed, is that all major procurements of the armed forces will happen only in the next financial year, including the MMRCA, as 92 per cent of the defence budget had already been utilised.

The second tranche of C-130J acquisition (additional six aircraft), he said, was also taking time due to financial paucity. Highlighting its necessity, he said that there is huge demand from the military and the paramilitary forces for the platform as India is short on heavy-lift air capabilities. The relief operations in Uttarakhand, where the aircraft was deployed, and in other operations had indicated the capabilities of C-130J Super Hercules.

DIVERSION FROM CAPITAL TO REVENUE EXPENDITURE

Agreeing that the government had no alternative but to divert nearly ₹7,900 crore from the capital expenditure to the revenue expenditure to meet the inevitable requirements of salaries and maintenance costs, he said that all acquisitions will take place in the next year. "There is no surrender from the defence budget, gone are the days of surrendering." Stating that it would be 'humanly impossible' to clear all the acquisition programmes in a year, he added that the armed forces had been asked to prioritise and 'prioritisation cannot be left to the political leadership'.

SEA CHANGE IN DEFENCE INDUSTRIAL PRODUCTION

Concurring with a foreign journalist that the Indian defence industry had not delivered, Antony said that would dramatically change in the coming years. "A sea change is taking place," he said and added that import would be the

last priority. "Defence acquisition would take the route of 'Buy Indian', 'Make Indian' and 'Buy and Make Indian'. In the next five to 10 years, we will be able to not only produce for domestic consumption, but for the export market. India imported up to 70 per cent of its requirements and this would change to 40:60 in India's favour," he said and remarked "right now, it is not a happy situation." Artillery modernisation had been delayed, but "things are now moving." The indigenisation process would bear results soon and put enormous faith in the defence public sector undertakings (DPSUs). "Do not underestimate the DPSUs."

ACCIDENTS A MAJOR CONCERN

On the issue of regular accidents in the Indian Navy costing lives and equipment, the Defence Minister said, "It is a matter of serious concern" and the Indian Navy is taking corrective action and have been advised to follow strictly standard operating procedures. The assets of the Indian Navy have substantially increased and in the last 10 years the Indian Navy has come to be among the most powerful and advanced navies of the world. Many countries were keen on having seafaring exercises with India as the Navy was equipped with the most modern platforms and many more in the pipeline.

CEASEFIRE VIOLATIONS, MAJOR TEST WILL BE IN SUMMER

Asked about the continued ceasefire violations on the Indo-Pakistani border, Antony said the violations had come down post the meeting of the two Director Generals of Military Operations. "We are in a volatile and dangerous surroundings and our armed forces are on a 24 x 7 vigil." However, he said, one had to keep one's fingers crossed as the actual test will be in summer, nonetheless the Indian forces are ever prepared.

ROLE IN AFGHANISTAN

The Defence Minister clarified that India had no 'military role' in Afghanistan but was concerned with the fallout after the withdrawal of the US forces from Afghanistan. "We are taking steps, but I cannot tell you what those steps are." •

Boeing to strengthen Services and Support division in India

BY R. CHANDRAKANTH

Boeing which had a 'great' 2013 and is expecting a 'bullish' 2014 is making strategic moves in India by strengthening its Global Services and Support business unit as India acquires more platforms from the US company, besides the C-17 Globemaster aircraft delivered to the Indian Air Force.



Announcing this at a media roundtable, Boeing Vice President (India), Defense, Space and Security, Dennis D. Swanson, said the company is expecting to finalise a number of partnerships and collaborations in 2014-15, besides enhancing its training initiatives here. One of the programmes it is keenly awaiting approval is the 22 attack helicopters (plus 11 options) and also the follow-on options for the P8.

The India Country Leader of the division, Vinayak Rajagopal, mentioned that efforts are on to support not just the Boeing platforms in India, but others too in terms of integrated logistics, maintenance modification and training and simulation, all of which the company has enormous expertise. One of the highpoints of the division is to bring down life cycle costs. With the Indian Navy on the P8 programme, the company is developing performance based logistics.

As regards the C-17, there is an onsite team of 19 engineers and other staff as part of the Globemaster integrated support programme at the Hindon airbase. The programme is to ensure aircraft availability. •

BEL, Textron Systems MoU for MicroObserver UGS System

BY R. CHANDRAKANTH

Bharat Electronics Limited (BEL) has signed a memorandum of understanding (MoU) with Textron Systems, a Textron Inc company, as a first step towards providing the Textron Systems MicroObserver unattended ground sensor (UGS) system to Indian security agencies.

The MicroObserver UGS system brings a new level of covertness, ease of use and performance for border security, surveillance and critical infrastructure protection missions. Textron Systems reports that its Micro Observer system has been fielded around the world in support of these applications.

"We're looking forward to working with BEL to bring this critical surveillance system to the Indian Government agencies that will benefit from its wide range of proven capabilities," explained Ian Walsh, Textron Defense Systems' Senior Vice President and General Manager.

"Bharat Electronics Limited expects the benefits of this system to filter down to various agencies responsible for the management of the Indian borders, thus fulfilling its overall objective of bringing in cutting-edge technologies to India," said P.C. Jain, Director (Marketing), BEL. •



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the VSHORADS competition has been pegged under a 'priority list' for the three armed forces, and will be one of the first bids to make headway once decision-making circumstances become optimal overall again. That said, the evaluation process in the competition is still very much on, making it one of the most stringent field trial routines for any recent Indian competition.

Firing and across-board performance evaluation trials of the three VSHORADS finalist competitors were carried out by specialised Army trial teams in Rajasthan in May 2012 for hot-weather firing, at the coastal batteries in Visakhapatnam for coastal environment performance evaluation and Nyoma in Ladakh for cold-weather high-altitude performance tests.

As reported by *SP's* exclusively earlier, the Army is looking for a system that can be deployed in multiple configurations including man-portable, fitted on a twin-launcher, based on a high-mobility vehicle, ship-based and submarine-based by specialised personnel. The weapon systems fielded have so far demonstrated several capabilities during trials,

BY *SP'S* SPECIAL CORRESPONDENT

In the heady vapour trail of India's medium multi-role combat aircraft (M-MRCA) bid, it's easy to lose sight of some of the most important land forces requirements still being fought over in the country. Chief among them, both in terms of value and significance has to be the Indian Army's very short-range air defence systems (VSHORADS) requirement, ostensibly in its final lap. Among the long list of simultaneous competitions for air defence hardware across the three services, in sheer scope and size, the VSHORADS is the largest. Not surprising therefore, that the three finalists are each at Defexpo 2014 in a big way. The event affords only another opportunity to obtain clarity from government and armed forces leadership in an uncertain time.

The \$6-billion VSHORADS is a three-way face-off between the MBDA Mistral, Saab RBS 70 NG and the KB Mashinostroyeniya new generation Igla-S. Heading into Defexpo 2014, top Army sources have confirmed that

including multiple target detection and tracking by day and night, providing target acquisition to the munition and engagement of aerial targets.

SP's understands that several performance requirements were fielded during trials, though none of these were an apparent problem for the three competitors, which also underwent simultaneous performance tests of electronic systems and quality assurance in Bengaluru in 2012.

One of the most dramatic phases of the evaluations was a sustained firing exercise where multiple missiles were deployed in quick succession by all three competitors in a single test setting.

India's Bharat Dynamics Ltd (BDL), a well-known presence at Defexpo through the years, is engaged in detailed discussions with all three companies on the crucial issue of technology transfer and licence manufacturing.

The VSHORADS requirement will be largely met by a local manufacturing line, and a mandatory offsets requirement will apply. Defexpo will further discussions for all three vendors on that crucial latter aspect as well. Several

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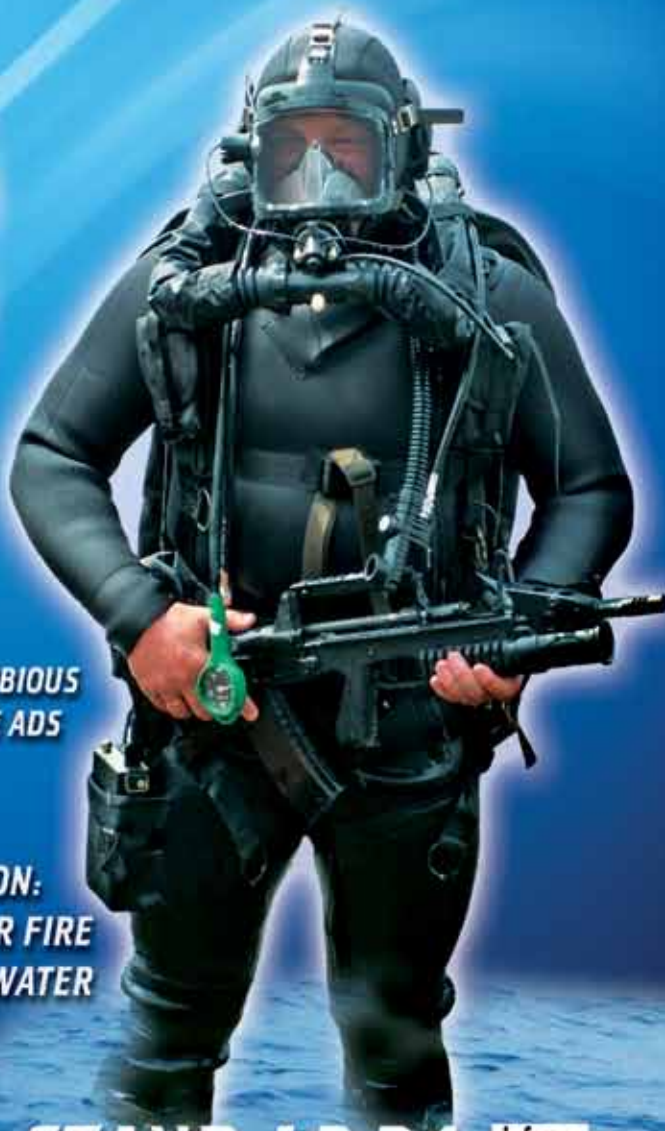
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Indian offsets opportunities are likely to have presented themselves between the last Defexpo and this year's show.

Awaiting guidance on the next step on the Mistral air-to-air missile for the Hindustan Aeronautics Limited (HAL) helicopters, MBDA has invested significant energies in the VSHORADS competition, where its Mistral-S is one of the three finalists. The Mistral-S is a man-portable, fully digital, heat-seeking missile system, designed to meet the requirements of all branches of the armed forces.

According to MBDA, the Mistral 2 missile boasts a 96 per cent proven success rate and higher reliability than any other existing low-level air defence missile.

It integrates ultimate state-of-the-art technology to ensure the same effectiveness, in peacetime as well as in wartime conditions. The missile's diameter (90 mm) permits the integration of a homing head 40 per cent larger than that supplied by the competition and a 3-kg warhead (as compared to 1.2 kg provided by competing weapons).

"The Mistral system boasts of a high kill probability, very high speed (850 m/s) and manoeuvrability (at 32 G), efficiency guaranteed against all types of targets, including high speed and highly manoeuvring combat aircraft as well as helicopters, day or night deployable in stand-alone or in co-ordinated mode, qualified in severe weather conditions (- 46°C to + 71°C, as demonstrated during Indian trials), easy to integrate on a large range of vehicles, boasts a fire-and-forget engagement mode, and crucially for the army, sports a simple training regime with indoor simulator and in-the-field training system

"India is looking to replace its old Igla systems. With Mistral MANPADS in their inventory, India's armed forces would have a system that weighs less than 19 kg rendering it easily portable by two operators, rapidly brought into action and fired. Being a fire-and-forget system, once the immediate threat has been engaged, attention can then be turned towards other targets, a crucial advantage that man-in-the-loop laser beam riding systems do not have. For an enemy pilot, at ranges of up to 6 km and beyond, Mistral's passive IR seeker means that it is very hard to detect and defend against," says the company.

No less formidable is the Saab RBS 70 VSHORADS system. Speaking of the way forward on the competition and others, Saab's Lars-Olof Lindgren, Head of Market Area, says, "Defexpo 2014 will be an opportunity to meet Indian stakeholders from government, defence forces, homeland security, research, technology and industry. The main theme for Saab for this Defexpo is "Teaming Up With India". Saab believes in partnerships – a combination of smart ideas, local knowledge and close relationships with Indian companies forms the basis of Saab's thinking edge, and opens the door for innovation and new technologies.

The RBS 70 NG VSHORADS system with 24 x 7 all-target capability has been developed for any combat situation, with a new generation integrated sighting system, enhanced gunner aids, high precision, while "unbeatable range and unjammable laser guidance" combine to produce a ground-based air-defence system with world-leading capabilities.

The company says, "The RBS 70 NG is on offer to the Indian Army to fill a crucial need gap. The all-new RBS 70 NG VSHORADS system is a versatile battlefield game changer and will offer critical edge in the spectrum of deployment. We believe that the RBS 70 NG meets and exceeds the requirements of the Indian Army for a system that has multiple target seeking and tracking capabilities, multi-launcher capability, ability to deploy from high mobility vehicles and ship and submarine naval vessels, ability to engage aerial targets by day and night and aerial target detection capability."

In many ways, the Russian new generation Igla-S fights a type anti-incumbency, given that the VSHORADS competition is intended to replace legacy earlier generation Igla MANPADS systems in service with the Indian Army. The company has mounted an aggressive campaign to keep the Army fixed on type, and is confident of success."

Missile 9M39 of the portable anti-aircraft missile system "Igla" is designed for defeat of visually observed jet, turboprop and piston-engined aircrafts and helicopters on head-on and tail-on courses under conditions of influence of natural (background) and false heat jammings.

The missile is fired by a gunner from the shoulder in a standing or kneeling position from a fire position on the terrain providing good observation of air space. "Igla" possesses automatic introduction of elevation and lead angles, deep destruction of warhead, uses detonating fuel in propulsion system and displacement circuit in a homing head ensuring the missile hit into the most vulnerable components of the target and allows to defeat effectively modern aircraft and helicopters of enemy.

The Igla has proven its performance capabilities under conditions of temperate cold, arid and humid tropical climate, during Indian field trials.

Given that the competition is still on, due process could still conceivably take a while. Sources indicate, however, that given the priority status that has been accorded to air defence requirements, the VSHORADS competition could see final results this year, with a decision during the 2014-15 financial year. Either way, the fight is still on. •

Tata Group to Expand Defence Business

The Tata group's revenue from the defence business for fiscal year 2013 was over ₹1,700 crore and for 2014, the revenue is expected to grow by approximately 40 per cent. The current order book size of the Tata group in the defence business is in excess of ₹8,000 crore, according to Dr Mukund Rajan, Member, Group Executive Council and Brand Custodian, Tata Sons.

In a media roundtable, he said that despite the opening up of the sector for private players, the private sector contribution is relatively little to India's total defence spend. There is thus a great scope to increase the contribution of private players in the sector in India.

Tata group, he said, has partnered with the defence forces across areas such as command and control, network-centric warfare including naval combat, air defence tactical communication, battlefield management systems and trusted compute platforms. With expertise in technology and project management and the effective utilisation of a wide range of competencies, the Tata group is well positioned to enter into virtually any area where the Ministry of Defence (MoD) wishes to build private sector capabilities.

Currently, 14 Tata companies are engaged in providing support to the country's defence sector. These include Tata Motors, Tata Power (Strategic Engineering Division), Tata Advanced Systems, Tata Advanced Materials, Nelco, TCS, CMC, Tata Elxsi, TAL Manufacturing Solutions, Tata Technologies, Titan Companies Ltd, Avana Integrated Systems Ltd, Nova Integrated Systems Ltd, and Tata Industrial Services.

Examples of collaborations between Tata companies include: System integration by Tata Power SED on a Tata Motors chassis for the Akash missile system; Tata Advanced Systems Limited and TCS jointly establishing engineer-



ing, tooling, training and assembly operations for Tata Advanced's Aerostructure projects in Hyderabad; Tata Power SED and TCS working together extensively on security applications, information assurance, software defined radio software, integrated platform management system software; and software related designs for special applications.

Tata Advanced Systems, a 100 per cent Tata Sons-owned company in defence, aerospace and security, has signed contracts worth over ₹4,000 crore that include supplying key systems such as the command and control for the medium-range surface-to air missile being co-developed between India and Israel as well

as manufacturing and assembling critical parts of helicopters and aircraft in India for global OEMs such as Sikorsky and Lockheed Martin.

Tata Motors is a leading supplier of mobility solutions to the country's security forces. Tata Motors has been associated with the country's defence and security forces, for over 60 years, and has supplied over 1,00,000 vehicles to the Indian military and paramilitary forces, so far. With its range of products, which you will hear about very soon, Tata Motors is strategically moving from the logistics vehicle segment into the combat vehicle segment.

Through 40 years of R&D and innovation effort, Tata Power SED has evolved into one of the largest prime contractors in Indian defence, having executed programmes of national importance such as Pinaka – multi-barrel rocket launcher, Akash launcher systems for the Air Force and Army, modernisation of airfield infrastructure, to name a few. The fact that Tata Power SED is the only Indian private sector company that has won three prime contracts against global competition in Indian defence history is a testimony to its deep-rooted presence in the defence sector. •

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India is at the Core of MBDA's Current and Future Business Strategy

MBDA, a world leader in missiles and missile systems, is a multinational group with 10,000 employees on industrial facilities in France, the United Kingdom, Italy, Germany and the United States. In 2012, the group recorded a turnover of 3 billion euros, produced about 3,000 missiles and achieved an order book of 9.8 billion euros, new orders came to 2.3 billion euros. MBDA works with over 90 armed forces worldwide.

MBDA is the only group capable of designing and producing missiles and missile systems to meet the whole range of current and future operational requirements for the three armed forces (army, navy, air force). Overall, the group offers a range of 50 products in service and another 15 in development. Here in an interview with *SP's ShowNews*, the MBDA Country Head, India, **Loïc Piedevache** gives details of the programmes.



SP's ShowNews (SP's): What is the present outlook in India for MBDA considering that decisions may be delayed on several defence programmes including the Mirage fleet upgrade, in view of the impending elections and also due to certain scandals?

MBDA: India lies at the core of MBDA's current and future business strategy so we take a long-term approach regarding the business outlook. Therefore, regardless of election results, we will continue to support India with defence solutions as and when required and to the best of our ability.

The MICA contract for the Mirage upgrade is progressing exactly as per schedule and we are discussing a number of other important Indian defence equipment requirements as well as building up our network of Indian industrial partners. So for us, the outlook is very promising.

SP's: MBDA has nearly 50 products on offer, which are the ones where you see an immediate fit/requirement in India and what efforts have been made to market them here?

MBDA: MBDA has the most comprehensive product catalogue in the sector and as such is the only company able to meet the guided weapons needs of all three armed forces – Air Force, Navy and Army.

Currently we have a number of product campaigns underway in India, all of which are aimed at clearly defined requirements in India. These include Mistral MANPADS for the VSHORAD requirement, ASRAAM for the IAF's Jaguar upgrade and PARS 3 LR to provide the ALH Rudra with its ATGM capability. For maritime operations we are proposing Exocet and Marte for both fixed- and rotary-wing platforms. Of course we have a full range of air-to-air and air-to-surface weapons which we are discussing with the IAF to maximise the operational capability of the new MMRCAs aircraft.

SP's: One of the major concerns of India is transfer of complex technologies. Could you give details of MBDA's plans in this direction with specific examples?

MBDA: Sovereignty in defence supply and technology is important for a major power. This goes hand in hand with an advanced, indigenous defence industry capability and has clearly been recognised as a priority by India. The transfer of complex technologies will play an important part in India achieving this goal. These technologies must be advanced and complete and involve know-how that

has been developed over many years of working on highly complex weapons programmes, not just basic componentry. This is where MBDA offers a major advantage over its competitors. We have made it clear, and we have domestic governmental support in this, that we are keen to transfer and share technology of the highest level with India. We have shown this with the SR SAM project with the DRDO. At Defexpo 2014 we will also be discussing the possibility of working on a co-development with India on a fifth-generation combat support missile based on the latest development which MBDA is working on for the French Army – a system known as MMP, a step change in capability with features way in advance of any competing system, current or planned.

SP's: Could you update on the proposed agreement with the Defence Research and Development Organisation to design and co-produce the short range SAM system (SR-SAM)? Will there be a helicopter version of this?

MBDA: The design and performance parameters of SR-SAM, also referred to as MAITRI, have been finalised for quite some time and negotiations were successfully concluded between the Indian and French governments back in February 2013. We are now waiting for the green light which we hope will be given in the very near future. Trishul, which, as you rightly say, was dropped, was one of four programmes within India's integrated guided-missile programme which also included Akash, Prithvi and Nag. SR-SAM will be a larger, much more powerful, more technically advanced weapon with significantly greater range and overall capability than Trishul.

No helicopter version is planned as SR-SAM will be a vertically launched weapon intended for ground tracked/wheeled vehicles for the IAF and on ships for the Indian Navy. It is also highly suitable to meet the Indian Army's short-range air defence requirements as well.

SP's: Are you giving any assistance for India's very short-range air defence systems (VSHORAD) project?

MBDA: Yes we are very closely involved with this project in proposing MBDA's Mistral MANPADS system. The fire-and-forget Mistral missile has been remarkably successful around the world and has chalked up a 96 per cent success rate in over 4,600 firings. Deployed in the Mistral MANPADS system, we are confident that its range of features and operational advantages make it the ideal solution for the Indian armed forces. What is more, should the weapon be selected, MBDA is in a position to advance an industrialisation solution which could see the missile produced in India with all the transfer of technology that this implies. Given that this is the same missile as deployed by India's ALH Rudra helicopter, such a solution would also offer India significant logistics advantages as far as stockpile management and inventory control is concerned.

SP's: What is the progress on the integration with Jaguar of the Indian Air Force with advanced short-range air-to-air missile (ASRAAM)?

MBDA: We're making excellent progress with ASRAAM and, as has been reported, this highly advanced air dominance weapon has been selected by the IAF. However, at this moment it is still too early to talk about integration.

SP's: What are your long-term plans for India? How do you plan to nurture the market here?

MBDA: Our long-term plans remain unchanged, namely supporting India's immediate requirements with a range of our most advanced guided weapons solutions while continuing to build on our network of industrial partners, both public and private, within the Indian defence sector. •



Eurofighter Typhoons to join Red Flag 2014

Eurofighter Typhoon aircraft from the UK's Royal Air Force are at Nellis Air Force Base in Nevada this month to take part in one of the world's leading air-to-air combat training exercises which begins this week.

Red Flag is the United States Air Force's premier air-to-air combat training event. Participants typically include both US and allied nations' combat air forces. The exercise gives pilots the experience of multiple, intensive air sorties in the safety of a training environment.

This year, as well as the Eurofighter Typhoon FGR4's from 6 Squadron based at RAF Leuchars, there will also be Tornado GR-4s and an E-3D Sentry from the UK. The Royal Australian Air Force are expected to send F-18s and an E-7. The allied nations will augment and perform alongside a contingent of US aircraft.

In 2013, Eurofighter Typhoon aircraft acquitted themselves with flying colours at the event attracting widespread praise for their agility, flexibility and ability to deliver what was described as 'high kinetic' effect. The Eurofighter's Defensive Aids Sub Systems (DASS) and the aircraft's Mission Data were major contributors to the jet's success. The RAF have placed significant emphasis on developing the aircraft's mission data — populating the Eurofighter Typhoon's DASS and radar with vital information to enable peak performance in high-threat scenarios.

Nellis Air Force Base is one of the largest fighter bases in the world. The aircraft will operate from the Nevada Test and Training Range, which offers more than 15,000 square miles of airspace and 4,700 square miles of restricted land.

More than 125 aircraft are scheduled to depart Nellis twice a day and aircraft may remain in the air for up to five hours. Flying times are scheduled to accommodate other flying missions at Nellis AFB and provide Red Flag participants with valuable training in planning and executing a wide-variety of combat missions.

Alberto Gutierrez, Chief Executive Officer of Eurofighter GmbH, said: "It is always a proud moment for us when our customers showcase the Eurofighter Typhoon at an event like this — especially when the aircraft is building itself a

reputation for acquitting itself so well. We wish the RAF great success with the Exercise and we look forward to actively supporting them as we continue to work together to further grow the capabilities of what is already recognised to be a highly agile, potent and reliable aircraft."

Exercise Red Flag runs from January 27th to February 14th.

Eurofighter Typhoon is the most advanced new generation multi-role/swing-role combat aircraft currently available on the world market. Seven nations (Germany, the United Kingdom, Italy, Spain, Austria, Saudi Arabia and Oman) have already ordered the Eurofighter Typhoon. With 719 aircraft under contract and 571 on order, Eurofighter Typhoon is currently the largest military procurement programme in Europe. Its high technology strengthens the position of European aerospace industry in the international market. The programme secures more than 100,000 jobs in 400 companies. Eurofighter Jagdflugzeug GmbH manages the programme on behalf of the Eurofighter Partner Companies Alenia Aermacchi/Finmeccanica, BAE Systems and Cassidian in Germany and Spain, which are the most important aviation and aerospace companies in Europe with a turnover of about 123.2 billion euro (2011).

Since delivery of the first Eurofighter Typhoon to the Royal Air Force in the United Kingdom end of 2003, a total of 400 aircraft have been delivered to six nations. The 100th Eurofighter was delivered to the Royal Air Force in September 2006. The 200th aircraft was handed over in November 2009 to the German Air Force. The 300th aircraft was delivered to the Spanish Air Force in November 2011 and the German Air Force received the 400th Eurofighter in December 2013.

In the past 10 years, the Eurofighter fleet has demonstrated its high operational effectiveness in international missions and training exercises and has accumulated more than 220,000 flying hours. Several developments such as the Phase 1 Enhancement, the integration of the METEOR air-to-air missile, the new electronic radar (E-Scan) and additional weaponry will further increase the capabilities of the Eurofighter Typhoon and secure the future of this modern combat aircraft. •

Rockwell Collins Next-Generation Software Defined Radios: Enabling the Joint Netted Force

New-generation software defined radios are enabling the creation of secure, customisable real-time fully netted links between individual air- and ground-based forces.



If there is one consistency for today's armed forces, it is that no two missions are alike. One day you are patrolling in mountainous terrain. The next, you are charged with securing the streets of a town.

In today's irregular battle space, the biggest advantage a force has is real-time information to help find, fix, track, target and engage. Use that to stay ahead of the enemy and they live to protect another day.

One system that is proving to be invaluable in that effort is compact software defined radio (SDR). And Rockwell Collins' next-generation Talon RT-8400 SDR is the company's newest, fully exportable receiver-transmitter for all domains.

Based on the proven Talon advanced communications systems family, the RT-8400 meets any international military's requirements for both point-to-point and ad hoc networking communications capabilities including in the airborne domain.

WINNING TODAY'S BATTLE SPACE REQUIRES TODAY'S BEST TOOLS

"With over 36,000 units deployed, our prior-generation ARC-series SDRs have, and will continue to provide military personnel around the world with secure, reliable communications," stated Trent Trpkosh, Principal Account Manager, Communications Products, Rockwell Collins. "The new generation RT-8400 takes that foundation and adds a number of new security and functionality features."

Trpkosh explained that while military leaders understand the value of having their forces fully netted, it is becoming increasingly critical to have communications that enable connectivity with other domains as well.

"One of the SDR's key differentiators is it enables airborne ad hoc networking capabilities, which is a growing requirement for our many international customers," he said. "This will ensure interoperability between the customer's ground-based forces and airborne assets."

"This mobile ad hoc networking (MANET) capability, along with the SDRs ability to transmit real-time point-to-point voice, data and imagery, is critical to enabling coalition forces to effectively share critical real-time data," he said. "It's at the core of an airborne force's ability to provide accurate strikes, while keeping friendly forces out of harm's way."

SECURE COMMUNICATION IS SAFE COMMUNICATION

While the need to communicate efficiently with forces is critical, it has to be done in a way that still ensures total security to the operating force's networks.

"As an SDR radio, the new RT-8400 provides superior versatility and independence to our customers," Trpkosh said. "Utilising waveform development kits, our customers are able to independently develop and port country unique software communications architecture (SCA) compliant waveforms to their radios."

"Additionally, the next-generation Talon-embedded programmable cryptographic security system (CSS) supports the development of customer unique cryptographic algorithms," he said. "This enables each country's military leaders to create a totally secure communications network with no foreign involvement."

FUTURE CAPABLE. BACKWARD COMPATIBLE

With so many thousands of Rockwell Collins software defined radios already fielded around the world, it was imperative that the new generation Talon RT-8400, and all the Talon-series SDRs, easily communicate with both current and legacy units.

"There is an SDR for every application from airborne, to V/UHF fixed site units and ground mobile applications," Trpkosh explained. "All of them – including our FlexNet SDR product line through an alliance with Thales – are designed to the latest software communications architecture standards."

While the use of common software architecture delivers greater flexibility to the operators, Trpkosh stressed that it does not mean that any SDR can "talk" to any other unit right out of the box. "It does however make it possible to port waveforms currently running on a particular country's SDR radios into today's radios," he said. "That will ensure seamless interoperability with both legacy and current radio systems."

"Our new generation SDR Talon radios are extremely capable to function as part of creating a fully joint netted communications asset to today's defence forces," Trpkosh said. •

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WHEN RESULTS MATTER

Lockheed Martin's High Technology Offerings

US defence major Lockheed Martin has several programmes and capabilities on offer for the Indian military and they include the Javelin missile; the guided multiple launch rocket system (GMLRS); DAGR; Hellfire II; unmanned aerial vehicles; Aegis combat system and more.

Javelin: The world's premier medium-range multi-purpose weapon system and shoulder-fired anti-tank guided missile system, Javelin takes the fight to the enemy. Javelin automatically guides itself to the target after launch, allowing the gunner to take cover and avoid counterfire. Soldiers or Marines can reposition immediately after firing, or reload to engage another threat. Using an arched top-attack profile, Javelin climbs above its target for improved visibility and then strikes where the armour is weakest. Javelin is combat proven in Afghanistan and Iraq.

GMLRS: The guided multiple launch rocket system (GMLRS) is fired from the multiple launch rocket system M270A1/B1 and the high mobility artillery rocket system launchers. GMLRS is an international cooperative programme among the United States, France, Germany, Italy and the United Kingdom.

DAGR: DAGR is a semi-active laser guidance kit that adapts 2.75-in. (70mm) rockets to provide guided-rocket performance comparable to the precision-strike laser-guided Hellfire II missile. DAGR is being developed by Lockheed Martin to fill the gap between unguided rockets and the Hellfire II by providing a precision-strike air-to-ground weapon for close air support in urban environments that minimises collateral damage.

Hellfire II: The Hellfire II modular missile system provides multi-mission, multi-target capability with precision-strike lethality and fire-and-forget survivability, giving field commanders maximum operational flexibility. The Hellfire II family is the primary air-to-ground precision weapon for the US military. Hellfire II has been used extensively in Operations Enduring Freedom and Iraqi Freedom, with more than 10,000 rounds fired successfully from multiple platforms, including rotary-wing and fixed-wing aircraft.

Unmanned aerial vehicles (UAVs): Lockheed Martin is a leader in UAV technologies, ranging from micro-UAVs such as the Stalker or Desert Hawk III to larger platforms like the Reaper. The company is actively pursuing UAV opportunities for both the military and civil markets in India.

- **UAS:** The next-generation Desert Hawk III unmanned aircraft system (UAS) has been deployed in the global war on terror by United Kingdom military forces. Combat proven Desert Hawk III continues to evolve to meet the changing demands of the warfighter and public security professionals.
- **High altitude airship (HAA):** Lockheed Martin is developing a high altitude airship (HAA), an unmanned, un-tethered, lighter-than-air (LTA) vehicle operating autonomously in the stratosphere for sustained, ultra-long endurance missions (up to a year), and suitable for multi-mission sensor operations. A sub-scale demonstrator known as the high altitude long endurance demonstrator has been developed to prove the technologies for the HAA.
- **Tethered Aerostat systems:** Lockheed Martin offers a full line of aerostat systems for domestic and international markets at envelope volumes ranging from 8K through 660K (660K= 6,60,000 cubic feet). The larger the aerostat, the greater the payload it can lift, and/or the higher the altitude at which it can operate. The 420K model, equipped with a Lockheed Martin L-88 radar, is the baseline system for the US Air Force's southern border Tethered Aerostat Radar System (TARS). The Army's Persistent Threat Detection System (PTDS) deployed in Iraq and Afghanistan is based on Lockheed Martin's 74K model.

Aegis: The Aegis Combat System is the world's most capable naval defence system and the sea-based element of the US ballistic missile defence system. The system can simultaneously attack land targets, submarines and surface ships, while automatically implementing defenses to protect the fleet against aircraft and missiles.

SPY-I Family of Radars: The AN/SPY-1D and AN/SPY-1D(V), SPY-1F and



SPY-1F(V) form today's short list of the most capable and proven radars at sea. The unique single SPY-1 multi-function phased-array radar system replaces numerous conventional independent sensors and is designed for the most challenging environments and missions.

MK 41 Vertical Launching System: MK 41 Vertical Launching System (VLS) is the only launching system that can simultaneously accommodate the weapon control system and the missiles of every warfighting mission area—anti-aircraft, anti-surface, anti-submarine and land attack. The system is designed to accept any missile into any cell – a capability that provides unparalleled flexibility.

COMBATSS-21: Component Based Total Ship System-21 is a combat management system based on an open architecture, component framework that enables low risk integration of proven elements. This system includes reuse of components from multiple proven systems. COMBATSS-21 provides an off-the-shelf combat management system starting point that meets open architecture and low-risk and low-cost objectives. The highly flexible architecture enables a "plug and fight" build

approach to the combat management system and C2.

PAC-3 Missile: The 'hit-to-kill' PAC-3 Missile is the world's most advanced, capable and powerful terminal air defence missile. It defeats the entire threat: tactical ballistic missiles (TBMs) carrying weapons of mass destruction, advanced cruise missiles and aircraft. In 2009, Taiwan became the fifth international customer for the PAC-3 missile, joining the Netherlands, Germany, Japan and the United Arab Emirates in fielding the system.

Arrowhead: Arrowhead is the advanced electro-optical fire control system that Apache helicopter pilots use for safe flight in day, night or bad weather missions. It is the US Army's Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) system that is leading edge in its design. M-TADS/PNVS modular architecture accommodates a field-retrofit from TADS/PNVS to the new configuration on the Apache AH-64D. Lockheed Martin marked the delivery of the 1,000th M-TADS/PNVS in February 2011, with additional domestic and international deliveries scheduled through 2014.

Pathfinder: Pathfinder is the dedicated pilotage sensor system developed by Lockheed Martin for application on cargo and utility aircraft. It is an adaptation of the Modernized Pilot Night Vision Sensor (M-PNVS) currently fielded on the AH-64D Apache attack helicopter. Pathfinder provides cargo and utility aircraft aircrews with significantly increased situational awareness while reducing workloads during day/night operations in diminished visibility flight environments.

Paveway II Dual Mode Laser Guided Bomb (DMLGB): The Lockheed Martin Paveway II Dual Mode Laser Guided Bomb (DMLGB) is the next-generation laser guided bomb kit that uses the existing Paveway II Laser Guided Bomb infrastructure and upgrades the existing Computer Control Group (CCG) system with an Inertial Navigation System/Global Positioning System (INS/GPS), an all-weather guidance system that provides dual-mode guidance capability. With the combination of the upgraded INS/GPS system, existing semi-active laser (SAL) seeker and anti-jam technology, the DMLGB minimises collateral damage and improves mission effectiveness by providing precision strike capabilities in all-weather at extended stand-off ranges.

Sniper Advanced Targeting Pod: The combat-proven Sniper Advanced Targeting Pod (ATP) provides critical long-range, positive identification of targets and possesses a video down link (VDL) to the widely used Rover ground receiver. Its advanced target identification capabilities enhance the warfighter's ability to detect and analyse ground targets while dramatically decreasing the risks posed by enemy air defences. Sniper ATP also provides essential NTISR using high-resolution, mid-wave FLIR and TV sensors, which operate in conjunction with a dual-mode laser, permitting eye-safe operation and precise geo-location in urban environments.

In addition to the above, Lockheed Martin is in the process of developing opportunities for the Littoral Combat Ship (LCS), Census and civilian air traffic control upgrade programmes. •

Modernised S-61T Helicopter Launches First Flight

Sikorsky Aircraft Corp. announced the successful maiden test flight of the modernised S-61T helicopter with an integrated glass cockpit and enhanced performance capabilities. Sikorsky is a subsidiary of United Technologies Corp.

In 2010, Sikorsky began a programme to upgrade S-61™ aircraft and return them to productive service. An industry workhorse, the S-61 helicopter has performed missions reliably for the United States and foreign allied militaries during the past several decades. The modernized S-61T helicopter represents the latest version, with a full structural refurbishment, overhaul of all major dynamic components, and installation of key upgrades including new composite main rotor blades (CMRB), a survivability suite and state-of-the-art glass cockpit, as well as all new electrical wiring throughout the aircraft. The initial test flight was completed in late 2013.

Sikorsky is under contract with the US Department of State (DoS) for refurbished S-61 aircraft and already has delivered 16 helicopters. The latest order is for 13 S-61T models, with the first delivery scheduled in the first quarter of 2014. The five-year IDIQ (indefinite delivery, indefinite quantity) agreement with DoS allows for the purchase of up to 110 modernised S-61 aircraft. The IDIQ purchase agreement serves as the contracting vehicle for any US Government agency to purchase the new helicopter.

"The first flight of the S-61T represents a major milestone in the programme," said Steven Rogers, Director S-61 Programs. "The modernised S-61T helicopter can be outfitted to meet a wide variety of requirements, and we believe it provides best-in-class-value for a mid-size, multi-mission helicopter." •



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Thales Trusted Partner for Indian Armed Forces

Thales has been operating in India since 1953 and is recognised as a trusted partner of the Indian Army, Air Force and Navy. Thales is showcasing its capabilities in a number of areas such as advanced air defence; C4I solutions; land and naval communications; optronics; and underwater warfare.

"We are extremely delighted to showcase our full strength at Defexpo this year. Since fast growing markets like India form a key part of our renewed global strategy, Defexpo 2014 will provide an excellent platform for networking and knowledge-sharing with our customers, both existing and potential, government representatives, partners and industry experts. We have always endeavoured to partner with the Indian industry and provide long-term support for our products," said Eric Lenseigne, Thales Country Director for India.

"We continually seek to bolster our presence here and propose products that are specially adapted to the specific needs of our customers in the land, air, naval and civil security domains. We, at Thales, are sure that Defexpo 2014 will prove to be a worthwhile opportunity for us," said Lenseigne.

Advanced air defence: Thales is the only company in Europe able to deliver a fully integrated air defence capability, from radars and C2 centres through to effectors and their respective fire control systems.

The offering is an integrated set of solutions designed to ensure timely decision-making and effective responses for the protection of military forces, key assets, nations and citizens around the globe. The SAMP/T theatre anti-missile system, the RAPID range of weapon systems, missiles and other air defence systems are on display.

C4I solutions: Thales as lead system integrator, provides interoperable, secure and critical C4ISR (computerised, command, control, communications, intelligence, surveillance and reconnaissance) systems for information superiority in the digitised battlespace, in order to support commander's decisions-making process for commander and crew, at tactical operational level for defence and army forces. The NORMANS dismounted close combat system is on show.

Land and naval communications: Thales offers interoperable systems and a complete range of tactical radios for all levels of command, from C2 centres to infantry in the field and for land, air and naval platforms, to meet the requirements for air-to-air, ground-to-air and surface-to-air communications.



SAMP/T THEATRE ANTI-MISSILE SYSTEM

Optronics: Thales is a pioneer in optronic equipment and systems, with thousands of products in service in over 60 countries. Thales is showcasing thermal imagers, surveillance systems, goggles and cameras.

Underwater warfare: Thales designs and delivers acoustic systems for anti-submarine warfare and anti-mine warfare. Thales's solutions are suitable for all types of platforms: submarines, surface combatants, helicopters, maritime patrol aircraft and unmanned naval systems.

Electronic warfare: Thales has been a supplier of electronic warfare systems for over 50 years, and at the forefront of electronic warfare technologies for airborne, land and naval platforms. Thales's technologies in the combat aircraft, surveillance radars, rockets and surface attack systems domains are on show too. •

Saab in Full Strength at Show

Saab is participating in full strength with a strong global team at Defexpo 2014. The company is presenting a series of products covering the land, naval, air and civil security domains.

Saab CEO Håkan Buskhe, the Heads of Saab's Business Areas and the Head of Market Area Lars-Olof Lindgren and the Marketing Directors will be present at the Defexpo.

The Saab display includes the RBS 70 NG VSHORAD, BAMSE SRSAM, RBS15 Mk3, AUV 62, SOTACS, Soft Armour, Carl Gustaf, SAVIT, IDAS, 9Airborne MMS and LEDS among others.

Lars-Olof Lindgren, Head of Market Area, said, "Defexpo 2014 will be an opportunity to meet Indian stakeholders from government, defence forces, homeland security, research, technology and industry. The main theme for Saab for this Defexpo is Teaming up with India. Saab believes in partnerships – a combination of smart ideas, local knowledge and close relationships with Indian companies forms the basis of Saab's thinking edge, and opens the door for innovation and new technologies. Through industrial cooperation, we will together with Indian companies achieve the long-term goal of creating an indigenous, self-sufficient defence industry for the global market. This, combined with our willingness to transfer cutting-edge technology, will result in mutually beneficial partnerships. There are already a number of Saab partnerships with Indian companies, including those with Tech Mahindra, Pipavav, HAL, QuEST, among others. Defexpo 2014 offers the opportunity to reinforce the message." •



RBS 70 NG VSHORAD



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Modular Design of Pantsir-S1 ADMGS

The analysis of the latest local conflicts shows that high-precision air assault weapons along with unmanned aerial vehicles are of primary importance among air threats. Nowadays and in the near future Pantsir-S1 Air-Defence Missile-Gun System (ADMGS) fully satisfies all requirements for fighting modern air threats thanks to the specific features of its design:

- combined missile and gun armament that allows to create an entire engagement zone of up to 20 km in range and up to 15 km in altitude;
- jam-proof multimode and multispectral radar-optical control system operating in decimetric, millimetric and infrared wavebands;
- automatic operation;
- capability to fire on the move and from short stops;
- short reaction time of 4-6 sec due to automatic tracking of up to 20 targets by a search radar and high-precision target designation (0.3° in azimuth, 0.5° in elevation, 60 m – in range) providing for quick fine search and target lock-on by multifunction tracking radar and optronic system;
- self-contained combat operation and coordination of actions within a battery;
- simultaneous firing against four targets within a sector of $\pm 45^\circ$ in azimuth and elevation.

optical control system operating in dm, mm, and IR wavebands, featuring a multifunction tracking radar as one of its components, high jamming immunity of the system was achieved and, as a consequence, drastic increase of combat efficiency was obtained.

Availability of mapping computer with digital maps ensures efficient automatic planning of combat actions taking into account particular geotopographical conditions of the Customer.

The task of protecting the transmitted data from jamming was successfully solved. When a command post is used as a part of the system an increase in data transmission range (up to 20 km) is obtained and interfacing with all types of Customer's existing command posts is provided without major modifications.

Adherence to modular concept was applied not only to design of the system but to its software as well. That was the way to solve the issues of integration into IFF system existing with each of the Customers. The issue of upgrading the IFF system in case the Customer's decision to change it was also worked out.

Modular structure, unification of units and assemblies design ensure successful integration into Customer's existing chassis maintenance system, supply of maximum unified individual, common, and base-stored SPTA kits, arrangement of service centers and crews training system.

PANTSIR-S1 ON TATA CHASSIS



TEST FIRE OF PANTSIR-S1



A novel approach in designing the Pantsir-S1 system as a modular structure provides for its installation onto various chassis including tracked one as well as for creation of stationary and sea-based variants of the system (for protecting sea oil platform, vital administrative, military-tactical and other objects), for installation of the system onto railway platforms, ensuring its integration into Customer's existing maintenance, training and logistics systems with minimum cost. The said approach also provides for development of the system variants taking into account particular geotopographical conditions in which the system is to be used by the Customer.

Moreover, the modular design of the system ensures its capability to be upgraded in future in terms of increasing its combat efficiency with minimum cost that undoubtedly raises its commercial interest for the Customer.

Outfitting Pantsir-S1 system with the multifunction tracking radar ensuring tracking of three targets and transmission of control commands to four SAMs provided for efficient counteraction against a wide range of air threats: fixed and rotary-wing aircraft at stand-off ranges, small-size guided missiles and bombs as well as remotely piloted UAVs.

Thanks to development of a single multimode and multispectral radar-

Constant combat readiness of the Pantsir-S1 system is ensured by built-in test equipment in each combat and maintenance vehicle.

Nowadays and in the near future Pantsir-S1 ADMGS fully satisfies all requirements for successful fighting modern air threats.

Appropriateness of the implemented technical solutions and high performance specifications of the Pantsir system were proved by acceptance trials and State Tests, more than 500 SAM launches were performed, serial production is established.

For several years already Pantsir combat vehicles march down the Red Square as a participants of the Victory Day Parade, a battery of Pantsir-S1 CVs many times took part in a Parade on occasion of Republic of the Republic of Belarus Independence Day in the city of Minsk.

The Pantsir system was shown at a number of international defence exhibitions (IDEX, MAKS and others).

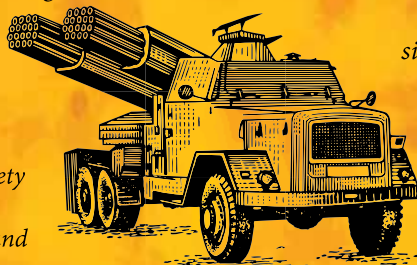
In the near future and in the long-term outlook the Pantsir-S1 ADMGS will remain a reliable asset capable to ensure protection of airspace from all types of air threats. •

Advertorial is based on the article of A.A. Zubarev, A.A. Nikiforov.



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The Indian Defence Services are one of the largest and strongest in the world and we consider it an honour to have been an integral part of it. As India's most diversified business group, with leadership and expertise in a variety of sectors, we provide technology, equipment, services and research capabilities to meet a wide range of the military's needs.



That is what gives us the distinction of being the single largest private sector enterprise in the defence sector. With our world-class capabilities, we aim to deliver cutting edge technologies that will help to develop and power the next generation of hi-tech weapon systems.

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Airbus Helicopters Aims High with New Branding and a Strategic Transformation

Eurocopter closed out a 20-year history of rotorcraft leadership with increased deliveries of 497 helicopters in 2013. Renamed Airbus Helicopters, the company opened 2014 with the certification of its new EC175 and the implementation of an ambitious customer-driven transformation plan.

"We enter 2014 with a transformation plan that is being applied across the company and responds to customers' evolving expectations," explained Airbus Helicopters President Guillaume Faury. "In parallel, the Airbus Helicopters rebranding provides a reference for greater ambition, inspired by the Airbus Group's values and excellence."

A key focus of the transformation plan will ensure product maturity, while delivering the best level of mission capabilities and offering reliable, efficient support and services. Quality is an essential element in Airbus Helicopters' transformation, involving the implementation of standard processes and tools, along with a further drive to deploy lean cultural change.

Faury reaffirmed the vital importance of safety for Airbus Helicopters, placing its technologies and expertise at the service of customer safety. As part of initiatives in this area, Airbus Helicopters will begin delivering the EC130 T2 this year with the Vision 1000 data monitoring and cockpit imaging system, which follows its pioneering use on Ecureuil family helicopters.

Competitiveness improvements resulting from the company's transformation plan will capitalise on the "favourite mission configuration" concept for Airbus Helicopters' products that reduces lead-times and improves cost-effectiveness – contributing to the company's sustainable development and growth.

Airbus Helicopters' highlights for the coming 12 months include the delivery start-up of its new EC175, which successfully completed the certification process yesterday – to be followed by the type certificate's issuance within the next several days. The EC175 marks Airbus Helicopters' first application for its state-of-the-art Helionix avionics, which enhances safety and operability.

Also to be certified in 2014 is Airbus Helicopters' new EC145 T2, which incorporates Helionix avionics as well, while increased production rates will



be implemented for the military NH90, Tiger and EC725 helicopters during the year.

For the next-generation of Airbus Helicopters now in development, the company will be applying new levels of crew-machine interface, automation and system integration – further enhancing flight safety.

With an industry-leading 497 helicopters delivered in 2013, representing an increased 46 per cent market share in the civil and parapublic market, Airbus Helicopters confirmed its global leadership. •

The Amphibian that has Excelled in Search and Rescue

ShinMaywa is the prime manufacturer of the world's only amphibian aircraft capable of open-sea landing and take-off. The US-1A and US-2 STOL Search and Rescue Amphibians have shown remarkable capabilities enabling the Japanese Maritime Self-Defense Force (JMSDF) to transport emergency patients from outlying islands and rescue victims of disasters at sea. With sophisticated technical know-how, ShinMaywa develops and manufactures components for civil aircraft manufacturers overseas, including components for the Main Wing Spars of Boeing 787.

The US-2 is the world's only amphibian capable of landing on rough seas with a wave height of three metres. The US-2 and its predecessor model US-1A are currently in operation by Japan's Ministry of Defense (MoD) as STOL Search and Rescue Amphibian. The Japanese Maritime Self-Defense Force of Japan's MoD operates seven amphibians and they have been dispatched over 970 times to rescue over 950 victims of maritime accidents. •





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Impressive Success for Israel Aerospace Industries - Converted Tanker at the 2013 Maple Flag Exercise

Israel Aerospace Industries (IAI)-converted tanker was successfully operated by the Colombian Air Force in refuelling the Royal Canadian Air Force CF-18 fighter aircraft as part of the 2013 Maple Flag advanced aerial combat training exercise.

Designated to provide training for the Canadian Forces, Maple Flag is considered to be one of the largest exercises of its kind in the world, and brings together select allied air forces from around the globe. The exercise was held in June at the Cold Lake, Alberta, Canada base, and included fighter, bomber, aerial refuelling, transport, air defence, AWACS, SEAD, and electronic warfare crews. The Colombian Air Force participated in Maple Flag with various aircraft, including KC-767 MMTT (multi-mission tanker transport), which had been supplied by IAI several years ago.

During the exercise, CF-18s Hornets from 425 Tactical Fighter Squadron topped up their fuel tanks from a KC-767 Colombian Air Force tanker. "It was a very moving experience for the whole crew and the observing personnel onboard since it is the first time that we have had such a close encounter with an aircraft from another country. The F-18 is a very modern combat aircraft, of very high performance. We both meet NATO standards and the mission was a complete success," said Colonel Carlos Silva, Colombian KC-767 pilot after the first refuelling mission of Canadian F-18s.

"This year's exercise was a great success, having met the training objectives of our participating nations and joint Canadian armed forces participants simultaneously. Every year we see and meet new challenges and that is one of most rewarding parts of hosting such an exercise," said Colonel Patrice Laroche, Commander of 4 Wing.

"The Colombian team would not be complete without 'the tanker'," said Colonel Maria Cecilia Silva Velasquez of the Colombian Air Force. "Ours is a modified Boeing 767-200ER as a multi-mission tanker transport which, among its multiple capabilities, performs air-to-air refuelling with the Kfir [a fighter aircraft] and A-37B [light attack] aircraft. This kind of procedure allows aircraft to considerably extend their range and/or endurance requirements for a given situation to support any allied country with one objective: to protect friendly forces and get the mission accomplished."

General Tito Saul Pinilla Pinilla, Colombian Air Force Commander, added: "We are proud that NATO has certified the Colombian Air Force to refuel



NATO members' aircraft and reiterated the high level of skill demonstrated by FAC in Maple Flag accomplishing missions as allies of this organization."

Earlier this year, IAI was selected by the Brazilian Air Force to execute a large-scale air refuelling project for several Boeing 767-300 aircraft. Joseph Weiss, IAI's President and CEO said: "With 30 years of experience in air-to-air refuelling solutions, IAI is considered to be a world leader in this realm. We are proud that IAI's capabilities were demonstrated in this prestigious aerial exercise to the benefit of our customers."

IAI's MMTT programme's highlights include conversion of pre-owned B767 A/C with outstanding performance, high dispatch reliability and enhanced mission flexibility. The advanced mission equipment includes fly-by-wire boom, 3D viewing system, remote aerial refuelling operator station and upgraded military avionics. •

IAI Unveils Affordable Mobile C4 System for Air Operations

Israel Aerospace Industries (IAI) unveils its new, advanced and affordable mobile C4 system for air operations - MASHOV.

MASHOV is a comprehensive combat C4 mobile solution for offensive and defensive air-operations. This modern and affordable C4 centre integrates versatile operational capabilities in a compact and mobile shelter.

The system supports the entire operational cycle - from mission planning and rehearsal, through real-time command and control, target allocation, communication and mission debriefing. The system generates a unified combat and air situation picture, by integrating sensors and communication systems. Real-time mission command and control is effectively executed utilising the comprehensive and unified situation picture along with communi-



cations and data link systems.

MASHOV provides an advanced air defense capability, by integrating airborne fighters with ground-based air-artillery, creating a unified awareness picture and automatic target detection, analysis and allocation. The system's wide band data link network provides real-time communication with airborne platforms while integrating its data into the unified situation picture.

MASHOV is a self-contained mobile ground control unit as well as a frontline C4 cell, functioning in either a stand-alone or networked mode of operation. MASHOV joins IAI's extensive and proven family of situational picture and command and control systems in the air, land, space and sea arenas, enhancing the customers' operational capabilities with entirely interoperable solutions. •

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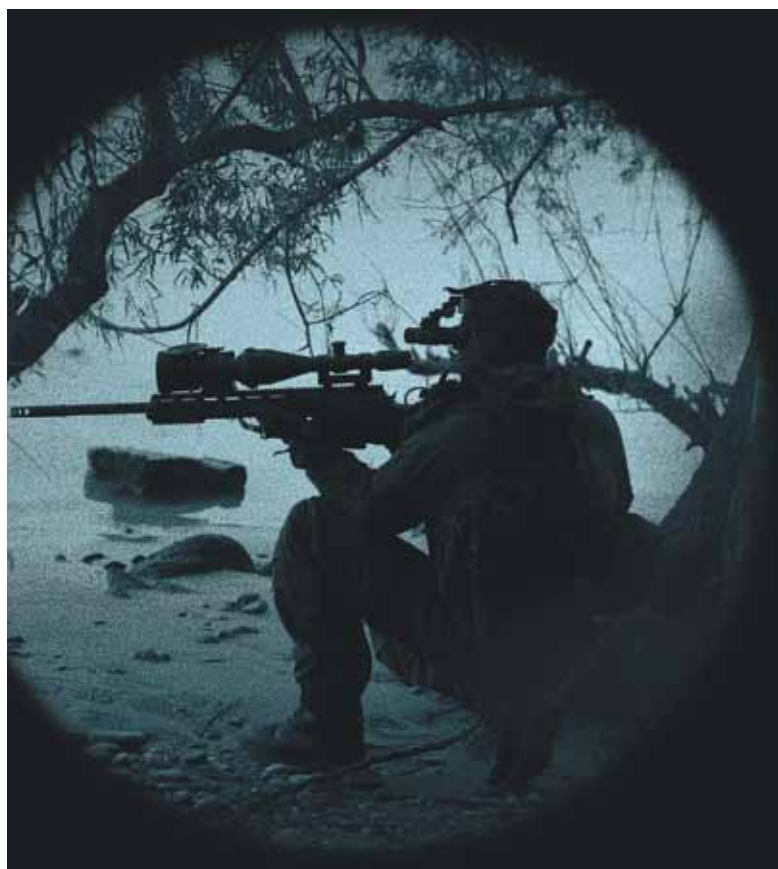
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Latest Night Vision Technology for Upgrading India's Army and Special Forces on a War Footing

Photonis is featuring its latest night vision sensor innovations. With deep knowledge of night vision, Photonis clearly fulfils the need to upgrade the Indian Army and Special Forces with modern night vision technology. Especially for the need of night vision devices for soldiers, night sights for rifles and night vision equipment for armoured and mechanised formations, Photonis displays its combat proven, ITAR free XR-5TM and XD-4 TM image intensifier tubes, with auto-gating. Also the black and white Onyx variant that is used in many night vision applications is being displayed.

As a world leading provider of innovative, cutting-edge, combat proven night vision solutions, Photonis offers a wide range of technologies and capabilities in various fields of activities. Besides the image intensifier technology, Photonis also features its digital night vision solutions Nocturn. The Nocturn camera is a digital extreme low-light CMOS camera, especially designed for high performance under both daylight and low-light level conditions (up to light level 3). With this the Nocturn perfectly fits applications where the high-resolution detection and ultra-high sensitivity are required under 24/7 conditions. Its small size, weight and power (SWaP) also make this camera module ideal for integration into aerial, mobile and hand-held surveillance systems.

The XS and XL configurations perform both equally, but differ in housing. The XS version is the standard core and very suitable for integration in various imaging applications, such as CCTV security and surveillance, long range target identification, 860 & 1064 nm laser line detection, machine vision, UAV and other reconnaissance applications for instance. The XL version of the Nocturn camera has a CS mount which supports a wide range of standard lens options, including long-range and wide angle, to optimise surveillance field of view. It also comes equipped with a multiple industry-standard interfaces (cameraLink, NTSC, PAL, USB), and a choice of connectivity options including wireless and USB for a versatile plug-and-play solution. Besides the XS and XL version, characterised with a monochrome output, Photonis also patented a colour variant and one with a high resolution monochrome OLED micro display (MD) as well as one with a GigE interface (GV) for transmission over IP, that soon is to be released. •



MKU showcasing its world-class protection solutions

MKU, a leading manufacturer of ballistic protection equipment and night vision devices, is showcasing protection solutions that include ballistic jackets, armour inserts, helmets, advanced protection gear, platform protection solutions for aircraft, naval vessels and land vehicles. The show-stoppers will be latest range of personal protection products some of which are patented in the US and comply with the stringent International Standards like NIJ 0101.06.

One of the highlights is night vision devices manufactured by MKU, GmbH showcasing the Jaguar 7 Binocular, Jaguar 14 Monocular and Night Eye weapon sight. A dedicated NVD experience dark zone is an integral part of the display where visitors get hands on experience of the performance of a night vision device. The devices offer larger field of view, long range illuminators and high quality optics.

With state-of-the-art infrastructure in India and Germany and ahead of the curve, proven technology, MKU has a presence in over 100 countries. MKU holds patented technologies that are recognised in US, Europe and other parts of the world. Its products are certified by the leading names in the world, including, National Institute of Justice (NIJ), US, HP White Labs, US, Mellrichstadt, Germany, TNO, Netherlands and DRDO, India. MKU is a registered supplier to NATO and the UN. MKU follows and adheres to certified quality management systems like AS 9100:2004 (Aircraft Armoring), ISO 9001:2008, ISO 14001 (Environmental Management System). •

Raytheon Secures First International Customer for its F-16 RACR AESA Radar

Raytheon Company has signed a contract with BAE Systems in support of upgrading the Republic of Korea's fleet of more than 130 KF-16C/D Block 52 aircraft. As a key subcontractor to BAE Systems, the company will provide an integrated solution that includes the Raytheon Advanced Combat Radar (RACR), ALR-69A all-digital radar warning receiver, advanced mission computing technology and weapon systems integration.

"South Korea's competitive selection of our RACR last year gave us an important foothold in the international F-16 upgrade market," said Jim Hvizd, Vice President of International Strategy and Business Development for Raytheon Space and Airborne Systems. "The addition of our EW and mission computing expertise and our weapon systems integration will provide the Republic of Korea with an operationally superior solution that will keep their KF-16s relevant for years to come."

This contract, booked in the fourth quarter 2013, adds the F-16 Fighting Falcon to the roster of fighters retrofitted with Raytheon AESA radars (F-15C, F-15E, F/A-18E/F and the EA-18G Growler). Since 2000, Raytheon has been the industry leader in AESA technology development.

Raytheon's F-16 avionics heritage spans more than 25 years with deliveries of mission critical avionics systems including mission computers, electronic warfare systems, Anti-Jam GPS receivers and various weapons. •

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Elbit Systems Bags Contract to Operate and Maintain Simulators of Israeli Ground Forces

Elbit Systems Ltd. has been awarded an Israeli Ministry of Defense contract, in the amount of approximately \$23 million, for the operation and maintenance of its ground simulators in use by the Israeli Ground Forces. The contract will be performed over a five-year period.

The contract includes a variety of simulators, both fixed and mobile, dedicated to training for tanks, armored combat vehicles, driving simulators, intelligence training and other applications.

Elbit Systems is an acknowledged leader in the field of training and simulation, building on over three decades of experience, covering a full spectrum of missions in the areas of air, ground, sea, intelligence and others. The growing demand for the supply of training systems, together with increased requests to operate and maintain these systems through outsourcing, enhances training and simulation as an Elbit Systems' growth engine. •



BEL Focusing on C4I Systems

Navratna defence PSU, the Bharat Electronic Limited (BEL), is showcasing its R&D might by displaying its latest range of products and systems, developed in-house and jointly with Defence Research and Development Organisation (DRDO).

The main highlight of BEL's display will be network-centric warfare (NCW) systems developed indigenously for the Indian defence forces. NCW solutions for the Indian Navy will include combat management system, which automates tactical data from the ship's sensors to provide decision support to the ship's command. The composite communication system, an IP-based new-generation voice, data and video integrated system, will also be on show. The software for all these solutions, too, has been developed in-house.

BEL's display also include key elements developed for use in various C4I systems catering to all the three Services — like computing elements in various forms, right from wrist-wearable computers, hand-held computers and tablet PC to rugged laptop; communication equipment such as software defined radio with different variants, advanced interoperability communication system, HF radios and point to multi-point radio relays, besides encryptors such as IP encryptor and bulk encryptor, multi network connectivity device and futuristic commando system solution.

Research and development has been BEL's forte. The company is laying increased thrust on development of new technology modules: microwave power modules and TR modules for use in radars, MEMs-based products for use in sonars and microwave components used in air-borne EW systems. The key surveillance radar segment that is on show is the 3D central acquisition radar, 2D Bharani radar, 3D Aslesha radar and battlefield surveillance radar-extended range (BFSR-XR) and identification friend or foe (IFF MK XII) along with advanced tactical display and EMP shelter.

BEL is highlighting its contributions to the electronic warfare and avionics segment with an impressive display of the radar finger printing systems (RFPS), avionics components for light combat aircraft (LCA), viz, digital flight control computer and other cockpit modules. Also on display are the latest



range of laser technology based products, night vision products based on latest generation image intensifier tubes and thermal imaging technologies, holographic weapon sight and batteries. •

Rafael's High-tech Air Defense Systems

Israel's second largest government-owned defence company – Rafael Advanced Defense Systems Ltd, designs, develops, manufactures and supplies a wide range of high-tech defence systems for air, land, sea and space applications. Rafael's know-how is embedded in almost all Israel defence forces (IDF) systems in operation today. The company is steadily growing internationally with orders totalling \$2.4 billion and sales of \$1.8 billion for 2012.

Rafael is exhibiting a comprehensive suite of Land and Naval combat systems designed to address current and future battlefield challenges and complexities.

Rafael specialises in current and future Land systems. In addition to the traditional battlefield, Rafael's combat-proven land systems are optimal for the ever-growing arena of urban warfare.

Each system fulfills a unique role in ensuring swift and accurate results, with minimal collateral damage and maximum effectiveness. Together they provide land forces with the necessary firepower, lethality, survivability and manoeuvrability.

Among its advanced air defence systems are – Iron Dome (combat-proven active defence system against short range artillery rockets); Spyder SR/MR (family of short- and medium-range air defence systems); Python-5 (full sphere air-to-air IR missile and air defence missile); Derby (beyond visual range air-to-air missile and air defence missile); MIC4AD (modular, integrated C4I air and missile defence system).

Rafael is also presenting a variety of advanced combat-proven land systems for survivability, lethality and manoeuvrability. These will include the combat-proven trophy APS family, for active protection of armoured vehicles, as well as remote-controlled weapon stations for both land and naval applications (Typhoon).

The electro-optic and communication systems include – Reccelite (real time ISR system); Litening (airborne targeting and navigation pod); IMILITE (multi-source, multi-task imagery exploitation system); BNET family (broad-band MANET IP software defined radio); TACMAX (tactical WiMax network);



SPYDER-SR

and multi-purpose, tactical, guided missile systems (Spike team trainer – tactical training for a SPIKE combat team). •

Business opportunities for French defence industries


With 60 to 70 per cent of its defence and security equipment being imported and an expenditure budget for these acquisitions of 11.6 billion euros for 2013-14, India is currently one of the most attractive markets for the major exporting countries, including France, ranked fifth.

During the last decade, several French businesses have been awarded important contracts in India, including the modernisation of 51 units of the Mirage 2000, acquisition of 6 Scorpène submarines accompanied by the sale of 36 Exocet SM-39 anti-ship missiles for an announced amount of 2.4 billion euros.

France looks forward to new developments in this privileged Franco-Indian relationship and hopes for intended and ongoing calls for tender for a supplementary set of high-sea submarines, projection and command ships, helicopters, artillery material as well as the 126 Rafales for which discussions are underway. •



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Lockheed Martin Design for LM-100J, Civil Variant of C-130J

Lockheed Martin officials have submitted a Programme Notification Letter to the Federal Aviation Administration on January 21, 2014, for a type design update for the Lockheed Martin Model L-382J airplane, a civil-certified variant of the proven C-130J Super Hercules to be marketed as the LM-100J.

More than 100 L-100s, which were the commercial variant of the first generation C-130, were produced from 1964 to 1992 at the then Lockheed-Georgia Co., Marietta, Georgia, facility. Many of those airlifters are still operated worldwide by commercial and government customers.

"The LM-100J is a natural expansion of the Super Hercules family. It is a modern answer to the existing, multi-tasked L-100 airlift fleet which, true to Hercules form, is a workhorse that has been a critical cargo asset for 40 years," said George Shultz, Vice President and General Manager, C-130 Programs.

"Our customers and legacy L-100 operators tell us that the best replacement for an L-100 is an advanced version of the same aircraft. The LM-100J is that aircraft."

Through select design changes, the LM-100J will perform as a civil multi-purpose air freighter capable of rapid and efficient transport of cargo. The LM-100J is expected to be an efficient and ideal airlift solution when delivering bulk and oversize cargo particularly to austere locations worldwide.

The LM-100J incorporates technological developments and improvements over the existing L-100s at a competitive price that results from years of C-130J operational experience, including more than 1 million fleetwide flight hours. The result of this experience and advancement translates to an aircraft that will deliver reliable service in a flexible airframe for decades to come.

"With the LM-100J, we are leveraging the proven technology and capabilities of the C-130J Super Hercules to offer a modern, flexible commercial aircraft that is ready to deliver freight and support critical civilian missions — anywhere, anytime," said Jack Crisler, Vice President, Business Development



for Air Mobility, Special Operations and Maritime Programs.

As it is based on the operational C-130J, the civil variant LM-100J can operate from short, unprepared airfields without ground support equipment. It requires minimal material handling equipment and enables rapid onload and offload at truck-bed height. Growth provisions built into the LM-100J will enable it to support a variety of future missions including aerial spray, aerial firefighting and delivery, medevac/air ambulance, humanitarian aid and VIP transport. •

AM General has decisive advantage for the joint light tactical vehicle programme

The company that has manufactured more military light tactical vehicles than any other in the United States is poised to produce the joint light tactical vehicle (JLTV), the next-generation light tactical vehicle (LTV) for soldiers, marines and other American service members performing their missions around the world.

AM General delivered 22 of its blast resistant vehicle off-road (BRV-O) JLTVs for the engineering, manufacturing and development (EMD) phase of the programme, to the US Government last August ahead of schedule. The company manufactured the vehicles on the same light tactical vehicle assembly line that has turned out approximately 3,00,000 high mobility multi-purpose wheeled vehicles (HMMWVs) for all branches of the US military and more than 50 international customers.

"We are unique in the JLTV programme with our fully tooled production line; long experience in high-quality, lean manufacturing; successful track record of on-time and at-cost delivery; highly skilled workforce, and network of 1,700 suppliers across 43 states," said AM General Vice President Business Development and Program Management Chris Vanslager. "Low-risk, high-quality and affordability is what our customer requires, and we at AM General, have more than five decades of experience and the heritage of manufacturing light tactical vehicles to deliver those requirements to the men and women of the armed services."

The company's LTV Assembly Line has the flexibility and tooling to economically and efficiently produce the BRV-O as well as HMMWV simultaneously, in multiple variants and volumes, to meet the needs of military customers. Besides its dedicated Military Assembly Plant in Mishawaka, Ind., AM General's manufacturing capability is supported by its Engineering and



Product Development Center in Livonia, Michigan, its engine manufacturing plant in Franklin, Ohio, its logistics support operations stretching from Indiana and around the globe, and its extensive LTV testing and training facilities in the South Bend, Indiana, area.

"We alone bring to the table everything needed for successful, affordable and flexible manufacturing and life-cycle support to meet the needs of US and international armed forces for decades into the future," said Vanslager. •



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VENTURES

Tata Motors Showcase All New Indigenous Frontline Combat Vehicles

Tata Motors, the country's leading supplier of mobility solutions to the armed security forces, today showcased two new combat vehicles at the Defexpo 2014. As part of the company's strategy to enhance the scope of its defence business right up to frontline combat, Tata Motors showcased the KESTREL, a wheeled armoured amphibious platform providing mobility to frontline soldiers, carrying them into the battle zone, with critical armour-protection, backed with adequate fire support. The LAMV (light armoured moving ahead of the armoured columns. Tata Motors Defence through the KESTREL and the LAMV provides the Indian armed forces, with world-class indigenously developed frontline protected mobility.

The KESTREL, designed and developed indigenously with the Defence Research and Development Organisation (DRDO), for optimised survivability, all-terrain performance and increased lethality. The occupant capacity of the hull is 12 members. The driver in combat mode has visibility through three periscopes and a display catching vision through front and rear view cameras, with day and night vision. The back to back seating layout allows firing through the 3 gun ports on each side, with two big hatches for patrolling. The fuel tanks are placed outside the crew compartment for additional safety. The 8 x 8 independently suspended vehicle has high power-to-weight ratio for mountain terrains. The vehicle can accommodate different variety of weapon stations and turrets as the application demands.

The LAMV is developed indigenously with technical inputs from Supacat of the UK, for vital reconnaissance mobility, protection and firepower.



KESTREL

A light patrol vehicle, the LAMV combines an integrated blast and ballistic protection system, including a protected all composite detachable crew pod and V-shaped hull, providing an all-round protection. Carrying a crew of six (two + four) and using the latest composite and ceramic armour systems, the crew pod is constructed as a separate module, sealed off from potential secondary projectiles. All seats are mine-blast protected. The LAMV has exceptional all-terrain high mobility performance, high power-to-weight ratio, automatic transmission, all-wheel independent suspension and can reach speeds of up to 105 kmph. The vehicle is also loaded with modern equipment for observation, surveillance and communication, configured to also address urban warfare, engaging threat on all terrains.

surveillance and communication, configured to also address urban warfare, engaging threat on all terrains.

Ravi Pisharody, Executive Director, Commercial Vehicle Business Unit, Tata Motors Ltd, says: "Tata Motors has been associated with the country's defence and security forces for over 60 years, supplying a range of world-class, high technology and reliable off-road mobility solutions. While focusing on the modernisation and system upgrades of the country's mobility platforms, we have strategically moved from being a logistics support provider to a frontline combat vehicle player. The two vehicles showcased today are state-of-the-art, targeted at giving our forces the much needed capabilities of strategic mobility for rapid offensive thrusts into enemy territory. Developed with DRDO, the KESTREL is based on modern modular designs, which can incorporate imperative upgrades, thereby enabling them to retain functional superiority throughout their service life." •

Assault Rifles for Indian Army

BY LT GENERAL (RETD) V.K. KAPOOR

Indian Army is on the lookout for assault rifles (AR) to replace the INSAS 5.56mm Rifles with technologically superior weapons. In the race are assault rifles of the Czech Republic's Czecca, IWI, Baretta and Colt and Sig Sauer, all weighing around 3.6 kg. The other requirements include the ability to convert from 5.56 x 45mm to 7.62 x 39mm calibres by merely switching the barrel and magazine for employment in counter-insurgency and/or conventional offensive/defensive operations. They also need to be fitted with detachable under barrel grenade launchers and be capable of firing Ordnance Factory Board (OFB)-produced 5.56mm x 45 (SS109) ammunition rounds. This procurement will also involve transfer of technology to the OFB to licence-build the assault rifles. Army's immediate requirement is for around 2,18,320 rifles whereas India's assault rifle requirement is estimated at between two million and three million to arm the large Central Paramilitary Forces and the state police. At this scale, India's assault rifle acquisitions could be one of the world's largest small arms contracts in recent times worth over \$5 billion in due course.

COLT MODULAR CARBINE CM901

Initially developed to exceed the original SCAR requirements of a multi-calibre, single serial number modular weapon system, the Colt CM901 7.62 x 51 NATO (.308 Winchester) has the modularity and versatility required to convert from 7.62mm to 5.56mm calibre. Its free-floating barrel and one-piece monolithic upper receiver provide exceptional accuracy. The revolutionary lower receiver and bolt carrier design enable the upper receiver group to be easily swapped out for any Colt MilSpec upper receiver chambered in 5.56 x 45 NATO (.223 Remington), without tools, in under a minute – allowing the weapon to be reconfigured to any situation at a moment's notice. All operating controls are ambidextrous, providing flexibility and ease of use. •

Kalyani Group Unveils Indigenous Howitzer



DR. BABA N. KALYANI CHAIRMAN AND AMIT KALYANI EXECUTIVE DIRECTOR, KALYANI GROUP ON THE INDIGENOUS 155MM/52CAL GUN HOWITZER

Saab and Ashok Leyland Team Up for SRSAM

Defence and security company Saab and India's transport specialist Ashok Leyland have joined forces to compete for the Indian Army's short-range surface-to-air missile (SRSAM) air defence programme.

Saab and Ashok Leyland are teaming to meet the SRSAM requirement with a new solution that combines the Saab BAMSE missile system with Ashok Leyland high-mobility vehicles. The Saab BAMSE SRSAM is an all-weather, all-target, air defence missile system that can be deployed to protect fixed and mobile assets. The BAMSE SRSAM is a purpose-built ground-based air defence missile and is the latest in a long line of successfully developed and deployed Saab missile systems.

Ashok Leyland will deliver high-mobility vehicles to transport the BAMSE SRSAM solution. All subunits within the BAMSE SRSAM are being integrated with the Ashok Leyland Super Stallion 8 x 8, a high-mobility vehicle capable of operating in all types of terrain under all weather conditions.

Saab's Head of Market Area India Lars-Olof Lindgren says, "The tie-up brings together two great engineering companies with front-end technologies that together could serve the Indian Army well. The BAMSE is a proven air defence missile system and the Ashok Leyland platform is a very suitable all-terrain vehicle. The need for mobility for air defence units is essential for flexible and optimal deployment. We are very happy to find a robust vehicle in Ashok Leyland's product range that meets the requirements. We look forward to working closely with the company to deliver to the needs of the Indian Army."

Dr V. Sumantran, Vice Chairman of Ashok Leyland, says: "We are pleased to announce this cooperation with Saab and together we are able to offer the Indian defence forces, state-of-the-art air defence systems based on proven technologies. Saab is a recognised technology leader and in the BAMSE Saab has a very advanced and capable system. Ashok Leyland has a proven track



record of serving the mobility needs of the Indian armed forces for over three decades. Our Super-Stallion 8 x 8 platform will offer the best combination of performance and reliability."

The complete SRSAM system includes the Giraffe AMB, a powerful 3D surveillance radar and command and control system intended for short- and medium-range ground-based air defence and the BAMSE MCC missile launcher with six ready-to-fire missiles. •

WHAT DRIVES THE ARMED FORCES?

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Rockwell Collins to Provide 721S Radio for Indian Air Force Advanced Telemetry System

Rockwell Collins' new 721S Fixed Site Ground radio has been selected by India-based Park Controls & Communications (P) Ltd. as an integral part of an advanced telemetry system for the Indian Air Force (IAF). This is the first selection of the 721S radio for the Indian military.

"In addition to being the preferred replacement radio for 17,000 fielded GRC-171 UHF air traffic control radios, the flexibility of the software designed, IP-based 721S lends itself to seamless integration in a multitude of applications," said Ram Prasad, Managing Director for Rockwell Collins India. "We're proud of the new relationship we've established with Park Controls & Communications (P) Ltd., and look forward to working together on this important programme for the Indian Air Force."

The highly reliable, long-range 721S radio is fully interoperable with the legacy radios in use by military forces and offers remote control features for "lights out" operation, reducing manpower needs. The radio also features Rockwell Collins' patented Clarity™ technology, which eliminates background noise in both transmit and receive modes. It is also configurable to operate efficiently in any co-site environment through the use of internal tracking filters.

Park Controls & Communications (P) Ltd. was established in 1989 by technocrats with strong technical background and in-depth domain knowledge of core technologies. The company services technology intensive requirements of clients for their customised requirements for electronic LRUs and systems integration for airborne and ground-based systems used for data monitoring, recording, acquisition and analysis, as well as timing and control systems within the defence and aerospace domains. •

Mahindra Telephonics Integrated Systems Opens First Private Joint Venture Aerospace & Electronics Manufacturing Facility in India

Telephonics announced that their joint venture partnership, Mahindra Telephonics Integrated Systems (Mahindra Telephonics), has opened the first private sector aerospace and electronics JV manufacturing facility in India.

The facility, located in the city of Prithla, a 45-minute drive from Delhi, officially opened on February 5, and represents an important milestone for India's rapidly expanding private defence industry. The business will focus on the development and manufacture of leading-edge radar technology. Initial production of the first proprietary products commenced at the facility in December 2013.

"Telephonics' combination of world-class technology and manufacturing capabilities, combined with Mahindra's renowned manufacturing, corporate governance and market presence are proving to be very compelling for our customers in the US and Europe," explained Telephonics President and CEO, Joseph Battaglia. "Our joint venture has also begun planning for additional development facilities, including a larger manufacturing facility and the development of an outdoor radar and antenna test range."

Sharing Battaglia's enthusiasm, S.P. Shukla, President (Group Strategy & Defence Sector & Member of the Group Executive Board), Mahindra & Mahindra Ltd. stated, "The opening of the Prithla facility is a critical step in transitioning American defence manufacturing capabilities to India. Being able to support the Ministry of Defence requirements locally in India provides a multitude of benefits, including cost efficiencies, decreased turnaround times and enhanced logistical support." He further added that "Mahindra Defence Systems will now have a three-dimensional capability encompassing the land, sea and air domains. Synergies between the different defence and MahindraGroup companies will also be leveraged." •

GSL MARCHING AHEAD TO BUILD COMPLEX WEAPON INTENSIVE PLATFORMS

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- Specialists in design & construction of new generation Patrol Vessels
- Proven track record of GSL's in house R&D driven Patrol Vessels in service with the Indian Navy and Coast Guard
- Yard has built and supplied over 200 ships, including OPVs, FPGVs, OSVs, Ex FAC, Missile Crafts, Survey Vessels, Sail Training Ships and GRP Fast Interceptor Boats

EXPANDING & DIVERSIFYING TO MEET FUTURE REQUIREMENTS..

- Shipyard Modernisation is nearing completion, to commence construction of MCMVs
- Established Manufacturers & Suppliers of Stern Gear equipment and Damage Control Simulator
- Executed Asia's first Shore Based Test Facility to train pilots for the MIG 29K and LCA (Navy) at INS Hansa successfully.



105 M NOPV



DAMAGE CONTROL SIMULATOR



SHORE BASED TEST FACILITY

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COMMITTED TO QUALITY, COMMITTED TO EXCELLENCE.

GRSE looking at more export orders

BY REAR ADMIRAL (RETD) SUSHIL RAMSAY

Garden Reach Shipbuilders and Engineers (GRSE) is gearing to be a leading warship shipyard in the world, not just meeting domestic requirements but also overseas. GRSE has been talking to about five countries in Latin America, Africa and Asia for export orders.

Giving details of GRSE plans, the Chairman and Managing Director Rear Admiral (Retd) Anil Kumar Verma said that the first export order for offshore patrol vessels (OPVs) for Mauritius was underway, to be delivered in the second half of 2014.

The most major project GRSE is executing is the ASW (anti-submarine warfare) Corvette P 28 project. The first ship has completed sea trials and it has indigenous content at 80 per cent, highest achieved by any project of the Indian Navy. The first ship will be delivered this financial year.

From the first warship INS Ajay built in 1961, GRSE has come a long way and till date has delivered over 800 vessels, including 89 warships for the Indian Navy and the Indian Coast Guard. •

Mazagon Dock to deliver INS Kolkata next month

BY REAR ADMIRAL (RETD) SUSHIL RAMSAY

& R. CHANDRAKANTH

With the modernisation programme completed, the Mazagon Dock Limited (MDL) has accelerated the pace of shipbuilding activities and under Project 15A the first ship – INS Kolkata – will be delivered to the Indian Navy next month, announced the MDL Chairman and Managing Director Rear Admiral (Retd) R.K. Shrawat. MDL is building three ships in this class.

INS Kolkata is the biggest warship in terms of tonnage, bigger than Delhi class. The next two ships will be delivered in quick succession and this is possible due to the new integrated methodology of construction the company has adopted.

Under Project 17A, MDL will be building four ships, while the other three will be built by GRSE. The frigate construction time has been compressed considerably, bringing it down from the earlier eight to 10 years to five-and-a-half years for the first frigate. After more than every six months one frigate will be rolled out.

As regards Scorpene project, he mentioned that the contractual delays had been sorted out and the project was moving ahead for delivery in September 2016. "It is a stiff target, but we now have the capabilities to deliver. Every nine months, one boat will be delivered between 2016 and 2020." The transfer of technology on the programme is moving satisfactorily, he said. •


Cooking in survival situations, solutions from Zip Military

BY R. CHANDRAKANTH

Standard Brands, owners of the Zip Military Cooking Fuel, unveiled its new range of Boilex portable solid fuel cooking stoves in India at Defexpo. Together, their fuel and stoves create a unique set of high performance, lightweight cooking systems which primarily target individual soldiers and those cooking in survival situations. Boilex 'Hinged' stove is a flat-packed stove which is lightweight and ideal for personal cooking. It is small in size, quick to assemble and easy to use in any environment. Designed to work with a soldier's mug, it is the ideal 'pocket-sized' stove for all soldiers.

Boilex 'All-in-One' stove is a flat-packed design that folds out into a stove and cup cooking system. It weighs less than 60 grams and is perfect as an emergency mug/stove for survival situations. •

In pursuit of Excellence and Quality in Shipbuilding



GRSE is a premier shipbuilding yard in the country dedicated to the construction of warships. The Shipyard over the years has produced 84 warships for Indian Navy, Indian Coast Guard and also produced 700 other auxiliary vessels. The Shipyard holds an order book position of over 10,000 crore which includes Anti Submarine Warfare Corvettes, Inshore Patrol Vessels, Landing Craft Utility Ships and Fast Attack Crafts. GRSE has also secured an export order for construction of one Offshore Patrol Vessel. With modern shipbuilding infra-structure and highly skilled manpower GRSE is fully geared up to meet the ever growing maritime needs of Indian Navy and Indian Coast Guard.

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PPS / GRSE / 2013

ThyssenKrupp Marine Systems in Discussions with Indian Navy to Upgrade Shishumar Class



CLASS 209 SUBMARINE

HDW class 209/1500 submarines, locally known as the Shishumar class. The after-sales service provider Marine Logistik GmbH (MARLOG) – which was integrated into ThyssenKrupp Marine Systems last year – has been a partner to the Indian Navy for more than two decades, delivering spare parts for the Shishumar class. This successful cooperation is now being continued under the new affiliation.

LONG SHIPBUILDING TRADITION COMBINED WITH BEST-IN-CLASS TECHNOLOGIES

ThyssenKrupp Marine Systems has a long shipbuilding tradition spanning hundreds of years, while at the same time securing the technologies and skills required for the future. As the world's leading system supplier for non-nuclear submarines, ThyssenKrupp Marine Systems has gained massive experience supporting almost 25 countries and their navies. The company's ability to build highly capable submarines in both its home shipyards and in its customers' local facilities when required has contributed significantly to the ongoing success of these high-tech products.

ThyssenKrupp Marine Systems comprises four operating units: Submarines, Surface Vessels, Services and ThyssenKrupp Marine Systems AB. The technological and financial capacity of ThyssenKrupp Marine Systems provides navies with the assurance

ThyssenKrupp Marine Systems, one of the leading European system providers for non-nuclear submarines and high-end naval vessels, is in discussions with the Indian Navy to support the upgrading of two of Shishumar class vessels through the integration of the latest weapons and sensors, including Harpoon anti-ship missiles. Furthermore, the company is supplying sophisticated composite structures for the P-28 corvettes currently being built at the Garden Reach Shipbuilders & Engineers Ltd, Kolkata.

At Defexpo it is displaying a wide range of submarines, missile systems and naval surface ships including HDW class 214 submarine; HDW class 209/1500 submarine; IDAS Missile System; Blohm+Voss class 124 frigate; Blohm+Voss MEKO A-200 SAN frigate and Kockums FLEX patrol stealth patrol vessel.

As a leading full-service naval shipbuilding systems and solutions provider, ThyssenKrupp Marine Systems enjoys long-standing strategic ties with India. For more than a quarter of a century, the Indian Navy has been operating four

submarines, surface vessels and maritime systems will continue to benefit from long-term development and support. The company with premises in Germany (Kiel, Hamburg, Emden) and Sweden (Malmö, Karlskrona, Muskö) employs around 3,800 employees and is part of the industrial solutions business area of the ThyssenKrupp Group.

STRONG PRESENCE IN INDIA

ThyssenKrupp is a diversified industrial group with about 1,57,000 employees in just under 80 countries and annual sales of around €39 billion. The ties between India and ThyssenKrupp date back to 1860, when the predecessor company Krupp received an order for locomotive tyres. Today, India is the third largest market for ThyssenKrupp in the Asia-Pacific region with diversified business activities carried out by local group companies with around 5,700 employees. The regional headquarters for the ThyssenKrupp Group is located in Mumbai. •

Rear Admiral Shekhar Mital Takes Over as CMD Goa Shipyard Limited

Rear Admiral (Retd) Shekhar Mital has assumed charge as Chairman and Managing Director of the Goa Shipyard Ltd (GSL) on February 1, 2014. He is B.Tech, M.Tech from IIT, Kharagpur and M.Phil in Defence Studies from Naval Defence College, New Delhi.

The various senior positions he has held in his long and distinguished career with the Indian Navy, have provided, Rear Admiral Mital with a deep and well rounded understanding of the very many facets of shipbuilding. This has been further aided by the practical ground realities of seafaring, garnered in nine years of sea experience in frontline warships of the Indian Navy, which include Taragiri, Rana, Ranvijay, Commissioning Electrical Officer of Delhi and Fleet Electrical Officer of the Western Fleet.

As part of the DND (SSG), he has led design, construction and delivery of two major frigates for the Navy. He also played a major role in fitment of



new-generation missile and EW system and integration of weapons and systems onboard frigates. Rear Admiral Mital has to his credit execution of large-scale computerisation of Naval Dockyard, Mumbai, and has also been associated with construction and design of submarines as DGND (SDG). He has worked for over 12 years at IHQ/MoD and is well versed with MoD, shipbuilding, design and repairs procedures.

He has also served as CSO (Tech) of the Eastern Naval Command, one of the two operational commands of the Navy with distinction. Rear Admiral Shekhar Mital is a recipient of Nao Sena Medal for distinguished service.

Under his dynamic and professional leadership, GSL is poised for major leap ahead in design and construction of complex platforms, including weapon intensive ships. •



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