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## India and France agree on \$6-billion missile deal

**I**ndia and France on February 14, concluded negotiations on the short-range surface-to-air missile nearly worth \$6 billion during the talks between French President Francois Hollande and Prime Minister Manmohan Singh, who also said talks on \$10-billion deal for Rafale medium multi-role combat aircraft (MMRCA) are "progressing well".

Observing that India is Hollande's first Asian destination for a bilateral trip, Singh said this demonstrates the importance of this relationship between the two countries.

"President Hollande and I exchanged views on a number of bilateral, regional and multilateral issues of common interest. We reviewed progress on the Jaitapur Nuclear Power Project and reiterated our com-



mitment to its early implementation as soon as the commercial and technical negotiations, which have made good progress, are completed," Dr Singh said at a joint press event after the talks.

Expressing satisfaction with the progress in defence cooperation, Dr Singh said, "Discussions on the MMRCA contract are progressing well. We have also concluded negotiations on the short-range surface-to-air missile, which, once approved by the government, will be co-developed and co-produced in India," while noting that the defence ties were poised to reach a qualitatively new level.

The ₹30,000-crore worth of SR-SAM project is a co-development joint venture between India and France and would be developed by MBDA of France and DRDO from the Indian side. The surface-to-air missile defence system would be deployed by the IAF and the Navy. **SP**



### Cover:

The ₹30,000-crore worth of short-range surface-to-air missile project is a co-development joint venture between India and France and would be developed by MBDA of France and DRDO from the Indian side. The surface-to-air missile defence system would be deployed by the IAF and the Navy.

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## Nation comes first

**D**efence acquisitions are complicated, huge in terms of both value and quantity and often take time. This is universal and India is not an exception. In the process, sometimes, dark clouds gather and a country needs to have in-built mechanisms by which the acquisition process does not go off the track. Presently, there is so much brouhaha in the media about kickbacks/commissions/bribe, etc in a particular deal and efforts to take all of them in one sweep may not be the right thing to do.

At this point in time, as investigations are going on, we cannot be judgemental on who is right and who is wrong. It is our firm belief that there should not be any hindrance, whatsoever, to the defence acquisition process as the urgency to equip the military is known to everyone. The most pertinent issue however remains that we all need to work towards one objective—National Security—and we must not allow any event to cast the cloud over the security preparedness and much needed modernisation process of our security forces.

India's defence acquisitions are going to be massive and testimony to this fact was Asia's premier aerospace event – Aero India 2013 of which SP Guide Publications was the key official media partner. The five-day extravaganza highlighted India's capabilities with and without the support of foreign partners. Indigenisation has become a mantra now and both the OEMs and Indian small and medium enterprises are aware of its criticality and the government has also initiated measures which go to create an ecosystem for the

defence industry to thrive. As for foreign OEMs there are parameters on deals which need to be implicitly followed.

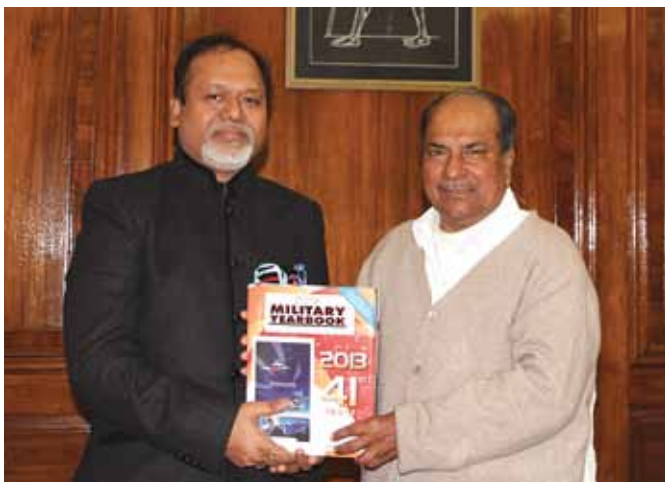
Inking yet another deal with France is India signing up for \$6 billion short-range surface-to-air missile. Prime Minister Dr Manmohan Singh who met the visiting French President Francois Hollande has assured the visiting dignitary that the Rafale deal is “progressing well”.

The Prime Minister has underlined India's internal security needs while addressing the Governors of states recently in New Delhi. “To meet the entire spectrum of security challenges, the capabilities of both the armed forces and the police forces are being constantly strengthened through provision of cutting-edge technologies and modern platforms. We are also undertaking infrastructure development programmes in the border areas to enhance mobility as well as connectivity.”

The Prime Minister has categorically stated that while India was committed to working for good relations and peaceful existence with its neighbours, it was however firm in its resolve to deal effectively with any threat.

Lt General (Retd) P.C. Katoch in his frank and forthright column has urged the government to change its policy with regard to Pakistan, keeping in mind the ISI stranglehold over Pakistan politics.

India certainly needs to up the ante and it cannot be just rhetorical. We need the wherewithal and that means modern arms. We need to be firm on our track.



SP's Editor-in-Chief Jayant Baranwal presenting a copy of *SP's Military Yearbook 2013* to Defence Minister A.K. Antony.

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



# IAF gets first lot of brand new Pilatus trainers



**I**n a major fillip to strained basic flying training regimes, the Indian Air Force (IAF) has received the first lot of its brand new Pilatus PC-7 MkII trainer aircraft for Stage I training. The first batch of aircraft of a total of 75 ordered by the IAF were ferried in by Swiss pilots and received at Air Force Academy, Hyderabad, by Air Officer Commanding-in-Chief, Training Command, IAF, Air Marshal Rajinder Singh and Commandant AFA, Air Vice Marshal R.G. Burli. In a statement, the IAF said, "With the induction of the PC-7 MkII aircraft, the IAF will be able to meet the long-standing need of having a basic trainer aircraft post grounding of HPT-32 in July 2009."

A deal was signed with Swiss firm Pilatus in May last year for 75 PC-7 MkII basic turboprop trainer aircraft, making this a record delivery of less than nine months. The IAF order is the largest that Pilatus has ever serviced. The contract includes an integrated ground-based training system and a comprehensive logistics support package. The contract also contains an option clause for extending the scope of this contract within three years from initial signature and the company is optimistic that this will indeed be executed, according to Pilatus.

"The IAF joins more than 30 other countries to modernise its training pipeline with the most modern, capable and cost-effective system for basic flying training on the market today. The IAF is the fourth largest air force in the world with approximately 1,70,000 personnel and 1,500 aircraft operating from more than 60 air-bases. This contract will extend the fleet of Pilatus turboprop trainers to more than 900 aircraft operating worldwide. Pilatus Aircraft Ltd is committed to serving the Indian Air Force with its world renowned dedication to Swiss precision and quality, through delivering and supporting the most advanced basic flight training turboprop trainer aircraft in the world—the Pilatus PC-7 MkII," according to Pilatus.

Pilatus will now assist with the establishment of in-country depot level maintenance capabilities, which includes the required transfer of technology to the Hindustan Aeronautics Limited (HAL), enabling in-country maintenance of the platform throughout its service life of over 30 years. Pilatus has also entered into a separate offset contract with the Government of India for 30 per cent of the value of this contract. **SP**





## Ahead of fire demo, Tejas breezes through icy test

**A**head of the Iron Fist fire power demonstration in Rajasthan shortly where the LCA Tejas will be seen breathing fire for the first time as part of a cooperative exercise with other aircraft in IAF inventory, the LCA Tejas has just passed a round of winter trials at Leh. According to the Aeronautical Development Agency (ADA), "Tejas operated from Leh in the winter of 2013, altitude 3,500 metres (11,500 ft). The temperature was often down to -15 degree Celsius at night and the day temperature rarely exceeded zero

## India to be offered US Navy's future unmanned air system?

**N**orthrop Grumman will for the first time highlight the MQ-4C Triton long endurance unmanned air system (UAS) at Aero India 2013. The underdevelopment system is being created under the Broad Area Maritime Surveillance (BAMS) programme that Northrop Grumman won in 2008.

The system was officially unveiled in June last year. In a statement, Northrop Grumman has said, "Triton is a maritime version of the combat-proven Global Hawk unmanned aircraft system. Developed for the US Navy, Triton can fly missions for 24 hours at altitudes more than 14 kilometres, allowing the system to cover vast areas of ocean and coastal regions.

The Navy developed its future concept for maritime patrol using Triton in conjunction with the P-8 Poseidon, a manned surveillance platform that has also been purchased by the Indian Navy. Sources say the company plans to take forward discussions on the Triton based on the proposition that the Indian Navy's choice of the Boeing P-8

makes the Triton a logical choice for the Indian Navy, since it is being developed for operations alongside the US Navy's fleet of Boeing P-8A Poseidon jets.

According to Northrop Grumman literature on the MQ-4C Triton, it "provides the US Navy with an advanced autonomous air vehicle and state-of-the-art, service-oriented architecture mission control system. Incorporating Navy requirements into a family of air vehicles that are in production and combat proven provides a cost-effective system with the greatest capability at the lowest risk."

Key features of the Triton are said to include persistent maritime ISR at a mission radius of 2,000 nm; 24 hours/7 days a week with 80 per cent Effective Time on Station (ETOS), land-based air vehicle and sensor command and control, afloat Level II payload sensor data via line-of-sight, dual redundant flight controls and surfaces, 51,000-hour airframe life, due regard radar for safe separation, anti/de-ice, bird strike, and lightning protection, communications bandwidth management, commercial off-the-shelf open architecture, mission control system, net-ready interoperability solution. **SP**



degree Celsius. The views are spectacular, Leh is the highest commercial airport in the world."

The LCA conducted its first round of winter trials in 2008 at Leh when it proved its high-altitude take-off capability with combat loads. Sources indicate that confidence in the platform has peaked following its performance at Leh and earlier last year during weapons trials in Pokhran.

The LCA Tejas has performed at Aero India 2013, which its makers hope will be the final air show before the Tejas sports squadron livery and colours with the Indian Air Force. The first squadron of Tejas fighters is expected to operate from the Sullur Air Force base in Tamil Nadu. **SP**

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LT GENERAL (RETD)  
P.C. KATOCH

# Retaining Stranglehold

**The Pakistani military is entrenched in the corporate sector and controls the country's largest companies and large tracts of real estate then (2007) amounting to an astounding \$20.7 billion**

ILLUSTRATION: Anoop Kamath

Pakistan's current National Assembly completes its five-year term this month and is to be dissolved shortly. For majority, a political party must win 172 seats; 51 per cent. Failure implies a coalition but should the largest political party without majority decline forming coalition; elections would need to be repeated. Will the military then get interim 'official' control?

This notwithstanding, what is significant to note is the last December order of the Supreme Court of Pakistan for delimitation of constituencies and door-to-door verification of voters with the help of the Pakistan Army. This was followed by recommendations of the Election Commission of Pakistan that the Army be deployed in all polling stations during the upcoming general elections and continues being deployed until results were announced. Why should a country that has Provincial Police in its Provinces and paramilitary forces numbering some 3,04,000 personnel resort to army deployment for elections, particularly door-to-door verification of voters, when the country itself claims to be a victim of terrorism and the army's hands are purportedly full fighting terrorists including in FATA, Baluchistan and elsewhere. The message portrayed is that the country would not like to take any chances in conducting free and fair elections. Flip the coin and you can see that the military would brook no chances in losing its stranglehold on the country. Why else would the army be required for door-to-door voter identification, obviously done months/weeks before actual elections?

It was only last October that Supreme Court of Pakistan ordered the government to take legal action against former Army Chief Mirza Aslam Beg and former ISI Chief Assad Durrani for distributing millions of rupees among politicians to rig the 1999 general elections. The Court directives were in response to a 1996 petition by retired Air Marshal Asghar Khan, then Interior Minister of Benazir Bhutto. Aslam Beg was intimately involved in the Mehran Bank scandal. In a related single stroke, Aslam Beg reportedly managed to get ₹14 crore from Younis Habib of

Mehran Bank and deposited in the Survey Section 202 account of Military Intelligence, then headed by Major General Javed Ashraf Qazi. From there, ₹6 crore was paid to President Ghulam Ishaq Khan's election cellmates including Lieutenant General Syed Refaqt and ₹8 crore transferred to the ISI account. The kick-backs obviously worked with the Pakistan People's Party (PPP) brought into power. Incredibly, another retired General, Naseerullah Babar had disclosed in the National Assembly in 1994 how the ISI had disbursed funds to purchase the loyalty of politicians and public figures so as to manipulate the 1990 elections and bring about the defeat of the PPP.

On balance, the Pakistan Military/ISI have a sustained history of meddling in Pakistan's politics especially with enormous amounts of funds at their disposal and "for-sale" politicians aplenty. It is little wonder from where the likes of Aslam Beg and Durrani get hold of this huge quantity of 'millions' that could influence elections of a whole nation. Ayesha Siddiqa, civilian military analyst and political commentator in Pakistan wrote in her book *Military Inc* published in 2007 that the Pakistani military is entrenched in the corporate sector and controls the country's largest companies and large tracts of real estate then (2007) amounting to an astounding \$20.7 billion; cumulating from the military industrial complex and Fauji Foundation running not only security related businesses but commercial enterprises that range from running schools, hotels, shopping malls, insurance companies, banks, farms, airline, cereal manufacturing and the like.

So where is the problem in doling out few millions especially when many times more can be recovered after the supported political party comes to power? The military/ISI stranglehold in Pakistan is complete, we can keep playing cricket, entertain Rehman Maliks and hold hands of Hina Rabbanis. Pakistan's India policy is not going to change. It is time India changes its Pakistan policy. **SP**

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



## India to be fourth biggest defence spender by 2020: IHS

**I**H S, the leading source of information, insight and analytics forecasts that India will become the fourth biggest defence spender in the world by 2020 behind the US, China and Russia – surpassing France, Japan and the UK over the next eight years.

IHS Jane's Defence Budgets projects that India's defence spend will reach \$65.4 billion in 2020 despite cuts announced by India's Defence Minister in January 2013 caused by the challenging economic and fiscal climate. This obstacle is expected to wane over the next three years, with IHS expecting India's GDP growth to recover to rates of around eight per cent by 2015 – allowing India's plans for increasing defence spend to recover from 2015 to 2020.

Based on current projections, IHS Jane's Defence Budgets expects the Indian defence budget, including related pensions obligations, to reach \$55.6 billion over the five years to 2017, with the procurement budget increasing to \$14.9 billion.

Craig Caffrey, Senior Asia-Pacific analyst, IHS Jane's Defence Budgets, comments: "The economic growth that fuelled increasing defence spend in recent years faltered in 2012 and that's what forced the government to re-visit its spending assumptions. Defence spend as a percentage of GDP is actually projected to continue to fall through to 2020, but that will still allow for significant real growth in dollar terms. We anticipate that India's defence spend will overtake France in 2016, the UK in 2018, and Japan in 2020. By the end of the decade, India is expected to be spending up to \$17.4 billion specifically on the procurement of defence equipment each year."

James Hardy, Asia-Pacific Editor, IHS *Jane's Defence Weekly*, comments: "India continues to be a major market for the inter-



M777 ultra-light howitzer

national defence industry, with major investments in all three services and its strategic missile forces. While short-term budget cuts will have an effect on these procurements, India's geostrategic position and the parlous state of much of its inventory means that it will continue to invest in new fighter aircraft, attack helicopters, howitzers, submarines and aircraft carriers, to name but a few of its many programmes." **SP**

## Indian Coast Guard ship Rajratan commissioned

**I**ndian Coast Guard ship Rajratan, the fifth of a series of eight inshore patrol vessels (IPVs) being built by the Garden Reach Shipbuilders and Engineers, Kolkata, was commissioned by Vice Admiral M.P. Muralidharan, Director General, Indian Coast Guard, in the presence of Inspector General K.C. Pandey, PTM, TM, Commander, Coast Guard Region (Northeast), and other senior dignitaries of the Central and state government.



The 50-metre-long indigenous IPV displaces 300 tonnes and can achieve a maximum speed of 34 knots, with an endurance of 1,500 nautical miles at an economical speed of 16 knots. Equipped with state-of-the-art weaponry and advanced communication and navigational equipment, it makes an ideal platform for undertaking multifarious close-coast missions such as surveillance, interdiction, search and rescue, and medical evacuation. The special features of the ship include an integrated bridge management system (IBMS), integrated machinery control system (IMCS) and an integrated gun mount with indigenous fire control system (FCS).

In his address during the commissioning ceremony, Vice Admiral Muralidharan dwelt upon the criticality of capacity building towards tackling emergent maritime challenges. He reiterated the need for continuous vigil along the nation's maritime frontiers to preserve and protect our maritime interests. He further stated that several far-reaching initiatives towards augmentation of manpower and force levels were under way, that would provide the requisite fillip to the Coast Guard's capabilities.

The ship is commanded by Commandant (JG) C.S. Joshi, TM and has a complement of five officers and 30 other ranks. Post commissioning, ICGS Rajratan would be based at Porbandar under the administrative and operational control of the Commander, Coast Guard Region (Northwest). **SP**

## Beretta showcases complete range of firearms

**T**his year at Aero India 2013, Beretta, the oldest firearms company in the world, and a part of the Beretta Defense Technologies (BDT), displayed the complete range of products, some of them being firearms (CQB carbine, assault rifle ARX 160, full auto carbine MX4 Storm, handguns, sniper rifles, tactical shotgun Benelli), Sako ammunition, tactical clothing, aiming systems, Steiner scopes and binoculars amongst others.

Beretta has a strong presence in India and is considered a preferred partner by security and paramilitary forces and stands committed to growing its business in the country. **SP**





## Rafael's strong missile defence systems

**I**sraeli defence company Rafael showcased integrated air and missile defence systems and is hopeful of the Indian armed forces looking at their capabilities.

The highlight of the show included Iron Dome, a combat proven active defence system against short range artillery rockets; David's Sling (Stunner), a multi-mission, multi-platform interceptor; Spyder SR/MR (short-range/medium-range); Python-5, full sphere air-to-air missile and air defence; Derby – beyond visual range air-to-air missile and air defence missile; and MIC4AD – modular, integrated C4I air and missile defence system.

The Israeli company has displayed these and a lot of interest has been generated within the armed forces for the systems and the company is all ready to fulfil India's defence requirements.

The Iron Dome, a spokesperson of Rafael, said, was a dual system which addressed short range rockets, artillery shells and mortars and was also an air-defence option. "We are ready to cooperate with India on any of the programmes."

The Spyder short-range had 20 km reach and the medium-range had 50 km interceptor range and they were all based on the same operation concepts. **SP**



## Naval Surface Warfare Center contract to Telephonics' Systems Engineering Group

**T**elephonics Corporation (Telephonics) has announced a contract awarded to its Systems Engineering Group (SEEG) from the Naval Surface Warfare Center (NSWCC), Corona Division to support the Aegis Ballistic Missile Defense (AABMD) system. The contract value is \$11.5 million for the base year with a cumulative value of \$35.5 million when the two option years are exercised.

Under the contract, SEEG will provide integrated weapon system and missile development, test and evaluation support

services. These support services include data generation through the use of analytical system and threat engineering tools, computer modelling and simulation, and hardware enhancements. SEG will assess and analyse the performance of existing and future ABMD systems, relative to current and projected threat systems, and support the development of robust and capable future system designs.

"We are extremely pleased that NSWCC has once again chosen us to provide this specialised and critical engineering support for the ABMD programme," said Joseph J. Battaglia, President and CEO of Telephonics Corporation. "This continues SEG's long contractual relationship with NSWCC Corona which began in 1999, and is based on our unique capabilities in support of missile and weapon system development." **SP**

## Arrow missiles to undergo major overhaul

**T**he "Arrow" system, which is responsible for defending Israel from long-range ballistic missiles, is expected to undergo a series of improvements in 2013. The missiles will have an advanced radar system, a new centre for interception management and capability of wider ranges of interception.

The "Arrow" weapon system, which was designed to protect against far-range ballistic missiles, continues to evolve. A new version of the missile system—"Block 4.1", which will include a new centre for interception management, armored launchers with high shooting availability, better communication with other missile systems and wider ranges of interceptions—is expected in the coming year. "The variety of targets and threats that the system can tackle will expand", explains Major Roi Pladshaw, Head of the "Arrow" Division of the "Armor" Administration which is responsible for the development of weapons in the Aerial Defense Formation. "We will be able

to intercept targets in farther ranges and also in lower altitudes".

As a part of the upgrade, a new centre for interception management with improved capabilities—additional administrative positions, technical and operational upgrades and a connection to the new radar "Super Green Pine" will be founded. "We're talking about an incredibly advanced missile-defence radar", says Major Pladshaw. "Its detection capabilities are twice as exact as the ones of the current radar, "Green Pine".

In the "Arrow" system we don't put munitions out of use but add new ones. In parallel to the "Super Green Pine", "Green Pine" radars will continue to be active, and that's how we have an immense improvement in our detection rates".

Additionally, as a part of the series of upgrades, permanent "Arrow" batteries will be based at an IAF airbase. Connectivity and data sharing with other aerial defence systems will also be improved: The upgrade will allow optimal coordination with the "David's Sling" system against mid-range missiles, which is expected to become operational in the coming years. **SP**

# IAF in a dilemma

*Delay in the intermediate jet trainer (IJT) programme and its impact on training have been questioned by parliamentarians. IJT slippage immediately means extension of life for the Kiran fleet which should have been retired by now. But to maintain the Kiran fleet is a herculean task in itself.*



[ By **Air Marshal (Retd) Anil Chopra** ]

## Rendering Yeoman Service

The Kiran aircraft has been a workhorse of the Indian Air Force (IAF) since 1968. It was the basic jet trainer used for intermediate stage of training after the initial training on HT-2 and later on HPT-32 aircraft. Powered by the Rolls-Royce Viper MkII engine, it was designated Kiran MkI. Later, under production aircraft were fitted with under-wing hard points for weapon training and was designated as Kiran-IA. A total of 190 MkI and 1A aircraft were built. A version was also powered by the more powerful Bristol Siddeley Orpheus engine, named Kiran MkII, 61 of which were inducted into the IAF in the beginning of 1985. Based on the British Jet Provost design, the Kiran fleet has seen the IAF through 44 years of training. Practically, every pilot serving in the IAF today has had the pleasurable experience of flying this excellent machine.

Kiran aircraft became the darling of the country when in 1996 the nine-aircraft Surya Kiran Aerobatic Team (SKAT) was shaped as the 'Ambassadors of the IAF'. Their world-class breathtaking display could give goose pimples to any patriotic watcher. The Kiran fleet is now becoming difficult to sustain. Spares are difficult to get and the fleet is getting stretched. The SKAT has been disbanded and is to be replaced by the BAE Hawk. More recently, ace badmin-

ton player and London Olympics bronze medallist Saina Nehwal flew a Kiran MkII aircraft at the Air Force Academy at Dundigal, near Hyderabad.

## Sitara—The New Jet Trainer

The IAF had visualised the replacement of Kiran fleet well in time. In 1997, HAL began design work on an intermediate jet trainer (IJT), designated HJT-36. Government approval for the project was received in June 1999 and the value of the contract was then estimated at ₹180 crore. Two prototypes were manufactured, the first, PT-1, flew on March 7, 2003, and was christened as the "Sitara"; and the second prototype (PT-2) flew on March 26, 2004. The writer was then the Commandant of ASTE Bengaluru. At the very initial stage, the IAF assessed the Snecma Turbomeca Larzac engine delivering 14.1 kN thrust, as under-powered. In August 2005, HAL in response, reached a deal to replace the Larzac engine with the NPO Saturn AL-55I with 16.9 kN thrust. The deal also provided for licence-production of the engine in India by HAL. The IJT project cost was now revised to ₹467 crore. The date for initial operational clearance (IOC) scheduled for March 2004, was revised to March 2007 and final operational clearance (FOC) was rescheduled for March 2008. Contract for 12 limited series production (LSP) aircraft was signed in March 2006 at a total cost of ₹486.82 crore. Deliveries were to be completed by March 2010.



BAE Hawk



Pilatus PC-7 MKII

The IJT project suffered a setback owing to inordinate delay in the delivery of the NPO Saturn AL-55I engine. The first AL-55I engine was received from Russia on December 28, 2008, two years later than committed. Flight tests on the PT-1 powered by the new engine commenced in May 2009.

Following further development and extensive testing, the IAF placed an order with HAL for 73 aircraft. After 280 test flights, the aircraft entered LSP in 2009 for the first 12 aircraft to be delivered to the IAF. The first LSP aircraft began its flight test phase in January 2010 and the IOC was expected by July 2011. The IAF order was expected to grow in the years to come. However, till date, not a single LSP aircraft has actually been delivered to the IAF. LSP 1 and 2 are being utilised for flight testing. LSP 3 and 4 are also planned to be utilised for flight testing to expedite IOC. In February 2007, at the Aero India air show at Yelahanka, PT-1 suffered serious damages when its canopy opened up during takeoff, causing the aircraft to veer off the runway. On February 4, 2009, PT-2 landed on its belly after a routine aerobatic sortie, resulting in extensive damage to the undercarriage and one of the wing tips. Failure of the structural testing specimen in 2010 and an accident on PT-1, involving an ejection on April 28, 2011, the aircraft was grounded till the completion of investigations. The aircraft was cleared to resume flight testing only in February 2012 after redesign of the primary control circuits in all three channels. These events led to further delay in the programme.

## Dogged by Uncertainty

Apart from the order for 12 LSP aircraft, on March 22, 2010, the IAF had concluded a contract for another 73 IJT aircraft with AL-55I engine, taking the total order to 85. The value of the order for 73 IJT aircraft with associated spares and equipment was around ₹6,200 crore. Current estimates are that the aircraft ordered will be delivered between March 2013 and March 2017. However, significant part of the testing is yet to be completed—refinement of stall characteristics and thereafter spin trials—both of which are essential for a basic training aircraft. Envelope expansion to 7g and night flying are other important segments of the flight test profile yet to be completed. The AL-55I engine still has issues related to weight reduction (around 30 kg) and engine life extension that need resolution. Also the installed engine thrust is currently lower than required, which would degrade the performance by up to 20 per cent. Will it then end up at same performance level as the Pilatus PC-7 MkII? IOC is now likely to be obtained by December 2013.

In an interview with an online defence magazine of international repute, Chief of the Air Staff Air Chief Marshal N.A.K. Browne is quoted to have said, "We are concerned as we are not seeing significant progress on the IJT. HAL put in a dedicated design team, yet there are no results. This is a training aircraft and we cannot compromise on safety." He also indicated in the interview that issues that continue to dog the IJT programme include: controls, engines and the aircraft's weight, stall and spin characteristics. The IAF has stationed its own personnel at HAL to monitor the development of the IJT. A consultancy with BAE Systems is also in the process of being signed. There were rumours that the programme was on the verge of being scrapped on account of the inability of HAL to deliver performance. But the report was quickly denied by the IAF and HAL. However, the IAF now needs to plan for real situations.

## Options before the IAF

Delay in the IJT programme and its impact on training have been questioned by parliamentarians, desirous of being apprised of the options before the IAF. IJT slippage immediately means extension of life for the Kiran fleet which should have been retired by now. To maintain the Kiran fleet is a herculean task in itself. And for the trainees to fly the Kiran in Stage-II after Pilatus at basic stage with much more modern avionics would be a retrograde step. The second option would be to procure additional Pilatus PC-7 MkII trainers for Stage-II training. The Pilatus could be modified to carry basic weapons such as guns, bombs and rockets. Belgian FN Herstal 12.7mm gun is known to have been cleared on the aircraft. This however, would require time. The third option is to go in for the Pilatus-9 which essentially has same airframe but also has under-wing hard points. This would however mean fresh specs and new request for proposal (RFP). The fourth choice could be to temporarily change to two-stage training with Pilatus and Hawk. Additional aircraft of each type as required could be procured. This option would provide a little more time to salvage the IJT. This in my opinion could be a good choice. The last option would be to explore the global market for an IJT. Having already invested heavily, the decision to close down an indigenous project would be somewhat difficult both for the IAF and the government. Northrop T-38 Talon replacement programme, the T-X and Russia's Yak-130 jet trainer are eyeing this possible vacuum, some reports say. It is time for decision-making. We are sure the government and the IAF are fully seized of the matter. **SP**





Light combat helicopter



LCA Tejas

# Iron fist 2013

[ By Air Marshal (Retd) Anil Chopra ]

**O**n February 23, 2013, Indian Air Force (IAF) will showcase its might in a follow on to its 'Vayu Shakti' series of demonstration, this time called the 'Iron Fist' signifying the recent enhancement of its firepower. It will display the state-of-the-art weaponry with full spectrum precision, flexibility and lethality and will be much more all encompassing than the fictional comic book superhero by the same name. All frontline fighters, including the indigenous LCA; the transport fleet with its latest C-130J; a bouquet of helicopters in armed roll; live firing by Pechora, OSA-AKM and Igla surface-to-air missiles will be demonstrated. There will be air-to-air firing of very potent missiles from LCA and Su-30. The IAF's largest firing range at Pokhran, near Jaisalmer in the Thar Desert of Rajasthan, will go 'live' at midday and there will special action at dusk and in the dark of the night. This biggest firepower demonstration ever of the Indian Air Force ever is an event to watch. The name and logo for the event were cleared at the level of the Chief of the Air Staff Air Chief Marshal N.A.K. Browne who has been personally driving the whole exercise.

The 230 aircraft day and night demonstration has been essentially divided into seven segments. Aircraft will take-off from 10 different airbases. It will start with showcasing 80-year-old history with Tiger Moth flying and then we will have latest induction Pilatus PC-7 MkII which will be seen in the air for the first time. Other thing significant will be participation of HAL-built light combat helicopter (LCH). Doing the service more quietly will be the flight refuelling aircraft (FRA), the remotely piloted aircraft (RPA) and airborne warning and control system (AWACS) who are the real



force-multipliers. This year's demonstration would also highlight IAF's capability to operate round the clock in a net-centric environment.

This event comes just a few days after India's world-class air show, the Aero India 2013. Aviation is thus in the air and flavour of the season. Air Officer Commanding-in-Chief, South Western Air Command, Air Marshal A.K. Gogoi has a lot on his plate. The event will be witnessed by the Supreme Commander of the Armed Forces, the President of India, Pranab Mukherjee. The who's who of the Central and state Governments, the entire Military brass, the diplomatic and press corps, among others, will witness this show of air might. To ensure more can watch this great event, and at a more leisurely pace, a full dress rehearsal two

days earlier has invites to many more people. Proximity to the border and the level of attendance would mean the security at the event would be at a premium.

Years of grooming and training are at test and on display. There is a massive build up phase to an exercise of this scale and magnitude. While the exercise has a great training value, it also is meant to reassure the nation that the expensive weapon systems are indeed in safe hands. It is also meant to tell those with nefarious designs that they will be up against an 'Iron Fist' if they were to choose a misadventure.

To reinforce patriotic fervour and keep the adrenal running, Akash Ganga, IAF's Para jumping team, IAF's Special Forces Garud, Air Warrior Drill Team and Air Warrior Symphony Orchestra will also perform. If one wants to smell cordite and to rub shoulders with the men in blue, Pokhran is the place to be in. Happy Shooting is not only for those on a hunt. **SP**



# 1964

Our Journey Starts as Guide Publications was founded by its Founder Publisher & Founder Editor Shri S P Baranwal...

Apart from many publications written, edited and published by the Founder, Military Yearbook is introduced in 1965...

# 1974

Military Yearbook continues relentlessly with collective support from dignitaries including the Prime Ministers and Presidents of India...

# 1984

# 50

# JUST 1 STEP SHORT OF

# 2014

WE SHALL BE 50 THIS YEAR

Guide Publications is rechristened as SP Guide Publications offering tribute and gratitude to its Founder...Also envisioned is the path of introduction of a few magazines...

## 2013

Military Yearbook is rechristened as SP's Military Yearbook conveying gratitude to Founder Publisher...

SP's Aviation, SP's Land Forces, SP's Naval Forces are launched starting from '98 and within a span of a few years...

SP's Airbuz, SP's M.A.I. follows the intensity of magazines introduction...

## 1994

## 2004

# 50 YEARS



**SP GUIDE PUBLICATIONS**



Civil Aviation Minister Ajit Singh, Defence Minister A.K. Antony and Karnataka Chief Minister Jagadish Shettar during the inaugural ceremony



Dassault Rafale fighter jet in flight

# Aero India 2013: The Show Goes On...

[ By R. Chandrakanth ]

**S**hall we say, the noise is settling down! In 2011, the fighter aircraft competition was fierce. The combat aircraft were revving up their engines; flying celebrities on their sorties and garnering all the media attention. But Dassault Aviation's Rafale has quietened them all. The noise was limited to Rafale, the indigenous light combat aircraft (LCA) - Tejas and the US F16s. There were no Jaguars, Su-30MKIs, Boeing F/18.

Unlike the previous edition, Aero India 2013 was a lot more sober but solid affair. This year the focus shifted from the combat aircraft to technology and supporting industries. Every edition will have its strengths and Aero India 2013 had its.

The fact that Aero India, of which SP Guide Publications has been a key official media partner, has carved a niche for itself globally is a much sought after event, considering that the region's defence acquisition needs are unending. The ninth edition of Aero India, held at Air Force Station in Yelahanka, near Bengaluru, over five days was truly an aerospace extravaganza. While the show continued to be dominated by defence industry, the presence of a large number of civilian aircraft manufacturers gave it a twist. There were almost 50 of the total 627 exhibitors, including 352 from overseas.

In fact during the inaugural ceremony, the Minister for Civil Aviation, Ajit Singh seized the opportunity of informing that the Indian civil aviation market would be among the top three fastest growing markets in the next couple of years, registering a growth rate of 15 per cent a year. He talked about foreign direct investment (FDI) in airlines; policies to encourage regional airlines; hinterland connectivity; exponential passenger and cargo movement, all of which would propel the sector to a thriving one in the coming years. Boeing's Senior Vice President of Asia-Pacific and India Sales for Boeing Commercial Airplanes, Dinesh Keskar said that while traffic is dropping due to reduced capacity, yields are improving and fuel prices are stabilising in the market. "These are all positive signs for the airlines in India."

There were many general aviation and civil aviation aircraft and products and solutions on show and they included business jets from Dassault Aviation; Gulfstream and Bombardier Aerospace.

In contrast to the Civil Aviation Minister Ajit Singh's speech, the Defence Minister A.K. Antony's speech was muted as he reiterated the enormous opportunities defence acquisition and offsets would throw up for both Indian and international players.

Aero India 2013 was indicative of the growth of small and medium enterprises which were getting busy in the light of liberalisation, offset opportunities, etc. The realisation that indigenisation of the aerospace industry will not happen overnight, but through continuous networking of the industry, both within and without, is a good sign and companies are taking appropriate steps.

The takeaway from Aero India 2013 has been that Indian defence entrepreneurship has to find its ground and it jolly well be soon. For that to happen, ecosystems need to be created by the government and the industry and the government in right earnest has begun doing so. Taking a cue from the opportunities, Karnataka Government announced a new aerospace policy in its bid to create an aerospace hub in the region. It is in the process of creating an aerospace special economic zone (SEZ) which will have spin-offs that would do well for the sector as well as the economy.

Coming back to Aero India 2013, almost all the overseas exhibitors—whether it was the giants, Boeing and Airbus, or small and medium enterprises—were all keen on tying up with Indian partners. The US had the largest number of exhibitors after India. With US military sales to India touching close to \$12 billion, several top US defence companies such as Boeing, Lockheed Martin, Northrop Grumman, Raytheon, Rockwell Collins, Textron, Gulfstream, General Electric, Honeywell and a host of others were displaying their products and solutions for the Indian market. Endorsing their presence was the US Ambassador to India Nancy Powell who eulogised the growing relationship between the two countries. Delegations from the UK, Israel, France and Russia were not far behind.



Embraer EMB-145 AEW&C aircraft



Pritam Bhavnani of Honeywell Aerospace India, with the F125IN engine designed to extend mission capability of the IAF Jaguar fleet

Some of the highlights were the model of the Indo-Russian fifth-generation fighter aircraft (FGFA); the giant US C-17 heavy transport aircraft which did sorties daily; the Hindustan Aeronautics Ltd (HAL) handing-over of Rudra, the weaponised version of the indigenous Dhruv advanced light helicopter to the Indian Army; BrahMos Aerospace unveiling a scale-model of the hyper-sonic BrahMos-2 multi-role cruise missile and full-scale model of the launch pylon for air-launched BrahMos-1, etc.

Airbus, Astrium, Cassidian and Eurocopter displayed a broad selection of cutting-edge products, technologies and solutions and they included a mock-up of the MRTT from Airbus Military; sitcom terminal and telecommunications satellites from Astrium; UAVs, sensors, defence electronics and avionics systems from Cassidian; a range of helicopters including a Naval Panther from Eurocopter and a mock-up of ATR 72-600.

Embraer promoted its full portfolio of Commercial Aviation, Executive Aviation and Defence and Security and they included the leading family of commercial jets up to 120 seats in the global market (E170, E175, E190 and E195), the most modern and complete product line of business jets, from the entry-level Phenom 100 to the ultra-large Lineage 1000, and a broad range of integrated solutions for defence and security that combine a high technological level and operational efficiency at competitive acquisition and operating costs. Three of the Embraer Executive Jets were on static display: the entry-level Phenom 100, the long-range Legacy 650 and the ultra-large Lineage 1000.

Another highpoint of the air show was the international seminar on aerospace products – challenges in design to development, organised by the Defence Research and Development Organisation (DRDO). “Growth in aerospace cannot be limited to collaboration in manufacturing and has to be in all aspects – design, product and development,” Dr V.K. Saraswat, Scientific Advisor to the Defence Minister, said at the seminar.

Saraswat appealed to the industries to promote design, manufacture and infrastructure for development of aerospace. For this collaborations are needed including partnership with government agencies like DRDO, he said.

While Russian technologies were on display, it was the Russian Knights who stole the show with their aerobatics. They added pep to the flying display with flares going up at the end. With India's aerobatic team Surya Kirans grounded, it was for the Russian Knights and the crowd favourite Flying Bulls from the Czech Republic to enthrall the sea of humanity at the Air Force Station. **SP**



Deputy Chief of the Naval Staff Vice Admiral Pradeep K. Chatterjee interacting with Kanji Ishimaru of ShinMaywa Industries India

## ShinMaywa's maiden Aero India

**S**hinMaywa made its maiden appearance at Aero India 2013 and is enthused about the platform and the Indian market. ShinMaywa was the only Japanese aerospace company at the show and attracted eyeballs as it showcased the US 2i amphibian and the world-class 'Paxway' passenger boarding bridges.

Many important dignitaries including Lt General Kunisuke Nakashima, Vice Chief of Staff, Japan Air Self Defence Force, Dr Satish B. Agnihotri, DG (Acquisition), Preeti Sudan, JS and AM (MS) of MoD, Air Marshall M. Matheshwaran, Deputy Chief (Perspective Planning and Force Development) of Headquarters Integrated Defence Staff, Vice Admiral Pradip K. Chatterjee, Deputy Chief of Naval Staff, Vice Admiral Paras Nath, Controller of Logistics, Rear Admiral B.S. Parhar, Flag Officer Naval Aviation and his staff from Indian Navy, AOC-in-C Maintenance Command of IAF visited the stall.

In addition, important business meetings with our prospective partners were conducted during the air show. A lot of interest was also shown by field aircrew from the Indian armed forces and the Indian Coast Guard.

ShinMaywa was also the official 'kit sponsor' for the delegates of International Seminar on Indian Aerospace Industry conducted by FICCI at the venue, where Sujeet Samaddar, Director and CEO, spoke on leveraging acquisitions for technology infusion. **SP**



## ALH Mk-IV "Rudra" handed over to Indian Army

**A**n advanced light helicopter Mk-IV army version 'Rudra' was handed over by Dr R.K. Tyagi, Chairman, the Hindustan Aeronautics Limited (HAL) to Lt General Narendra Singh, Deputy Chief of Army Staff (P&S), Indian Army during Aero India 2013 at Yelahanka Air Base, Bengaluru.

P. Soundara Rajan, Managing Director said, "Rudra, first armoured helicopter, is the Mk-IV variant of the advanced light helicopter (ALH) designed and manufactured by HAL. This helicopter is fitted with day and night targeting systems and can carry a mix of weapons (70 rockets, anti-tank missiles, air-to-air missiles and 20mm turret gun), providing the required capability to search and destroy any targets."

'Rudra' is designed indigenously at the Rotary Wing Research and Design Centre (RWR & DC) to meet the mission specifications and tested extensively over varied terrains and firing ranges in India. Regional Centre for Military Airworthiness has provided initial operational clearance for the project facilitating delivery of helicopters to Indian armed forces. 'Rudra' is all set to redefine battle tactics in modern-day conflicts. **SP**



## Pratt & Whitney delivers first 10 engines to Boeing for India's C-17 aircraft



**P**ratt & Whitney has delivered the first 10 F117 engines to Boeing to power a fleet of C-17 Globemaster III transport aircraft for the Indian Air Force (IAF). India's Ministry of Defence signed a letter of offer and acceptance with the US Government in 2011 to acquire 10 C-17s. The first of these C-17 aircraft is now going through a US Air Force flight test programme at Edwards Air Force Base in Palmdale, California. The IAF is scheduled to take delivery of its first five C-17s this year and five in 2014.

"Pratt & Whitney is delighted to be delivering the first batch of engines that will power the Indian Air Force's C-17 fleet and we're pleased to have them join the growing international fleet that flies this premium airlifter," said Bev Deachin, Vice President,

Military Programmes and Customer Support, Pratt & Whitney.

The C-17 Globemaster III – the world's premier heavy airlifter – is powered by four F117 engines, each rated at 40,440 pounds of thrust. The C-17 transport, exclusively powered by Pratt & Whitney engines, is capable of taking off from a 7,600-foot airfield, carrying a payload of 1,60,600 pounds, and completing a flight of 2,400 nautical miles without refuelling. The F117-PW-100 first entered service in 1993 and is a derivative of Pratt & Whitney's PW2040 commercial engine. With nearly 10 million hours of proven military service and 50 million hours in commercial use, the F117/PW2040 has consistently proven itself as a world-class dependable engine. Through Pratt & Whitney's ongoing investment in product improvements, the engine continuously surpasses established goals of time on wing and support turnaround time. **SP**

## Eurocopter to strengthen its Indian footprint

**O**ur helicopters know the Indian skies, know every corner of India," said Eurocopter President and CEO, Lutz Bertling, while announcing that "Eurocopter is not shy of cooperating" at Aero India 2013.

Eurocopter which has begun its defence campaign with a number of platforms will set up production capabilities in India to meet Indian defence requirements. The



Indian Army and Air Force require 197 reconnaissance and surveillance helicopters and Eurocopter is offering AS550 C3 Fennec in a re-tendered process. Eurocopter had won the competition but the first tender was cancelled.

"We have the best tool for the Indian Air Force," he said and added that it was now for the Indian Government to decide on the programme. Nevertheless Eurocopter is ready to set up assembly line in India, considering the industrial competence and the economic benefits it offers.

Eurocopter's proposed platforms include AS565 MBe Panther – the Indian Navy requires 56 Naval utility helicopters and the Indian Coast Guard is looking for 16 ship-based light medium helicopters. Again the Indian Navy is looking for 120 naval multi-role helicopters (buy and make) and the Indian Coast Guard 14 shore-based CSAR helicopters for which Eurocopter has EC725. "We have ideal replacements for the Cheetahs and Chetaks." **SP**



## Russian Helicopters new light and medium multi-role



**R**ussian Helicopters showcased at Aero India the new light and medium multi-role helicopters – primarily the Ka-226T and Mi-171A2 – that will be the principal Russian products for the fast-growing Indian market.

The light multi-role Ka-226T with its unique coaxial rotor is currently competing in a major Indian Air Force tender for surveillance and reconnaissance helicopters, and has excellent chances of success. In December 2012, Russian Helicopters signed an agreement in New Delhi with India's Elcom Systems to establish a joint venture to assemble Russian Helicopters including the Ka-226T in India.

Another attractive addition to the company's range is the upgraded civil medium

Mi-171A2, the latest version of the Mi-8/17 series, the world's most popular helicopter. The Mi-171A2 combines the best performance of its legendary predecessors with leading-edge technologies. Almost 200 Mi-8/17s operate in India, and demand for these helicopters remains strong.

Russian Helicopters recently signed another contract for Mi-17V5 helicopters with the Indian Air Force; the contract is expected to be fulfilled in 2013.

At Aero India 2013, Russian Helicopters and Rosoboronexport also showcased the Mi-28NE Night Hunter attack helicopter, which has outstanding capabilities, being able to operate day and night and in all weathers, and can fly search-and-destroy operations against tanks, armoured and unarmoured vehicles. **SP**

## Northrop Grumman focusing on E-2D Hawkeye

**N**orthrop Grumman, which has responded to a 2010 request for information (RFI) in 2010, is hopeful that its E-2D Hawkeye would win as and when the Indian Navy will be going in for carrier-based multimode long-range identification friend or foe (IFF).

Speaking to *SP's M.A.I.*, Tom C. Trudell, Manager, International Business Development, Northrop Grumman, said the company was having discussions with the Indian



Navy with the US Navy in the loop. "E-2D Hawkeye is well suited for India's requirements. India has made an RFI for aircraft." The US and French were already using them.

He said there were many unique features of the E-2D Hawkeye including providing 360 degree automatic, simultaneous air and sea surface radar detection, automatic radar correlation, and long-range passive detection and classification of electronic emitters.

The Hawkeye's extensive suite of radios and data links with its integrated, automated sensor systems, make it a network-centric warfare enabler for joint battle management command and control. The result is Knowledge 360 – the ability to see in all directions and act accordingly.

He said Hawkeye's multi-mission flexibility makes it the preferred choice for many nations to meet a variety of needs from early warning and missile defence to border security and disaster recovery. **SP**

## Russian-Indian FGFA model debut at Aero India

**V**isitors of the Aero India 2013 had a glimpse of a five-foot model of the fifth-generation multi-role fighter (FGFA) made by Sukhoi Design Bureau specialists. The model was exhibited at the Hindustan Aeronautics Ltd (HAL) stand.

The agreement on the joint development and production of the fifth generation fighter aircraft was signed on October 18, 2007 in Moscow at the 7th session of the Russian-Indian intergovernmental commission on military-technical cooperation. This is the largest joint project of the Russian-Indian military-technical cooperation.

At present development of conceptual and technical project of the aircraft is almost completed. The contract for that project was signed in December 2010 by the Rosoboronexport, HAL and Sukhoi Company. A contract for research and development is due to be signed.

In the course of the first stage of the joint project the Russian side has trained Indian specialists and provided them with the original data and software to create a single working environment. The Indian working group of aircraft engineers has been working in Russia since January 2012. A group of Russian specialists currently works in India. Both parties exchange the necessary information.



The FGFA will have some differences from the Russian prototype due to specific requirements of the Indian Air Force. Sukhoi Company is also involved in other Russian-Indian programmes, i.e. modernisation of the Indian Air Force Su-30MKI fighters and adaptation of the Russian-Indian air-to-ground BrahMos missile to the Su-30MKI. **SP**

## PC-7 MkII for Botswana Defence Force

**P**ilatus Aircraft Ltd announced formal handing over of the PC-7 MkII turbo trainer aircraft to the Botswana Defence Force in Gaborone.

The President of the Republic of Botswana and Commander-in-Chief, Lieutenant General Seretse Khama Ian Khama, and senior officials attended the handing over ceremony hosted by the Botswana Defence Force Commander Lt General Galebotswe.

This major milestone marks the successful completion of the delivery and entry into service of the five new BDF Pilatus PC-7 MkII aircraft. Pilatus Chairman Oscar J. Schwenk noted that the relationship between the Botswana Defence Force and Pilatus dates back to 1989 when the supply contract for seven PC-7 trainer aircraft was signed.

A relationship that became gradually stronger once the first aircraft became operational in 1990, 22 years ago. After two decades of successful operation with more than 28,000 hours flown and more than 70,000 landings recorded the ageing PC-7 aircraft reached the end of their operating life.

In 2011, the BDF opted to replace the PC-7 with the more advanced and modern PC-7 MkII trainer aircraft, a decision we believe was founded on the established relationship between us, the excellent track record of the PC-7, and a proven product such as the PC-7 MkII of which more than 160 aircraft have been sold. The PC-7 MkII has also been selected by other major air forces, the most recent order, subsequent to Botswana, being India. SP

## Boeing delivers 6th production P-8A Poseidon aircraft to US Navy



**B**oeing delivered the sixth production P-8A Poseidon aircraft to the US Navy recently after successfully completing the first group of low-rate initial production aircraft that are dramatically improving the service's maritime patrol capabilities.

The delivery is the final aircraft from a contract awarded in January 2011. Boeing is on schedule to build 24 P-8A maritime patrol aircraft as part of contracts awarded in 2011 and 2012.

"The P-8 team continues to incorporate efficiencies into our production as we ramp up deliveries in 2013," said Rick Heerdt, Boeing Vice President and P-8 Programme Manager. "We've reduced flow times and costs, which ultimately benefits our US Navy customer."

The US Navy plans to purchase 117 P-8As, which are based on the next-genera-

tion Boeing 737-800 platform. It is a versatile multi-mission aircraft that provides broad long-range maritime patrol capabilities – anti-submarine warfare, anti-surface warfare, intelligence, surveillance and reconnaissance. It is replacing the US Navy's P-3 fleet.

The next three Poseidon aircraft are undergoing mission systems installation and checkout in Seattle, and two more are in final assembly in Renton, Washington. SP

## UAE Air Force acquires high precision cargo delivery systems

**A**irborne Systems, a division of HDT Global, is proud to announce the impending delivery of guided precision aerial delivery systems (GPADS) to the United Arab Emirates (UAE) Air Force. Together with a comprehensive training programme, the delivery confirms the UAE Air Force as Airborne Systems' largest GPADS customer in the Middle East.

"Airborne Systems' GPADS will enable high altitude accurate resupply of UAE distributed operations with reduced risk to air crews," said J.C. Berland, Executive Vice President of Technology & Strategy.

"Airborne Systems will supply the DragonFly, FireFly and one-time use FlyClops for use with C-130J and C-17 aircrafts. "We are proud to supply the UAE Air Force with this force resupply capability," said Berland. The GPADS consists of high performance, lightweight ram-air canopies, and rugged Airborne Guidance Units loaded with robust autonomous navigation software. SP

## Thales to supply FLASH Compact dipping sonars to AgustaWestland

**A**gustaWestland has selected Thales as the supplier of compact dipping sonars to equip its Lynx light helicopters for export markets. The latest in Thales's FLASH range, the FLASH Compact is designed for smaller and lighter helicopters than those already using the FLASH sonar. The FLASH Compact sonar features an optimised, lightweight architecture as well as a fully electric reeling machine so that small helicopters can deploy the best-in-class, high-performance sonar system for anti-submarine warfare missions.

"We are very proud that AgustaWestland has chosen us as the supplier for their Lynx helicopters, further consolidating a partnership that dates back more than 10 years on the NH90 programme," said Benoit Plantier, Man-

aging Director of Thales Underwater Systems. "This contract confirms Thales's expertise in anti-submarine warfare and also marks the first success for our new FLASH Compact sonar," he added.

The new contract also demonstrates Thales's ability to innovate by developing a more integrated system while meeting the weight and size constraints of smaller helicopters.

Combined with a sonobuoy processing system, the FLASH Compact sonar brings smaller helicopters a full and very effective sonar suite. In extending its FLASH range, Thales is also building on the success achieved with dipping sonars already installed on helicopters in service with navies in France (NH90 NFH), the United Kingdom (Merlin EH101), Norway (NH90), the United States (MH60-R), Sweden (NH90) and the United Arab Emirates (Cougar). This contract strengthens the group's position as a leader in underwater warfare. SP





## First flight of Rustom II UAV next February

**T**he maiden flight of Rustom II, a medium altitude long endurance unmanned combat air vehicle, has been scheduled for February 2014, by the Aeronautical Development Establishment (ADE). The aircraft, which is named after Professor Rustom B. Damania of the Indian Institute of Science, is being developed by the ADE in Bengaluru, which is part of the Defence Research and Development Organisation (DRDO).

ADE Director P.S. Krishnan said. "The first flight of Rustom II will be in February 2014 and we are confident that it will meet all the parameters."

The first version of Rustom had an endurance of 12 to 15 hours, which has been drastically improved. Equipped with contemporary technology, Rustom II will have an endurance level of 24 to 30 hours.

About unmanned aerial vehicle (UAV) Nishant, he said that the Indian Army was likely to place orders for eight more to the already four ordered. Nishant had completed the confirmatory trials in Pokhran and Chandan ranges in the past. **SP**

## Elbit's Hermes 900 UAV for maritime missions

**M**aritime surveillance requirements are demanding specific capabilities and performance such as mission endurance, flight profiles, mission equipment and human factors. Until recently, such missions were performed exclusively by aircraft – some dedicated for the maritime surveillance mission, with others using off-the-shelf transport planes modified for the mission. These missions typically demand coverage of very wide areas, monitoring extensive maritime traffic, as well as deployment in unexpected conditions, in response to emergencies or on search and rescue missions. Therefore, the need for efficient development of a maritime situational picture is critical, enabling the deployment of the few available aerial assets to cover only those areas or targets of significance.

The introduction of unmanned aircraft platforms is changing this paradigm, removing the limitations that have restricted manned missions, while introducing new capabilities that significantly enhance operational flexibility and efficiency of maritime control. This capability is specifically important in recent years, as countries are required to cover growing maritime areas claimed by the exclusive economic zones (EEZ) that span up to 200 nautical miles from their coastline or farthest island. In the case of India, for example, such area covers a huge expanse of the Indian Ocean, bordering Indonesia in the east to Somalia in the west. A country cannot cover such vast space from its coastal radar

stations, nor can it commit manned patrol flights to cover the entire area.

At Aero India 2013 in Bengaluru Elbit Systems introduced its newest and largest unmanned aircraft system (UAS) – Hermes 900 in a new configuration adapted for maritime mission. This UAS can carry payloads of up to 350 kg. In the maritime configuration the payload suite includes maritime surveillance radar, AIS, an electro-optical multi-sensor payload and electronic surveillance systems. It has the endurance to cover vast ocean areas, redundant line-of-sight and satellite communications links and radio relay, enabling the operator to 'talk through' to vessels at sea. The aerodynamic efficiency of the Hermes 900 enables frequent changes in flight profiles, enabling visual identification of vessels at sea in addition to the ISAR capability provided by the radar. Satellite communication enables it to fly to mission areas at extended ranges as far as 1000 nautical miles from shore.

A unique capability supported by Elbit Systems command and control systems is the ability to control two UAS simultaneously from a single ground control station, using the two redundant data-links. This has a signifi-

cant effect on the assets, manpower and operating cost, as well as in improving the efficient utilisation of UAS that can now cover more area or run a denser surveillance over a given area. The maritime command and control system employed at the ground control is optimised for the maritime mission, supporting specific mission planning applications such as maritime search, Search and Rescue, etc. The entire command and control is located in a single shelter, which can be operated on shore in a mobile shelter base or indoor configurations at sea or co-located in several locations.

Recognising the extraordinary challenge of monitoring the Indian EEZ and vast shoreline, Elbit Systems has teamed with Windward Ltd. in order to tackle this challenge from a different point of view and offer a unique solution to the Indian authorities.

A unique solution presented at Aero India for the first time globally is the combination of our UAS with MarInt – a maritime analytics system – as the search light for UAS operations. The use of unmanned assets with MarInt can empower Navy, coast guard, customs, environmental monitoring and other authorities in better enforcing laws and regulations in their territorial waters and EEZ, providing them with powerful means to take legal action and recover lost assets, thus deterring offenders from repeating such violations. Operating 24/7, MarInt reveals areas of suspicious activities and pinpoints anomalous vessels. This enables tasking of unmanned assets such as UAS to patrol the designated areas, identify and track the suspicious vessels, significantly optimising aerial patrol and increasing mission effectiveness while reducing cost. **SP**





## Lot needs to be done on internal security: Prime Minister

**T**he Prime Minister, Dr Manmohan Singh addressing the Governors of all states has indicated the measures the government has taken on various fronts. Here is an excerpt from his speech relating to internal security.

"The year 2012 saw clear signs of improvement in the internal security situation, including in Jammu and Kashmir, the Northeast and left-wing extremism affected areas. However, there is a lot which still needs to be done. I have paid particular attention to the remarks of the Governors of Jammu and Kashmir and North Eastern States on security issues. N.N. Vohra, Governor of Jammu and Kashmir, has made some suggestions for more coherent action on the part of security agencies which I think are well worth exploring. Similarly, there have been suggestions from Governor of Arunachal Pradesh, General J.J. Singh about border roads, porter tracks and suspension bridges. He as well as other Governors have suggested strengthening of the Border Roads Organisation and improving infrastructure in our border areas. The suggestion of Governor of Assam and some other Governors of North-eastern states to accelerate the pace of fencing along the Indo-Bangladesh Border also has merit.

"The Government has taken several steps for the improvement of mechanisms and instrumentalities to counter terrorism. These include strengthening of the Multi Agency Centre (MAC) and the Subsidiary Multi Agency Centre (SMAC), creation of four new hubs of the National Security Guard (NSG), construction of coastal police stations and provision of high technology boats, setting up of the National Investigation Agency, and creation of NATGRID. The passage of the Unlawful Activities Prevention Act (Amendment) Bill in Parliament has given more teeth to the extant anti-terror regime and is at par with international standards.

"In a secular polity that India is, the need for maintaining communal harmony can hardly be overemphasised. Both the Centre and states have to pursue a well-coordinated strategy to achieve this objective. To meet the entire spectrum of security challenges, the capabilities of both the armed forces and the police forces are being constantly strengthened through provision of cutting-edge technology and modern platforms.

"Our strategy for dealing with the menace of left-wing extremism is two-pronged. Even as we have intensified operations against the extremists, we have also endeavoured to bridge the development and governance deficit in the left-wing extremist affected area, many of which have predominantly tribal populations. The steps we have taken include deploying additional Central forces, raising specialised forces, strengthening police stations and imparting training to state police personnel in counter-insurgency, jungle warfare and anti-terrorism operations. The need for greater inter-state coordination in operations against left-wing extremists was emphasised by Governor of Andhra Pradesh E.S.L. Narasimhan.

"The Integrated Action Plan for 82 select and backward districts, most of which are affected by left-wing extremism, is beginning to show encouraging results. Road connectivity in these districts is also being improved. We have also taken steps to streamline the process for vesting of forest rights under the Scheduled Tribes and Other Traditional Dwellers (Recognition of Forest Rights) Act to the entitled people.

"Due to all these efforts, the geographical spread of the menace of left-wing extremism has shown a shrinking trend. Further, the number of incidents of left-wing extremist violence in 2012 showed perceptible decline compared with the previous year. However, much more remains to be done and we will make all efforts to accomplish what we still have to do. As has been pointed out by Governor of Assam, the expansion of Maoist activities to upper and lower Assam is worrisome." **SP**

## Antony pleads for a proactive role by India in West Asia region

**I**n the backdrop of tumultuous changes sweeping the Middle East, the Defence Minister A.K. Antony today expressed concern about the safety and security of Indians working in the region.

Addressing the 15th Asian Security Conference organised by IDSA here he said, "The strong urge for change is clearly visible across the region." Dwelling at length on the changes taking place in the Middle East Antony said, the voice of youth is a universal message that is strongly echoing across to governments in all regions of the world. Defence Minister said, the recent developments in all these countries give us lesson that no government, or regime, can afford to ignore the popular aspirations anymore. Antony emphasised that social media has emerged as a potent and vibrant force. The social media has served as a 'force multiplier' in the hands of the protesters, he said.

He added further that "such transition unfortunately has been accompanied by large-scale violence." Expressing deep concern on the ongoing violence in Syria and supposedly the Al-Qaeda tak-

ing over the government in Mali, he remarked: "India can ill afford to remain aloof from the transformative changes in its immediate and extended neighbourhood." He cautioned the audience that the "journey ahead will be long, tortuous and full of twists and turns." Since the developments in West Asia have the potential of changing the regional and geopolitical landscape and the region being critical for energy security, we have to be extremely tactful in safeguarding our interests while dealing with the problems of the region, he added.

Highlighting the importance of a stable and peaceful West Asia on the economic growth of our economy, Antony said, "In 2012 India received \$70 billion in remittances from foreign countries and a majority of them came from the Gulf region. These remittances support nearly 40-50 million families in India and at the same time contribute to local prosperity. Adding further that India's trade with the region is expanding and during 2011-12 our trade with the Gulf Cooperation Council was more than \$145 billion, he said that recent developments have complicated the security situation in the region. During 2011 India evacuated nearly 19,000 Indians working in Libya. Given India's vital stake in peace and stability in the region, it is natural for India to have an interest in abiding peace and security in the region." **SP**



## BEL inks MoU with Elbit at Aero India

**N**avratna defence PSU the Bharat Electronics Ltd (BEL) signed a memorandum of understanding (MoU) with Elbit Systems Electro-optics-Elop Ltd, Israel, for the joint production of compact multi-purpose advance stabilisation system (CoMPASS) for naval helicopter applications, at Aero India 2013 in Bengaluru.

The MoU was signed by H.N. Ramakrishna, Director (Marketing), BEL, and Adi Dar, Executive VP, Managing Director of Elbit Systems Electro-optics-Elop Ltd, Israel. Amol Newaskar, Director (Other Units), BEL, Roy Zentner, Vice President, Business Development and Marketing, Elbit Systems Electro-optics-Elop, and Neri Zin, Senior Director, EO ISTAR Business Unit, Airborne EO and Laser Systems, Elbit Systems Electro-optics-Elop, were present along with other General Managers of BEL.

The CoMPASS is a day-and-night surveillance system that includes a colour TV daylight camera, third generation 3-5  $\mu$ m FLIR sensor, laser

target designator and rangefinder (LTDRF) and automatic tracking capabilities, as well as command and control capabilities. It is distinguished by a wide variety of interfaces, enabling integration with various aircraft/helicopter systems, such as mission computer, fire control, radar, GPS, data downlink and helmet-mounted tracking systems. Its small dimensions, low weight, high level of stabilisation and coverage angles make it an optimal choice for long-range, day-and-night surveillance, target tracking, etc.

CoMPASS is the most advanced payload version of its family, featuring reduced weight, high degree of modularity and flexibility, space-saving packaging and advanced operational and video processing features. CoMPASS has been nominated for 56 naval utility helicopter programme of the Indian Navy.

BEL has recently completed transfer of technology for indigenous production of CoMPASS in India. BEL will provide Indian users with local production and maintenance support. CoMPASS was already selected and installed in the Indian Army Aviation and Air Force versions of advanced light helicopter of HAL. **SP**



H.N. Ramakrishna, Director (Marketing), BEL, and Adi Dar, Executive VP, Managing Director of Elbit Systems Electro-optics-Elop Ltd, Israel, exchange documents after the signing of an MoU at Aero India 2013 in Bengaluru on February 7, 2013.

## Sagem creates Indian subsidiary, Sagem Services India

**S**agem (Safran), the European leader in navigation, optronics and avionics systems and equipment and safety-critical software, has created Sagem Services India Private Ltd, a wholly-owned subsidiary that will be headquartered in New Delhi.

Primarily focused on maintenance, Sagem Services India will provide customer support for all Sagem avionics, optronics and inertial navigation systems and equipment in service in India.

The creation of Sagem Services India marks a major step forward in Sagem's development in this country. Working closely with its customers, Sagem will be able to enhance its role in the development of India's aerospace industry, and form new partnerships in all of its business sectors. **SP**

## Statement on Mahindra and Mahindra and BAE Systems joint venture

**S**ince the establishment in 2009 of the Mahindra & Mahindra (74 per cent) and BAE Systems (26 per cent) Joint Venture, Defence Land Systems India (DLSI), there has been significant evolution in the Indian Land Systems market. Developments in both the industry environment and in customer procurement frameworks and acquisition strategies have led the shareholders to conduct a strategic review of the DLSI business.

Following that review, it has been jointly agreed that Mahindra & Mahindra will acquire BAE Systems' 26 per cent shareholding in the entity. This decision is a reflection of the shareholders'

belief that they can best meet emerging customer requirements and address the opportunities in this dynamic market with a flexible, tailored approach that was not easily facilitated by the structure of the existing joint venture entity.

This decision will enable both companies to consider each opportunity on a case by case basis, including continuing to explore opportunities for cooperating on specific defence projects.

Brigadier (Retd.) Khutub Hai, Chairman and Managing Director, Mahindra Defence Systems, said, "In keeping with the Indian defence acquisition scenario and current market considerations, the managements of Mahindra & Mahindra and BAE Systems have decided that Mahindra's 100 per cent subsidiary Mahindra Defence Systems will acquire BAE Systems' 26 per cent shareholding in the Defence Land Systems India (DLSI) joint venture. This is a strategic decision and will enable both the companies to approach opportunities individually and to offer customised solutions to meet the needs of the Indian defence land systems domain. We have had a fruitful association with BAE Systems and look forward to working with them in the future on a case by case basis keeping in view the strengths and capabilities that each of us brings to the specific project or opportunity."

Dean McCumiskey, Managing Director and Chief Executive, India, BAE Systems, said, "India is a key international market for BAE Systems. The country's ambitious plans for modernisation and expansion of the armed forces and focus on developing self-reliance in defence present considerable opportunities for us. Building domestic capabilities in partnership with Indian companies will remain a cornerstone of our strategy in India. We look forward to opportunities to collaborate with Mahindra and others to enhance the role of the private sector in the defence industry." **SP**

## Rockwell Collins signs agreement with Tata Power Strategic Engineering Division

**R**ockwell Collins, a world leader in software defined radio technology, and Tata Power Strategic Engineering Division (Tata Power SED), a proven and well-established system integrator in the Indian defence industry, announced a teaming agreement as part of their pursuit of the Indian Air Force software defined radio (SDR) programme.

"Together, our companies provide the expertise to deliver the best-value SDR solution for the Indian Air Force while offering an unmatched opportunity for technology transfer," said Ram Prasad, Managing Director of Rockwell Collins India. "This announcement formalises what has been a long-standing and positive working relationship with Tata Power SED and will provide the Indian Air Force with advanced air and ground connectivity to meet their requirements. This relationship is very strategic in nature and would provide Indian defence with not only a local, within country, long-term support and maintenance provider, but also access to state-of-the-art technology."

Rahul Chaudhry, CEO of Tata Power SED, remarked, "Tata

Power SED has a four-decade long defence research and development experience and has now emerged as one of the largest private sector defence prime contractors. Our teaming agreement with Rockwell Collins for the Air Force's Software Defined Radio Program allows us to harness our core competencies in the high-tech arena of SDR for which Rockwell Collins is an acknowledged world leader with proven solutions. With this collaboration, we bring to India a proven high-tech communication technology with indigenous security, platform and system engineering as a trustworthy solution."

Under the terms of the agreement, Tata Power SED is the prime contractor and Rockwell Collins will provide technology for the team's software defined radio offering. If selected, the team of Tata and Rockwell Collins plan to perform the majority of the programme effort in India, providing faster delivery times, as well as more responsive in-country service and support for the customer.

For the Indian Air Force programme, Rockwell Collins is providing industry leading software defined radio technology designed to provide the best value in features, technology and growth capabilities. This technology features a digital radio architecture that allows easy reprogramming with different waveforms and operating modes through the use of digital signal processing technology. **SP**

## Bulova Technologies ties up with United Drones

**B**ulova Technologies Group, Inc. (BLVT) has signed an agreement with United Drones, LLC of Naples Florida to market the United Drones product line of unmanned aerial vehicles, unmanned ground vehicles, and armoured tactical command centres.

Bulova Technologies President and CEO, Stephen L. Gurba, said: "This agreement takes advantage of the strengths of Bulova in working with long-time customers such as DOD and NATO countries, as well as with the growing markets of Homeland Security and the Immigration and Naturalization Services and, indeed, any government agency seeking to secure its facilities. We anticipate a high demand for United Drone products and look forward to a long and mutually beneficial relationship."

Bulova Technologies Group, Inc., Bulova Technologies Ordnance Systems LLC and Bulova Technologies Europe LLC are headquartered in Tampa, Florida. Bulova Technologies Group, Inc. is registered with the United States Department of State Directorate of Defense Trade Controls (DDTC) as a broker. **SP**

## Avibras joins Harpia Systems to develop UAS market in Brazil

**E**mbraer Defense and Security and its affiliate AEL Systems, Inc., a subsidiary of the Israeli company Elbit Systems Ltd, announce the entrance of Avibras Air and Naval Division, Inc., in the capital structure of Harpia Systems, Inc., so as to jointly develop the market for unmanned aircraft systems in Brazil. As a result, Avibras will hold a 9 per cent stake of the company, whereas AEL Systems will hold 40 per cent and Embraer Defense and Security the rest.

Harpia will also have the Falcão Project in its product line, which will increase national content to the partnership. Avibras is developing the Falcão for the use of the Brazilian Air Force. It will be able to

perform reconnaissance, target acquisition, directional shooting support, damage assessment, and ground and sea surveillance missions.

"Avibras' participation increases domestic shareholding in Harpia Systems, which will now meet all requirements of a Strategic Defense Company, in accordance with Law 12.598," said Luiz Carlos Aguiar, President of Embraer Defense and Security and Chairman of the Board of Directors of Harpia. "In addition, Avibras will bring additional technical competence to Harpia." **SP**

## CAE reports higher revenues

**C**AE reported financial results for the third quarter ended December 31, 2012. Net income attributable to equity holders was Canadian \$37.8 million (\$0.15 per share) this quarter, compared to \$45.6 million (\$0.18 per share) last year. Excluding \$8.8 million (after-tax) of restructuring, integration and acquisition costs this quarter, net income attributable to equity holders was \$46.6 million (\$0.18 per share). Revenue for the quarter was \$522.1 million, 15 percent higher than \$453.1 million last year.

"Our results for the quarter were as we anticipated, given the integration and restructuring efforts underway in our civil and military segments," said Marc Parent, CAE's President and Chief Executive Officer. "In civil products, simulator wins in the quarter put us on track for annual sales in the mid-1930s. The integration of recently acquired Oxford is progressing as planned, and we continue to expect significant synergies in civil training as this effort is concluded. In military, order levels continued to reflect the delays currently inherent to the defence market, but we had a good win rate and we remain confident given our high level of bid activity." **SP**





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