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51 YEARS of SP's SINCE 1964

DECADES OF BOUNDLESS EXCELLENCE

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Narendra Modi, Hon'ble Prime Minister of India

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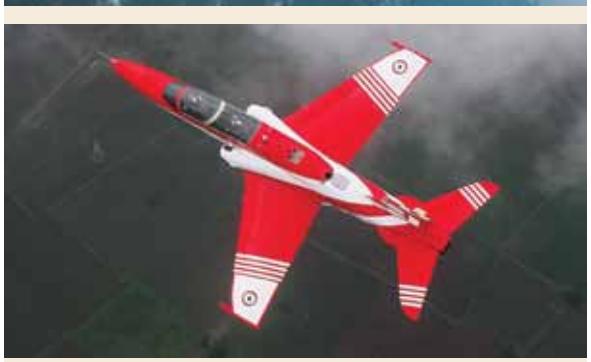
Indian Air Forces's new Aerobatic Team

The Indian Air Force celebrates its 83 anniversary on October 8, 2015. The new Surya Kiran Aerobatic Team (SKAT) comprising of four Hawk aircraft will make its maiden appearance on the Air Force Day Parade. SP



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Prime Minister Narendra Modi meeting President Barack Obama in New York on September 28, 2015.

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IAF is 83, and going strong

The Indian Air Force (IAF), the youngest wing of the Indian armed forces, is celebrating its 83rd anniversary and *SP's M.A.I.* takes enormous pride in acknowledging the efforts of this young force. The IAF has shown tremendous valour and courage in war zones and in the same breadth its humanitarian side while conducting relief operations during natural disasters, the recent one being in Nepal where the men in blue showed utmost professionalism, camaraderie and humaneness. Their efforts have come in for a lot of praise and one such is by the Spanish Ambassador in India (his interview is in *SP's Aviation*).

As the IAF celebrates the momentous occasion, we have interacted with the Chief of the Air Staff, who also happens to be the Chairman, Chiefs of the Staff Committee, Air Chief Marshal, Arup Raha. The Chief of the Air Staff has distinctly spelled out the role and responsibilities of the IAF and that is to remain a modern, flexible and professional aerospace power with full spectrum capability to protect and further national interests and objectives. It is the responsibility of the IAF to offer sovereign options to the political leadership and it endeavours to be the first responder to contingencies. The acquisition of modern technology weapons and platforms, he states, has greatly enhanced India's all-weather operational capability, besides enhancing its strategic reach.

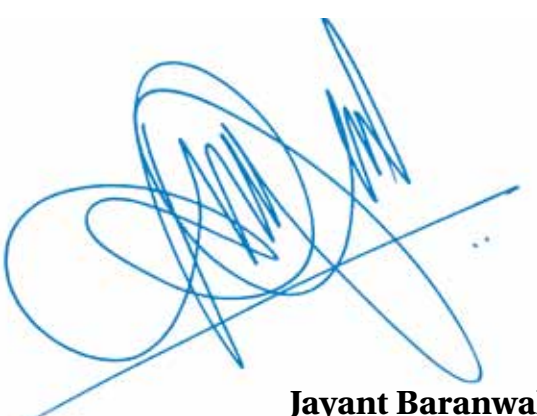
While the IAF's efforts of modernisation and infrastructure development is in sync with its endeavour to retain a 'combat and capability edge', the country's topmost leadership has shown that much more understanding of the needs of the armed forces.

The political statesmanship of the Prime Minister Narendra Modi is well known. His understanding of the defence needs of the country is praiseworthy. Some of the deals which were dragging on during the previous regime have been cleared by him, reflecting the urgency with which he is addressing defence acquisition issues. The latest is the acquisition of American helicopters – Apache and Chinook – the deals worth over $3 billion.

Even as the deal was being signed in New Delhi, the Prime Minister was in the US extending the partnership with the most powerful country on earth. The dialogues between the two great democracies are bonding them both strategically and economically. Economic and defence trade is at the crux of this relationship and the bilateral trade between the two has touched $100 billion and by 2030 it is expected to cross the $1 trillion mark. In Modi, India has found one of the best of ambassadors of the country and this is expected to pay huge dividends with governments and multinational corporations looking afresh at India's journey on a new path of reforms.

In this issue, we have frank and forthright views by Lt General P.C. Katoch (Retd) who questions the decision of the Ministry of Defence of shifting the venue of the biannual Defexpo from New Delhi to Goa, the home-state of the Defence Minister Manohar Parrikar. The world over such expositions are held in the national capital and at the same venue for years due to various advantages. Somewhere, we seem to be losing the concept, hence the stature of the event.

Happy reading!



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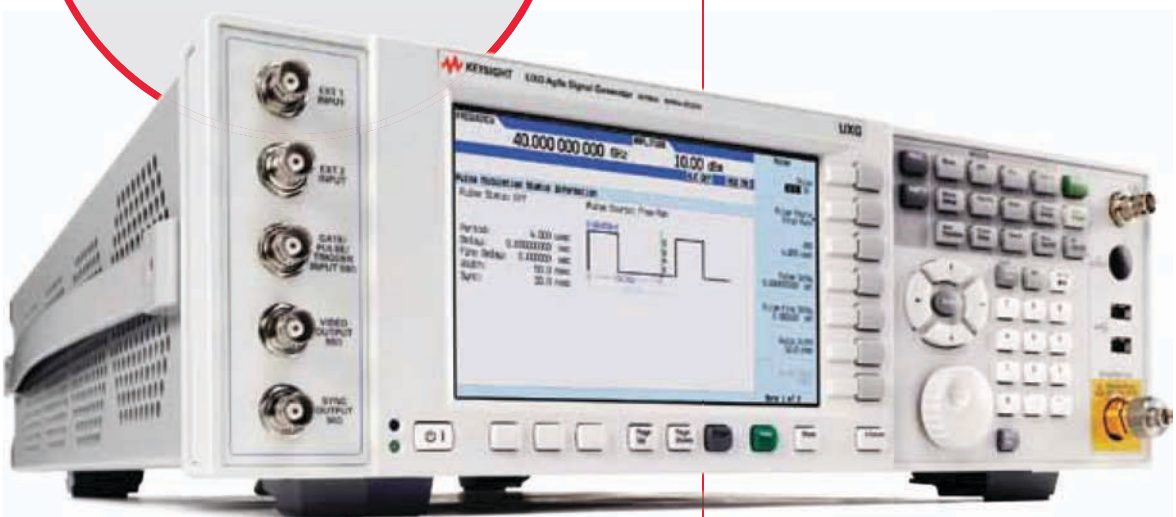

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PHOTOGRAPH: IAF

Scaling new heights!

On the occasion of the 83rd Anniversary of the Indian Air Force (IAF), ***Air Chief Marshal Arup Raha****, PVSM, AVSM, VM, ADC, Chief of the Air Staff and Chairman, Chiefs of the Staff Committee, spoke to* ***Jayant Baranwal****, Editor-in-Chief,* ***SP's M.A.I.***

SP's M.A.I. **(SP's): With India emerging as a regional power, the nation will justifiably aspire for leadership in the region. In this context, what in your view would be the role and responsibilities bestowed upon the IAF?**

Chief of the Air Staff (CAS): The IAF has been given the role and responsibilities to remain a modern, flexible and professional aerospace power with full spectrum capability to protect and further national interests and objectives. It is the responsibility of the IAF to offer sovereign options to the political leadership and the IAF endeavours to be the first responder to contingencies. The IAF today is moving ahead confidently on its growth path towards acquiring state-of-the-art cutting-edge technologies and we have made very good progress in this regard. The acquisition of modern technology weapons and platforms has greatly enhanced our all-weather operational capability, besides enhancing our strategic reach. The IAF's strategic footprint and capabilities serve the ends of military diplomacy and nation building.

SP's: In a unipolar world of today, in your view, what course must India adopt to achieve a balance of power in the region vis-à-vis China?

CAS: Threat and security assessment is a natural and ongoing process for a country to ensure its national security. We are enhancing our capability to meet various multidimensional threats that we may have to address in the future. Our modernisation plan and infrastructure development is in sync with our endeavour to retain a 'Combat and Capability Edge'. The IAF's focus is on its capability enhancement and is not country-specific.

SP's: In view of the problems afflicting the Hindustan Aeronautics Limited's (HAL) intermediate jet trainer (IJT) programme and the uncertainty of time frame in which the jet trainer could be made available, what are the options before the IAF to replace the ageing Kiran fleet?

CAS: We had inducted the Pilatus PC-7 Mk II aircraft for Stage-I flying training of ab-initio pilots. The feedback indicates that the PC-7 Mk II, with its state-of-the-art cockpit displays and avionics, is an excellent basic trainer aircraft which can also undertake several facets of Stage-II or intermediate level training. The Hawk advanced jet trainer (AJT) is already integrated into the IAF's training pattern. Both these trainer aircraft are supported by effective simulators. Hence, the IAF has initiated the process for conducting a flying training pattern based on two aircraft types: viz PC-7 Mk II and Hawk AJT, to replace the 'three aircraft – three stages' programme that had so far been in place.

SP's: With Airbus Helicopters joining hands with the Mahindra Group and Russia likely to partner with HAL, both to produce light utility helicopters to replace the Cheetah/Chetak fleet, what would be the fate of HAL's plan to develop an indigenous platform?

CAS: HAL's light utility helicopter (LUH) is an indigenous development and is presently at design and development stage with active involvement of the IAF. In the interim, the IAF has recently signed a contract with HAL for the procurement of 10 Cheetal helicopters to make good its immediate shortfall in operational requirement. Arrival of Mahindra Group will increase the competition and the country will stand to benefit from it.

SP's: Can you please provide us with an update on some of the major acquisition programmes which have been in the pipeline – for example, A330 MRTT aerial tanker, Apache and Chinook helicopters as well as Special Mission Aircraft?
CAS: The Indian Air Force is continually enhancing its capabilities across the entire spectrum of current and envisaged roles. Towards this, contracts for procurement of heavy-lift helicopters and attack helicopters have already been signed with Boeing and the US Government by the Ministry of Defence. Flight refuelling aircraft, additional C-130 aircraft and AWACS are at an advanced stage of processing.

SP's: Could you please give us your views on the recent reports in the media about the global tender that will be floated for 90 combat aircraft to be manufactured in India under the 'Make in India' scheme?
CAS: As of now, we are progressing the case for the procurement of 36 Rafale aircraft from France under an Inter-Governmental Agreement. A decision on induction of additional fighter aircraft would be taken by the government.

in the UK?
CAS: IAF undertakes bilateral exercises with various friendly foreign countries like the US, UK, France, Oman, UAE, Singapore and Russia. The overall aim of these exercises is to enhance mutual understanding of different air forces. It exposes IAF aircrew to near real-time scenarios under safe and controlled conditions and presents opportunity for the aircrew to tackle new types of aerial and ground threats in large force engagements. Exercises with friendly foreign countries are carried out in a controlled and simulated environment with mutually agreed Rules of Engagement. Since the actual capability of the participating aircraft is not used fully, such international exercises do not reveal the actual wartime performance of various aircraft. Classic wins/losses in such exercises with friendly foreign air forces cannot be quantified. Conduct of such exercises with professional air forces of the world establishes interoperability, exposure to best practices in air operations and mutual respect for professionalism amongst air warriors.



Airbus Military's A330 MRTT multi-role tanker transport aircraft; Boeing AH-64D Apache Longbow Attack Helicopter and Chinook heavy-lift helicopter

SP's: How do you perceive the future of 'Make in India' programme especially as HAL has failed to meet with SQRs laid down by the IAF for the light combat aircraft (LCA) that has taken 32 years to get IOC?
CAS: The 'Make in India' thrust is not organisation-specific. It envisages a comprehensive and synergised national effort involving the private as well as the public sector, towards achieving a high level of self-reliance in all fields of aircraft manufacturing. There is a need to build up our manufacturing capacities and also to undertake intensive skill development of the workforce to enable it to handle the latest technologies and best practices.

SP's: There is a general belief that UCAVs and UAVs will play a major role and will occupy predominant position in military aviation in the future. What is the IAF's perspective and plans if any in this regard?
CAS: The IAF has been closely monitoring the growing role of remotely-piloted aircraft (RPA) in the military domain. We have plans for enhancing the RPA fleet of the IAF over the next few years. This will involve increasing their numbers as well as capabilities. The indigenous medium altitude long endurance (MALE) UAV 'Rustom II' is under development by the Defence Research and Development Organisation (DRDO). The future scenarios will be a mix of manned and unmanned platforms capable of responding to the entire spectrum of threats.

SP's: How has IAF benefited from Exercise Indradhanush that was conducted in July this year jointly with the Royal Air Force (RAF)

SP's: Can you provide an update on the case of appointment of a Chief of Defence Staff (CDS)?
CAS: The creation of CDS is an incremental process and has been supported by the three Services and other agencies. As per recommendations of the Naresh Chandra Task Force, the Chairman COSC would be one of the three Service Chiefs appointed by the government and would be the single-point contact between the government and the three Services. He would thus be the fourth four-star officer who would also be responsible for the various Tri-Service Operational Commands. The Service Chiefs will continue to exercise operational control and staff functions over their respective Services and have direct access to the Raksha Mantri.

SP's: What are the measures being taken towards boosting of the morale of the 'Man behind the Machine' in the IAF?
CAS: The IAF vision states: 'People First, Mission Always'. People are the most important assets of the IAF and therefore the professional growth of all air warriors and their morale are vital KRAs (key result areas) of all our Commanders. Towards that, we have ensured transparent implementation of policy giving adequate and equal opportunity to all for professional growth. There is a merit-based system in place to select personnel for challenging appointments and promotions. We have regular interaction for personal requirements of any individual in need through choice posting, which meets both organisational and individual requirements, subject to service exigencies. SP

For the complete interview, log on to ***www.spsmai.com***

PHOTOGRAPHS: Airbus Defence and Space, Boeing, US Army

Prime Minister Narendra Modi delivering his statement to the media in the Joint Press Briefing with President Barack Obama in New York on September 28, 2015

Giving economic muscle to strategic partnership—Modi in the US

India and US have already achieved a bilateral trade of $100 billion and aim to raise this to the level of $1 trillion by 2030

[By **Ranjeet Kumar**]

Economic strength will add muscle to India's strategic strength and profile

PHOTOGRAPHS: PIB

Before the fifth bilateral interaction between President Barack Obama and Prime Minister Narendra Modi on September 28, the two Foreign Ministers John Kerry and Sushma Swaraj had only a week ago laid the ground-work for their talks under the aegis of the first ever combined strategic and commercial dialogue. That US and India strategic relations are on a new trajectory need not be reiterated, the changing geopolitics of the Asia-Pacific region is encouraging the two democratic powers to come closer. Economic and defence trade forms the bulwark of this relationship and has seen an exponential rise since the middle of the last decade. A decade ago defence trade between India and US was almost negligible, but consistent efforts by the US leaders and officials, by relaxing its national defence export laws, led to a burgeoning of defence trade relations, which has now become a subject of envy for other countries having strong defence exchanges with India. The two countries now plan to give a new dimension to their strategic partnership on global issues.

The two countries have now expanded the strategic dialogue to encompass commercial ties also, as trade and economic relationships will develop a strong stake in the prosperity and stability of both

the countries. With this aim, for the first time, the two countries exchanged frank views on strengthening economic ties. To give effect to this commitment between the two countries, the US Commerce Secretary Penny Pritzker and Indian Commerce Minister Nirmala Sitharaman along with their teams participated in talks with full strength. During Modi's visit to UN Headquarters, India was the talk of the town especially among business and strategic circles. Local media quoted a technology entrepreneur and academic, Vivek Wadhwa, as saying, "Usually CEOs don't spare time for even Heads of State/Government, and they keep a safe distance from Washington DC. In fact Modi was the first Head of State to visit the headquarters of Facebook campus in Menlo Park."

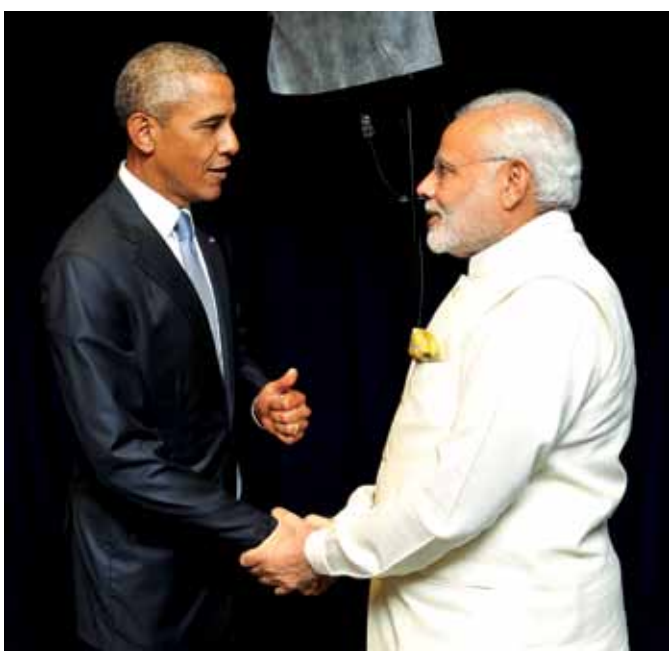
To enable India to play its new global role, the US is encouraging India to strengthen its defence capabilities and helping India acquire latest weapon systems and platforms. The US side has also agreed to support India for early membership of the Asia-Pacific Economic Community, which will enhance India's profile in the region. India and US have already achieved a bilateral trade of $100 billion and aim to raise this to the level of $1 trillion by 2030. Considering the strength and possibilities of the two countries, this can be achieved, the rest of the world realise this. Hence India is being courted by all the powers from West to East.

An official US document acknowledges with pride that US has signed more than $10 billion in defence trade with India, which has strengthened India's capacity as a net provider of security in the Indian Ocean region. The inking of latest $3.1-billion deal for Apache and Chinook helicopters has added another feather in its cap. Thus the total deal during last one decade will now be $13 billion. Giving the example, the US document says that Indian Air Force used US made C-130 and C-17 aircraft to evacuate Indian and third country nationals from Yemen and speed relief supplies to Nepal after its devastating earthquake in Nepal. The India US defence supply relations are now turning a new leaf and from buyer-seller relationship both are entering a new era of joint developer of weapon systems and platforms, under the aegis of the Defence Trade and Technology Initiative (DTTI).

Prime Minister Modi acknowledged before President Obama during his meeting on September 28 in New York, "Our partnership addresses a broad range of strategic and security concerns. Our defence cooperation, including defence trade and training, is expanding." India is keen to enhance its maritime security and has adopted a policy to draft the like-minded countries for exchange of ideas and programme. Prime Minister Modi made a strong pitch for obtaining a chair on the high table of the world and US, Britain, Russia and France did not dither from declaring their support for the permanent membership of the United Nations Security Council (UNSC). Modi successfully hosted a summit of the G-4 group (India, Germany, Japan and Brazil), though they have of late become a reluctant campaigner for the UNSC seat.

The visit of Prime Minister Modi led to reaffirmation of the aims of India-US strategic partnership as they recognised it to be a significant contributor to the peace, stability and prosperity in the Indian Ocean and Asia-Pacific regions and around the globe. Since China aims to emerge as a major player and claimant of the space in these areas, the joint commitment by the world's only superpower US and India, the emerging power, to jointly take care of their strategic and economic interests is extremely significant. President Obama and Prime Minister Modi also reasserted their continued cooperation under the joint strategic vision for the Asia-Pacific and Indian Ocean region. Considering the continued forays of the Chinese warships in the Indian Ocean region, the two powers visualise Chinese aggressive efforts to dominate the sea to protect its energy supply routes and trade with Africa, which the Chinese now plan to connect via Gwadar port of Pakistan through the Kashgar region of Xinjiang. A 1,500-km-long China-Pakistan economic corridor is under execution, on which Chinese Government plans to invest around $46 billion.

The Chinese want a direct sea route connection through land route of Pakistan. Hence the strategic guardians of India and US are wary of increased Chinese maritime activity in the region. The US-India strategic partnership assumes significance from this perspective. Along with the two countries, Japan has also been added and a kind of triangle is emerging in the Asia–Pacific region. Significantly foreign ministers of these three countries met in New York for the first time in this format and issued a veiled warning to China to desist from solving the sea disputes in the two China seas through force. China has recently constructed an artificial airstrip on the disputed region and is trying to grab the maritime area.

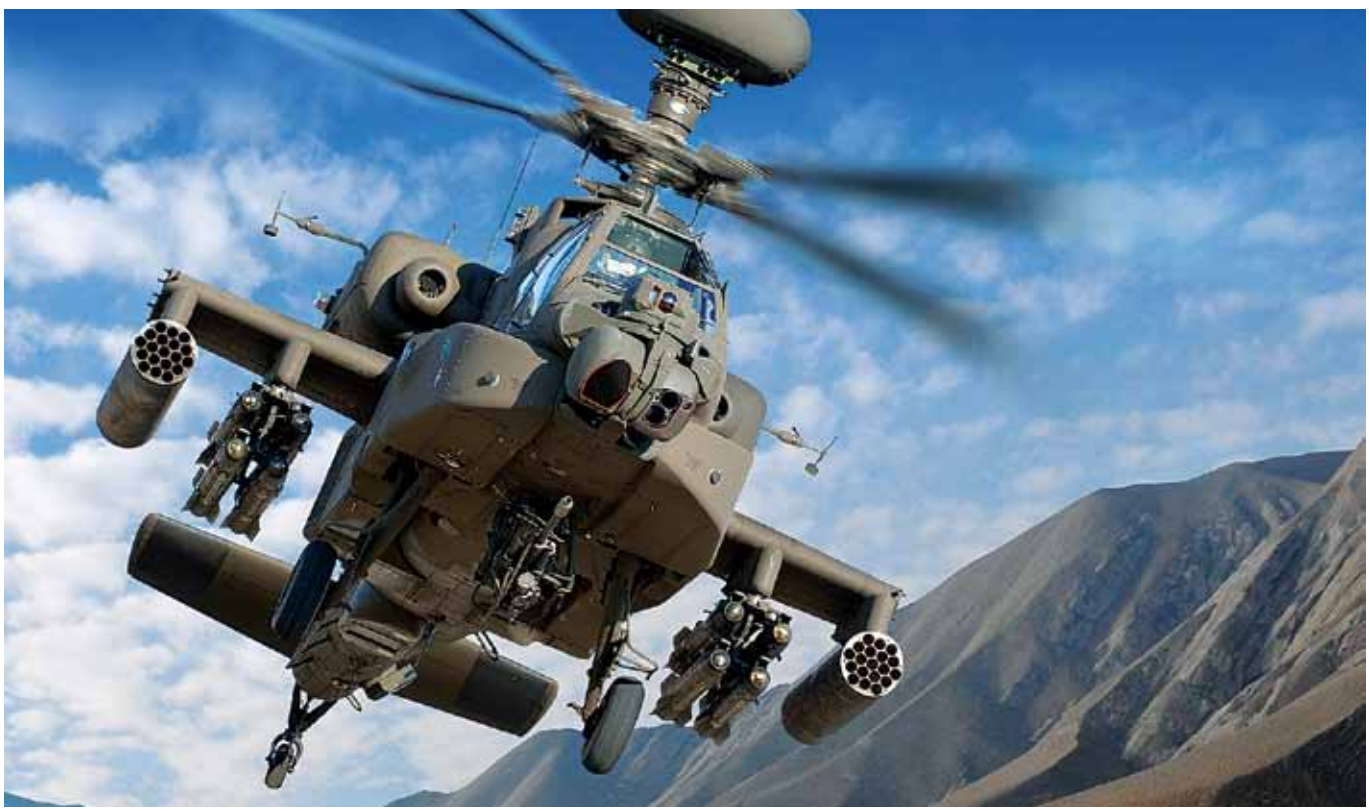


Prime Minister Narendra Modi with President Barack Obama in New York on September 28, 2015

The India-US strategic relationship thus has ramifications in the Asia-Pacific region. And in this context, US would like India to emerge as a counterbalance to China, for which India's emergence as an economic power is a necessary prerequisite. The US side facilitated this during Modi's visit to New York and California, where he interacted with the top CEOs of US and the world. The world is looking towards India as an emerging economic power, whose stability and progress is now vital for their well-being.

In New York and in Silicon Valley, Prime Minister Modi reached out to the business leaders and reassured them that India is indeed the place today to invest in. Modi was able to convey to the world business leaders that India can no longer be ignored. Modi's photo-ops with the chosen 42 *Fortune* 500 CEOs was a landmark event for any Head of Government visiting the United States. In today's world a country commands respect only when it has economic backing. And India under Modi has been able to project itself as an economic magnet of the world. Economic strength will also add muscle to India's strategic strength and profile. SP

First defence deal of Modi regime with the United States



PHOTOGRAPH: US Army

[By **Ranjeet Kumar**]

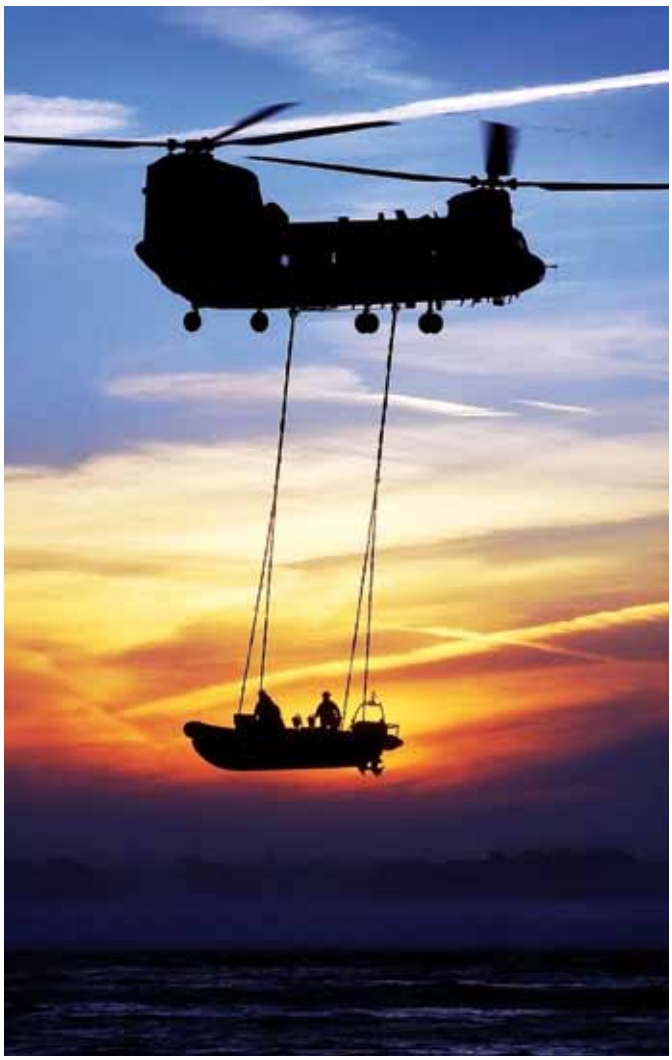
Even before Prime Minister Narendra Modi ushered into the meeting room of President Barack Obama in the Headquarters of the United Nations, the officials of the Indian Ministry of Defence (MoD) put final signatures to the two most significant deals with the US Department of Defense and Boeing, the manufacturers of the two helicopters Chinook and the Apache. Significantly, the $3.1-billion deal was inked at breakneck speed, rarely seen in Indian defence establishment. In fact the political clearance, through the Cabinet Committee on Security (CCS), for the deal was given just on the eve of the departure of Prime Minister Modi for the United States on September 22. This was the first big-ticket defence deal signed during the 16 months of the Modi regime. The deal was pending since the Manmohan Singh days, who, in the penultimate year of his rule, had cleared the decision to acquire the two class of helicopters from Boeing. Since then Boeing management kept reminding the Indian MoD of the sharp revision in final agreed price if the deal was not operationalised. The Indian Government kept requesting Boeing to have patience. Finally the deal has gone through and defence sources say that the numbers agreed to is not final and more will be ordered. The deal inked on September 28 envisions the supply of 22 Apache attack helicopters and 15 Chinook heavy-lift helicopters.

Though some of the defence deals encounter controversy relating to payments and the usefulness of the equipment for the forces, the two helicopter deals will not attract any opprobrium as the deal was first okayed by the previous UPA regime led by Manmohan Singh in 2013. The NDA regime has only implemented his decision. In recent years

AH-64E Apache Specifications

Length	58.17 ft (17.73 m)
Height	15.24 ft (4.64 m)
Wingspan	17.15 ft (5.227 m)
Primary mission gross weight	15,075 lb (6,838 kg)
Vertical rate of climb	More than 2,000 ft per minute
Maximum rate of climb	More than 2,800 ft per minute
Maximum level flight speed	More than 150 knots (279 kmph)

Source: Boeing



PHOTOGRAPH: UK MOD

CH-47 Chinook Specifications

Rotor diameter	18.29 m (60 ft)
Length with rotors operating	30.14 m (98 ft 10.7 in)
Fuselage	15.46 m (50 ft 9 in)
Height	5.68 m (18 ft 7.8 in)
Fuselage width	3.78 m (12 ft 5 in)
Fuel capacity	45,000 lb (20, 411 kg) class 81,000 lb (36,700 kg) max gross takeoff
Maximum speed	302 kmph (170 KTAS)
Cruise speed	291 kmph (157 KTAS)
Mission radius	200 nm (370.4 km)
Service ceiling	6,096 m (20,000 ft)
Max gross weight	22,680 kg (50,000 lbs)
Useful load	24,000 lbs (10,886 kg)
Source: Boeing	

the United States has emerged as the favourite arms supplier to the Indian armed forces and is the only country which has not found itself embroiled in any kickbacks related controversy, as most of the deal has been transacted through foreign military sales (FMS) route of the US State Department under which the buyer country pays the same amount paid by the US forces to the US manufacturers. However, additional service charges are levied, which are in the range of few per cent.

The acquisition of these helicopters will significantly improve the combat capability of the Indian army deployed on high mountains, on which transfer of weapons and platforms is very cumbersome. The Chinooks can ferry 55 combat troops or two combat ready jeeps. The Chinooks can also carry 11,000 kg of external load from its belly, which is almost equal to one howitzer gun. The Apache attack helicopters will add to the firepower of the IAF, which is already equipped with Mi-35 Russian attack helicopters and can prove destructive for the enemy ground forces. The Russian attack helicopters were acquired in the early 1990s and are now on the verge of retirement.

With the signing of the deals, the IAF will have to gear up fast to get ready for their induction, which will probably take three years. The US companies have always adhered to the timelines unlike some other defence firms. Earlier India had ordered from Boeing eight maritime reconnaissance aircraft P-8I, to which four were added later. IAF also acquired 10 C-17 Globemaster III from Boeing and from Lockheed Martin it purchased the C-130J Super Hercules. In the middle of last decade India had acquired the weapon locating radars. In total, the Indian armed forces acquired weapon systems and platforms from US companies worth over $10 billion.

One of the principal reasons of hesitancy on the part of Indians to acquire the weapon systems from US was the conditionality of inking four foundational agreements — LSA (Logistics Supply Agreement), BECA (Basic Exchange and Cooperation Agreement), CISMOA (Communications and Information Security Memorandum of Agreement) End User Agreements. The Indian Government has maintained strict silence on whether these agreements have been adhered to while inking the helicopter deals. However, sources maintain that these have not come in the way of signing the deals as probably they have been kept in abeyance.

According to the officials, a 'hybrid' agreement was signed for the Apache attack helicopters, in which one part, i.e. helicopters, of the deal has been signed between the Defence Ministry officials and Boeing, whereas the other part of the agreement was signed with the US Administration representatives for the accompanying weapons, radars and electronic warfare systems. The deal includes the acquisition of 812 AGM-114L-3 Hellfire Longbow missiles, 542 AGM-114R-3 Hellfire-II missiles, 245 Stinger Block I-92 H missiles and 12 AN/APG fire-control radars, etc. The 15 Chinooks deal was a direct commercial agreement with Boeing.

The clearance and inking of the helicopter deals before the meeting of Prime Minister Modi with President Obama created a good ambience for the summit talks. The US side came out in full support for India in the United Nations Security Council as a permanent member and also asked Pakistan to rein in terrorist forces like the Lashkar-e-Taiba. In fact after US inked Civil Nuclear Cooperation agreement with India in 2008, the US Administration wanted India to order more and more defence systems from the US companies, to strengthen the strategic partnerships. When the Indian Air Force did not select the Lockheed Martin made F-16 as the next fleet of medium multi-role combat aircraft (MMRCA) for India, the US Administration was disheartened. Now a few years later, the US companies have in their kitty arms supply agreement with India worth more than $13 billion, which will definitely enthuse the American defence community. SP

LT GENERAL
P.C. KATOCH (RETD)

Defexpo – Killing the concept

The former Defence Minister A.K. Antony was blamed by all and sundry of keeping the defence forces starved of critical equipment and keeping the defence industrial complex largely defunct in his 10-year tenure in that appointment. It is to his discredit that even former diplomats commented that the military had been reduced to the level of what it was in 1962.

General V.K. Singh, then Army Chief (now MoS in the Modi Government) was constrained to write to the then Prime Minister Manmohan Singh about criticalities in the army. But then the lack of a national security strategy 68 years after independence itself is indication that national security has all along been given lip service with unaccountable generalist bureaucrats manning the Ministry of Defence (MoD) and Defence Ministers who are bound by the advice of this very bureaucracy. But this does not mean that the Defence Ministers have lost any focus on their voter constituency even as defence and security issues remained on the backburner.

When A.K. Antony laid the foundation stone for the Coast Guard Academy at Azhikkal, it was the seventh major defence project to be commissioned in the state since Antony was given the defence portfolio. About 20 km away from the Coast Guard Academy is the Indian Naval Academy at Ezhimalla, which was inaugurated by Manmohan Singh in presence of Defence Minister Antony. Antony also gave the green light to the ₹600-crore National Institute for Research and Development in Defence Shipbuilding (NIRDESH) near Kozhikode. Then was setting up of the strategic electronics unit of the Hindustan Aeronautics Limited (HAL) at Kasargod costing ₹200 crore specialising in aviation electronics, building radars, navigation systems, mission computers and early warning systems for the LCA, ALH and Sukhois, all under HAL's Hyderabad-based aviation division. In addition was the fourth manufacturing complex of the Bharat Earth Movers Limited (BEML) at Palakkad a cost of ₹260 crore for building Tatra vehicles, floating bridges and all other forms of military vehicles. The Bharat Electronics Limited (BEL), another DPSU, set up a product support centre at Kochi's Kerala Infrastructure Development Corporation (KINFRA). Incidentally, the cruise missile manufacturers, BrahMos Corporation took over the state-run Kerala Hitech Industries Limited (KELTEC), and renamed it as BrahMos Aerospace.

Antony's focus on Kerala was evident when while laying the foundation stone for the Coast Guard Academy at Azhikkal he stated apart from defence projects even public sector institutions could be brought to Kerala. In facilitating a series of defence projects back home, Antony's primary aim was to earn him brownie points with the electorate in Kerala.

Now Defence Minister Manohar Parrikar has announced that the next Defexpo in India will be held in his home state Goa from March 28 to 31, 2016. Globally, defence expositions are held at fixed venues, generally at the country's capital because of valid reasons like infrastructure, accessibility by both participants and more importantly visitors, accommodation and the like. In India, all the eight editions of Defexpo till now, an exhibition of land and naval systems, have been held in the national capital for these very reasons, including the facilities available at Pragati Maidan.

Even the Aero India is held at Bengaluru in the sprawling complex of the IAF base. Compared to these, Goa only has a small naval base which can hardly accommodate a show of this magnitude unless the intention is to go in for massive avoidable and infructuous expenditure. Shouldn't MoD declare what that expenditure would be and give justification for such expenditure? Sure it would give the local hoteliers a field day for many days but then Goa never has a lull of tourists and a Defexpo has much different requirements than International Literary Festival or film festivals. Defexpo is an important meeting ground of representatives of some of the world's biggest arms companies and requires much larger infrastructure. As it is despite the 'Make in India' call the industry is frustrated with the hype of $16-billion worth of defence projects 'cleared' but not a single request for proposal (RFP) or tender issued. If these are being held back to be released just before the planned Defexpo at Goa to attract firms into a mad rush to make a beeline for Goa, it is ill-advised. The excuse that the India Trade Promotion Organisation (ITPO) cannot make Pragati Maidan available for Defexpo 2016 is truly laughable unless ITPO has been handed over to Pakistan, as is the diversionary statement that no decision has been taken yet to shift Aero India from Bengaluru as yet. Modi Government needs to take a call on its decision to hold the next Defexpo at Goa. SP

The excuse that the India Trade Promotion Organisation (ITPO) cannot make Pragati Maidan available for Defexpo 2016 is truly laughable unless ITPO has been handed over to Pakistan

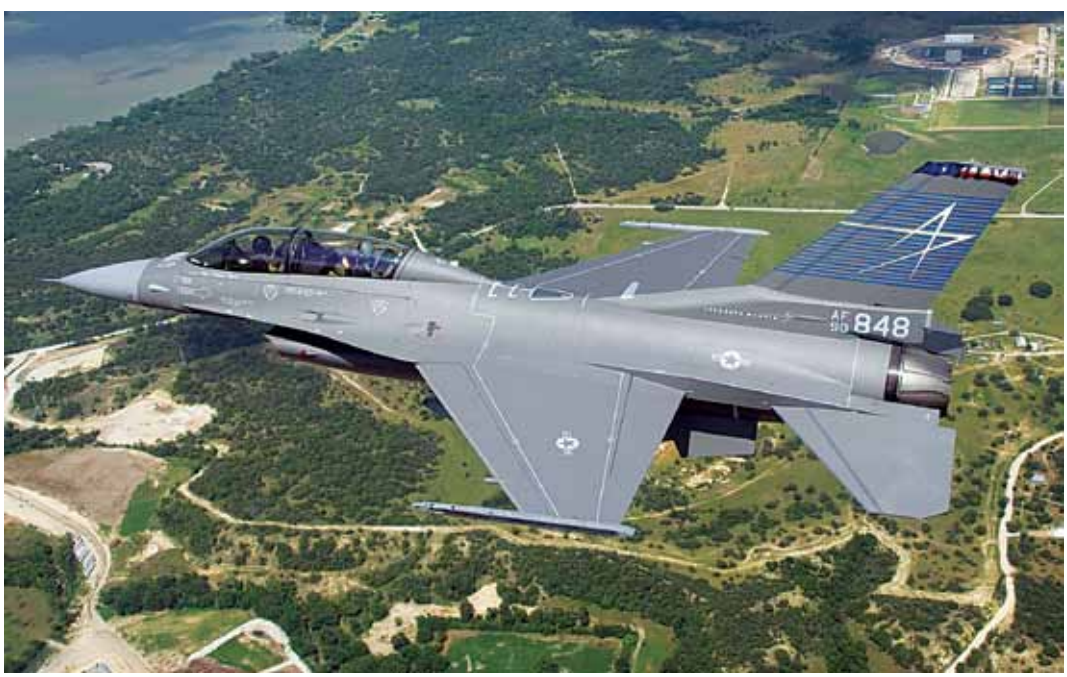
The views expressed herein are the personal views of the author.

PHOTOGRAPH: SP Guide Pubns

AIR MARSHAL
B.K. PANDEY (RETD)

Fighting Falcon Made in India

The IAF should be reasonably comfortable with the Lockheed Martin F-16IN Super Viper in its modern avatar. A facility to manufacture the aircraft in India will be an added advantage for the IAF as it will provide assured and effective product and maintenance support, something that the IAF would certainly need.



PHOTOGRAPH: Lockheed Martin

The F-16 has a long and impressive track record of operations around the world and is regarded as one of the most successful combat platforms in the history of military aviation

During his visit to the United States in the last week of September this year, Prime Minister Narendra Modi succeeded in fuelling aspirations of the business community in both the nations about fresh opportunities arising in their respective domains. In addition, the two Heads of State were also able to elevate the strategic partnership between India and the US to a new level. It was in the backdrop of these developments that the Bethesda-based US aerospace and defence major Lockheed Martin Corporation brought up the issue of manufacturing its iconic F-16 Fighting Falcon in India. During a meeting in New York on September 24, 2015, Marillyn Hewson, the Chief Executive Officer of Lockheed Martin, discussed the proposal with Prime Minister Narendra Modi.

Evolution of the Fighting Falcon

In the early 1970s, as a long-term plan to replace the F-15 Eagle, the US Air Force (USAF) initiated the lightweight fighter aircraft development programme. Amongst the several contenders in the race, the two designs shortlisted for the fly-off were the single-engine YF-16 from General Dynamics and the twin-engine YF-17 by Northrop. Many of the prospective customers would have preferred a twin-engine design on account of the higher level of safety a combat aircraft equipped with two engines would provide as compared to a single-engine platform. However, it was the single-engine YF-16 that was selected by the USAF against the YF-17 which was the only twin-engine aircraft in the competition. The YF-17 design rejected by the USAF was taken over

by the US Navy and the task was assigned to McDonnell Douglas to develop a twin-engine carrier-borne combat aircraft. The YF-17 thus evolved into the highly successful F/A-18 Hornet and later into the land-based F/A Super Hornet.

The YF-16, redesignated as the F-16 Fighting Falcon, is a single-engine multi-role combat aircraft that was inducted into the USAF in the mid-1970s. Originally designed as an air superiority fighter, over the years, the F-16 has evolved into a potent multi-role combat platform with all-weather capability. In 1993, the aircraft manufacturing business of General Dynamics was acquired by Lockheed Corporation, a company that after merger in 1995 with Martin Marietta, came to be known as Lockheed Martin Corporation as it exists today.

The F-16 was one of the first platforms to employ the fly-by-wire control system. Over the last nearly four decades, the Fighting Falcon has gone through a process of evolution through major upgrade programmes. The latest variants of the Fighting Falcon is equipped with the AN/APG-80 Active Electronically Scanned Array (AESA) radar, better avionics and sensors all leading to improved situational awareness for pilots and substantially enhanced payloads to meet with the demand of the rapidly evolving operational environment. The aircraft has ultra high-resolution mapping with automatic terrain following and is capable of air-to-air tracking of multiple targets. Many of the technologies developed for the F-35 fifth-generation fighter aircraft would be incorporated in the new versions of the F-16.

So far, Lockheed Martin has delivered more than 4,500 F-16 Fighting Falcons to 28 international customers which includes the Pakistan Air Force which has the older Block 15 version, a platform that has been phased out by the other air forces. Pakistan also received some of the latest Block 50/52 version from the US in 2012. The F-16 Fighting Falcon has a long and impressive track record of operations around the world and is regarded as one of the most successful combat platforms in the history of military aviation. More recently, during trials, it is reported to have proved to be superior in close combat to the Lockheeed Martin's F-35 Lightening II Joint Strike Fighter.

Fighting Falcon on the Indian Scene

The F-16 was one of the contenders for the multibillion-dollar tender for 126 medium multi-role combat aircraft (MMRCA) for the Indian Air Force (IAF). For this competition, the original equipment manufacturer (OEM), Lockheed Martin Corporation, had offered the F-16IN Super Viper. Based on the F-16E/F Block 60, the F-16IN Super Viper had a number of modern features which apart from the AN/APG-80 AESA radar, included conformal fuel tanks, GE-F110-132A engine with full authority digital electronic control (FADEC) systems, electronic warfare suite and infrared search and tracking (IRST), updated glass cockpit and a helmet-mounted sight. As per the OEM, "The F-16IN Super Viper in its class was the ultimate fourth-generation platform and the most advanced fighter ever built. This aircraft would enable the IAF to seamlessly transit to fifth-generation fighters." In case the F-16IN Super Viper had won the MMRCA contract, Lockheed Martin Corporation would have incorporated in the platform many of the technologies developed for the F-35 fifth-generation fighter ordered by the USAF. In the event of the F-16IN Super Viper winning the contract, as per the terms and conditions, the OEM would have had to manufacture 108 aircraft in India, the remaining 18 having been supplied directly in a flyaway condition. Unfortunately, this was not to be so as the F-16 was edged out of the race for the MMRCA contract.

Over the last nearly four decades, the Fighting Falcon has gone through a process of evolution through major upgrade programmes

The IAF received another shock when the MMRCA tender for 126 Rafale jets failed to make progress and after nearly eight years since the issue of the request for proposal (RFP), the tender had to be cancelled on account of some insurmountable problems encountered during contract negotiations. Described as 'Mother of All Deals', the MMRCA tender for 126 Rafale jets has been replaced by a mini-deal directly between the Governments of India and France for the purchase of just 36 Rafale jets in flyaway condition as against 126. That leaves the IAF with the problem to find a way to induct the balance of 90 combat jets out of the originally targeted 126 aircraft in the MMRCA tender. The Government of India would in all likelihood insist that these 90 jets be manufactured in India, an imperative in the context of the 'Make in India' philosophy of the Modi-led NDA Government. Given the way the contract negotiations with Dassault Aviation of France, the OEM for the Rafale, progressed, it is highly unlikely that the Government of India will accept any proposal to manufacture the Rafale in India; exorbitant costs being one of the deterrents. That leaves the door wide open for other players such as Eurofighter Typhoon from EADS that was renamed in 2014 as Airbus Defence and Space, the Gripen from Saab of Sweden and the F-16IN Super Viper.

But the requirement of the IAF will go well beyond 90 combat jets as with the retirement from service of the MiG-21 and MiG-27 fleets and the authorised strength of combat squadrons going up to 42 in the next decade, the IAF will need at least another 200 fighter aircraft. Part of this requirement could be offset against the fifth-generation fighter aircraft (FGFA) being developed jointly by the Indian aerospace major the Hindustan Aeronautics Limited (HAL) and Sukhoi of Russia. It is reported that the IAF plans to order only 65 of the FGFA in which case, to begin with, the IAF will be able to absorb a minimum of 225 combat jets manufactured in India. Further, with the retirement of the MiG-29, Jaguar and Mirage 2000 fleets in or around 2030 and little certainty about the availability of the light combat aircraft (LCA) Mk II in adequate numbers and in the required time frame, dependence on foreign sources to meet with the demands of the IAF for new-generation combat jets will only increase substantially. The market for indigenously produced new-generation combat jets will undoubtedly be significant justifying the huge investments by any global aerospace major.

American Military Aircraft in India

With the break-up of the Soviet Union 25 years ago and the emergence of a unipolar world, the IAF has had access to modern military aircraft from the US. In the last decade, the IAF has inducted the Boeing Business jets for VVIP travel as also some of the most modern transport aircraft such as the Lockheed Martin C-130J Super Hercules for special operations and the Boeing C-17 Globemaster III strategic airlift aircraft that has given the IAF a global reach. The Indian Navy has inducted the Boeing P-8I long-range maritime patrol aircraft. As per reports in the media, the IAF should be able to induct in the near future the Apache AH-64E attack helicopters and the Chinook heavy-lift helicopters, both from Boeing. The IAF should be reasonably comfortable with the Lockheed Martin F-16IN Super Viper in its modern avatar. A facility to manufacture the aircraft in India will be an added advantage for the IAF as it will provide assured and effective product and maintenance support, something that the IAF would certainly need. SP

REAR ADMIRAL
S. RAMSAY (RETD)

INS Kochi named after traditional home of Destroyers

The Defence Minister said the government is seized of the nation's defence requirements and requisite financial support for the armed forces and defence industry will be made available, which includes the modernisation and development plans of the Navy

PHOTOGRAPHS: Defence PRO MoD

The ship design incorporates the most advanced design concepts for improved survivability, stealth, sea-keeping and manoeuvrability. It's weapons and sensors are best in class.

The Type II Hunt class Destroyers of World War II fame were sanctioned to be leased from Royal Navy to Indian Navy during June 1952, and subsequently sold to India in 1958. The first ship was commissioned as INS Ganga on June 18, 1953. Subsequently, two more ships of the class, INS Godavari and Gomati, were commissioned to form the 22nd Destroyer Squadron (22 DS). Initially, 22 DS was based at Bombay to be part of the Indian Fleet and thereafter transferred to Cochin in the early 1960s. Cochin then came to be known as the home port of Indian Navy's Destroyers which performed the sterling role of training, being co-located with all specialised training schools at Cochin. It was a befitting tribute to the traditional home of Destroyers to have its name etched on the plaque of Indian Navy's most powerful Guided Missile Destroyer of Project 15A, Kolkata class.

The ship's crest depicts a sword and a shield together with a Snake Boat riding on the blue and white ocean waves, which symbolise the Malabar region's rich maritime heritage and martial traditions.

INS Kochi, the second ship of Project 15A, is a follow-on programme of the first indigenously designed Delhi class Guided Missile Destroyers. It is to the entire credit of the Directorate of Naval Design (Surface Ship Group) to churn out a highly sophisticated and most advanced design of this 7,000-tonne man of war for the Indian Navy. The ship design not only incorporates most advanced design concepts for improved survivability, stealth, sea-keeping, and manoeuvrability, its weapons and sensors are those of the best in the class. Although the Project 15A has suffered a setback of at least five years in churning out the first of line INS Kolkata, Mazagon Dock Lim-

ited, Mumbai, the shipbuilders have taken adequate measures to obviate further slippages or delays. Accordingly, the second in line, INS Kochi has been commissioned 13 months later and the last of the class INS Chennai is expected to be commissioned end 2016.

INS Kochi, with a displacement of 7,500 tonnes, 164 metres in length and 17 metres at the beam, is powered by four gas turbines to achieve maximum speed of 30 knots plus. The ship has a complement of about 40 officers and 350 sailors. The accommodation and living spaces have been designed with special emphasis on ergonomics and habitability. Enhanced stealth features have been achieved through shaping of hull and use of radar-transparent deck fittings. A bow-mounted Sonar Dome, the second of its kind in an indigenous naval platform, has been introduced to enhance sonar acoustic performance.

INS Kochi is the second ship packed with the most sophisticated state-of-the-art weapons and sensors including Multi-Function Surveillance and Threat Alert Radar (MF STAR) to provide target data to the vertically launched Long-Range Surface to Air Missile system (LR SAM). The MF STAR and LR SAM systems are jointly developed by the Defence Research and Development Organisation and Israel Aerospace Industries Limited.

Defence Minister Manohar Parrikar at the commissioning ceremony of the INS Kochi at the Naval Dockyard in Mumbai on September 30, 2015. The Chief of Naval Staff Admiral R.K. Dhowan and other dignitaries are also seen.

The ship is equipped with the advanced supersonic and long-range BrahMos surface-to-surface missile. The 76mm Super Rapid Gun Mount (SRGM) and AK 630 CIWS, both manufactured indigenously, can take on air and surface targets. The entire anti-submarine weapon and sensor suite fitted onboard, consisting of Indigenous Rocket Launchers, Indigenous Twin-tube Torpedo Launchers and a bow-mounted New-Generation HUMSA Sonar are fine examples of indigenous efforts in the field of underwater warfare. The sensor suite includes other advanced Surface-to-Air surveillance radars and an indigenous Electronic Warfare system. A state-of-the-art Combat Management System (CMS-15A) has been integrated with the onboard weapons and sensors. The ship is equipped to operate two Seaking or Chetak helicopters.

The ship can be truly classified as a 'Network of Networks' as it is equipped with sophisticated digital networks, such as Asynchronous Transfer Mode-based Integrated Ship Data Network (AISDN), Combat Management System (CMS), Automatic Power Management System (APMS) and Auxiliary Control System (ACS). The AISDN is the information highway on which data from all the sensors and weapon ride. The CMS is used to integrate information from other platforms using indigenous data link system to provide Maritime Domain Awareness. The intricate power supply management is done using APMS, and remote control and monitoring of machinery is achieved through the ACS.

Commissioning

While commissioning INS Kochi on September 30, 2015, the Defence Minister Manohar Parrikar said the government is fully committed to developing a real Blue Water Navy, a navy which can dominate the Indian Ocean region (IOR), but will be considered friendly by the neighbouring countries. He gave two examples to illustrate his point—that of transporting drinking water to Maldives when the latter's water treatment plant was damaged last year, and the rescue and evacuation of nationals of over 20 countries from war-torn Yemen by the Indian Navy, without any damage to our platforms and personnel.

Parrikar said there has been a renewed enthusiasm among the defence public sector undertakings (DPSUs) and the private sector in the development and production of platforms and systems for the defence forces and the government has been consistently trying to indigenise and speed-up timely deliveries. He hoped that the next Destroyer in the series will be put into water by the end of the current financial year.

Parrikar said while we have achieved significant indigenisation in 'Float' component of warships, we are lacking in the indigenisation of the high-end Fight components. To that end, the government is in the process of putting a policy in place to achieve high amount of self-reliance in the defence industry under the guidance of Prime Minister Narendra Modi.

The Defence Minister said the government is seized of the nation's defence requirements and requisite financial support for the armed forces and defence industry will be made available, which includes the modernisation and development plans of the Navy. Towards this the government shall always remain committed to provide the necessary funds for the future expansion and growth of the Navy.

The commissioning ceremony was attended among others by the Chief of Naval Staff Admiral R.K. Dhowan, Flag Officer Commanding-in-Chief, Western Naval Command, Vice Admiral S.P.S. Cheema; and the Chairman and Managing Director of Mazagon Dock Limited Rear Admiral R.K. Shrawat (Retd).

Speaking on the occasion, Admiral Dhowan said that commissioning of INS Kochi is a milestone in the self-reliance programme of the Navy and stated that the indigenisation of platforms, weapons, sensors and equipment, through public as well as private sectors, will continue to remain a focus area of the Indian Navy. He emphasised that the "Roadmap for the Navy's expansion and growth would continue to remain firmly anchored on self-reliance and indigenisation."

"INS Kochi will add more teeth to the Indian Navy's sword arm in discharging our duty of safeguarding maritime interests in the IOR. It further reaffirms our resolve and faith in indigenous shipbuilding and the 'Make in India' programme. The Indian Navy no longer has to order platforms from abroad and has built up the capability to build from aircraft carriers to submarines and over 48 platforms are on order in India, none abroad," Admiral Dhowan added.

The Commanding Officer, Captain Gurcharan Singh, read out the Commissioning Warrant prior to the hoisting of 'Colours' (the national flag and naval ensign) for the first time onboard the ship. Following her commissioning, INS Kochi will be based at Mumbai under the operational and administrative control of the Flag Officer Commanding-in-Chief, Western Naval Command. SP

Parrikar asks DRDO to focus on core defence technology areas

The Defence Minister Manohar Parrikar asked the Defence Research and Development Organisation (DRDO) scientists to concentrate on core activities factoring the defence technology requirements of the armed forces. He asked DRDO to involve the industry in producing the technologies which they have developed. "Hand-hold the industry to make some products which you may have developed", he said.

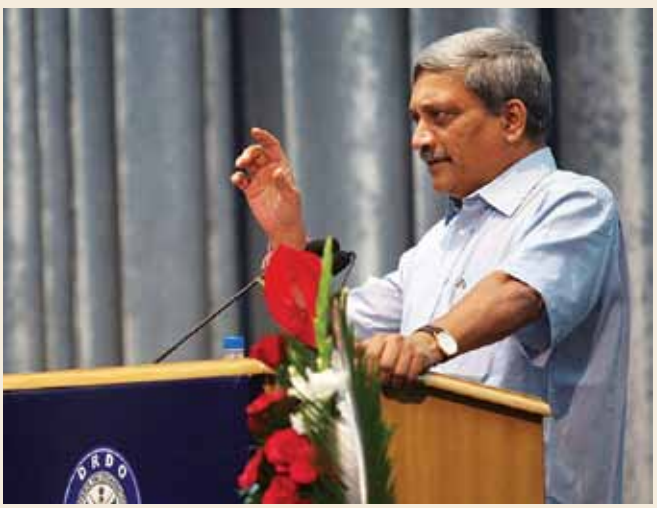
Addressing the 39th Directors' Conference, Parrikar said the close interface of DRDO with Navy in developing technology products is well matured. DRDO should now develop similar level of interface with the Indian Army and the Indian Air Force.

The Defence Minister said there is a potential of $1 billion worth of exports of technology products developed by DRDO in two to three years.

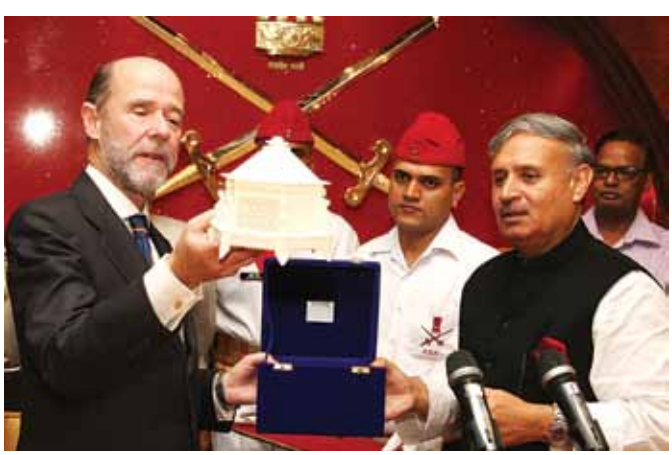
The meeting was attended among others by the Chief of Air Staff and Chairman Chiefs of Staff Committee Air Chief Marshal Arup Raha, the Chief of Naval Staff Admiral R.K. Dhowan and Scientific Advisor to Raksha Mantri Dr G. Satheesh Reddy.

Speaking on the occasion, Air Chief Marshal Arup Raha said our visionary forefathers had conceptualised DRDO as the prime instrument for gaining strategic independence for India through indigenisation and development of core/critical technologies. He said DRDO has been able to achieve the objectives of self-reliance to a great extent in the past seven decades. While he touched upon the success stories of missiles and radars, he urged the scientists to treat disappointments as challenges and convert them into greater opportunities.

The Director General of DRDO Dr S. Christopher said the year 2014-15 was marked by a number of achievements in every technology cluster. He said the current value of production orders or the Defence Acquisition Council (DAC) cleared systems from the DRDO stable stands at ₹1,79,000 crore, which does not include strategic systems. SP



Spanish Minister of State for Defence visits India



Spanish Minister of State for Defence Pedro Arguelles Salaverria was on a two-day visit to India from September 27, 2015. He called on the Minister of State for Defence Rao Inderjit Singh.

During the visit Pedro Arguelles Salaverria had extensive discussions with his Indian counterpart on various issues of mutual interest. He also called on Defence Secretary G. Mohan Kumar and DRDO Chief Dr S. Christopher as well as the Defence Minister Manohar Parrikar and exchanged views on various matters of mutual importance. SP

PHOTOGRAPHS: PIB

Visit of First Training Squadron to Seychelles during overseas deployment

Indian naval ships Tir and Sujata, alongwith Indian Coast Guard ship Varuna, comprising the First Training Squadron, entered Port Victoria, Seychelles, on October 1, 2015, as part of their Overseas Deployment during Autumn Term 2015. The ships shall remain in harbour till October 4 and shall enter again on October 9, 2015, for a couple of days.

The First Training Squadron forms part of Southern Naval Command (SNC) and comprises Indian naval ships Tir, Sujata, Shardul, ICGS Varuna and two sail training ships Sudarshini and Tarangini, all of which have been built in India. The primary aim of the First Training Squadron is to impart sea training to naval and coast Guard trainees (within a time period of 24 weeks). All the personnel are trained in seamanship, navigation, ship handling, boat work, technical aspects, etc. whilst being exposed to the rigours of life at sea, so as to earn their 'sea legs'.

SNC provides both basic and advanced training to officers and sailors of the Indian Navy. Vice Admiral Sunil Lanba, PVSM, AVSM, is presently the Flag Officer Commanding-in-Chief, Southern Naval Command. The Indian Navy has also been providing training to personnel from friendly foreign countries for more than four decades, under which 13,000 personnel from over 40 countries have been trained. The Indian Navy's focused approach for providing high quality training by constantly adapting to evolving tactics and technologies has gained it a reputation of being one of the finest training destinations. SP

Asia increasingly important for light military rotorcraft manufacturers

In its latest study on the light military rotorcraft market, Forecast International projects that 1,304 light military rotorcraft will be produced from 2015 through 2024. The value of this production is estimated at $19.9 billion in constant 2015 US dollars. In general, a light military rotorcraft is defined as having a maximum gross weight of less than 6,804 kilograms.

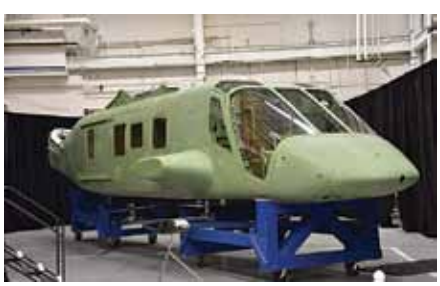
Annual production of light military rotorcraft is projected to increase from 171 units in 2015 to 223 in 2016. However, this rise in annual build rates is expected to be only temporary, as yearly production will head downward after 2016, reaching a low of only 68 units in each of 2022 and 2023. A slight rebound, to 72 units, is projected in 2024.

Budgetary difficulties around the globe are impacting the light military rotorcraft market. Many nations have been reducing defence spending, with the result that some existing rotorcraft procurements are being stretched out or reduced in scope. At the same time, several new start acquisitions have been postponed or canceled. And, unless additional sales are secured to boost long-dwindling order books, a number of helicopters will be nearing the end of their production lives.

Over the next 10 years, our forecast indicates that Asia will grow in relative importance as a regional market for light military helicopters while the European and North American markets decline. India, Japan and South Korea are all planning significant and sizeable procurements of light helicopters, presenting quite a contrast in this regard to most nations in other parts of the world.

As for market share projections by manufacturer, Airbus Helicopters, is forecast to lead the market in unit production during the 2015-24 time period, building 337 light military helicopters over the 10-year timeframe. Bell is projected to lead in monetary value during the same period, on production worth $5.69 billion. SP

Spirit AeroSystems completes first fuselage for Bell V-280 Valor

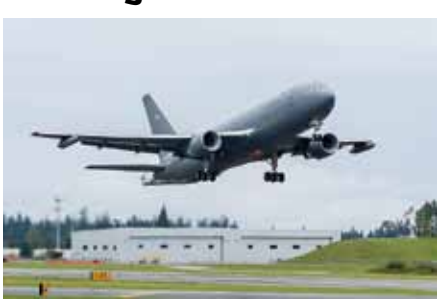


Spirit AeroSystems Inc announced it has completed the first fuselage to Bell Helicopter for the joint multi-role technology demonstrator (JMR-TD) programme. The unit was designed and assembled in Spirit's rapid prototyping facility in Wichita, Kansas, in just 22 months. The composite fuselage is being prepped to ship to Bell's Amarillo, Texas, facility for final assembly.

The US Army-led JMR-TD programme is the science and technology precursor to the Department of Defense's Future Vertical Lift programme, with the goal to replace 2,000 to 4,000 medium-class utility and attack helicopters. The V-280 Valor is Bell Helicopter's offering for the JMR-TD programme. A next-generation tiltrotor, the Bell V-280 Valor advanced technology tiltrotor provides unmatched speed, range and payload for expeditionary manoeuvre to win in a complex world.

The V-280 is scheduled to make its first flight in the second half of 2017. SP

Boeing, US Air Force KC-46A tanker completes successful first flight



The Boeing and US Air Force team successfully completed the first flight of a KC-46A tanker aircraft today, taking off from Paine Field recently at Boeing Field in Seattle.

This was the first flight of a KC-46A tanker-configured aircraft, following ongoing flights of the programme's first test aircraft, a 767-2C. During the flight, Boeing test pilots performed operational checks on engines, flight controls and environmental systems and took the tanker to a maximum altitude of 35,000 feet prior to landing.

"This first tanker flight is a key milestone for the programme and we'll now begin free air stability tests and flight controls of the boom and wing aerial refuelling pods (WARPs) before conducting aerial refuelling tests where the KC-46 will make contact with other military aircraft down the road," said Colonel Christopher Coombs, US Air Force KC-46 System Program Manager.

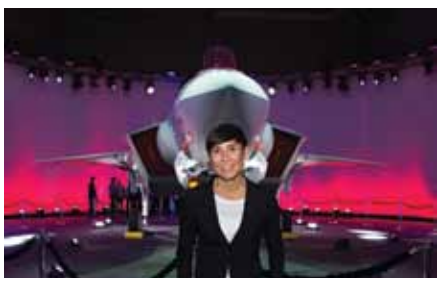
The Boeing team now will conduct a post-flight inspection and calibrate instrumentation prior to the next series of flights, during which the tanker boom and WARPs systems will be deployed. Before the end of the year, the KC-46 will begin conducting aerial refuelling flights with a number of US Air Force aircraft. Those flights, along with the mission systems demonstrations and a recently completed ground cargo handling test, will support the planned Milestone C decision in 2016.

As part of a contract awarded in 2011 to design and develop the US Air Force's next-generation tanker aircraft, Boeing is building four test aircraft – two are currently configured as 767-2Cs and two KC-46A tankers. The KC-46s will fly as fully equipped tankers through the FAA and military certification process, while the 767-2Cs enter flight test prior to receiving their upgrade to the KC-46A configuration and the addition of their aerial refuelling systems.

The KC-46A is a multi-role tanker Boeing is building for the US Air Force that can refuel all allied and coalition military aircraft compatible with international aerial refueling procedures and can carry passengers, cargo and patients. Overall, Boeing plans to build 179 KC-46 aircraft for the US Air Force. SP

PHOTOGRAPHS: Airbus Helicopters, Boeing, Spirit AeroSystems Inc

Lockheed Martin and Norway celebrate rollout of first F-35A



Ceremonies were held at the Lockheed Martin F-35 production facility celebrating the rollout of the first F-35A Lightning II for the Norwegian armed forces. The event marked an important production milestone for the future of Norway's national defence.

"We all know that the F-35 is not simply another fighter. We know that it is much more," said Her Excellency Ine Eriksen Søreide, Norwegian Minister of Defence. "The F-35 provides us a capability we've never had before. It's by far the most advanced fighter ever made. Today we are indeed turning the future into the present. The F-35 represents a new way of thinking, a new way of operating, which will benefit the entire Norwegian armed forces."

The fifth-generation F-35As will transition the Norwegian armed forces into a next-generation net-centric fighter force capable of assuring the nation's territorial integrity and national security.

The F-35 Lightning II aircraft provides the Norwegian industry with high technology work, ensuring the future health, competitiveness and viability of the defence industry in Norway. Work on the F-35 programme has provided Norwegian industry with more than $450 million in contracts to date, along with opportunities for additional work over the life of the programme. SP

Airbus Helicopters delivers 15th NH90 NFH to France

Airbus Helicopters, the French Defence procurement agency (DGA – Direction générale de l'armement) and the French Navy marked the handover of the 15th NH90 NFH multi-mission naval helicopter, the first to be delivered in the final radar configuration (FRC), during a ceremony held in the facilities in Marignane.

The DGA ordered 27 NH90 NFH from NHIndustries in two different configurations for the French Navy. To date 15 aircraft have been delivered and the French Navy declared an operational capability in the anti-submarine operational role on December 5, 2014, completed on March 3, 2015, by the operational capability of the MU90 torpedo.

The naval version of the NH90 is designed to perform a wide range of missions from anti-submarine, to anti-surface warfare, search and rescue, maritime surveillance and control and special operations including counter-terrorism and anti-piracy. The NH90 in its final radar configuration includes also an advanced sonar providing the Navy with improved submarine detection and classification capabilities, as well as a new system for the Digital Map Generator (DMG) facilitating mission preparation and execution.

The NH90's four-axis autopilot and the fly-by-wire controls contribute to safety and maximum flight performance in severe operating conditions. The NH90 is the first serial helicopter in the world to be equipped with fly-by-wire technologies, significantly reducing pilot workload and allowing for this state-of-the-art helicopter to be piloted with ease. SP

Egypt buys 50 Russian Alligator helicopters

Russia and Egypt have signed an agreement on supplies of 50 helicopters of the Ka-52 Alligator family and Moscow does not rule out delivery of the deck-based version of these helicopters that were designed for the defaulted Mistral project, a well-connected source in the sphere of defence technologies told TASS.

"An agreement on the supplies of 50 Ka-52 helicopters has been signed," he said. "If the Egyptian side finds it necessary, the sea-based version of the helicopters will be supplied." SP

Czech pilots reach 20,000 Gripen flight hours

Defence and security company Saab participated in the 2015 NATO Days and Czech Air Force Days at Ostrava, Czech Republic, earlier in September. At this event, Czech Gripen pilots were honoured for reaching the milestone of 20,000 Gripen flight hours. Their successful recent operational deployments for NATO to Iceland and the Baltic States were also recognised.

For the fifth consecutive year Saab was a partner to Ostrava's NATO Days and Czech Air Force event; the largest public airshow and defence display in Central Europe. Over the weekend of September 19-20, 2015, visitors got to see Gripen fighters of the Czech Air Force conduct an operational demonstration, while others had the opportunity to experience a 'flight' in the Gripen simulator. A flypast of some of Saab's classic military jets, including the famous Viggen, Draken and Tunnan fighters (operated by the Swedish Air Force historic flight), was joined on this special occasion by a Czech Air Force Gripen.

Saab's Deputy CEO Lennart Sindhal presented a commemorative glass plaque to the 21st Tactical Air Force Squadron, to mark its 20,000 Gripen flight hours and successful operational deployments within NATO. The award was accepted by Colonel Petr Hromek, commander of the 21st Air Force Base, Cáslav.

Saab has a significant presence in Central Europe, with the Czech Republic and Hungary each operating a 14-strong fleet of NATO-interoperable Gripen aircraft. Elsewhere, Gripen fighters are flying with the air forces of Sweden, South Africa and Thailand. Brazil has also ordered 36 Gripen NG aircraft. SP

PHOTOGRAPHS: Lockheed Martin, Airbus Helicopter, Saab

Thales launches Watchkeeper X

Thales's new modular Watchkeeper X system reflects a growing need for high-end military-standard Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) capability to wider markets.

This modular unmanned aircraft system offers a range of options that can be adapted to specific operational requirements. The versatile system is ideal for providing high-performance ISTAR over a wide range of air, land and maritime scenarios but can now also provide covert, rapid reaction to threats if required. Thales aims to deliver Watchkeeper X through collaboration with local industries and partnerships. This unique approach to unmanned aircraft systems means that Thales can help to build a truly sovereign capability for our customers.

At the heart of Watchkeeper X remains a fully certified, combat proven, high-performance unmanned aircraft system. Building on this solid foundation, Thales now offers a range of options in sensors, exploitation, mobility and effectors, which can be integrated, upgraded or adapted to make this a fully flexible, modular capability today and in the future.

With its fast deployment, high endurance, flexible payloads and precision strike, Watchkeeper X will respond to the growing need for ISTAR capabilities. Whilst built to the same standards as a manned aircraft, it is highly transportable and its modular design means it can be adapted and upgraded for specific operational requirements.

"Watchkeeper X is based on a ground-breaking, world leading unmanned aircraft system that was designed specifically for the requirements of the British Army. There is no other capability like it available in today's market. We have now taken the knowledge and expertise that we have gained over the history of the programme and looked at how we can make it more flexible, effective and readily available for our customers, to help them address the different operational contexts they may face," said Pierre Eric Pommellet, Thales Executive Vice President, Defence Mission Systems. SP

Sagem and AOI – Aircraft Factory agreement on drones

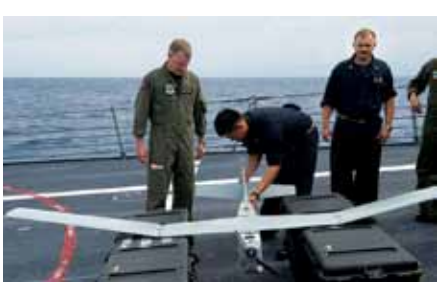
Sagem (Safran) and Egyptian manufacturer AOI-Aircraft Factory have signed an exclusive commercial and industrial collaboration agreement concerning the Patroller surveillance drone system, to address the requirements of the Egyptian Ministry of Defense.

According to the terms of this agreement, AOI-Aircraft Factory could handle final assembly of Patroller drones in its Egyptian plants. The agreement also covers system support and commissioning. AOI-Aircraft Factory will develop a dedicated training centre in Egypt to train staff for the operation and maintenance of Sagem's drone systems.

Developed in France by Sagem, the Patroller is a versatile long-endurance tactical drone system. It features an open, modular design to handle a broad spectrum of military and security missions, while carrying a multi-sensor payload of up to 250 kg, fuselage or pod-mounted.

The Patroller offers endurance of more than 20 hours, and an operating ceiling of 20,000 feet. Sagem has already conducted a flight demonstration on Patroller showing the simultaneous operation of different sensors: optronic (electro-optical) pod, radar, electronic warfare (EW) system, distress beacon detector and automatic identification system (AIS) receiver. SP

USS Gonzalez tests Puma at sea



The guided-missile destroyer USS Gonzalez (DDG 66) conducted testing of an unmanned aircraft system during a Composite Unit Training Exercise. RQ-20A Puma (Block II) is the second iteration of the all-environment unmanned aircraft models and is used in situations with a greater need for manoeuvrability, such as maritime interdiction and counter-piracy operations.

The all-environment term comes from its ability to withstand temperatures ranging from –30 to 50 degrees Celsius, an inch of rain per hour, and wind speeds of 25 knots. Also it is fully operational day or night. Its smart batteries and waterproof body allow for many types of missions all over the world.

"When I first checked aboard USS Gonzalez I wasn't expecting to get the opportunity to run the Puma project, but after working with the equipment and people, I realised its capabilities are innovative and resourceful," said Ensign N. Sanchez. "It augments what we are already capable of doing. It really aligns with the Chief of Naval Operation's mandate to 'operate forward and be ready.'"

A two-person team controls Puma locally; it can also be remotely controlled inside the skin of the ship.

At the end of operations it can land on the ship's deck in a net or in the ocean with follow-on retrieval by rigid-hull inflatable boat. In case of an inability to recover, no information can be taken as all information is transmitted to and kept within the receiving ship.

Puma weighs 13.5 pounds with a wingspan of just over nine feet and has an operating altitude of 500 feet or higher in order to manoeuvre above terrain. SP

PHOTOGRAPHS: Thales, US Navy

Reliance Defence and Abu Dhabi Ship Building sign MoU for naval and commercial services

Reliance Defence Limited (RDL), a fully-owned subsidiary of Reliance Infrastructure Limited, has signed a memorandum of understanding (MoU) with Abu Dhabi Ship Building (ADSB), a leading provider of construction, repair and refit services for naval, military and commercial vessels.

Under this MoU, RDL and ADSB are investigating the opportunity to set up a strategic partnership for the construction of naval ships – including frigates, destroyers and other specialised vessels to address the Gulf Cooperation Council (GCC) over the next 10 years. The agreement could also see ADSB delivering maintenance, repair, overhaul and refit services to the vessels, in line with regional requirements.

Reliance Group is likely to use its newly acquired shipbuilding facilities at Pipavav for implementation of this collaboration.

The MoU signing follows the joint statement issued during Prime Minister Narendra Modi's visit to UAE on August 18 which highlighted "cooperation and manufacture of defence equipment in India".

Skills developed and the experience gained through this collaboration will further add to Reliance Group's capabilities and position it favourably as a strategic partner for Indian Navy's future programmes encompassing areas such as Combat Management Systems (CMS), Integrated Bridge Solutions (IBS), Combat System Integration (CSI), Integrated Platform Management Systems (IPMS) and staff training and development.

ADSB is a major regional provider of construction, repair and refit services for naval, military and commercial vessels in GCC region. This potential collaboration could help both companies expand their market share and address new opportunities. SP

Finmeccanica approves merger and spin-off operations

The Board of Directors of Finmeccanica has approved the merger operations in Finmeccanica SpA of the companies Oto Melara SpA and Whitehead Sistemi Subacquei SpA, as well as the partial spin-off to Finmeccanica SpA of Alenia Aermacchi SpA, AgustaWestland SpA and Selex ES SpA.

Finmeccanica is Italy's leading manufacturer in the high technology sector and ranks among the top ten global players in Aerospace, Defence and Security. Finmeccanica's core business activities are in the following sectors: Helicopters (AgustaWestland), Defence Electronics and Security (Selex ES, DRS Technologies), Aeronautics (Alenia Aermacchi). The company also has a significant position in space (Telespazio, Thales Alenia Space), defence systems (Oto Melara, WASS, MBDA) and transportation (Ansaldo STS, AnsaldoBreda). SP

Antonov and WB Electronics to work on unmanned aircraft complex

On September 22, 2015, at Arms and Security fair, a memorandum of understanding was signed between Antonov Company, part of the state concern Ukroboronprom, and WB Electronics of Poland.

With this document the parties confirmed their interest in cooperation on implementation of WB Electronics' technologies in development of tactical unmanned aircraft complex being designed by Antonov and needed by armed forces of Ukraine.

The project is based on Antonov's experience in design, production and after-sale support of aircraft of various classes and intentions in combination with high-tech equipment produced by WB Electronics.

According to Mykhaylo Gvozdov, acting President of Antonov company, "Signing of this memorandum is starting point of a new Antonov's international programme aimed to reinforce defence of our state. We are sure, that the complex being developed will take a proper place on the market and will play a significant role in strengthening the defence power of Ukraine." SP

Indonesian arms maker Pindad signs deal with UAE

Officials from Indonesia's state arms manufacturer Pindad and the United Arab Emirates have signed a defence agreement that could open up a world of opportunity in terms of weapons deals and technology exchange.

The agreement was signed by Pindad and an Abu Dhabi-based logistical and mission support company Continental Aviation Services (CAS).

Foreign Minister Retno Marsudi said in a statement that the memorandum of understanding includes a licensing collaboration for Pindad's SS2 assault rifle and a deal to sell Pindad ammunition in the Middle East.

Meanwhile, CAS has agreed to cooperate with Pindad in sharing the technology of a remote weapon station (RWS) it is currently developing with Rheinmetall Canada. SP

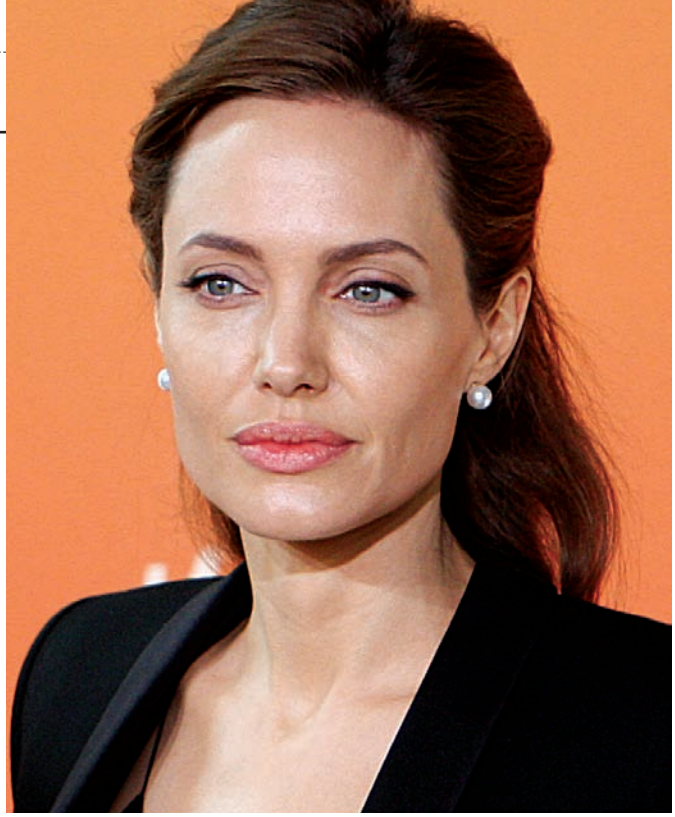
GA-ASI confirms plans to open RPA Training Academy

General Atomics Aeronautical Systems Inc (GA-ASI), a leading manufacturer of remotely piloted aircraft (RPA) systems, radars, and electro-optic and related mission systems solutions, confirmed plans to open a RPA Training Academy in Grand Forks, North Dakota.

GA-ASI has signed a 10-year lease and is expecting to break ground soon. GA-ASI flight crew training will commence early next year and the company expects to welcome its first foreign military sales (FMS) customers shortly thereafter.

"The mission of the GA-ASI Training Academy is to increase the overall capacity for flight crew training on our aircraft systems," said Linden P. Blue, CEO, GA-ASI. "The Training Academy will complement our customers' organic training capabilities and fill the growing need across our RPA enterprise to address the pilot shortage." SP

PHOTOGRAPH: www.finmeccanica.co.uk



Angelina Jolie criticises UN Security Council

Actor Angelina Jolie recently criticised the UN Security Council by its division over Syria's four-year conflict which now had led to millions of Syrian refugees going homeless.

Over four million Syrians have fled the conflict region into neighbouring countries creating severe problems both to the refugees and the countries where they were going. "We cannot look at Syria, and the evil that has arisen from the ashes of indecision, and think this is not the lowest point in the world's inability to protect and defend the innocent," Jolie said.

Jolie, who said she has made 11 visits to Syrian refugees in the region since the crisis began in 2011, called strongly for the political will to act. She said the United Nations Security Council's powers lie unused because its members cannot agree on how to address the conflict. SP

Nawaz Sharif's security breached

The security of Pakistani Prime Minister Nawaz Sharif was breached recently when he, along with his family, was returning to the federal capital from Murree. Sources in the Prime Minister's Office said a white Prado jeep entered the Prime Minister's squad and came close to his vehicle in Malpur area but security personnel stopped it and took its driver into custody. Vehicles in the Prime Minister's squad escaped collision with the unexpected interception.

According to Islamabad Police spokesman Mohammad Naeem, a retired officer of the Pakistan Air Force, who at present is serving with the Arid Agriculture University, Rawalpindi, was driving the jeep. He said preliminary investigation revealed that the man had erred into the Prime Minister's squad.

The official said the road at Malpur was quite narrow and the incident took place when it was raining in the area and other vehicles were also moving on the Prime Minister's route. SP

Harvard University computers hacked

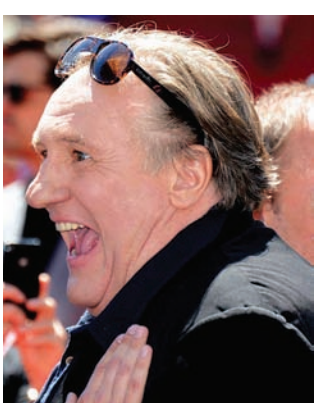
In June this year, Harvard University uncovered 'an intrusion' on its computer networks. The discovery, which was made June 19, affected two IT systems that impacted eight colleges and administrations, the school said.

These included the Faculty of Arts and Sciences, Harvard Divinity School, Radcliffe Institute for Advanced Study, Central Administration, the Graduate School of Design, Harvard Graduate School of Education, Harvard John A. Paulson School of Engineering and Applied Sciences, or Harvard T.H. Chan School of Public Health.

The university suggested to users to change the password of the university e-mail account, a service provided by Microsoft. "Password changes will be required again at a later time as the university takes further steps to enhance security."

Harvard's administration said it is uncertain about what data has been stolen. "It is possible that Harvard login credentials (computer and e-mail passwords, including Office 365) stored on the compromised [Faculty of Arts and Sciences] and Central Administration networks have been exposed," the letter said. SP

Ukraine bans French actor Gerard Depardieu



French actor Gerard Depardieu has been banned from Ukraine because he is considered "a threat to national security," according to reports in the media.

Depardieu's name has reportedly been added to a list of around 600 individuals who have been blacklisted by the country's Culture Ministry. Ukraine media are banned from talking about them or publishing their images. The appearance of the controversial French actor on the blacklist was reported by *Ouest France*, who quoted Russian newspaper *Vesti*.

Depardieu is a big fan of Vladimir Putin, who in January 2013 handed the actor a Russian passport, which was warmly accepted. Depardieu is registered as living in the town of Saransk, with his address listed as No. 1, Democracy Street. He has also frequently spoken out in support of the Russian President and has angered Ukrainian leaders with some of his comments at the height of the ongoing conflict in the east of the country. According to reports Depardieu was cited for his speech at a film festival in Riga, Latvia, in August 2014, when he said: "I love Russia and Ukraine, which is part of Russia." SP

PHOTOGRAPHS: Wikipedia

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