

SP's



AN SP GUIDE PUBLICATION

**MAI**

ISSN 2230-9268



Vol: 6 Issue 24 ■ December 16-31 • 2016

www.spsmai.com

ONLY FORTNIGHTLY ON **MILITARY AEROSPACE INTERNAL SECURITY**

₹55.00 (INDIA-BASED BUYER ONLY)



Page 5

# Carter reaffirms road map for the next US Defense Secretary



## Indian Government appoint new Army and Air Force chiefs PAGE 13



## Exclusive interaction with Chief of the Naval Staff Admiral Sunil Lanba PAGE 8

**FROM THE  
EDITOR'S DESK** 4  
**SECURITY BREACHES** 22

**MILITARY**  
Viewpoints 10, 12  
Report 11  
Updates 13

**AEROSPACE**  
Report  
Developments  
Unmanned

**CORPORATE**  
News 20  
Technology 21



“In a country like India with limited support from the industry and market, initiating 50 years ago (in 1964) publishing magazines relating to Army, Navy and Aviation sectors without any interruption is a commendable job on the part of SP Guide Publications. By this, SP Guide Publications has established the fact that continuing quality work in any field would result in success.”

Narendra Modi, Hon'ble Prime Minister of India (\*message received in 2014)



**SP GUIDE PUBLICATIONS**

OVER **5** DECADES SINCE 1964

## Launch of eighth LCU–GRSE Yard 2099

**T**he recent launch of last ship of LCU Mk IV project, an amphibious ship at the Garden Reach Shipbuilders and Engineers Ltd (GRSE), Kolkata, marks yet another significant milestone in the annals of the indigenous warship design and construction programme of India.

The chief guest for the occasion was Rajiv Pratap Rudy, Union Minister of State for Skill Development and Entrepreneurship (Independent Charge). Rear Admiral A.K. Verma (Retd), Chairman and Managing Director of GRSE and various other dignitaries were also present on the occasion.

The Chairman and Managing Director of GRSE, commenced the proceedings with a formal welcome,



which was followed by an address by the chief guest. In accordance with traditions, invocation from the Atharva Veda was rendered and the ship was named 'LCU-L58'. Thereafter, the ship was launched by Neelam Pratap Singh Rudy and the vessel made its first contact with water.

LCU-L58 is the last vessel in the series of eight landing craft utility ships being designed and built by GRSE for the Indian Navy. The ship displacing 830 tonnes can be deployed for multi-role activities like beaching operations for landing troops ashore, humanitarian assistance and disaster relief operations and evacuation of personnel from distant islands. **SP**



### Cover:

*Ashton Carter's farewell visit to India on December 8, 2016, truly reflected the new found warmth and strategic nature of Indo-US defence relationship which has evolved to such great heights.*

*Cover images: PIB, Indian Army, Indian Air Force, Indian Navy*

### PUBLISHER AND EDITOR-IN-CHIEF

Jayant Baranwal

### ASSISTANT GROUP EDITOR

R. Chandrakanth

### SR TECHNICAL GROUP EDITORS

Air Marshal B.K. Pandey (Retd)

Lt General Naresh Chand (Retd)

Lt General V.K. Kapoor (Retd)

R. Adm S.K. Ramsay (Retd)

### SPECIAL CONTRIBUTOR

Lt General P.C. Katoch (Retd)

### CHAIRMAN & MANAGING DIRECTOR

Jayant Baranwal

### PLANNING & BUSINESS DEVELOPMENT

Executive Vice President: Rohit Goel

### ADMIN & COORDINATION

Bharti Sharma

### ASST – ADMIN, HR & INFRA

Pooja Tehlani

### DESIGN & LAYOUT

Creative Director: Anoop Kamath

Designers: Vimlesh Kumar Yadav,

Sonu Bisht

Research Assistant - Graphics:

Survi Massey

### SALES & MARKETING

Director: Neetu Dhulia

General Manager Sales: Rajeev Chugh

### SP'S WEBSITES

Sr Web Developer: Shailendra P. Ashish

Web Developer: Ugrashen Vishwakarma

© SP Guide Publications, 2016

### SUBSCRIPTION/ CIRCULATION

Annual Inland: ₹1,320 • Foreign: US\$ 325

E-mail: [subscribe@spguidepublications.com](mailto:subscribe@spguidepublications.com)

[subscribe@spsmai.com](mailto:subscribe@spsmai.com)

### LETTERS TO THE EDITOR

[editor@spsmai.com](mailto:editor@spsmai.com)

### FOR ADVERTISING DETAILS, CONTACT:

[advertise@spsmai.com](mailto:advertise@spsmai.com)

[neetu@spguidepublications.com](mailto:neetu@spguidepublications.com)

[rajeev.chugh@spguidepublications.com](mailto:rajeev.chugh@spguidepublications.com)

### SP GUIDE PUBLICATIONS PVT LTD

A-133 Arjun Nagar  
(Opposite Defence Colony)  
New Delhi 110003, India.

Tel: +91 (11) 24644693,

24644763, 24620130

Fax: +91 (11) 24647093

E-mail: [info@spguidepublications.com](mailto:info@spguidepublications.com)

### REPRESENTATIVE OFFICE

204, Jal Vayu Vihar

Kalyan Nagar

Bengaluru 560043

Tel : +91 (80) 23682204

### MOSCOW, RUSSIA

LAGUK Co., Ltd, Yuri Laskin

Krasnokholmskaya, Nab.,

11/15, app. 132, Moscow 115172, Russia.

Tel: +7 (495) 911 2762,

Fax: +7 (495) 912 1260

Owned, published and printed by Jayant Baranwal, printed at Kala Jyothi Process Pvt Ltd and published at A-133, Arjun Nagar (Opposite Defence Colony), New Delhi 110003, India. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, photocopying, recording, electronic, or otherwise without prior written permission of the Publishers.



**SP GUIDE PUBLICATIONS**

OVER 5 DECADES SINCE 1964

[www.spguidepublications.com](http://www.spguidepublications.com)





## While seniority can never be ignored, merits are paramount!

**T**wo major appointments for Indian Armed Forces were announced recently by the Government of India. It has announced the next Chiefs of the Indian Army and the Indian Air Force who will take over on December 31, 2016. Lt General Bipin Rawat, who is currently the Vice Chief will be the next Army Chief, while Vice Chief of Air Staff Air Marshal Birender Singh Dhanoa has been appointed as the Chief of the Indian Air Force. Both bring vast amount of experience to lead the forces from the front.

Although not the senior-most officer in the Indian Army hierarchy, Lt General Bipin Rawat objectively speaking is a suitable choice to be the next Chief of the Army Staff. Our country will get one of the most professionally capable and qualified soldier as Chief of the Army Staff in General Bipin Rawat, who has been a meritorious soldier and a good human being with a great track record, all along.

In this issue, we have an exclusive interview with the Chief of Naval Staff, Admiral Sunil Lanba, who has said that the Indian Navy has been at the forefront of national efforts to strengthen relations, enhance cooperation and promote maritime security in our areas of interest. Our force level accretions have enabled us to ensure that we remain fully capable of securing our maritime interests and also be the net maritime security provider in the region.

Indo-US ties have grown in the recent years and any efforts to dismantle it or tinker with it will surely have geopolitical ramifications. In this background, the US Secretary of Defense, Dr Ashton Carter, visited India, a farewell one, and Ranjit Kumar in his analysis states that the new-found warmth and strategic nature of India-US defence relationship which has evolved to such great heights from where it will be difficult to dislodge by the next Defense Secretary.

From almost zero defence trade relations between India and the US in the beginning of 21st century, the defence trade grew to \$1 billion in 2008 and from where it skyrocketed to almost \$14 billion in 2016. In a way Ashton Carter's visit to India has in fact reaffirmed the road map for the next US Defense Secretary to follow.

India also has great ties with Israel whose President, Reuven Rivlin, visited India recently. India remains Israel's largest buyer of military hardware with the latter supplying various weapon systems, missiles and unmanned aerial vehicles over the last few years, but the transactions have largely remained behind the curtains. The bonds between both nations are very strong. Israel has never hesitated to provide state-of-the-art defence technology to India.

The environment in the neighbourhood hasn't been all that good and the Prime Minister Narendra Modi has referred to it at the Sixth Ministerial 'Heart of Asia' conference recently in Amritsar. He emphasised the need to demonstrate strong and collective will to defeat terror networks that cause bloodshed and spread fear and also resolute action not just against forces of terrorism but also against those who support, shelter, train and finance them.

From strategy to industry, Boeing has entered the fray for supplying air refuelling tankers for the Indian Air Force. After ignoring the first two previous tenders, Boeing's Pegasus tankers will compete with the European Airbus A330 MRTT and Russian Ilyushin IL-78, reports Ranjit Kumar.

Happy reading!

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



US Secretary of Defense Dr Ashton Carter with Defence Minister Manohar Parrikar in New Delhi on December 8, 2016

# Carter reaffirms road map for the next US Defense Secretary

[ By **Ranjit Kumar** ]

**A**fter contributing immensely to Indo-US defence relations in his various avatars in the Pentagon, and hence giving a solid content and meaning to the India-US strategic partnership in the 21st century described by President Barack Obama as defining partnership of the present century, the outgoing US Defense Secretary Ashton Carter selected India among Japan, Israel, Jordan and the UK, as one of his farewell visits to countries with whom he had taken exclusive interest in laying an unshakeable foundation and creating strong bonds of relationship which can only be weakened at the cost of US national strategic interest. Carter's farewell visit to India on December 8, 2016, truly reflected the new found warmth and strategic nature of India-US defence relationship which has evolved to such great heights from where it will be difficult to dislodge, even by the most "mad" US Defense Secretary.

Ashton Carter grew from the ranks in Pentagon leadership

hence his long and deep experience in dealing with international security issues could genuinely assess the significance of developing strong defence relations with India, which had from the very beginning of the 21st century given hints that India is not only going to be the biggest emerging defence market in the world but also the most important strategic partner of US in the Asia-Pacific region. Carter literally was able to take India out of the lap of Russia and reduce its dependency on them, which made Russia so jealous that it started courting Pakistan just to convey a message to India.

In less than 24 months of assuming the role as chief of the Pentagon, Carter made a record three trips to India and had unprecedented seven meetings with his Indian counterpart Manohar Parrikar. During his various stints in Pentagon, Carter had very rich experience of dealing with India. As Pentagon said in a fact sheet before Carter reached India that he "spearheaded efforts to deepen and broaden" bilateral defence cooperation with India. The fact sheet said that as a result of Carter's efforts US and India have improved mutual understandings of their respective defence



Ashton Carter calling on the Prime Minister Narendra Modi in New Delhi on December 8, 2016

institutions, are exchanging perspectives and coordinating policy approaches in new areas, reinvigorating military to military engagements, launching path-breaking cooperative technology projects and pushing bilateral defence trade to unprecedented levels.

Pentagon further elaborated, "Today the United States and India are closer than ever to realising the joint vision for the Asia-Pacific and the Indian Ocean region." Exuberant after Carter's farewell meeting in New Delhi, the two sides issued a joint statement claiming that Indo-US relations have moved along a remarkable upward trajectory. The joint statement said, "Marked progress on agreements, including the signing of a Defence Framework Agreement in 2015, have laid a blueprint for collaboration between our defence establishments and enabled deeper cooperation. Joint exchange opportunities – in both personnel and training exercises – have expanded and strengthened our bilateral cooperation. The recent signing of the Logistics Exchange Memorandum of Agreement (LEMOA) has facilitated additional opportunities for practical engagement and exchange.

Hence in this background, Carter gave a new meaning and relevance to developing strong bonds of friendship with India, the US was in need of capturing a big defence market and India needed high technology and latest weapon systems. From almost zero defence trade relations between India and the US in the beginning of 21st century, the defence trade grew to \$1 billion in 2008 and from where it skyrocketed to almost \$14 billion in 2016.

During his last official tour as Defense Sec-

retary to India, Carter and Parrikar were able to put their final seal on the US decision to grant India as a 'Major Defence Partner', which was first announced during Prime Minister Narendra Modi's last visit to the United States. In his almost thanksgiving speech after meeting Parrikar and his top aides in the Ministry of Defence, Carter said: "Today our defence relationship takes a major step as we designate India as a Major Defence Partner."

Significantly as Ashton Carter was preparing to meet Parrikar, a powerful US congressional committee had asked Carter and the Secretary of State to take steps necessary to recognise India as America's 'Major Defence Partner' in a bid to strengthen bilateral security cooperation. The 'Major Defence Partner' status, that was given a final shape during Carter-Parrikar meeting, is unique to India and institutionalises the progress made to facilitate defence trade and technology sharing with India to a level at par with that of the United States' closest allies and partners, and ensures enduring cooperation into the future, according to the joint statement.

Though his first stint with the Pentagon was in the early 1990s as Assistant Secretary of Defense for International Security Policy from 1993 to 1996 during which he was responsible for policy regarding former Soviet States, strategic affairs and nuclear weapon policy, he again joined the Pentagon as Under Secretary of Defence, acquisition, technology and logistics from April 2009 to October 2011 during which he oversaw procurement of all technology systems, services and supplies, bases and infrastructure and energy and environment and more than \$50 billion annually in research and development. He was further elevated to US Deputy Secretary of Defense from October 2011 to December 2013 during which he served as Chief Operating Officer of the Pentagon and managed over \$600 billion budget, 2.4 million civilian and military personnel and global operations.

During this stint Carter gave a further push to defence relations with India by launching Defence Trade and Technology Initiative (DTTI) Pentagon described this as first technological handshake in 2012, under which the two countries launched seven joint working groups to explore collaborative projects and programmes and signed science and technology government to government project agreements titled the Next Generation Protective Ensembles and Mobile Hybrid Power sources, worth about \$2 million. The Carter-Parrikar meeting took note of this and said, "With regard to technology, both sides welcomed the tremendous progress achieved under the DTTI and committed to explore new proposals and other innovative opportunities for co-production and co-development. The emergence of DTTI as an integral and enduring component of

India-US security cooperation is a sign that the relationship has matured to a level of strategic importance. DTTI will strengthen India's 'Make in India' initiative and both sides committed to convening all new DTTI working groups prior to the next DTTI Group meeting anticipated for February 2017."

It is often said that there is a bipartisan support in the US Congress for strong defence and strategic partnership between the US and India, hence it is expected that the solid foundation laid by Ashton Carter and the direction given by him in the changing geopolitical context for the need of a deeper strategic cooperation between the two democratic giants would not be derailed by the next Defense Secretary of the Donald Trump administration. In a way Ashton Carter's visit to India has in fact reaffirmed the road map for the next US Defense Secretary to follow. **SP**

**From almost zero defence trade relations between India and the US in the beginning of 21st century, the defence trade grew to \$1 billion in 2008 and from where it skyrocketed to almost \$14 billion in 2016**





LT GENERAL  
PC. KATOCH (RETD)

# Visit of Israeli President – Cementing ties

**T**he eight-day visit to India in November by President Reuven Rivlin of Israel further cemented India-Israel bilateral relations. His visit was the first one by an Israeli President after 1996 when President Ezer Weizman had visited India. Arriving in Mumbai with a large delegation of businessmen, academicians and defence officials, Rivlin also paid respects at the sites of the 2008 Mumbai terror attacks including attending a memorial service for six Jewish nationals killed in Chabad House during the terror attacks.

At New Delhi, he met Prime Minister Narendra Modi, External Affairs Minister Sushma Swaraj and visited sites of several joint projects between the two nations, besides joining President Pranab Mukherjee in opening an agro-tech conference in Chandigarh. President Rivlin visited Punjab, Haryana, Uttar Pradesh and Maharashtra, besides New Delhi. In Uttar Pradesh and Haryana, Rivlin took stock of Indo-Israel collaboration in agriculture and water desalination.

Welcoming President Rivlin, Prime Minister Narendra Modi highlighted following salient issues: 2017 will be celebrated as 25 years of the establishment of full diplomatic relations between India and Israel; bilateral engagement is multidimensional including in fields of agricultural productivity and efficiency, research and innovation, science and technology for benefiting society, trade and investment, defence and security, cultural and tourism links, promoting educational exchanges, and; both sides would work to counter terrorism, radicalism and extremism even as they are cooperating in areas such as agriculture and water resource management. Both sides agreed to take “practical and specific” measures such as cyber-security cooperation and agreed to expand defence ties. President Rivlin highlighted possible manufacturing and production partnerships in the defence sector.

Rivlin’s delegation included officials of top Israeli arms manufacturing companies and senior government officials dealing with matters relating to defence. So, there would have been focused deliberations on defence cooperation, kept largely under wraps for understandable reasons. However, during President Rivlin’s visit, the Ministry of Defence (MoD) has signed a final \$400-million contract with Israeli Aerospace Industries for importing 10 x Heron TP UCAVs. Israel’s Ambassador to India Daniel Carmon had earlier stated that Israel has plans for fresh joint ventures and technology transfers in developing weapons systems and ensuring implementation of Modi’s ‘Make in India’ initiative in the defence sector. In July 2016,

the 12th meeting of the Indo-Israel Joint Working Group met at New Delhi, co-chaired by Indian Defence Secretary and Director General of Israeli Defence Ministry had taken place where production of the medium-range surface-to-air missile (MR-SAM) Barak-8 was discussed, besides other issues like joint R&D projects in fields like high-endurance unmanned aerial vehicles (UAVs), micro-satellite surveillance systems, armoured vehicles and different types of missiles and precision-guided munitions.

Other projects under discussion/in the pipeline include: two more Israeli Phalcon AWACS that are to be mounted on Russian IL-76 aircraft; four more Aerostat radars for IAF; 164 x laser-designation pods for fighter jets (Sukhoi-30MKIs and Jaguars; 250 x advanced ‘Spice’ precision stand-off bombs for IAF; third-generation Israel ‘Spike’ anti-tank guided missile (ATGM) systems, with an initial 321 launchers and 8,356 missiles, and; Israeli ‘Spyder’ quick-reaction SAM systems for the Army. Reliance Defence and Engineering Ltd of the Anil Ambani group is planning to manufacture Kalashnikov class of weapons for Indian armed forces in a joint venture with Kalashnikov Israel (subsidiary of CAA Company of Israel), with Reliance Defence holding 51 per cent stakes in the JV that has a potential market of about ₹6,000 crore for the Indian military alone. In November 2016, formation of the JV named Adani-Elbit Advanced Systems India Limited (AEASIL) was officially announced by Adani Enterprises to produce aerial systems.

India remains Israel’s largest buyer of military hardware with the latter supplying various weapon systems, missiles and unmanned aerial vehicles over the last few years, but the transactions have largely remained behind the curtains. The bonds between both nations are very strong. Israel has never hesitated to provide state-of-the-art defence technology to India. Already more than 10 per cent of foreign exchange students in Israel are from India. The Indo-Israeli Agricultural Project, which is led by the Indian Government in partnership with MASHAV (Israel’s international development and cooperation agency), is active in nine states across India, and has 15 fully operational centres of excellence with more being planned. Israel supports India’s permanent candidature in a reformed UN Security Council. President Rivlin’s India visit was prelude to Prime Minister Modi’s visit to Israel next year, the first ever by an Indian Prime Minister. Prime Minister Modi’s visit will take the India-Israel relations to the next level, for which sky is the limit. **SP**

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



Israeli President Reuven Rivlin with Prime Minister Narendra Modi



**EXCLUSIVE**

## “The Indian Navy’s perspective planning is designed to deliver capabilities commensurate with our maritime interests”

*Chief of the Naval Staff Admiral Sunil Lanba in an exclusive interaction with SP’s M.A.I. said that “2016 witnessed the induction of a number of state-of-the-art platforms”.*

**SP’s M.A.I. (SP’s):** Over the past one year, how would you like to rate the progress of maritime capability build-up of the surface combatants of the Indian Navy, including the aircraft carriers, as also the projects under construction/development?

**Chief of the Naval Staff (CNS):** The year 2016 witnessed the induction of a number of state-of-the-art platforms such as the guided missile destroyer, INS Chennai and anti-submarine warfare corvette, INS Kadmat, along with other platforms like the water jet fast attack craft, INS Tihayu and fast interceptor craft for coastal security, among many others. Further, the first of the eight landing craft utility (LCU) Mk IV ships, L-51 has been delivered. In addition, the second ship of the P-15B class guided missile destroyers Mormugao was also launched this year. Delivery of MiG-29K, P-8I and Hawk trainer aircraft, contract conclusion for four P-8I aircraft and midlife upgrade of Kamov 28, would provide a fillip to the Indian Navy’s Aviation Arm. The first Project 75 submarine Kalvari is undergoing extensive trials and her induction would be another major milestone for our shipbuilding programme. So as you see our projects are all moving along at a good pace as per the blueprint laid down in our Maritime Capability Perspective Plan.

**SP’s:** As per available reports, the command of the Tri-Service Andaman and Nicobar Command will now permanently rest with a naval Commander-in-Chief. What are the plans to augment security apparatus, infrastructure and facilities and maritime force levels of the Command?

**CNS:** The Andaman and Nicobar Command (ANC) have matured as a Tri-Services Command and are built on the edifice of jointmanship. Effective synergy is being maintained between the three Services and plans are afoot to further strengthen the Command with appropriate maritime assets and also augmentation of infrastructure to increase overall security.

Measures initiated include positioning of an all-weather missile armed, helicopter capable ship at ANC. The first ship of the LCU project under construction at the Garden Reach Shipbuilders and Engineers Limited will be commissioned shortly and seven more of these will follow. In addition, plans are also underway to augment the force level of ships, aircraft, helicopters and unmanned aerial vehicles at ANC.

Infrastructure projects including construction of additional jetties, technical support facilities and construction of an additional floating



dry dock are being progressed. Operational Turn Round (OTR) bases at Diglipur, Campbell Bay and Kamorta are also being progressed to have adequate facilities for ships to operate from the islands. Similarly, the runways at Shibpur and INS Baazat Campbell Bay are being extended to facilitate operation of all aircraft in our inventory.

**SP's: Maritime capability build-up in the segment of sub-surface fleet has sourly lagged behind, including the complications relating to procurement of torpedoes for the ongoing Scorpene project and inordinate delays in the acquisition process for the conventional submarines under Project 75(I). What are the measures conceived to bridge the capability gaps?**

**CNS:** Accordingly, as envisaged in the 30-year submarine building plan, construction of six P-75 submarines at the Mazagon Dock Limited (MDL) in Mumbai is in progress. Whilst there have been delays due to unforeseen developments, we have taken mitigating steps to ensure that our desired capability is not compromised. The P-75(I) project is being actively pursued. We are hopeful of an early finalisation of Strategic Partnership Model which would enable us to progress the case. You would also be aware of the Medium Refit-cum-Life Certification programme for our submarines which has been approved by the government. This has been specifically done to bridge the gap and ensure that our technical and tactical edge is retained. As regards heavyweight torpedoes (HWT), the Navy is awaiting promulgation of the finalised guidelines on debarment by the Ministry of Defence (MoD) for progressing procurement.

**SP's: There are reports to suggest that the Defence Acquisition Council has approved indigenous development of additional SSBN and SSN platforms. Would you like to offer comments on the approved plans?**

**CNS:** Construction/acquisition of nuclear powered ballistic attack submarines (SSBNs) is under the purview of Nuclear Command Authority and no specific data is available for the same. As regards nuclear powered attack submarines (SSNs), the Cabinet Committee on Security approved the construction of six SSNs in January 2015 and the same would be constructed as per planned schedules.

**SP's: What is the progress made by the Joint Working Group on Aircraft Carrier Technology Cooperation as a subset of the larger Indo-US Defence Technology and Trade Initiative (DTTI)?**

**CNS:** As the readers would be aware that the Joint Working Group on Aircraft Carrier Technology Cooperation (JWGACTC) was formed in February 2015 under the Indo-US DTTI framework. The Joint Working Group (JWG) has emerged as an effective tool for exchange of information in the niche field of aircraft carrier technology. The information shared under its auspices has potential to benefit the Indian Navy in the indigenous aircraft carrier programme. The forum has enabled the Indian Navy to exchange views on Aircraft Launch and Recovery Equipment such as catapult, Electromagnetic Aircraft Launch System (EMALS) and Aircraft Arresting Gear (AAG). The discussions on aircraft carrier acceptance trials are particularly beneficial considering that the Indian Navy would be undertaking trials of IAC-1 in 2017-18, the signing of Information Exchange Annex (IEA) in June this year promises to be a powerful enabling tool towards sharing of information in the field of aircraft carrier technology.

**India believes that states should resolve disputes through peaceful means without threat or use of force and exercise self-restraint in the conduct of activities that could complicate or escalate disputes affecting peace and stability**

**SP's: There are critical voids in the naval aviation assets, especially the naval multi-role helicopters, naval utility helicopters, fixed-wing airborne early warning, amphibious aircraft, naval ship-borne unmanned systems, etc. Would you like to describe the measures initiated to fill the void in a reasonable time frame?**

**CNS:** The Indian Navy continues to progress several procurement cases related to aviation assets. We are presently progressing cases for Dorniers, ALH, Chetaks and MRH helicopters. All these projects are at advanced stages in the acquisition process which are likely to be concluded shortly. You would be aware of the decision to procure four additional P-8Is and conclusion of contract for midlife upgrade of Kamov 28 helicopters. Whilst there have been some delays, as you can see steps have already been taken to ensure that voids are addressed expeditiously.

**SP's: Consequent upon increasing complexity in the maritime security environment in the Indian Ocean region and the Indo-Pacific, how well is Indian Navy prepared to face the dynamic challenges?**

**CNS:** The Indian Navy has been at the forefront of national efforts to strengthen relations, enhance cooperation and promote maritime security in our areas of interest. Our force level accretions have enabled us to ensure that we remain fully capable of securing our maritime interests and also be the net maritime security provider in the region. To maintain stability in the complex security environment of the Indian Ocean region and Indo-Pacific, Indian Navy is engaging maritime agencies in the region to shape a favourable and positive maritime environment.

The Indian Navy is also pursuing a range of measures for engaging maritime forces from friendly countries, so as to enhance cooperation and also develop interoperability. These include exercises, training and technical cooperation, developing of shared maritime domain awareness, sharing of white shipping information, capacity building and capability enhancement measures, and various cooperative maritime security operations, with sustained interactions at field, operational and maritime strategic levels.

**SP's: In a historic verdict the UN Permanent Court of Arbitration dismissed the claims of China within the 'Nine-dash Line' of the South China Sea. Predictably China in a most belligerent fashion has dismissed the verdict outright, causing severe consternation among the maritime nations who look for the right of innocent**

**passage to promote own trade, commerce and exploratory rights within the region. Considering the emerging maritime security environment, what would be the role of Indian Navy in this region?**

**CNS:** India supports freedom of navigation and over flight, and unimpeded commerce, based on the principles of international law, as reflected in the United Nations Convention on the Law of the Sea (UNCLOS). India believes that states should resolve disputes through peaceful means without threat or use of force and exercise self-restraint in the conduct of activities that could complicate or escalate disputes affecting peace and stability. It is reiterated that Sea Lines of Communication passing through the South China Sea are critical for peace, stability, prosperity and development of the region. As a state party to the UNCLOS, India urges all parties to show utmost respect for the UNCLOS, which establishes the international legal order of the seas and oceans. **SP**



LT GENERAL  
P.C. KATOCH (RETD)

# Heart of Asia – Pak proxies named

**I**n his inaugural address at the Sixth Ministerial ‘Heart of Asia’ Conference at Amritsar, represented by some 30 countries and international and regional organisations and co-chaired by Finance Minister of India and Minister of Foreign Affairs of Afghanistan, Prime Minister Narendra Modi made the following major points: need to demonstrate strong and collective will to defeat terror networks that cause bloodshed and spread fear; resolute action not just against forces of terrorism but also against those who support, shelter, train and finance them since silence and inaction will only embolden terrorists and their masters; the growing arc of terrorist violence is posing the gravest threat to the region, and; India is committed to a developed and stable Afghanistan.

Modi said, “On India’s part, our commitment to our brave Afghan brothers and sisters is absolute and unwavering. The welfare of Afghanistan and its people is close to our hearts and minds.” One highlight of the conference was that for the first time, a Heart of Asia (HoA) Declaration expressed concern at the violence caused in Afghanistan and the region by Pakistani proxies and other terrorist groups.

The HoA Declaration addressed a whole range of issues, but with main focus being stability of Afghanistan and terrorism, following were highlighted in this respect: reaffirmation of importance of HoA for political dialogue and close regional cooperation aimed at promoting stability, peace and prosperity in Afghanistan and entire HoA region; reaffirmation of commitment UN Charter and Universal Declaration of Human Rights; commitment to resolving differences peacefully and non-interference in internal affairs of other countries; commitment to strengthen cooperation among Member States; support for constructive efforts of the Afghanistan Government towards regional engagement and building environment of trust and confidence throughout the region; appreciation of commitment of the international community for supporting Afghanistan; welcome Afghan National Defence Forces (ANDSF) in fighting terrorism, and agreements between International Community and Afghanistan allowing financial support to ANDSF until 2020 and assistance by post-ISAF mission; welcoming development assistance commitments by over 100 countries and international organisations to Afghanistan; appreciating efforts by OIC and Afghanistan towards lasting peace and stability in Afghanistan; concern over gravity of security situation in Afghanistan and the region and high level of violence caused by Taliban, terrorist groups including ISIL/Daish and its affiliates, Haqqani Network, Al Qaeda, IMU, ETIM, LeT, JeM, TTP, Jamaat-ul-Ahrar, Jundullah and other foreign terrorist fighters; acknowledging terrorism as biggest threat to peace, stabil-

ity and cooperation in the region; strong call for concerted regional and international cooperation to ensure elimination of terrorism; call upon all states to take action against terrorist entities in accordance UN Global Counter Terrorism Strategy 2006; belief that efforts to eliminate terrorism will not succeed without concerted and coherent regional approach involving all HoA countries; reiteration of support to Afghan Government’s efforts to advance an Afghan-led, Afghan-owned peace process, urging countries who have leverages and influence to help bring Taliban to the negotiation table. Afghan President Ashraf Ghani expressed gratitude to India for unconditional support saying, “India’s help is transparent with no strings attached”.

Sartaj Aziz, Pakistan’s de facto Foreign Minister, said at the HoA that blaming Pakistan for terrorism was “simplistic”, while he continued to link the situation in Afghanistan to Kashmir. Before the conference, Aziz had stated that onus for calling for Indio-Pak bilateral dia-

logue on sidelines of the HoA conference was on India. But there is no such precedence and India had already clarified that terror and talks can’t go together. Sartaj did manage walking to the dinner venue at HoA with the National Security Advisor (NSA) Ajit Doval, which Pakistan is trumpeting as a bilateral meeting, but India has denied any meeting took place.

Surprisingly, Russia, special envoy to Afghanistan, Zamir Kabulov said at the HoA conference that allegations made against Pakistan by India and Afghanistan are totally baseless, and criticising Pakistan is wrong. He appreciated the speech by Sartaj Aziz, calling it constructive and friendly. This change of tack by Russia could be because Pakistan may have assured Russia of not

supporting Islamic fundamentalism in Chechnya, in addition to pursuing a bilateral defence pact. But this clearly brings out Russian support for ‘good’ terrorists of Pakistan – very much like China.

Recently, Sartaj Aziz had announced Pakistan setting up a high-level committee to formulate ‘a doable and sustainable’ policy to highlight the Kashmir issue globally, described by *Dawn* as “reaching out to Indians who are opposed to Prime Minister Narendra Modi’s ‘extremist policies.’” This committee is to consist of senior officials from the Ministries of Defence, Interior and Information, the Military Operations Directorate, ISI and IB—none from the Ministry of Foreign Affairs. Obviously, the unstated aim would be to destabilise India as much as possible through increased terror, on balance, the HoA conference has ushered a new phase in India-Afghanistan relations, even as Russia appears to be now siding with Pakistan’s state policy of terrorism. **SP**

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



Prime Minister Narendra Modi with President of Afghanistan Dr Mohammad Ashraf Ghani



## Only the US-2 can meet all of the diverse performance requirements in the market: Yasuo Kawanishi

Yasuo Kawanishi, Director, Executive General Manager (Business Development & Amphibious Aircraft Programme) and Managing Director ShinMaywa, India

[ By Rear Admiral Sushil Ramsay (Retd) ]

**S**P's M.A.I. met Yasuo Kawanishi, Director, Executive General Manager (Business Development & Amphibious Aircraft Programme) and Managing Director ShinMaywa, India, and Kanji Ishimaru, Director, Member of the Board and Senior Managing Executive Officer, ShinMaywa.

During the brief interaction Kawanishi highlighted the capabilities and significant characteristics of US-2. He shared the experiences of the pilots who flew this amphibian aircraft and found that the US-2 is far easier to fly than the US-1A. US-2 has improved operational performance – the pressurised cabin creates a comfortable space for the rescued, as well as the crew. Another reason why the US-2 is enjoying high popularity is its significantly longer cruising distance. The considerable extension of its maximum unrefuelled range has allowed a greater number of applications.

Kawanishi added that only three countries currently make amphibian aircraft: Japan, Canada, and Russia. However, only the US-2 can meet all of the diverse performance requirements in the market, namely, the capability to land on the ocean, carry a large number of people, and cover long distances.

Kawanishi hoped that through exhaustive acquisition process and detailed technical and technological scrutiny and evaluations, capability and utility of a versatile platform like US-2 will be acceptable to the Government of India, as a first time acquisition of military hardware from Japan. **SP**

### US-2 Specifications

Length	33.3 m
Wingspan	33.2 m
Height	9.8 m
Engine	Rolls-Royce AE2100Jx4
Propeller	Dowty R414
Max Take-off Weight/Distance	47.7 t/490 m
Max Landing Weight/Distance	47.7 t/1,500 m
Max Take-off Weight/Distance (on water)	43.0 t/280 m
Max Landing Weight/Distance (on water)	43.0 t/330 m
Range	Over 4,500 km
Cruise Altitude	More than 6,000 m
Cruise Speed	More than 480 kmph
Max Speed	More than 560 kmph

Source: ShinMaywa





LT GENERAL  
P.C. KATOCH (RETD)

# Indian Army and PLA 'Hand-in-Hand' again

**I**ndia-China Joint Military Training exercise, 'Hand-in-Hand 2016', kicked off in Pune on November 27. The aim of this joint training is to share expertise in drills and practices while tackling insurgency and terrorism; promoting healthy military to military relations between the two armies, and; developing joint strategies for conducting operations in a counter terrorism environment.

The exercise is being conducted in three phases: Phase 1—familiarisation with the weapons and equipment; Phase 2—basic training including combat conditioning, firing of personal weapon, support weapon and practice of drills like establishment of covert observation post, house clearing, cordon & search and humanitarian and disaster relief operations, and; Phase 3—conduct of joint exercise. While this particular exercise was planned at the company level with respective battalion headquarters controlling the training, the overall aim of the series of 'Hand-in-Hand' exercises is to have different levels of the military to military engagement across the entire spectrum of operations to benefit both sides and further hone basic military skills. The first exercise was held in China at Kunming of Yunnan province in 2007 and the last exercise in China was held in October 2015 in Kunming Military Academy, Yunnan Province. This exercise is being supervised by a Joint Directing Panel comprising senior officials of both the countries.

Just before this joint exercise began, Army Chief General Dalbir Singh Suhag undertook a four-day visit to China, where besides others he also met General Li Zuocheng, Commander PLA Army, and General Xu Qiliang, Vice Chairman of the Central Military Commission, the highest military body with President Xi Jinping as its Chairman. General Dalbir invited General Xu to visit India, which the latter accepted. Both reiterated their desire to keep up the momentum of defence exchanges and the need to keep the borders tranquil and peaceful. General Dalbir's visit was at a time when Pakistan has upped the proxy war on India, China has speeded up construction of the China-Pakistan Economic Corridor (CPEC), and Pakistan has announced that the China-built Gwadar port will be jointly guarded by Pakistani and Chinese naval ships. Both the CPEC and Gwadar have strategic implications for India. Besides, India naturally has concerns about the Chinese projects in Gilgit-Baltistan which is Indian territory under Pakistani occupation. General Dalbir visited major military commands in Xian and Nanjing and see installations connected to PLA's Infantry Division and Army Air Defence Brigades in these areas. His visit is to be followed by the visit of General Zhao Zongqi, Commander, Western Theatre Command of PLA, to India in December 2016.

But despite all the façade of camaraderie, China's *Global Post* showed the real face of China's stab-in-the-back policy through an

article by Long Xingchun, Director of the Center for Indian Studies at China West Normal University, making the following points: India has applied many times to include Masood Azhar, Jaish-e-Mohammed's founder and leader, into the sanction list of the UN Security Council (UNSC) and Prime Minister Modi labels Pakistan as a supporter of terrorism and tarnishes Pakistan's international image, but isolating Pakistan will have limited effects; Modi refused to attend the South Asian Association for Regional Cooperation (SAARC) meeting scheduled in Islamabad in November and called for the other SAARC leaders not to attend; separatist movements in India as a result of chaos in Pakistan; a chaotic Pakistan will become a hotbed for extremism, which India will find more difficult to tackle. It may even incite separatism within India, especially in states and north-eastern regions where Muslims make up the majority, and; it is unfair to attribute the attacks on India to the Pakistani Government, because the government would like to solve the discrepancies with India through dialogue.

The long and short of Long's fallacious article, an obvious attempt to suck up to the Chinese Communist Party, should be viewed in the following context: by protecting Masood Azhar repeatedly at the UNSC, China is abetting terrorism, not that she isn't waging hybrid war against India in conjunction Pakistan; unlike Pakistan being a protégé of China, other SAARC nations are sovereign states who make their own decisions. Bangladesh Prime Minister Sheikh Hasina publicly stated why her country pulled out from the SAARC summit in Islamabad, which had nothing to do with any pressure from India; separatists movement in India are not because of the chaos in Pakistan but are being fanned by Pakistan's proxy war while China provides tacit support; since when

has China become the judge that isolating Pakistan will make it more difficult to tackle, and; is it unfair to expose Pakistan's state policy of terrorism because it suits Chinese aggressive aims?

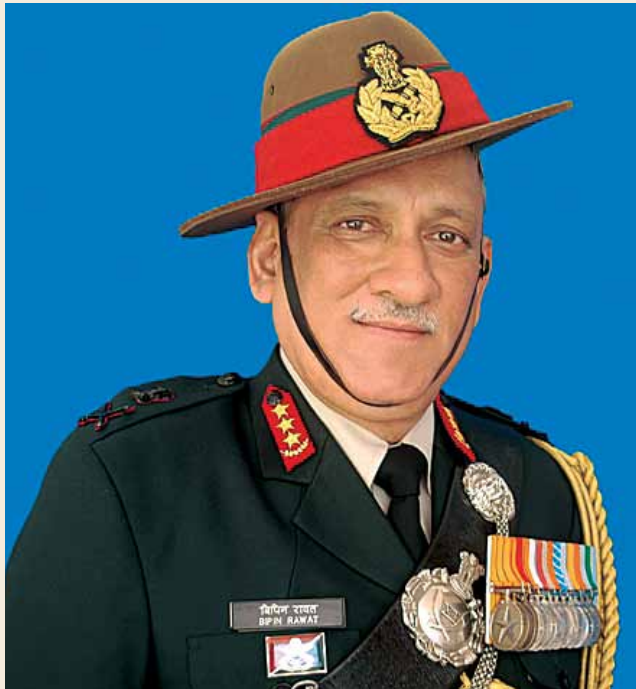
The China-Pakistan military and nuclear nexus over past several years is well known. According to Pakistan's *Express Tribune*, quoting a Pakistani naval official, China is sending naval ships to Pakistan's Gwadar port that opened on November 13, to protect regional security. However, Chinese Defence Ministry official Yang Yujun said on November 30 that China would deploy a submarine at the port (Gwadar) and establish a base there to provide maintenance for the Chinese naval fleet operating in the Indian Ocean. We may continue playing these 'Hand-in-Hand' joint games but the bottom line is that China considers India as an adversary and wants us to be subservient to Chinese domination in Asia. **SP**

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



COAS General Dalbir Singh in Beijing,  
China, on November 21, 2016

## Lt General Bipin Rawat to take over as the new Indian Army chief



**T**he government has appointed Vice Chief of Army Staff Lt General Bipin Rawat as the new Army chief on December 17, 2016.

Lt General Rawat was commissioned in the 5th Battalion of the 11 Gorkha Rifles from the Indian Military Academy, Dehradun, where he was awarded the 'Sword of Honour'. The officer has vast experience in high altitude warfare and counter-insurgency operations and has considerable staff and instructional experience. He has commanded an infantry battalion, along the line of actual control (LAC) in the Eastern Sector; a Rashtriya Rifles Sector and an Infantry Division in the Kashmir Valley. His important staff assignments include Deputy Military Secretary in the Military Secretary's branch and Major General (General Staff) at HQ Eastern Command. On a United Nations (UN) assignment, the officer commanded a multinational Brigade in the Democratic Republic of Congo. Whilst serving with the UN, he was twice awarded the Force Commander's Commendation.

From his assignment as General Officer Commanding Maharashtra, Gujarat and Goa area, located at Mumbai, he took over as General Officer Commanding in Chief, Southern Command on January 1, 2016. He is a graduate of the Defence Services Staff College, Wellington, Higher Command Course at the Army War College and the War College Course at Fort Leavenworth in Kansas, USA.

The officer during a span of over 37 years of service has been awarded the AVSM, YSM, SM and VSM. He is also a recipient of COAS Commendation twice and an Army Commander's Commendation. His qualifications include a Doctorate of Philosophy (PhD) from Chaudhary Charan Singh University, Meerut, in 2011. **SP**

## Air Marshal Birender Singh Dhanoa to be the next Indian Air Force chief



**T**he government has announced on December 17 that Air Marshal B.S. Dhanoa will take over as the new Chief of the Air Staff. Air Marshal Dhanoa, presently the Vice Chief of the Air Staff, will take over after Air Chief Marshal Arup Raha retires on December 31.

Air Marshal Dhanoa is an alumnus of the Rashtriya Indian Military College, National Defence Academy and a post-graduate from the Defence Services Staff College, Wellington. He was commissioned in the IAF as a fighter pilot in June 1978, is a Cat 'A' Qualified Flying Instructor and has flown over 3,000 hours on various front line operational aircraft. He has held various command and staff appointments including Commanding Officer of a MiG-21 squadron and Station Commander of a front line fighter base.

He was the first to command an Indian Military Training Team in Tajikistan. His operational experience includes command of a fighter squadron during Operation Safed Sagar, which earned many accolades. He has also served as Chief Instructor (Air) at Defence Services Staff College, and Assistant Chief of the Air Staff (Intelligence) at Air HQ, Senior Air Staff Officer of Eastern Air Command and Senior Air Staff Officer of Western Air Command. Prior to assuming the appointment of Vice Chief of the Air Staff on June 1, 2015, he was the Air Officer Commanding-in-Chief of South Western Air Command.

In recognition for his meritorious services, he was awarded YSM, VM in 1999, and AVSM in 2015 by the President of India. He will be the third Sikh to head the IAF after distinguished military leaders like Marshal of the Indian Air Force Arjan Singh and Air Chief Marshal Dilbagh Singh. **SP**

## Defence Minister Manohar Parrikar in Mauritius



Defence Minister Manohar Parrikar with President of Mauritius Dr Ameenah Gurib-Fakim in Mauritius

**T**he Minister of Defence Manohar Parrikar was in Mauritius on a two-day visit, the first ever by a Defence Minister of India. He was accompanied by senior officers of the Indian Navy, Indian Air Force and the Ministry of Defence.

Parrikar called on the Prime Minister of Mauritius, Sir Anerood Jugnauth, and was the special guest of honour at the commissioning ceremony of CGS Victory and two Chetak helicopters. During the meeting with Prime Minister Jugnauth, both sides expressed

their deep satisfaction over the close and growing defence and security cooperation and collaboration between India and Mauritius. Emphasising their mutual security interests, Parrikar said that the Government of India would continue to extend its full support to Mauritius for training and capacity building, as well as supply and maintenance of defence equipment.

CGS Victory, a water jet fast attack craft (WFAC), was manufactured by the Goa Shipyard Limited and funded by a Government of India Line of Credit. CGS Valiant, another WFAC also being manufactured by Goa Shipyard Limited for the Government of Mauritius, is due for delivery in mid-2017. With the induction of the CGS Victory, the National Coast Guard of Mauritius will be able to widen its outer island support activities and conduct in-depth surveillance in the Mauritian EEZ for tackling transnational crimes such as drug and human trafficking, piracy, smuggling and terrorism.

The two Chetak helicopters from the Hindustan Aeronautics Limited (HAL) were gifted by the Government of India to the Police Helicopter Squadron (PHS) of the Mauritius Police Force. These two helicopters have an operational life of 15 years and would enhance and supplement the existing capabilities of the Mauritius PHS for search and rescue operations, emergency evacuations and anti-cannabis cultivation operations in Mauritius.

India has a long history of cooperation with Mauritius in the defence and maritime security sector. With this visit, both India and Mauritius reaffirmed their strong commitment to the maintenance of peace, security and stability in the Indian Ocean region. **SP**

## Indo-Russian bilateral naval exercise

**T**he 9th edition of exercise Indra Navy, an annual bilateral maritime exercise between Indian Navy and Russian Navy, will be conducted in the Bay of Bengal from December 14 to 21, 2016. The primary aim of exercise Indra Navy 16 is to increase interoperability amongst the two navies and develop common understanding and procedures for maritime security operations. The scope of the exercise includes wide-ranging professional interactions in harbour phase and a diverse canvas of operational activities across a spectrum of maritime operations at sea. Indra Navy is a bilateral maritime exercise between the Indian and Russian navies and epitomises the strategic relationship between the two countries. Initiated in 2003, the exercise has matured over the years with increase in scope, complexity of operations and level of participation.

During exercise Indra Navy 16, the Indian Navy will be represented by INS, Ranvir, a guided missile destroyer, INS Satpura an indigenous frigate and INS Kamorta an indigenous anti-submarine warfare (ASW) corvette. In addition, an Indian Navy submarine, P-8I long range maritime patrol aircraft, Dornier short range maritime patrol aircraft, Hawk advanced jet trainer and other integral rotary-wing helicopters are scheduled to participate in the bilateral exercise.

The Russian Federation Navy (RuFN) will be represented by Rear Admiral Eduard Mikhlov, Deputy Chief of Flotilla, Pacific Fleet and ships from the Pacific Fleet, based at Vladivostok. RuFN ships Admiral Tributus (cruiser) and Boris Butoma (fleet tanker) are expected to arrive at Visakhapatnam on December 14, 2016, to participate in exercise Indra Navy 16.



The exercise will be progressed in two phases, viz. the Harbour Phase (December 14 to 18) at Visakhapatnam and the Sea Phase (December 19 to 21) off Visakhapatnam. The Harbour Phase would encompass table-top exercises, planning conferences, and professional interactions prior progressing to sea. The thrust of exercises at sea this year would be on ASW, air defence drills, surface firings, visit board search and seizure (VBSS) and tactical procedures.

Exercise Indra Navy 16 will help to further strengthen mutual confidence and interoperability, and also enable sharing of best practices between both navies. The exercise will be another milestone in strengthening maritime security cooperation between the two navies and will also serve to reinforce the long-standing bond of friendship between the two countries. **SP**



## Indo-Maldives joint military exercise commences in Maldives

**A** 14-day joint training exercise of the Indian Army and Maldivian National Defence Force commenced with the opening ceremony at Kadhdhoo, Lammu Atoll in Maldives on December 15, 2016.

The training contingents comprised of a platoon strength from Bihar Regiment and a similar strength of the Maldivian National Defence Force. Senior military observers of both the countries will be witnessing the validation phase of the exercise.

Exercise Ekuverin-2016 will be the seventh edition of joint exercise and is in continuation of a series of joint exercises between the Indian Army and Maldivian National Defence Force. The previous edition of the exercise was held at Thiruvananthapuram in 2015.

The aim of the joint exercise is to acquaint both forces with each other's operating procedures in the backdrop of amphibious and counter-insurgency/counter-terrorism environment as also to enhance the existing military relationship between the Indian Army and the Maldivian National Defence Force.

The Indian Army contingent had landed at Male International Airport on December 14, 2016, on a C-130 military aircraft of the Indian Air Force. The exercise aims to enhance the interoperability between the Indian Army and Maldivian National Defence Forces



in conducting joint operations and cement bonds of friendship between the two countries. **SP**

## INS Sumitra visits Darwin, Australia



**I**n pursuit of India's 'Act East' policy and outreach to friendly countries, the Indian Navy's offshore patrol vessel Sumitra was in Darwin, Australia, on December 6, 2016, on a three-day visit. The ship is returning to India after participating in the Royal New Zealand Navy International Naval Review 2016. The ship had earlier visited Sydney from November 4-7, 2016.

The visit to Australia was aimed at strengthening bilateral ties and enhancing maritime security cooperation between the two countries. During the stay in harbour, various activities are planned towards enhancing cooperation and mutual understanding between the two navies such as professional interactions with RAN and discussions towards further enhancing interoperability.

Sumitra is the fourth of the Saryu class ships, based on an indigenous design and constructed by Goa Shipyard Limited. Since commissioning in 2014, the ship has been deployed for multiple operational tasks, the most notable being 'Operation Rahat', which entailed the evacuation of personnel of various nationalities from war-torn Yemen in 2015. The ship has a range of 6,500 nautical miles and is capable of embarking one Dhruv/Chetak helicopter. The ship is commanded by Cdr K.P. Shreeshan. **SP**

PHOTOGRAPHS: Indian Army, Indian Navy

## Exercise Konkan 16 being held in Goa

**K**onkan 16, the 2016 edition of the annual bilateral maritime exercise between the Indian Navy and the Royal Navy, is being held from December 5-18, 2016, at Mumbai and Goa. Exercise Konkan, named after the Western coastal region of India, was institutionalised in 2004. Since then, the exercise hosted in rotation by both the Navies, has grown in complexity, scale and intensity.

The exercise will be conducted in two phases at Mumbai and Goa. The first phase, was held from December 5-9, would be a Command Planning exercise involving the two navies where planners from both sides will undertake planning for combined maritime operations. The second phase is a Live Exercise (LIVEX), is being held from December 12-16 at Goa, which involves interaction between the Indian Navy Marine Commandos (MARCOs) and the Royal Marines. Both phases will involve sharing of best practices and lessons learnt from recent operations, especially in the field of humanitarian assistance and disaster relief (HADR) and non-combatant evacuation operations (NEO).

Konkan 16 will be an important chapter in the maritime interactions under the aegis of Konkan series as it will familiarise both forces with each other's planning processes and further enhance synergy and interoperability. In addition, participation of Indian Navy MARCOs and Royal Marines would add another dimension to this exercise and provide valuable opportunity for both navies to interact and cooperate in the field of maritime security operations.

Successive editions of Konkan have built on past experiences and have enhanced operational interoperability between the two navies. This cooperation between the two navies is a positive and tangible symbol of commitment in ensuring a positive climate for maritime security and economic development. The current edition would further strengthen the existing bonds of friendship between India and United Kingdom, and enhance our capability to work together to contribute towards maritime security in the global commons. **SP**

# Boeing enters tanker race with FMS offer



[ By **Ranjit Kumar** ]

**B**oeing has entered the fray for supplying air refuelling tankers for the Indian Air Force (IAF). After ignoring the first two previous tenders, Boeing's Pegasus tankers will compete with the European Airbus A330 MRTT and Russian Ilyushin IL-78. The IAF was almost losing the hope for inducting a fresh batch of tankers in its service in the near future, as the government was dilly-dallying IAF's strategic requirements for urgently increasing its air refuelling capacity. The first and last major acquisition of the air refuellers was in 2006 from Russia. Probably the IAF was not satisfied with the serviceability of the eight IL-78 aircraft because of maintenance issues. Hence, the IAF decided to induct Western versions of the tankers. On the demand of the IAF, the Ministry of Defence (MoD) twice issued global request for proposals (RFPs), but cost issues raised by the Finance Ministry led to the cancellation of the tenders.

Senior Boeing officials said in Seattle during a recent visit to its facilities in the US, that since they have just come out with the new tankers, which are to be supplied to the US Air Force, they are offering the latest KC-46A Pegasus to the IAF. However, Boeing does not want to directly compete with the Russians and the Europeans. Boeing officials said in Seattle that they would like to supply the tankers to the IAF under the foreign military sales (FMS) programme of the Department of Defense and the Department of State. After the US Air Force decided to replace the KC-135 Stratotankers, which served them for many decades, the Boeing decided to develop the Pegasus. The Boeing has 65 years of building refuellers, KC-135, which are based on the Boeing 707 platform. However, the KC-46 is a multi-role

tanker based on 767 heritage. Boeing officials claim that 767 model is approximately 30 per cent more fuel-efficient and its unit operating costs are more than 20 per cent lower than the KC-135, which are going to be replaced. The US Air Force has already ordered to supply 179 combat ready KC-46 tankers. The US Air Force awarded the contract to Boeing in 2011 and the first 18 aircraft will be delivered to the US Air Force by early 2018. Japan is the first international customer, which has ordered three KC-46 aircraft.

The KC-46 has third-generation system with seven different cameras. It has 2,12,299 pounds fuel storage capacity, and can offload 1,200 gallons per minute fuel to receptor aircraft. It can simultaneously refuel two fighter aircraft and can refuel 64 different types of aircraft. It has multi-point refuelling system. It has rapid loading capacity and can be reconfigured to any mission. The aircraft can be utilised in cargo and aeromedical evacuation role. It can also be converted in troop carrier role in a conflict situation. The aircraft is equipped with digital fly by wire control system. It has quick start capability equipped with two Pratt & Whitney engines. But can actually fly on one engine. Unlike other refuellers KC-46 is not equipped with chaff and flares facility because it has infrared countermeasure system, which can protect the aircraft from missiles. Sources in the Indian Defence Ministry said that Boeing Pegasus will have to be competitive in price with other main contender Airbus A330 MRTT. The Finance Ministry of the previous UPA Government had rejected the MoD proposal to acquire Airbus A330 MRTT mainly due to high price factor. The mega deal if any can mature only during the next Donald Trump administration, which will add to the Boeing family of C-17 Globemasters and P-8I maritime surveillance aircraft supplied to the Indian Air Force and the Indian Navy. **SP**

## Canada selects Airbus C295W for fixed-wing search and rescue

**T**he Government of Canada announced that it had selected the Airbus C295W for its Fixed-Wing Search and Rescue (FWSAR) programme.

As part of the FWSAR programme, the Royal Canadian Air Force (RCAF) will purchase 16 C295Ws modified for search and rescue (SAR). The contract will also include in service support, provided through a joint venture between Airbus Defence and Space and PAL Aerospace.

Simon Jacques, Head of Airbus Defence and Space in Canada, said: "We are acutely conscious of the importance of search and rescue in Canada's vast and challenging territory and we are honoured to have been selected to provide the aircraft and service to ensure that the role is carried out effectively."

The C295W features substantial Canadian content. Every C295 is powered by Pratt & Whitney Canada engines, pilots will be trained at a new facility developed by CAE, and the electro-optical systems for FWSAR will be provided by L3 Wescam. In-service support for the life of the programme will be provided by AirPro, a joint venture between Airbus Defence and Space and PAL Aerospace. In-service support will be conducted by Canadians in Canada.

Airbus Defence and Space Head of Military Aircraft, Fernando Alonso, said: "It is extremely satisfying to receive this massive vote



in confidence for the C295 from a highly demanding customer.

"Coming at a time when the medium turboprop sector is in something of a down-cycle, it is a clear sign that the C295's robustness, reliability and cost-effectiveness will ensure that it remains the market leader." When the contract is finalised, 185 C295Ns will have been ordered by 25 countries. **SP**

## The Norwegian Government to procure five P-8A Poseidon

**T**he Norwegian Government decided November 25 to procure five P-8A Poseidon for delivery in 2021 to 2022. The decision taken in the government has been proposed to the Parliament, which is expected to reach a resolution regarding the procurement mid-December.

The Minister of Defence, Ine Eriksen Søreide, said: "The new maritime patrol aircraft will be a formidable tool for surveillance of our vast maritime areas in the north. Norway has an important task in maintaining the situational awareness in national and adjacent waters, both on and below the surface, on behalf of the alliance. The maritime domain is becoming more important as we speak."

Norwegian maritime areas are vast, and about seven times its land mass. These areas are now regarded with increasingly strategic importance in NATO, and this trend is expected to continue.

The five P-8A Poseidon will replace the six ageing P-3 Orions, and three DA-20 Jet Falcons, and will again provide a giant technological leap in the domain of maritime surveillance. The maritime patrol aircraft will continue the provision of data for analy-

sis and decision makers, both in government and in the military commands, into the future. **SP**

## Israeli Air Force gets the first pair of Adir

**T**he first pair of 'Adir' (F-35I) stealth fighters landed in their new home, Nevatim Air Force Base, recently. The landing ceremony was attended by the Prime Minister of Israel Benjamin Netanyahu, the President of Israel Reuven (Ruvi) Rivlin, the Israeli Defense Minister Avigdor Lieberman, the Chief of the General Staff Lt General Gadi Eizenkot, IAF Commander Major General Amir Eshel, heads of the involved military industries, the United States Secretary of Defense Ashton Carter, US Ambassador to Israel Daniel Shapiro, the President of Lockheed Martin Marillyn Hewson and delegates.



"Today, the fifth-generation revolution begins. The 'Adir' is about to become a powerful accelerator for the entire IAF", said Major General Amir Eshel, IAF Commander. "We plan on leveraging our systemic abilities to new heights in attack and defence. Our aerial force will be much deadlier, combined and more relevant than ever".

"The 'Adir' (F-35I) stealth fighters and pilots will be able to operate in every arena, near and far," said Prime Minister Netanyahu. "Our goal is to obtain supremacy in every theatre: in the air, in the sea, on the ground and in the cyber arena. We build our force and sharpen our abilities in defence, attack, deterrence and decision. The 'Adir' jets will strengthen these abilities".

US Secretary of Defense, Ashton Carter, added: "As of today, Israel is our only friend in the region flying the F-35. F-35s will help the US and Israel Air Force operate more jointly and more effectively. Together, we will dominate the skies".

"No jet, sophisticated and advanced as it may be, can decide the battles of the future alone. You are the wind under its wings, you are the people who will decide the battles", said President Rivlin. Prime Minister Netanyahu added: "Israel is taking off to new heights, and when our pilots in the 'Adir' jets will fly high, we will watch them with pride". **SP**



## German Navy NH90 Sea Lion performs maiden flight

**R**ecently, the NH90 Sea Lion naval multi-role helicopter took off on its on-schedule maiden flight at Airbus Helicopters in Donauwörth. Wolfgang Schoder, CEO of Airbus Helicopters Deutschland and Vincent Dubrule, NHI President welcomed this important milestone in the programme, in presence of Vice Admiral Andreas Krause, Chief of the German Navy, and Ralph Herzog, Director in the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAINBw).

"We are proud to perform the first flight of this state-of-the-art naval helicopter to the German armed forces on time," said Wolfgang Schoder. "This new generation of NH90 naval helicopters, the Sea Lion, has benefited from experience gathered by other countries which have been using it."

The NH90 Sea Lion has an increased number of sensors and improved navigation and communications equipment, which means that this military helicopter will also be able to operate in civil air space. The military friend/foe identification has also been updated to the latest standards.

"This first flight is a further signal of the maturity of the European Cooperation between Dutch, French, German and Italian industries around the NH90 Program," said Vincent Dubrule.



Deliveries of NH90 Sea Lions to the Navy will start at the end of 2019. When deployed, it will take on a range of roles including search and rescue (SAR) missions, maritime reconnaissance, special forces missions as well as personnel and materiel transportation tasks. The German armed forces (Bundeswehr) have ordered 18 of these helicopters altogether, with the last due to go into service in 2022. **SP**

## Sikorsky signs contract with Chilean Air Force for six S-70i Black Hawk helicopters



**S**ikorsky, a Lockheed Martin company, has successfully concluded contract negotiations with the Chilean Air Force (Fuerza Aérea de Chile) for six S-70i™ Black Hawk helicopters for the service's medium-lift helicopter recapitalisation programme.

When delivered in 2018, the new helicopters will fulfill Chile's requirement to perform both military and humanitarian missions, such as troop transport, search and rescue, and disaster relief.

"We are very pleased that the Fuerza Aérea de Chile has chosen the multi-role Black Hawk helicopter following an intensive review of competing platforms," said Adam Schierholz, Sikorsky Regional Executive for Latin America. "The Black Hawk plat-

form will perform for Chile as a highly reliable and safe utility helicopter that can be quickly configured for a range of missions."

The programme includes the acquisition of a logistical support package that will cover spare parts, pilots and maintenance specialists training, on-site technical assistance and ground support equipment.

Built to a robust military design, the Black Hawk family of helicopters is renowned for its reliability in harsh weather and under tough operational conditions, including at high altitudes and in hot temperatures. For rapid and distant deployment, Black Hawk helicopters can be transported in the C-130 Hercules aircraft that are also operated by the Fuerza Aérea de Chile.

The six new aircraft will bring the total number of Black Hawk helicopters operated by Chile and four other Latin American countries to more than 140. **SP**

## Germany receives first tactical standard Airbus A400M Airlifter

**A**irbus Defence and Space has delivered to the German Air Force its first A400M transport aircraft qualified for tactical operations and able to fly in areas subject to military threats.

The aircraft is the sixth A400M in German service and the first with the new

capabilities in addition to the world-leading performance of all A400Ms as strategic transports. All aircraft will be retrofitted to the new standard and receive subsequent enhancements as those are certified.

Key aspects of the aircraft's latest capabilities are improvements in its self-defence systems, ability to air-drop cargo loads, and paratrooping. Additionally, it can operate on unprepared runways, fly as low as 150 ft above the ground, refuel other aircraft as a tanker, and safely take-off and land in extremely high temperatures.

Airbus Defence and Space A400M Programme Manager, Kurt Rossner, said: "The A400M programme has made enormous progress this year in implementing these critical capabilities on the aircraft. In addition to having twice the payload-range of the legacy transports like the C-160 and C-130 that it is replacing, it can now also operate from any runway that those older aircraft could use. There is no other aircraft in the market with the A400M's combination of tactical and strategic capabilities and it is going to transform Germany's air mobility force."

The new aircraft is fitted with a Defensive Aids Sub-System (DASS) incorporating a Missile Warning System, Radar Warning Receiver, and an Expendables Dispensing System to eject flares and radar-confusing chaff. The DASS for all A400Ms is integrated by Airbus Defence and Space at Ulm. **SP**

## GA-ASI flight tests of Gray Eagle Extended Range

**G**eneral Atomics Aeronautical Systems Inc (GA-ASI) has commenced flight testing of its MQ-1C Gray Eagle Extended Range (ER) series with the successful first flight of the company's production representative MQ-1C Gray Eagle ER aircraft from its El Mirage Flight Operations Facility in Adelanto, California.

"The flight of our capital MQ-1C Gray Eagle ER UAS (unmanned aircraft system) is a significant milestone in the continued evolution of the MQ-1C programme with our US Army customer," said David R. Alexander, President, Aircraft Systems, GA-ASI. "This marks the next step in delivering the aircraft's increased endurance and payload capability to the warfighter."

MQ-1C Gray Eagle ER, developed by GA-ASI on Internal Research and Development (IRAD) specifically to increase endurance and payload capacity, is a next-generation derivative of the combat-proven Gray Eagle UAS, which has accumulated over 3,00,000 flight hours since 2008. MQ-1C ER is expected to complete flight testing in June 2017, at which point it will begin a series of Army test events culminating in the programme's second Follow-on Operational Test and Evaluation in late 2017. The first four aircraft are expected to be delivered in Q2 and Q3 2017, with an additional 15 over the course of 2018.

MQ-1C ER delivers an advanced medium-altitude long-endurance (MALE) capability for the Army, adding increased payload capacity, greater range and endurance, and improved maintainability. The aircraft is engineered with a maximum gross take-off weight (MGTOG) of 4,200 pounds compared with Gray Eagle's MGTOG of 3,600 pounds. The incorporation of MQ-1C ER's straight belly design allows for more than 910 pounds of inter-



nal fuel and a centreline hard point that can accommodate an optional fuel pod with an additional 450 pounds. With endurance at more than 40 hours, the aircraft will exceed the Army's requirement for 14 hours on station at 1,000 km for all mission types.

MQ-1C ER features an upgraded heavy fuel engine-180 (HFE-180) which provides increased horsepower and reliability. HFE-180 includes propulsion reliability enhancements, an improved cooling system and high-performance induction system. The new engine began flight tests on Block 1 Gray Eagle in February 2016.

MQ-1C ER's enhanced capabilities will expand the tactical range for intelligence, reconnaissance, surveillance (ISR), electronic warfare, and attack missions for the US Army and other prospective customers. **SP**

## MBDA's Brimstone missile for RAF's Protector RPAs

**M**BDA's Brimstone precision strike missile is being planned as the UK's guided missile solution for the Royal Air Force's Protector Remotely Piloted Air System (RPAS) programme. If confirmed, the General Atomics Aeronautical Systems Inc (GA-ASI) Certifiable Predator B will enter service with the British weapon.

The integration plan is included as part of the UK Ministry of Defence's Main Gate selection of the aircraft and, if agreed, the missile will be integrated and fielded in line with the Platform's introduction to service.

MBDA will now work together with UK MOD, US DOD and GA-ASI towards a programme which would see the missile undergo integration onto the Air System with trials and firings towards the end of the decade. The missile has already successfully completed a series of trial firings on MQ-9 Reaper during early 2014 that saw the weapon engaging 110 kmph and manoeuvring targets with extreme

precision from the RPAs; unmatched by any other weapon since.

The missile promises to arm Protector with the ability to strike fast moving, manoeuvring targets with both man in the loop post launch guidance and also autonomous post launch all weather capabilities. This confirms that the missile is a true multi-platform weapon that can operate across fast jets, RPAS and, most recently, helicopters. **SP**

## Safran and Vodea develop high-speed video compression solution for drones

**F**rench defence procurement agency DGA held its annual Innovation Forum on November 23 and 24 at the Ecole Polytechnique near Paris. Safran Electronics & Defence participated in this event with its partner Vodea, a small French business specialised in very high speed data compression solutions for networked intelligence systems.

Their partnership was formed in the wake of France's new tactical drone system contract, awarded to Safran's Patroller system. Equipped with very powerful sensors, this new drone naturally requires a communications system capable of transmitting several high-resolution video streams to the ground in real time, without degrading the intrinsic quality of these images.

The key to meeting this heady challenge lies in a new video compression solution. Vodea teamed up with Safran Electronics & Defence to develop FOCUS, a device capable of simultaneously compressing several hi-res video channels at high speed. This solution was developed within the scope of the 'Rapid' contract awarded by the DGA, part of France's Ministry of Defence.

Based on very powerful algorithms, this device is capable of automatically reprogramming data transmissions, by adapting to different transmission conditions and the requirements of troops on the ground. By combining automation, standardisation and high security, this solution saves time and simplifies intelligence operations. **SP**

## Rafael appoints Pini Yungman as Executive Vice President, Head of Air Superiority Systems Division

**R**afael Advanced Defense Systems Ltd. announced recently the appointment of Brigadiere General (Res.) Pini Yungman, to the position of Executive Vice President and Head of the company's Air Superiority Systems Division.

Yungman is replacing Yosi Druker who is retiring from Rafael after a long career serving in various significant positions, including his last position as Head of Rafael's Air Superiority Systems Division.

Yungman (56 years old), is an Information Systems Engineer. He joined Rafael in 2005 and has served as Head of the David's Sling Program and most recently as Head of Rafael's Missile Defense Systems Directorate. This Directorate is responsible

for systems such as David's Sling, Iron Dome, Air-to-Air missiles (Derby & Python) and others.

Rafael's CEO, Major General Yoav Har-Even (Retd) stated that Yungman brings with him a great deal of experience and knowledge of the Division's activities, and he is convinced of Yungman's ability to lead the Division and carry out its national goals and marketing objectives.

Har-Even thanked Yosi Druker for his many years of service to Israel's Defense establishment and to Rafael, and noted the numerous important projects Druker was involved in, most notably Iron Dome, for which he received the Israel Defense Award.

The new appointment will take effect in summer 2017. **SP**

## Boeing to acquire Liquid Robotics



**B**oeing has entered into an agreement to acquire Liquid Robotics, a market leader in autonomous maritime systems and developer of the Wave Glider ocean surface robot, to grow its seabed-to-space autonomous capabilities.

"With Liquid Robotics' innovative technology and Boeing's leading intelligence, surveillance, and reconnaissance solutions, we are helping our customers address maritime challenges in ways that make existing platforms smarter, missions safer and operations more efficient," said Leanne Caret, President and CEO of Boeing Defense, Space & Security.

In September 2014, Boeing and Liquid Robotics entered into a teaming agreement resulting in extensive integration on the Sensor Hosting Autonomous Remote Craft (SHARC\*), a version of the Wave Glider. The SHARC, integrated with Boeing's advanced sensors, connects intelligence, surveillance and reconnaissance capabilities ranging from satellites to manned and unmanned aircraft to sub-surface crafts.

Liquid Robotics has designed and manufactured the Wave Glider, the first wave and solar-powered autonomous ocean robot, since its founding in 2007. With more than one million nautical miles travelled, the Wave Glider's capabilities address the challenges facing defence, commercial and science customers by making ocean data collection and communications easier, safer and immediate.

"I am proud of our team, culture and relentless commitment to designing the best ocean surface robot in the maritime indus-

try," said Gary Gysin, President and CEO of Liquid Robotics. "This acquisition allows us to leverage the strengths of one of the world's leading global companies while continuing to push our innovation to new levels." **SP**

## Sikorsky opens testing facility for Combat Rescue Helicopter



**S**ikorsky has inaugurated a new Systems Integration Lab (SIL) to begin testing key systems for the Combat Rescue Helicopter (CRH), the new aircraft being built for the United States Air Force (USAF).

The SIL encompasses 2,500 square feet located within the company's main manufacturing facility in Stratford, Connecticut. The SIL complex includes four laboratories for testing avionics, electrical power, electronic flight controls and integrated vehicle diagnostics. Each subsystem will be evaluated independently before progressing to a fully integrated aircraft-representative test configuration.

The integrated experience will closely resemble the actual aircraft and allow the pilot to fly simulated missions to evaluate qualitative performance, such as pilot workload, and have the actual 'look and feel' of the aircraft.

The USAF programme of record calls for 112 helicopters to replace the Air Force's aging HH-60G Pave Hawk helicopters, which perform critical combat search and rescue and personnel recovery operations for all US military services. **SP**



# DARPA doubles down on Tern by funding second test vehicle

**T**ern, a joint programme between Defense Advanced Research Projects Agency (DARPA) and the US Navy's Office of Naval Research (ONR), seeks to greatly increase the effectiveness of forward-deployed small-deck ships such as destroyers and frigates by enabling them to serve as mobile launch and recovery sites for specially designed unmanned air systems (UASs).

DARPA last year awarded Phase 3 of Tern to a team led by the Northrop Grumman Corporation to build a full-scale technology demonstration system. The programme has since made significant advances on numerous fronts, including commencement of wing fabrication and completion of successful engine testing for its test vehicle, and DARPA has tasked Northrop Grumman with building a second test vehicle.

"DARPA has been thinking about building a second Tern test vehicle for well over a year," said Dan Patt, DARPA Program Manager. "Adding the second technology demonstrator enhances the robustness of the flight demonstration programme and enables military partners to work with us on maturation, including testing different payloads and experimenting with different approaches to operational usage."

Tern envisions a new medium-altitude, long-endurance UAS that could operate from helicopter decks on smaller ships in rough seas or expeditionary settings while achieving efficient long-duration flight. To provide these and other previously unattainable capabilities, the Tern Phase 3 design is a tail-sitting, flying-wing aircraft with a twin contra-rotating, nose-mounted propulsion system.

The aircraft would lift off like a helicopter and then perform a transition manoeuvre to orient it for wing-borne flight for the duration of a mission. Upon mission completion, the aircraft would return to base, transition back to a vertical orientation, and land. The system is sized to fit securely inside a ship hangar for maintenance operations and storage.

Tern has accomplished the following technical milestones for its test vehicle in 2016:

**Wing fabrication:** Since Phase 3 work started at the beginning of 2016, Tern has finished fabricating major airframe components and anticipates final assembly in the first quarter of 2017. Once complete, the airframe will house propulsion, sensors and other commercial off-the-shelf (COTS) systems to make up the full-scale technology demonstration vehicle.

**Engine tests:** In Phases 2 and 3, Tern has successfully tested numerous modifications to an existing General Electric engine to enable it to operate in both vertical and horizontal orientations. This type of engine was chosen because it is mature and powers multiple helicopter platforms currently in use.

**Software integration:** This summer, Tern opened its Software Integration Test Station (SITS), part of the System Integration Lab that supports software development for the programme. The test station includes vehicle management system hardware and software,

and uses high-fidelity simulation tools to enable rapid testing of aircraft control software in all phases of flight. The SITS is helping ensure the technology demonstration vehicle could fly safely in challenging conditions such as launch, recovery, and transition between horizontal and vertical flight.

**Additional tests are about to start:** A one-fifth-scale version of the approved vehicle model is in testing in the 80' x 120' wind tunnel at the NASA Ames Research Center's National Full-Scale Aerodynamics Complex (NFAC). Data collected during this test will be used to better characterise aircraft aerodynamic performance and validate aerodynamic models.

"We're making substantial progress towards our scheduled flight tests, with much of the hardware already fabricated and software



An artist's impression of Tern UAS

development and integration in full swing," said Brad Tousley, Director of DARPA's Tactical Technology Office, which oversees Tern. "As we keep pressing into uncharted territory—no one has flown a large unmanned tail-sitter before—we remain excited about the future capabilities a successful Tern demonstration could enable: organic, persistent, long-range reconnaissance, targeting, and strike support from most Navy ships."

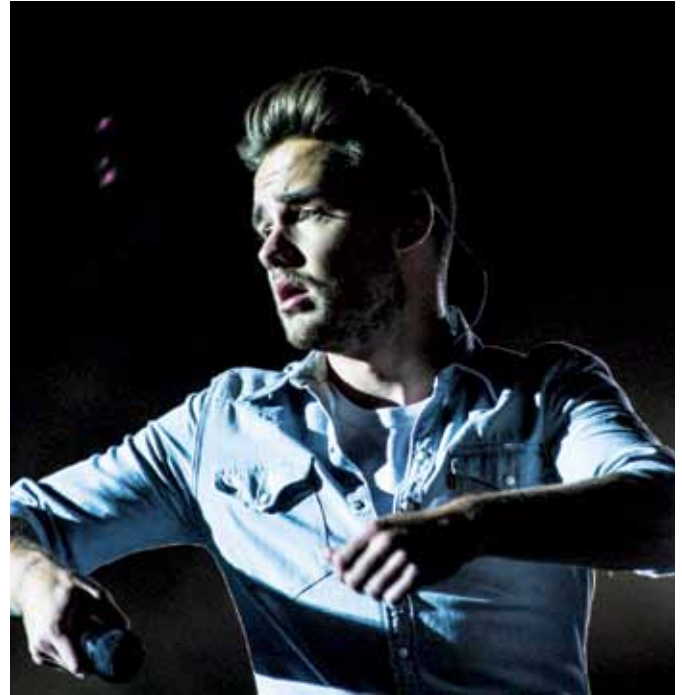
Tern is currently scheduled to start integrated propulsion system testing in the first part of 2017, move to ground-based testing in early 2018, and culminate in a series of at-sea flight tests in late 2018.

DARPA and the US Navy have a memorandum of agreement to share responsibility for the development and testing of the Tern demonstrator system. The Marine Corps Warfighting Laboratory has also expressed interest in Tern's potential capabilities and is providing support to the programme. **SP**

## Liam Payne's Facebook breached

**T**he One Direction star Liam Payne's social media page is said to have been hacked, according to British media reports. His social media page has over 10 million likes.

One of the posts reportedly links to a story headlined: "Things that can happen to you when you don't have sex," accompanied by a raunchy image, while another told fans to go to a revealing page. Shocked followers of the 23-year-old musician, who is dating former Girls Aloud star Cheryl, 33, alerted the star to the posts, which were subsequently deleted from his page. The incident is the second security breach affecting the couple in recent months. In October Cheryl's Instagram was hacked and defaced with satanic imagery. SP



## Legion hacking of Rahul Gandhi's Twitter account

**T**he official Twitter handle of Congress Vice President Rahul Gandhi was hacked with a series of obscene tweets posted on the timeline. The offensive tweets were related to demonetisation and Gandhi's family. So also liquor baron Vijay Malviya and senior journalist Barkha Dutt's account were also hacked reportedly by the same Legion group.



India's Union Minister of Information Technology Ravi Shankar Prasad, has responded to the claims of hacker group Legion by ordering a complete audit of India's IT and banking infrastructure and calling for an overhaul of India's 16-year-old Information Technology Act.

While the Twitter hacks are in themselves disturbing, the group's claims of infiltrating the IT infrastructure of government and banking institutions in our country are more worrying.

The group has claimed that the Indian banking system was already compromised, claiming to have access to data from NPCI (National Payment Corporation of India) and IDRBT (Institute for Development and Research in Banking Technology) servers. The group also claimed that other hacking groups will bring the Indian banking system "down to its knees". They add that they have encryp-

tion keys and certificates used by some banks in India, as well as root access to NPCI and IDRBT servers. If true, it means that the group can masquerade as the bank, generate fraudulent transactions, launch sophisticated phishing attacks and more, while leaving no trace of their actions. SP

## Yahoo's 1 billion user accounts hacked

**Y**ahoo, already reeling from its September disclosure that 500 million user accounts had been hacked in 2014, disclosed recently that a different attack in 2013 compromised more than 1 billion accounts. The two attacks are the largest known security breaches of one company's computer network.

It is unclear how many Yahoo users were affected by both attacks. The Internet company has more than 1 billion active users, but it is not clear how many inactive accounts were hacked. Yahoo said it discovered the larger hacking after analysing data files, provided by law enforcement, that an unnamed third party had claimed contained Yahoo information. SP

## Drugged intruder on San Francisco airport tarmac

**I**n a major security breach at San Francisco International (SFO), a man reportedly drugged ran on to the tarmac, avoiding police and other security personnel, causing panic for some time. The man, thought to be under the influence of a substance, had been reported to security at Terminal One by concerned Southwest agents.

In the phone footage, the man sprints past two passenger jets on the tarmac. The footage shows the man, moments after the foot chase, being circled by several police cars on the runway. He eventually hands himself in to be sent to a psychiatric hospital for evaluation. SP

MEDIA FOR  
AERO INDIA 2017

# SIMPLY THE LARGEST (IN ASIA)


WE AT **SP'S, SP GUIDE PUBLICATIONS**  
FOUNDED IN **1964** HENCE A BACKGROUND OF OVER 52 YEARS,  
BRING THE COLLECTION OF  
THE **LARGEST NUMBER** OF PUBLICATIONS (NINE IN TOTAL)  
AT UPCOMING AERO INDIA 2017

SP'S  AN SP GUIDE PUBLICATION

**SHOWNEWS**.....PUBLISHED DAILY ON DAY 1, DAY 2, DAY 3

SP'S  AN SP GUIDE PUBLICATION  
**AVIATION**.....

SHOW SPECIAL

SP'S  AN SP GUIDE PUBLICATION

**MAI**.....SHOW SPECIAL  
ONLY CONTRIBUTION ON  
MILITARY  
AEROSPACE  
INTERNAL SECURITY

SP'S  **AIRBUZ**  
AN EXCLUSIVE MAGAZINE ON CIVIL AVIATION FROM INDIA.....

SHOW SPECIAL

SP'S  AN SP GUIDE PUBLICATION

**LandForces**.....SHOW SPECIAL

SP'S  AN SP GUIDE PUBLICATION

**NavalForces**.....SHOW SPECIAL

**BizAVIndia**  
An initiative by SP'S PUBLICATIONS & SP'S GUIDE PUBLICATIONS

SHOW SPECIAL

EMAIL US AT:  
ADVERTISING@

[SPGUIDEPUBLICATIONS.COM](mailto:SPGUIDEPUBLICATIONS.COM)

CALL US:

+91 11 24644763

+91 11 24644693

+91 11 24620130

+91 11 24658322

CONTACT US:

ROHIT GOEL +91 99999 19071

NEETU DHULIA +91 98107 00864

RAJEEV CHUGH +91 93128 36347



A  
*Finest & Handy Document*

Now Available  
**NEW EDITION**

# Indispensable Reference

**SP'S  
MILITARY  
YEARBOOK** 2015-  
2016

S I N C E 1 9 6 5

43RD ISSUE

*From 52 Years Old Media House*

**MUST BUY FOR ALL THOSE WHO VALUE & ARE  
ASSOCIATED WITH THE ARMED FORCES IN THE  
DESTINATIONS - INDIA & ASIA**



**Reserve Your  
Own Copies, Now!**

[order@spsmilitaryyearbook.com](mailto:order@spsmilitaryyearbook.com)



**SP GUIDE PUBLICATIONS**

| OVER 5 DECADES SINCE 1964 |