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



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[**SP's @ 53** PURSUING EXCELLENCE OVER FIVE DECADES SINCE 1964]

29th India-Indonesia coordinated Patrol (CORPAT) commences

The 29th series of India-Indonesia CORPAT commenced from May 9-25, 2017, with the opening ceremony being conducted from May 9-12, 2017 at Port Blair under the aegis of Andaman and Nicobar Command. The Indonesian Naval Ship KRI Sutedi Senoputra has arrived at Haddo Wharf, Port Blair to mark the commencement of the 29th series of Ind-Indo CORPAT on May 9. An Indonesian maritime patrol aircraft also flew in with the Indonesian Naval delegation led by First Admiral Bambang Irwanto to INS Utkrosh, Port Blair. First Admiral Bambang Irwanto called on Major General P.S. Sai, Chief of Staff, Andaman and Nicobar Command and the delegation also interacted with Commodore Ashutosh Ridhorkar, the Naval Component Commander.



During the stay at Port Blair from May 9-12, 2017, the visiting crew shall be engaged in interactions at various strata, including sports fixtures, ship visits, professional interactions and visits to places of historical and tourist interests. The closing ceremony of the CORPAT is scheduled at Belawan, Indonesia from May 22-25, 2017.

The close defence relations between India and Indonesia have been growing steadily with regular joint activities and exchanges of personnel between the armed forces of the two countries. Under the broad ambit of this strategic partnership, Indonesian Navy (TNI AL) and the Indian Navy have been carrying out coordinated patrolling twice a year since 2002 near the International Maritime Boundary Line to keep this part of the Indian Ocean region safe and secure for commercial shipping and international trade. **SP**



Cover:

The fact that Erdogan made a second visit to India from April 30 to May 1, 2017, after 2008 speaks of the importance Turkey attaches to its relations with India. Both are members of G-20 group of developed and developing economies.

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India, Turkey relations on good footing despite concerns

The President of Turkey Recep Tayyip Erdogan was in India on a state visit recently and there were many take-aways from that visit, though there are niggling differences between the two ancient countries. India and Turkey have differences over the status of Kashmir and Northern Cyprus, but that has not stopped the two nations from strengthening relations. Both nations believe that economic and trade relations can be more comprehensive and India believes that economic-relations can help in weaning away Turkey from Pakistan. The two leaders – Erdogan and Prime Minister Narendra Modi met to further seal the strong bilateral ties the countries have.

One of the biggest take-aways from the visit was that the two leaders endorsed that they would work together to deal with terrorism. Though Erdogan never mentioned Pakistan, he did state that cross-border terrorism had potential to disrupt economies. Both sides did not expect the visit to be transformational in the relationship. Writes Ranjit Kumar, the issues of Kashmir and Northern Cyprus have been the principal stumbling blocks in developing closer political and strategic relations between the two nations. And the recent turmoil in Turkey wherein Erdogan managed to come out of the crisis have all added the coldness in bilateral relations as Turkey is asking for the deportation of the Fethulla Gulen group members residing in India. But this did not stop the two leaders from extending their cooperation to check terrorism and Erdogan's reference to crossborder terrorism, though he did not name Pakistan, is a significant take-away from the meeting.

The next connect for Prime Minister Modi will be Israel which he is visiting in July and the visit is to mark 25 years of establishment of India-Israel diplomatic relations, allowing increased economic, cultural and security cooperation. The bilateral trade between India and Israel is over \$2 billion. The visit is going to be a historic one.

Talking about historic, India's space technology, yet again showed to the world what it is capable of India launched the 'South Asia Satellite' that will provide a full range of applications (Very

small aperture terminals; direct-to-home services; tele-medicine; tele-education; broadcast; meteorological; disaster management support, etc) and services to all of India's neighbours. In his analysis, Air Marshal B.K. Pandey (Retd) states that the impact of the South Asia communication satellite will be more geopolitical in nature and its influence on the relationship between India and other nations of SAARC will definitely be of significance.

In his fortnightly viewpoint, Lt General P.C. Katoch (Retd) writes about how pricing and technology transfer are becoming hurdles in the Indo-Russian Kamov helicopter deal. The disagreement is over the joint production of Kamov 226T light utility helicopters that was announced as the first major 'Make in India' project.

The government on May 10 has approved the appointment of West Bengal cadre and 1982 batch officer Sanjay Mitra as the next Defence Secretary. Mitra, who was holding the charge of Secretary in the Ministry of Road Transport and Highways till now, has been appointed officer-on-special-duty in the defence ministry and will assume charge on May 24 when incumbent G. Mohan Kumar retires.

Happy reading !

Jayant Baranwal
Publisher & Editor-in-Chief

Erdogan's visit will cement relations

India and Turkey have differences over the status of Kashmir and Northern Cyprus, but that has not stopped the two nations from strengthening relations. Both nations believe that economic and trade relations can be more comprehensive and India believes that economic-relations can help in weaning away Turkey from Pakistan.



Prime Minister Narendra Modi with the President of the Republic of Turkey Recep Tayyip Erdogan at Hyderabad House in New Delhi on May 1, 2017

[By **Ranjit Kumar**]

Knowing fully well that Turkey is a staunch ally of Pakistan and supports the country on the issue of Jammu and Kashmir, why did India invite the President of Turkey Recep Tayyip Erdogan on a state visit? Certainly, both the sides did not expect the visit to be transformational in Indo-Turkish relations. India's stand on Northern Cyprus and Turkish stand on Jammu and Kashmir have been the

principal stumbling blocks in developing closer political and strategic relations between the two nations.

Also the recent domestic events in Turkey has also added to the coldness in bilateral relations as Turkey wants deportation of the Fethulla Gulen Group members residing in India as Turkey describes them as terrorists. However, in spite of these constraints, both sides displayed enough warmth so as to move the relations in a positive direction. Both India and Turkey want normal relations as they enjoy close, friendly and deep rooted ties dating back to sev-



President of the Republic of Turkey Erdogan being received by the President Pranab Mukherjee and Prime Minister Modi at the Ceremonial Reception at Rashtrapati Bhavan in New Delhi

eral centuries. There are rich historical and cultural connections between the two countries in the field of art and architecture. Diplomatic relations between India and Turkey go back to over 70 years. A senior official said that regular high level exchanges have strengthened the bilateral ties.

Both feel that the within the realm of differences over Kashmir and Northern Cyprus, both the nations can deepen the economic and trade relations more comprehensively. In spite of differences Turkey and India enjoy close economic relations. Bilateral trade between the two countries stood at \$6.4 billion. India's main exports to Turkey are textiles and fabrics, chemical, pharmaceuticals, plastic products, machinery and automotive. There is scope for cooperation in other areas such as construction, infrastructure development, renewable energy, tourism and film shooting.

The fact that Erdogan made a second visit to India from April 30 to May 1, 2017, after 2008 speaks of the importance Turkey attaches to its relations with India. Both are members of G-20 group of developed and developing economies.

This is why the Indian Prime minister exhibited extra courtesy by accompanying the Turkish President to the joint industry chambers meeting and emphasized on the importance of strengthening the economic relations. Naturally the focus of the talks was on enhancing the bilateral trade and economic relations to the level of \$10 billion by 2020 from the present level of \$6.4 billion. India believes that the best way to wean Turkey away from the clutches of Pakistan is to economically bind the two nations, and drive a wedge between the two Islamic nations.

Turkish anger over India's policy on Armenia and Cyprus is well known. Was it a mere coincidence that just before Erdogan's visit to India, Vice President Hamid Ansari was sent on a State visit to Armenia and the President of Cyprus enjoyed State hospitality in India? Tur-

key has similarly retaliated by siding with Pakistan since long. Turkey was also not satisfied with India's response on Turkish demand to take action against the Fethullah group members living in India. But Turkey now realizes that it will not be in its long term interest to keep aloof from India in the economic sphere.

Though Turkey stuck to its pro-Pakistan stance on Kashmir by advocating multilateral talks for resolving the Kashmir issue, India did succeed in cajoling Turkish President to speak the same language on terrorism. Probably, this will irk Pakistan as the Turkish leader talked tough on terrorism by agreeing with India on the need to dismantle the infrastructure of terrorism and asking Pakistan, without naming, to stop being a state sponsor of terrorism. Significantly, Turkey agreed for the early conclusion of the negotiations on the comprehensive convention on international terrorism, proposed by India almost two decades ago.

The joint statement issued after the talks explicitly condemned the double standards on terrorism and reiterated their "strong condemnation of and resolute opposition to terrorism in all its forms and manifestations, wherever committed and by whomever, and declared that there could be no justification for terrorism anywhere. Both sides urged all countries and entities to work sincerely to

disrupt terrorist networks and their financing, and stop cross-border movement of terrorists." Reference to cross-border terrorism was a significant support from Turkey to India. Probably this was the biggest takeaway for India from the visit of the Turkish President.

Another big takeaway was obtaining Turkish support on India's membership of the 48 nation Nuclear Supplier Group, though Turkey also wants similar privilege to Pakistan. Turkey also welcomed India's accession to the Missile Technology Regime. Turkey also extended significant support on India's application for Wassenaar arrangement.

As far as the issue of permanent membership of the United Nations Security Council is concerned, Erdogan expressed the need for urgent reforms to reflect the realities of the 21st century. Though the joint statement does not mention explicit Turkish support for India's membership, Erdogan while addressing the Jamia Millia university which conferred a doctorate degree, strongly supported India's permanent membership. "The UN Security Council should be reformed. India has a population of 1.3 billion and yet it is not a part of the Security Council. Do you think this is a healthy system? A total of 1.7 billion people live in the Islamic world but they are not being represented in the Security Council. Only five members of the Council are deciding the fate of the entire world which is not fair."

Perhaps Indian interlocutors have been able to add new glues to India-Turkish relations, which will cause consternation in the Pakistani diplomatic circles. Probably, India's principal strategic aim seems to have been achieved by putting emphasis on bringing India and Turkey closer in economic arena, which will help cement the relations in strategic sectors in the coming years. **SP**

(The writer is a strategic analyst)

Reference to cross-border terrorism was a significant support from Turkey to India. Probably this was the biggest takeaway for India from the visit of the Turkish President

LT GENERAL
P.C. KATOCH (RETD)

Prime Minister Modi's Israel visit – Expectations?

Prime Minister Narendra Modi's visit to Israel on July 5-6 this year, first by any Indian Prime Minister will be a historic event of extraordinary proportions since it also will mark 25 years of establishment of India-Israel full diplomatic relations in 1992, which allowed increased economic, cultural and security cooperation between the two nations. It was also during the National Democratic Alliance (NDA)-I regime that Jaswant Singh became the first Indian Foreign Minister to visit Israel.

Significantly, bilateral trade between India and Israel has gone up from \$675 million in 1998 to \$4.52 billion in 2014, excluding military sales. Commercial ties have widened to span areas such as technology, solar energy and agriculture. As per reports, Prime Minister Modi's visit to Israel will be stand-alone, same as his visits to the United Arab Emirates, Saudi Arabia, Iran and Qatar. It goes without saying that stand-alone visits have special significance in bilateral relationships. At the same time, Palestinian President Mahmoud Abbas is also scheduled to visit India this summer, most likely before Modi's visit to Israel though the dates have not been announced.

Israel is among the top four military hardware suppliers to India; by 2012, the India-Israel defence relationship was estimated to be worth approximately \$9 billion, with military hardware sales from Israel to India amounting to \$1 billion annually. However, as per news reports, Prime Minister Modi's visit to Israel will focus not only on defence ties alone, but encompass long-term economic and technological cooperation, resulting in a free trade agreement (FTA) which Israel is keen upon. During the visit of Israel's President Reuven Rivlin to India in November 2016, there were talks on sharing Israeli experience in water management and agriculture.

Ahead of Modi's trip, Foreign Secretary S. Jaishankar will visit Israel in May to tie up details. In March 2017, the Ministry of Defence (MoD) and Israel's Rafael Advanced Defense Systems signed a \$1-billion deal for Rafael to sell India Spike anti-tank missiles; a portable fire-and-forget-guided missile equipped with an imaging infrared seeker and the high-explosive anti-tank (HEAT) warhead. A month earlier in February 2017, Prime Minister Modi cleared a mega deal for the Army worth Rs 17,000 crore to acquire the Barak-8 medium range surface-to-air missile (MR-SAM) system from Israel designed to destroy hostile aircraft, missiles and drones at a range of 70 km; to initially include one regiment of 16 launchers and 560 missiles for the Indian Army. According to IHS Jane's, the deal includes the sale of 275 launchers and 5,500 missiles, as well as simulators

and the transfer of technological (ToT) for assembling 1,500 systems and producing an additional 30,000 missiles in India.

Overall, the Army will induct over five regiments of the Barak-8 MRSAM systems which will have around 40 firing units and over 200 missiles of the system. These missiles will be deployed for air defence of vital assets and points across the country. Delivery of the first system for the Army units will begin in 72 months of the signing of the contract and they would be ready for deployment in field areas by year 2023. India and Israel are jointly developing similar systems for the Indian Air Force and the Navy. Bharat Dynamics Limited (BDL) based in Hyderabad will produce the missiles, with multiple Indian companies like the Bharat Electronics Limited, Larsen and Toubro, Tata group will contribute in the production systems and subsystems in it. A new production facility to deliver 100 missiles a year has been

established for such type of long and medium range surface-to-air missiles at BDL. The second deal to be inked was for a similar SAM system to be fitted on board the 40,000-tonne indigenous aircraft carrier INS Vikrant being built at the Cochin Shipyard. This project follows two similar ongoing Defence Research and Development Organisation (DRDO)-IAI programmes for the next-generation SAMs for Indian warships at an initial cost of Rs 2,606 crore and nine air defence squadrons for the Indian Air Force for Rs 10,076 crore. Other big-ticket deals in the pipeline include acquisition of two more Israeli Phalcon AWACS (airborne warning and control systems), which are to be mounted on Russian IL-76 military aircraft, and four more Aerostat radars at a cost upwards of \$1.5 billion.

In addition, India is likely to soon acquire 10 x Heron-TP armed drones for around \$400 million. According to Daniel Carmon, Israeli

Ambassador to India, Prime Minister Modi's will be a very important visit. It will be one of the most important visits that Israel has witnessed in many years," reflecting the depth of cooperation between the two countries in a range of key areas. He added that the relationship has gone beyond buying and selling and that the two countries are now focusing majorly on joint research and development. That the cooperation should logically also span the covert and cutting edge technology is indicative by Carmon saying, "We are really talking about things which are very deep. Much deeper than the deliverables." Undoubtedly, Prime Minister Modi's visit will provide a massive fillip to India-Israel relations. **SP**

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

Prime Minister Narendra Modi with the
President of Israel Reuven Rivlin in New
Delhi on November 15, 2016.



Sanjay Mitra appointed as new Defence Secretary

The government on May 10 approved the appointment of West Bengal cadre and 1982 batch officer Sanjay Mitra as the next Defence Secretary with a fixed tenure of two years. Mitra, who was holding the charge of Secretary in the Ministry of Road Transport and Highways till now, has been appointed officer-on-special-duty in the defence ministry and will assume charge on May 24 when incumbent G. Mohan Kumar retires.

Mitra had earlier had a seven-year stint in the Manmohan Singh-led Prime Minister's Office (PMO) from 2004. He was also the Chief Secretary of West Bengal with Mamata Banerjee appointing him as predecessor Samar Ghosh refused to continue as the Chief Secretary after serving for six months post superannuation. Mitra became the State's Chief Secretary in October 2012 by superseding a number of senior IAS officers.

Before being posted as the state Chief Secretary, Mitra worked as a Health Secretary and as a Joint Secretary in the PMO. **SP**

Naval Commanders' Conference

Bi-annual Naval Commanders' Conference was held from May 2 to 5, 2017, which was attended by all Commanders-in-Chief, senior flag officers of Indian Navy, Defence Minister Arun Jaitley, Rajya Raksha Mantri, Dr Subhash Bhamre, Asok Gupta, Defence Secretary and other senior functionaries of the Ministry of Defence. During the Conference the top-level leadership of Navy reviewed major operational, training and administrative activities undertaken in the last six months.

While addressing the conference Defence Minister complimented the Indian Navy for its professionalism and deep commitment towards protecting the maritime interests of the country including the huge maritime boundary as also meeting a large number of international obligations, in line with the country's defence diplomacy requirements. He spoke about the prevailing and emerging security situation in the sub-continent as also the expanding presence of the extra-regional powers in India Ocean region (IOR). He also referred to the situation on the Western Border and its linkage to the internal security. He urged the Commanders' to be prepared at all times as "Preparedness was the best Deterrent".

Acknowledging the various crucial requirements of the Indian Navy, the Defence Minister assured the Commanders that the government was working on all issues very positively and was going to increase the resources to make good the shortfalls soon. He lauded the efforts of India Navy in indigenisation and urged the Commanders to focus on furtherance of domestic expertise building up. Concluding his address, he said that due impetus through appropriate Defence Procurement Policies (such as SP Model which would be finalised soon) was being given to make good the critical capability shortfalls viz. ship borne multi-role helicopters, conventional submarines and mine counter-measure vessels.

Chairing the conference, Admiral Sunil Lanba, Chief of the Naval Staff addressed the Naval Commanders on issues pertaining to operational readiness, capability enhancement, maintenance, operations logistics, infrastructure development and human resource management. He emphasised the need for continued efforts towards modernisation, indigenisation and expanding the Indian Navy's operational footprint so as to be a stabilising force in IOR.

The Commanders also had an opportunity to interact with



senior government officials, as also with the Chiefs of Indian Army and Indian Air Force, who shared their views on the current security situation and the way ahead to enhance Tri-Service synergy and jointmanship. The Foreign Secretary also interacted with the Commanders on the geo-political developments with key focus on the Indian Ocean Region and outlined key imperatives pertaining to our foreign policy and diplomatic initiatives.

Focussed attention was also accorded to associated aspects that included a review of the security measures and mechanisms for coastal defence, infrastructure, force development and logistics support management.

In his closing address, the CNS while complimenting the officers and men for their commitment and professionalism exhorted the Commanders to give focussed attention to address all challenges with the singular aim to be combat ready at all times. He emphasised the importance of quality maintenance and efficient operational logistics towards ensuring combat effectiveness. **SP**

—Rear Admiral Sushil Ramsay (Retd)

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Two launches in a row with precise hit of BrahMos Block 3

South Western Command's Corps 'Strike One' successfully carried out the firing of the advanced BrahMos Block III land attack cruise missile system (LACM) in the Andaman and Nicobar Islands on May 3. The successive launches reinforce the formidable weapon's precision strike capability. The long-range tactical weapon was successfully tested from the same location on May 2.

These successful firings of the supersonic cruise missile were carried out in full operational land-to-land configurations from Mobile Autonomous Launchers (MAL) at its full-range. Meeting all flight parameters in a copybook manner while conducting high level and complex manoeuvres, the multi-role missile successfully hit the land-based target with desired precision, in both the trials demonstrating its accuracy of less than one metre.

This is the fifth consecutive time when the Block-III version of BrahMos LACM has been successfully launched and hit the land-based target in 'top-attack' mode, an incredible feat not achieved by any other weapon system of its genre. Indian Army, which became the first land force in the world to deploy the BrahMos in 2007, has raised several regiments of this formidable weapon. Jointly developed by India's DRDO and Russia's NPOM, the multi-platform, multi-mission BrahMos is capable of being launched from land, sea, sub-sea and air against surface and sea-based targets. **SP**



Indian warships visit Alexandria

As part of the Indian Navy's overseas deployment (OSD) to the Mediterranean Sea and the West Coast of Africa, two Indian warships, INS Mumbai and INS Aditya, were on a three-day visit to Alexandria in Egypt from May 5. The warships engaged extensively with the Egyptian Navy.



With governments of both countries keen on sustaining strong diplomatic ties, the current visit seeks to underscore India's peaceful presence and solidarity with friendly countries and, in particular, to strengthen the existing bonds of friendship between India and Egypt.

Indian Naval assets have been increasingly deployed in recent times to address the main maritime concerns of the region, including piracy off the coast of Somalia. In addition, the Indian Navy has also been involved in assisting countries in the Indian Ocean Region with Hydrographic Survey, Search and Rescue and other such capacity-building and capability-enhancement activities. The current deployment into the Mediterranean will contribute towards the Indian Navy's efforts to consolidate Inter Operability and forge strong bonds of friendship across the seas.

The visiting ships were part of the Indian Navy's Western Naval Command and are based in Mumbai. The Task Group is headed by Rear Admiral RB Pandit, the Flag Officer Commanding Western Fleet. **SP**

India and Republic of Korea sign inter-governmental MOU on shipbuilding

India and the Republic of Korea (RoK) signed an inter-governmental memorandum of understanding (MoU) for defence industry co-operation in shipbuilding in New Delhi on April 21, 2017. The MoU was signed by Secretary (Defence Production), Ashok Kumar Gupta and the Minister of Defence Acquisition and Programme Administration (DAPA), Chang Myoung-Jin from the RoK side. The MoU will help the 'Make in India' initiative of the Government of India.

The MoU will come into effect from the date of signature by both sides and will be initially valid for a period of five years and would be automatically extendable for further successive five year at a time. The Inter-Governmental MoU, was conceived under the overall umbrella of the 'Special Strategic Partnership' between both sides as declared in the Joint Statement of the Prime Minister of India and the President of RoK in May 2015.

To substantiate the 'Special Strategic Partnership', the two sides had inter-alia agreed to encourage greater co-operation between their shipyards in the defence sector. Accordingly, it was decided to sign an inter-governmental MoU on 'Defence Industry Co-operation in Shipbuilding'.

The Cabinet Committee on Security (CCS) has accorded its approval for signing the above MoU with RoK and also for nominating Hindustan Shipyard Limited (HSL), Visakhapatnam from the Indian side for the collaboration. RoK will indicate the name of its recommended organisation for the collaboration in due course of time. **SP**

Sky is not the limit for cooperation

The 'South Asia Satellite' will provide a full range of applications (Very Small Aperture Terminals; Direct-to-home services; Tele-medicine; Tele-education; Broadcast; Meteorological; Disaster management support etc) and services to all of India's neighbours



Prime Minister Narendra Modi at the video conference with Heads of Government from South Asian nations to mark the launch of the South Asia Satellite in New Delhi on May 5, 2017

[By **R. Chandrakanth**]

P rime Minister Narendra Modi tweeted 'Launch of the South Asia Satellite shows that for South Asia, even the sky is not the limit for cooperation!' Indeed, the sky is not the limit. While the Indian Space Research Organisation (ISRO) has shown its mettle to the world since many years, it has got an added boost with the government led by the Prime Minister, Narendra Modi. It was during the run-up to the Indian general elections in 2014, Prime Minister Modi had indicated that the foreign policy will actively focus on improving ties with the

immediate neighbours. After the landslide victory in the general elections, Modi invited all heads of State/heads of government of SAARC countries to his swearing-in ceremony as the Prime Minister.

In 2014, after a month in government, Prime Minister Modi asked ISRO to develop a SAARC satellite. He asked the scientists to work on a satellite that would provide a full range of applications (Very Small Aperture Terminals - VSAT; Direct-to-home - DTH services; tele-medicine; tele-education; broadcast; meteorological; disaster management support, etc) and services to all of India's neighbours. Prime Minister Modi had then said 'There is a lot of poverty in the SAARC nations and we need scientific solutions for this.'

The South Asian Satellite – Some highlights

- Space diplomacy has touched new heights with Prime Minister Narendra Modi's unique gift in the sky to South Asian neighbours.
- The gift of a communications satellite for use by neighbours at no cost has perhaps no precedent worldwide.
- The satellite, which weighs over 2 tonnes, has been fabricated in three years at a cost of over ₹230 crore.
- Its footprint that extends all over South Asia.
- The South Asia Satellite has 12 Ku band transponders which India's neighbours can utilise to increase communications.
- Each country will get access to at least one transponder through which they could beam their own programming.
- The satellite will facilitate DTH television, VSAT links, tele-education, telemedicine and disaster management support. It will provide critical communication links in times of disasters such as earthquakes, cyclones, floods, and tsunamis.
- Heads of Government from all the seven South Asian nations who are benefiting from the satellite, connected via video conference, in a unique celebration of the successful launch.



And ISRO, as is its prowess, showed that it could rise up to any occasion. In 1975 India became the first South Asian nation to launch a satellite. The ISRO Chairman, A.S. Kiran Kumar had stated that the satellite can be launched within 18 months of receiving approval from the SAARC member nations. It was proposed to build a satellite with 12 Ku-band transponders (36 Mhz each) and launch using the Indian Geosynchronous Satellite Launch Vehicle (GSLV) Mk-II. The total cost of launching the satellite was estimated at ₹235 crore, and the cost of the launch to be met by India.

Pakistan and Afghanistan back out

The countries participating, besides India, are Bangladesh, Bhutan, Nepal, Maldives and Sri Lanka. These countries will only have to pay for their ground stations; all other costs are being borne by India. Instead of being called SAARC satellite it is called South Asia satellite as Pakistan and Afghanistan backed out of this venture, the former fearing that India could use the satellite for stealth surveillance. Afghanistan wanted more transponders as it has leased a satellite from Eutelsat and was going to place in the same longitude as GSAT-9. Nepal has also plans of acquiring two communications satellites of its own.

Bangladesh signed into the pact only recently. It was worried about a clash in frequency allocation with its impending Bangabandhu 1 communications satellite. However on March 23 this year, ahead of Prime Minister Sheikh Hasina's visit to India, Bangladesh signed up for the programme. As regards Sri Lanka, it signed up after India agreed to not prevent it from launching its own communications satellite in the future.

In this background, the May 5, 2017, launch of the 2,230 kg South Asia Satellite GSAT-9 into a Geosynchronous Transfer Orbit (GTO) is historic. The GSLV-F09 mission is the eleventh flight of India's Geosynchronous Satellite Launch Vehicle (GSLV) and its fourth consec-

utive flight with the indigenous Cryogenic Upper Stage (CUS). The vehicle is designed to inject 2-2.5 tonne class of satellites into GTO. The overall length of GSLV-F09 is 49.1 m. GSLV-F09 was launched from the Second Launch Pad (SLP) at Satish Dhawan Space Centre SHAR (SDSC SHAR), Sriharikota, the space port of India.

GSLV-F09 vehicle configuration including the CUS is similar to the ones successfully flown during the previous three missions – GSLV-D5, D6 and F05 – in January 2014, August 2015 and September 2016 respectively. GSLV-D5 and D6 successfully placed two communication satellites – GSAT-14 and GSAT-6, while GSLV-F05 placed India's weather satellite INSAT-3DR, in the intended GTOs. S-band telemetry and C-band transponders enable GSLV-F09 performance monitoring, tracking, range safety/flight safety and Preliminary Orbit Determination (POD).

GSAT-9 is configured around the ISRO's standard I-2K bus. The two solar arrays of GSAT-9 consisting of Ultra Triple Junction solar cells generate about 3,500 Watts of electrical power. Sun and Earth sensors as well as gyroscopes provide orientation reference for the satellite. The Attitude and Orbit Control System (AOCS) of the satellite maintains its orientation with the help of momentum wheels, magnetic torquers and thrusters. The satellite's propulsion system consists of a Liquid Apogee Motor (LAM) and chemical thrusters using liquid propellants for initial orbit raising and station keeping. The satellite also carries plasma thrusters, assisting in station keeping.

India's advancements in space are highly commendable and the neighbouring countries can benefit from it. India can also share the know-how and knowledge from its Indian Regional Navigation Satellite System (IRNSS), the GPS-Aided GEO-Augmented Navigation (GaGAN) networks and the CartoSat imaging satellites, while ensuring that it does not compromise with its own strategic interests. Regional cooperation has gone on to a higher level! **SP**



AIR MARSHAL
B.K. PANDEY (RETD.)

South Asia Communication Satellite

In the successful launch of the South Asia Communication Satellite, ISRO has once again displayed its level of competence and the capability to lead from the front

While the nation was still savouring the success by way of a global record achieved by the Indian Space Research Organisation (ISRO) with the launch in mid-February this year of a record 104 satellites at one go, most of which were from abroad, history was scripted again on May 05, 2017, when ISRO successfully launched the South Asia Communication Satellite, the GSAT-9 that was carried into space by the Geosynchronous Satellite Launch Vehicle (GSLV-F09) the upper stage of which was powered by an indigenously developed cryogenic engine. Weighing 2230 kg at lift-off, the satellite which is designed to operate from a geostationary orbit, is expected to have an operational life of more than 12 years. The satellite has been equipped with 12 Ku-Band transponders that has been developed at a cost of Rs 235 crore. The total cost of the project inclusive of the launch is estimated to be around Rs 450 crore. This was the eleventh flight of GSLV and the fourth consecutive launch of GSLV-F09.

Brief History and Achievements of ISRO

With the intention of the newly independent nation making a foray into the regime of space exploration, in 1962, the Government of India had established the Indian National Committee for Space Research (INCOSPAR), a concept driven jointly by the first Prime Minister of India Jawaharlal Nehru and the legendary scientist Vikram Sarabhai who is generally regarded as the father of India's space programme. Subsequently in 1969, INCOSPAR was replaced by ISRO, a far more empowered organisation under the Department of Space reporting directly to the office of the Prime Minister of India.

During its nearly fifty years of existence, ISRO has built up an impressive record of achievements. Its journey into space began with the first satellite Aryabhata for the launch of which on April 19, 1975, the space agency had to seek assistance from the Soviet Union. However, five years later, ISRO was able to successfully place in orbit the Rohini satellite with the help of the indigenously built Satellite Launch Vehicle-3. ISRO then went on

to develop the highly successful Polar Satellite Launch Vehicle and the GSLV capable of carrying heavier payloads. ISRO also developed multiple satellite launch capability that enabled the agency to place in orbit numerous communication, Earth observation satellites and navigation systems such as GAGAN and IRNSS. ISRO accomplished Chandrayaan-I, a mission to the Moon in 2008 and the Mars Orbiter Mission in 2014. So far, ISRO has launched 226 satellites, including 179 belonging to foreign countries. ISRO is now reported to be working on Chandrayaan-II, human space flight, a mission to Venus and a probe to the Sun.

In the successful launch of the South Asia Communication Satellite, ISRO has once again displayed its level of competence and the capability to lead from the front, attributes not usually observed in the other Public Sector Undertakings in India especially those in the regime of aerospace and defence.

Space Diplomacy

Soon after assuming office in 2014, Prime Minister Narendra Modi had tasked the scientists at ISRO to develop a communication satellite that would be for use by the nations of the South Asian Association for Regional Cooperation (SAARC), an economic and political organisation of eight nations in South Asia which consists of India, Nepal, Bhutan, Bangladesh, Maldives, Sri Lanka, Afghanistan and Pakistan. At the SAARC Summit in 2014, Prime Minister Narendra Modi embarked on "space diplomacy" and made a commitment to launch a communication satellite for use exclusively by nations of the SAARC. This was a clear projection of his intent to strengthen his "neighbour first policy".

As per the plans drawn up by Prime Minister Narendra Modi, the satellite was intended to be a "precious gift" from India to the other seven nations of SAARC that would provide telecommunication links amongst them as also address the region's economic and developmental priorities. From the point of view of the technology involved in the development and launch of the South Asia Communication Satellite and placing it in a geostationary orbit, it was well



within the capability of ISRO and as such, the exercise would not have posed any extraordinary challenge to the capability of the organisation. However, the impact of the South Asia Communication Satellite will be more geopolitical in nature and its influence on the relationship between India and the other nations of SAARC will definitely be of significance. This has clearly been the thrust of the political leadership at the national level which is evident in the ideas and sentiments expressed by the Prime Minister in his message after the successful launch of the South Asia Communication Satellite, to the member nations of SAARC who are part of the scheme.

In a video conference with the leaders of the partner nations, Prime Minister Narendra Modi said, "It was a journey to build the most advanced frontier in our partnership and that our coming together is a sign of our unshakable resolve to place the needs of our peoples in the forefront. We are a family of South Asian countries, united in our pursuit of peace, progress and prosperity of our region and the entire humankind. We extend our close links into Outer Space and space technology will touch the lives of our people in the region. This launch has shown us that even the sky is not the limit when it comes to regional cooperation. Convinced that when we join hands and mutually share fruits of knowledge, technology and growth, we can speed up development and prosperity. The support by the leaders of partner nations will add even more joy in the hearts and minds of our region."

South Asia Communication Satellite

The South Asia Communication Satellite in geostationary orbit is designed to improve the capability of each of the partner nations in the area of disaster management through better connectivity and speedy communication amongst them. In addition, the satellite which is equipped with Ku band transponders, will facilitate and enhance capabilities in other areas such as e-governance, tele-education, tele-medicine, broadcast within the country, Direct-to-Home services and VSAT capacity with other linking services. While India is bearing the cost of the development and launch of the South Asia Communication Satellite, the partner nations will be

However, the impact of the South Asia Communication Satellite will be more geopolitical in nature and its influence on the relationship between India and the other nations of SAARC will definitely be of significance

required to build the required infrastructure on the ground.

Unfortunately, Pakistan has turned out to be a major impediment for the success of the scheme and in turn could impinge on the unity and harmony of SAARC. The reason put forward by Pakistan for not participating in the scheme is that it has its own space programme. Pakistan initiated its space programme eight years before India did. Today, it has five satellites, but lacks heavy duty satellite launch vehicles and facilities for fabrication of satellites. But perhaps the primary motivation for Pakistan not to participate in the scheme is the ongoing reason is the ongoing conflict with India over Jammu and Kashmir as also mistrust barriers on ownership and control of the satellite and related systems. Pakistan holds that as the South Asia Communication Satellite is made solely by India, it cannot be called a regional project. As per a spokesperson

from the foreign office, Pakistan is prepared to share its expertise and technological know-how and is keen to participate in the project only if it has a role in the development, launch and operation of the satellite. However, as India had made it clear that it would build, launch and operate the satellite, Pakistan would not like to be a part of the scheme. This unfortunately is a major blow to the spirit of unity of SAARC that has been and is the enduring objective of Prime Minister Narendra Modi.

The China Factor

In the euphoria following the successful launch of the South Asia Communication Satellite, the implications of the involvement of China in some of the nations of SAARC ought not to be ignored. Sri Lanka already has a Chinese satellite and is in the process of getting the second one in 2018. Apart from Pakistan that is fully under her influence, China has made inroads into Bangladesh, Nepal, Sri Lanka and the Maldives. In the regime of space technology, Pakistan and Sri Lanka have launched satellites with help from China. Even Nepal, the Maldives and Afghanistan have held preliminary discussions with China on future satellite projects. India's space diplomacy will have to factor in and aggressively counter the Chinese influence in the region. This will be a major challenge for the Indian leadership. **SP**

Godrej Aerospace plays key role in GSLV-F09 launch

Godrej Aerospace, a business unit of Godrej & Boyce played a key role in the launch of the GSAT-9 satellite carried out by the ISRO on May 5, 2017.

Godrej Aerospace's contribution to the GSLV includes critical equipment — first stage strap-on Vikas liquid propulsion engine, second stage strap-on Vikas liquid propulsion contour engine and indigenously developed thrust chambers for third stage cryogenic main and steering engine. The company has also manufactured and supplied parts for the satellite's thrusters, which helps the satellite enter the desired orbit and keep it in orbit during its operational life.

Kaustubh Shukla, Chief Operating Officer, Industrial Products Group, Godrej & Boyce said, "This is a proud moment for India. I congratulate ISRO and its entire team for propelling our country to yet another milestone in its space programme. We have been a proud industry partner of ISRO since three decades and have been

privileged to be part of several breakthrough missions. Today's outstanding achievement offers further proof of the capability of the country's space programme and Godrej is proud to make this contribution to the nation's moment of glory."

"This momentous milestone reminds me of my training in Russia in 1993 where we had limited exposure to cryogenic engines. Today, it gives me immense satisfaction that our joint efforts with ISRO are giving us complete insights into this extremely critical Cryogenic Engine technology," said S.M. Vaidya, EVP & Business Head, Godrej Aerospace.

Godrej Aerospace has been associated with ISRO since 1985, working with them on complex systems such as liquid propulsion engines for PSLV and GSLV rockets, thrusters for satellites and antenna systems. The company was also an integral part of the prestigious Chandrayaan and Mangalyaan missions. **SP**



LT GENERAL
P.C. KATOCH (RETD)

CSAT-09 – Modi's gift to South Asia

CSAT-09 or SAS (South Asia Satellite) is the latest technological move by Prime Minister Narendra Modi for integrating South Asia, a resolve he had shown at the swearing in of his government by inviting all SAARC leaders, including Nawaz Sharif, Prime Minister of Pakistan. GSAT-9, the communications satellite put into orbit by ISRO on May 5 from Sriharikota is a 2,230-kg venture bringing on the same platform South Asian countries; India, Afghanistan, Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka, Pakistan having opted out earlier. Operating in the Ku-Band, the 12 transponders of SAS offer a range of services including banking networks, weather forecast, telemedicine, disaster management, tele-education and broadcasting services such as television, DTH and the works. India will also aid participating nations in developing ground stations to access the data relayed by the satellite.

Ambassadors of all the six participating nations were invited to witness the lift-off of SAS from the Satish Dhawan Space Centre, Sriharikota given the geo-political value of the event. Speaking to leaders of the concerned nations (Afghan President Ashraf Ghani, Bhutan Prime Minister Tshering Tobgay, Nepal Prime Minister Pushpa Kamal Dahal Prachanda, Bangladesh Prime Minister Sheikh Hasina, Sri Lanka President Maithripala Sirisena and Maldives President Abdulla Yameen) through videoconferencing, Prime Minister Modi said that the launch of the SAS “demonstrates that our collective choices for our citizens will bring us together for cooperation, not conflict; development, not destruction; and prosperity, not poverty”. Heads of the participating nations expressed happiness and enthusiasm at the video conference.

SAS, first mooted in November 2014 as SAARC Satellite during the Kathmandu SAARX summit, till it was renamed after Pakistan pulled out, has been operationalised in quick time. Kudos are in order to the initiative and push by Prime Minister Modi, but equally to the Presidents/Prime Ministers of Afghanistan, Bangladesh, Bhutan, Maldives, Sri Lanka and Maldives for their foresight, spirit of integration and resolve for betterment of their nations and the region. While India has capitalised on its low-cost space technology (and why not), the venture without parallel in the world; as per BBC, no country ever has funded an entire space program itself and then ‘gifted’ the satellite services free of cost to other countries, as India has done.

SAS became the first Indian spacecraft to carry an electric propulsion system (EPS), which can significantly reduce the fuel satellites need to carry, thus paving the way for development of future satellites that will be considerably lighter. SAS carried just 25 per cent of chemical fuel it would have had to carry in the absence of EPS. This means the workload a 5,000-kg satellite can take can be achieved by a 3,500-3,700 kg satellite equipped with EPS.

In his fortnightly radio address ‘Mann Ki Baat’ to the nation on May 7, Prime Minister Modi referring to the SAS said, “The capaci-

ties of this satellite and the facilities it provides will go a long way in addressing South Asia's economic and developmental priorities.” No doubt SAS has geo-strategic importance but India is not looking at or countering China's strategy of ‘string of pearls’. Pakistan besides her anti-India fixation, under Chinese influence, backed out from SAS. In fact, there is speculation that Pakistan may have tried to cyber attack launch of the satellite. There was also report of back channel diplomacy between Prime Minister Modi and Nawaz Sharif through Sajjan Jindal, which the Pakistan army did not want having been not taken into confidence by Nawaz Sharif. The recent heinous cross-border action of beheading soldiers of an LoC (Line of Control) patrol by a Border Action Team (BAT) of Pakistani army was likely aimed at derailing any back channel and forcing postponement of launch of the SAS to embarrass India. Development and launch of Pakistan's satellites are with Chinese help.

In 2018, Pakistan plans to launch a remote-sensing satellite into space; built by and China and launched from a Chinese launch pad. China has also been helping Sri Lanka and Bangladesh in their space programme. China will launch Sri Lanka's second satellite during 2018. Strangely, Afghanistan has ‘yet’ to ratify using the free services of SAS, which may be a mere delay or under Chinese pressure, especially with China offering Afghanistan help to build and launch latter's second satellite Afghansat-2, which Afghanistan has accepted. Life of Afghansat-1, developed jointly by European company EADS and ISRO (launched by EADS), ends around mid 2020. SAS offers one or more transponders to Afghanistan but China has offered entire satellite (Afghansat-2) to Afghanistan, not free but perhaps at a discounted cost and long-term interest repayment plan. China also set up in 2005, Asia-Pacific Space Cooperation Organization (APSCO), with Bangladesh, Iran, Mongolia, Pakistan, Peru, Thailand and Turkey, to promote collaborative ventures. During 2017, Bangladesh will have its own ‘Banglabandhu-1’ communications satellite, built by Thales Alenia Space (joint Italian-French) venture.

South Asian space is set for more activation and Chinese intent of exerting gravitational pull to bring South Asian countries more and more into her sphere of influence is reality. In addition to the SAS, India is working on other ventures like the Motor Vehicle Agreement between BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) states that aims at better regional connectivity between seven south Asian nations (except Pakistan). India has also offered to build satellite tracking station in Vietnam. One can only hope that Pakistan, though backed by China in its policy of state terrorism) at some point of time starts working towards integrated development of the region, rather than destabilising it. **SP**

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



LT GENERAL
PC. KATOCH (RETD)

Kamov Helicopters – Finally through?

In March 2017, there were reports in media that the Indo-Russian Kamov helicopter deal had hit a hurdle, pricing and technology transfer being main issues. The news going round was that India and Russia were having a disagreement over the joint production of Kamov 226T light-utility helicopter that was announced as the first major 'Make in India' project some five months ago. Another reason quoted was that Russia was yet to give approval for the project while related technology transfers 'through a private Indian partner' were the two stumbling blocks.

It may be recalled that in December 2015 it was announced that Kamov 226T will be copter of choice for 'Make in India,' India and Russia having inked the inter-governmental agreement for the light utility helicopter. During the meeting between Prime Minister Narendra Modi and President Putin at Goa in 2016, the shareholders pact for the joint venture to manufacture the Ka-226T helicopters in India was signed; a private partner was part of this inter-government agreement. Russia already had the Hindustan Aeronautics Limited (HAL) as the Indian partner, but the Ministry of Defence (MoD) is looking to have private sector Indian investors to share a part of the contract that India has to execute under a joint venture with Moscow. So while price negotiations are a done thing, the delay in nominating the private Indian company other than the HAL is attributable to India, not Russia.

In fact, when the National Security Advisor (NSA) Ajit Doval visited Russia in January 2017, Russian authorities asked him reasons why the Kamov helicopter deal was being delayed by the Indian side. The transfer of technology (ToT) would hardly have been a problem, the Kamov being quite different from the BrahMos supersonic missile. But possibly the name(s) of private partners were not intimated to Russia then. Whatever be the case, the good news is that President Putin has given the final go-ahead for the joint venture. It may be recalled that the armed forces' endeavour to procure 197 such light utility helicopters been scrapped three times over the last decade due to corruption allegations and technical deviations, which has created criticality of helicopter holdings in this category. The three services and the Coast Guard currently have 430 Cheetah/Chetak helicopters. They are based on the 1950s' designed Alouette Aérospatiale 315B Lama of France. Post series of helicopter crashes and loss of precious lives, the then Defence Minister Manohar Parrikar was petitioned by

a group of Army officers wives to stop the use of the "outdated and ageing" Cheetah and Chetak helicopters, which are without modern avionics but are even flown to service forward areas like the Siachen Glacier-Saltoro Ridge region.

The armed forces urgently need 484 light choppers to replace their obsolete single-engine Cheetah/Chetak fleets, which have been dogged by a high crash rate and serviceability problems. Overall, some 800 helicopters over the next decade are required by Indian security forces which is beyond the capability of HAL. The twin-engine Kamov 226T will replace the single-engine Cheetah/Chetak, usually deployed for surveillance, dropping small loads and for rescue, including of troops posted at forbidding heights such as the Siachen Glacier-Saltoro Ridge region. The twin-engine Kamov 226Ts are multi-role helicopters, which can undertake reconnaissance, patrol and disaster relief operations as well as transport eight combat-ready soldiers with a maximum range of 600 km. However, the project is not getting off soon, as may be perceived by some.

The MoD will now ask the private company/companies (HAL being the lead integrator for the project) to submit its technical and commercial proposal within six months, meaning some cost negotiation will be carried out in the future as well. Nomination of this company too may see some turbulence because the chapter on 'strategic partnership' in the DPP 2016 is still to be scripted. Kamov-HAL are to produce 200 of the Kamov 226T copters at a cost of nearly \$1 billion (₹6,500 crore)

or ₹32 crore per copter. Sixty of these copters will come in fly-away condition from Russia, another 40 will be assembled in India and the remaining 100 will be fully built in India. India will have 50.5 per cent stake in the joint venture, of which the private sector companies will be strategic partners with HAL. The private partners would assist in the joint venture at HAL's Bengaluru facility. The Indo-Russia joint venture aims to have an annual production capacity of 40-60 helicopters. Under the agreement, the Kamov engine will involve a separate partnership. Kamov uses French engine-maker Turbomeca's power plant. The HAL already has a partnership with the same French company to produce engines for its indigenously developed Dhruv helicopter. The Kamov 226T is also fitted with Turbomeca engines, but a different variant. **SP**

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





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Induction of SU-30 MKI to the Valiants

On April 24, the Su-30 MKI aircraft was inducted into 221 Squadron, Valiants, of the Indian Air Force (IAF). Air Marshal C. Hari Kumar, Air Officer Commanding-in-Chief, Western Air Command IAF was the chief guest. The Valiants which flew Mig-23 aircraft till 2009, is now equipped with the formidable Su-30 MKI aircraft. The Su-30 MKI is a state of the art all weather multi role fighter aircraft capable of undertaking varied air combat and ground attack missions.

The Valiants were formed as an offensive fighter squadron on February 14, 1963, at Barrackpore with Sqn Ldr N. Chatrath as the first Commanding Officer. The Squadron was then equipped with three types of aircraft namely the Vampires, Spitfire, Hurricane and Su-7 aircraft. The squadron has changed many bases during its 44-four years long journey and has taken part in 1971 War and Kargil operations. Su-7 aircraft of the Valiants roared over East Pakistan in support of the Indian Army's blitzkrieg advance in 1971. The Valiants, operating the MiG-23s, were the first ones to fire weapons on the enemy during the Kargil War. Many of the squadron pilots have been decorated with gallantry awards over the years. **SP**

Air Chief visits Agra Air Force Station



Air Chief Marshal B.S. Dhanoa, Chief of the Air Staff (CAS) of the Indian Air Force (IAF) visited Air Force Station Agra on April 28. During the visit the CAS flew in the AWACS (Airborne Warning and Control System) as part of forces participating in the ongoing war gaming

exercise of Western Air Command Exercise Trishul. It was an exemplary demonstration of potency of the IAF with real time war like scenario in terms of large force engagement of air superiority fighters and combat enablers available in the arsenal of the IAF participating in a dense electronic warfare environment. **SP**

Meteor air-to-air missile testing on Rafale

On April 6, teams from the French Defense Procurement Agency (DGA), Dassault Aviation, MBDA and Thales successfully completed the final guided firing (integration flight test) of the Meteor long-range air-to-air missile against an air target from a Rafale omnireole combat aircraft.

This firing, from a Rafale prepared at the DGA Flight Testing (Cazaux Test Center), proceeded within a secured zone of DGA Missiles Testing (Biscarrosse Test Center). The Meteor successfully engaged and destroyed at a very long-range a high-speed air target (Mirach) simulating an evading fighter aircraft.



This fifth, global, firing completed the full integration flight testing campaign of the Meteor air-to-air missile onto the Rafale omnireole combat aircraft.

Since the first test on April 28, 2015, this campaign, conducted smoothly and uneventfully, demonstrated and confirmed superior performances than those expected at the inception.

Thanks to the extended range capability of its RBE2 AESA (Active Electronically-Scanned Array) radar, the Rafale equipped with the Meteor will be able, from 2018, to intercept targets at very long range, when the MICA (RF/IR) missile will complement this truly impressive air-to-air capability, both for combat interception and self-defense. **SP**

Boeing demonstrates airborne networking system

Boeing and the US Air Force recently demonstrated that multiple aircraft and ground stations can efficiently and securely communicate using the Boeing-developed Talon HATE airborne networking system.

During flight testing at Nellis Air Force Base, Nevada, Talon HATE pods on two F-15C aircraft enabled test pilots to share information through the military's Link 16, Common Data Link and Wideband Global SATCOM satellites.

The tests also validated intra-flight datalink network capabilities used by F-22 aircraft. Pilots using the system can transmit information quickly between the F-15C and other Air Force aircraft and weapon systems, enabling efficient information sharing in real time.

"We've completed developmental flight test," said Lt. Col. Christopher Bradley, Air Force Talon HATE manager. "We look forward to fielding this system, not only to immediately provide aircrews with actionable information faster and at a higher quality, but also to help the Air Force learn important lessons for the employment of tactical gateway systems in the future."

"This aerial network is a giant leap forward in tactical fighter



capability with real-time connectivity and expanded information sharing," said Paul Geery, vice president, Phantom Works Mission Solutions and Boeing's Talon HATE Program Manager. "We are now demonstrating secure datalink connections between F-15Cs and F-22s in a way that integrates information for the pilot into a common operating picture."

Boeing will conduct additional tests later this year with advanced sensors, which will offer improved aircraft targeting capabilities. **SP**

Rostec tests Ka-52K helicopters in marine conditions



Ka-52K helicopters manufactured by Russian Helicopters holding company (part of Rostec State Corporation) completed the first phase of testing in marine conditions. The machines are currently in the premises of Kamov Design Bureau where specialists finish assessing the condition of helicopters and their components after performing tasks in harsh climatic conditions.

Two Ka-52K helicopters were tested during the period from late 2016 to early 2017. After performing the tasks set by commanders the tests of helicopters were recognised successful. The machines have already been handed over to engineers of Kamov Design Bureau for conducting additional study of the work of a helicopter and its individual units, as well as for making changes considering possible requirements.

"Ka-52K helicopters completed the first

phase of testing in marine conditions, after which it can be concluded that the machines may be placed on an aircraft cruiser and successfully complete their tasks. The helicopter has unique properties; however, one test in the sea is insufficient for understanding the work of its engines, units, avionics, control and armament systems in maritime climate. The design bureau will continue its work as part of tests including those on the aircraft cruiser," said Deputy CEO for Sales of Russian Helicopters holding Vladislav Savelyev.

The Ka-52K helicopter is another machine in the range of 'maritime' helicopters developed by Kamov Design Bureau and adopted by the Russian Navy. **SP**

L3 achieves on-time delivery of first USAF KC-10 CLS aircraft

L3 Technologies recently announced that it has delivered the first KC-10 aircraft under the US Air Force's (USAF) contractor logistics support (CLS) contract.

The on-time delivery is a significant milestone for the USAF KC-10 CLS programme. L3's Vertex Aerospace division received the aircraft in January 2017 and, in collaboration with subcontractor and primary depot provider HAECO/TIMCO of Greensboro, North Carolina, completed a heavy maintenance check, known as a C-check, in under six months.

"This is an important achievement that

demonstrates our expertise and scope of services on the CLS programme," said Michael T. Strianese, L3's Chairman and Chief Executive Officer. "The Air Force is a longtime valued customer and we continue to work closely with them as a trusted partner to ensure ongoing KC-10 mission effectiveness."

Under the current contract, L3 provides Contractor Operated and Maintained Base Supply (COMBS), Field Service Representative (FSR) and depot maintenance support for 59 USAF KC-10 aircraft, as well as COMBS and FSR support for the aerial refuelling system for two Royal Netherlands Air Force KDC-10 aircraft. L3 provides all support for the programme, including labor, materials, tools, equipment, parts and transportation.

"Over the past 30 years, L3 Vertex Aerospace is the only company to achieve on-time delivery of its first aircraft to undergo a C-check during the programme transition," said Mark Von Schwarz, President of L3's Aerospace Systems business segment, which includes Vertex Aerospace. "We are proud to provide proven solutions that advance the Air Force's mission around the world."

While the most recent USAF KC-10 CLS contract was awarded in 2016, Vertex Aerospace also provided logistics support for the KC-10 fleet from 1993 through 1998.

L3 Vertex Aerospace, located in Madison, Mississippi, is an aerospace and defense support services contractor specializing in the delivery of integrated contractor logistics support for aircraft, ground vehicles and other defense systems. **SP**

Landing Gear Systems of GA-ASI Predator B

General Atomics Aeronautical Systems, Inc. (GA-ASI), a leading manufacturer of Remotely Piloted Aircraft (RPA) systems, radars, and electro-optic and related mission systems solutions, and GKN Aerospace's Fokker business, a technology leader in cutting edge landing gear technologies, yesterday officially opened the highly-automated production line of landing gear systems for Predator B/MQ-9 Reaper RPA, systems in Helmond, the Netherlands.

GKN Aerospace's Fokker business is GA-ASI's Dutch in-country partner. The companies have been working together for several years to offer Predator aircraft to the Dutch Armed Forces. An experienced Program Team will manage the execution of the landing gear production supported by highly automated processes. Predator B exceeds the Dutch Air Forces' requirements for persistent remotely piloted Intelligence, Surveillance, and Reconnaissance (ISR) systems.

"We are committed to substantial European industrial involvement on our aircraft systems," said Linden Blue, CEO, GA-ASI. "Fokker's production of the Predator B landing gear system is just one of the major areas of collaboration with European industry."

GA-ASI and Fokker are also exploring the possibilities to collaborate in the application of advanced composites in the Predator B landing gear to reduce weight and improve production lead times. GKN Aerospace's Fokker business is a technology leader in the design and development of composite components for landing gear.



"We are proud to manufacture the landing gear of the innovative Predator B system for General Atomics Aeronautical Systems," said Michiel van der Maat, vice president of Fokker Technologies, "our teams have been working closely together to achieve this great milestone."

This strategic collaboration continues to demonstrate GA-ASI's drive to support Dutch industry and to integrate their industrial capabilities worldwide. GKN Aerospace's Fokker business and Dutch industry will play a critical role in the expanding Predator-series market. SP

Lockheed Martin demonstrations of Fury Expeditionary UAS



Lockheed Martin's advanced tactical Group 3 unmanned aerial system (UAS), Fury, is regularly flying long-range endurance test missions as the company prepares it for low-rate production.

In flight tests since May 2016, Fury has flown more than 200 hours and reliably demonstrated more than 12-hour endurance, while simultaneously operating 100 pounds of payloads, including electro-optical/infrared surveillance systems, voice communications relays, SATCOM links, and multiple signals intelligence payloads.

The ramp-up in flight tests and demon-

strations has grown significantly. Fury has completed over 400 flight test hours, with significant increase in the second half of 2016.

"These flight tests have consistently proven that Fury is a true 'anytime, anywhere' tactical Group 3 aircraft. Fury can be deployed to execute strategic and tactical intelligence, surveillance and reconnaissance missions with endurance and capability previously found only in Group 4 systems," said Kevin Westfall, Director of Unmanned Systems at Lockheed Martin. SP

Hensoldt expands Xpeller counter-UAV product family

Hensoldt, the new sensor house, has entered into a collaboration in the area of counter-UAV with sensor provider Squarehead Technology AS, Oslo. At Xponential, Dallas/Texas, HENSOLDT signed a collaboration agreement with Squarehead which adds its acoustic sensor Discovair to Hensoldt's Xpeller counter-UAV portfolio.

"Together with our partners, we have created a modular counter-UAV system which is extremely effective," said Thomas Müller, CEO of Hensoldt. "Xpeller demonstrates



Hensoldt's innovative capabilities, answering our customer's needs to detect and protect from new threats. Due to its versatility, Xpeller is able to offer maximum protection under a variety of conditions and ranges". "We are excited to see how well our sensor is received by the integrator industry, and are very sure Hensoldt's integrated system will benefit greatly from the use of it. The collaboration is a major sensor-fusion combined effort, proving that acoustics will remain a cornerstone of the drone detection industry - with our unique sensor array at the heart of it," says Stig Nyvold (CEO) of Squarehead Technology AS.

Xpeller offers very high effectiveness by combining sensor data from different sources with latest data fusion, signal analysis and jamming technologies. SP

Esteban García Vilasánchez appointed as new President of Navantia

The Spanish Government has appointed Esteban García Vilasánchez as new President of Navantia. With a wide experience in the naval sector, he was previously the Director of Programs. Esteban García Vilasánchez initiated his professional career in 1990 in Navantia's Offshore area, reaching in 2004 the position of Director of Fene-Ferrol Ship repairs.

In 2009 he was appointed as Director of Fene-Ferrol shipyard, being principal part in the management of the Norwegian Navy and Spanish Navy frigates programs, as well as the Spanish Navy LHD Juan Carlos I and Australian Navy LHD programmes. In 2012 he became Industrial Director and later Director of Programs, position held until this moment.

The newly renowned president will approach the new Strategic Plan for Navantia, stimulated by SEPI (the government institution that owns Navantia) with the purpose of reinforcing the efficiency and sustainability of the company, promoting the impact on the economic areas of Bay of Cádiz, Cartagena and Ferrol area, where the shipyards are located.

Another important issue on the strategic plan shall be to increase the international protection of Navantia on the more quality demanding programmes.

Esteban García Vilasánchez replaces Jose Manuel Revuelta Lapique, who had requested his relief to the Chair-Woman of SEPI, Pilar Platero. **SP**



BMT gets new Chief Executive

BMT Group has named Sarah Kenny as its new chief executive. BMT announced on May 9 the executive decision of Sarah Kenny replacing the current head of BMT, Peter French, who is due to retire in September. Kenny is scheduled to start at BMT on August 1. Kenny's most recent role was as Managing Director of QinetiQ's Maritime, Land & Weapons unit. French has served as the chief executive for 12 years. **SP**

Punj Lloyd and IWI set-up India's first private sector small arms manufacturing plant

Diversified conglomerate Punj Lloyd and its JV Partner, Israel Weapon Industries (IWI), recently inaugurated the country's first private-sector small arms manufacturing plant at Malanpur in Madhya Pradesh.

Presided over by the Chief Minister of Madhya Pradesh, Shivraj Singh Chouhan, and the Minister of Rural Development, Panchayati Raj, Drinking Water and Sanitation, Narendra Singh Tomar, the inauguration was attended by personnel from the Indian Armed Forces, State Police, Coastguard, Paramilitary, the media and dignitaries from the Indian Administrative Service.

The joint venture company, Punj Lloyd Raksha Systems (PLR) will be manufacturing small arms for the Indian defence forces and also for export.

Speaking on the occasion, Samy Katsav, Chairman, SK Group said, "We are indeed fortunate to have in Punj Lloyd a reliable and knowledgeable partner. It is after a lot of due diligence in the Indian

market that we identified Punj Lloyd for this partnership. Through this collaboration, we offer the combination of battle proven combat technology of IWI and the proficiency of a renowned Indian business partner. I am extremely upbeat about the opportunities in the sector and confident of contributing to the 'Make in India' programme."

Punj Lloyd Chairman Atul Punj said, "This is the first opportunity for the country to get its own 'Made in India' small arms. The need of the hour is to replace the country's defence weapons with sophisticated and high precision products and Punj Lloyd Raksha Systems is the answer to the country's immediate need." Further Punj said, "These are tried and tested battle proven products already being used within the country. It is the first time in India that we are coming together with the complete technology to manufacture these products as 'Made in India'."

Present on the occasion, Michel Ben-Baruch, Head of SIBAT, Israel Ministry of Defence said, "Israel's Ministry of Defense fully and wholeheartedly supports this cooperation and will continue to support the transfer of technology and information also in the future, for the betterment of improved advanced tools. Israel and India consider their defense industry cooperation as a monumental step forward, towards a future of immense potential."

Daniel Carmon, Israel's Ambassador to India said, "Now celebrating 25 years, India and Israel's growing partnership is multifaceted and ever expanding. The relationship is built on the strengths of each country, contributing to the security and prosperity of both peoples. I applaud the establishment of joint cooperation ventures, such as between Punj Lloyd and Israel Weapons Industries, taking up Israeli President Rivlin's call for Israel to 'Make in India, Make with India'. I hope to see many more such joint endeavors ranging from security to food security, water to cyber, start-up to space." **SP**

Actress Emmy Rossum the latest victim in string of LA burglaries

Emma Rossum may well be the victim of a serial burglar who is targeting celebrities' houses in Los Angeles. The actress' residence was burgled recently according to the *Hollywood Reporter*, and some \$1,50,000 worth of jewellery was stolen.

Rossum joins comedian Kevin Hart and model Kendall Jenner as recent victims of break-ins. While police are not certain this burglary is related to other recent ones, an LAPD source said that the break-in appears to be a professional job. "It's usually a lone individual trying to service their addiction. This is different. This is organised crime," Lt Todd Hankel has said. **SP**



United Airlines hits a new low



United Airlines took the airline industry to a new low when a passenger, Dr. David Dao, was knocked out and then dragged off an overbooked flight. Security officials unseated the paying passenger and dragged him through the aisle in a violent manner that has sparked worldwide anger against United for its practice.

Flight 3411 from Chicago O'Hare Airport for Louisville, Kentucky, was overbooked because the airline needed to transport four employees to Louisville. Airline representatives asked for four volunteers to exit the plane in exchange for a free hotel stay and \$400 to take the next day's 3 p.m. flight. When no one took United up on the offer, they upped the cash reward to \$800, but there were still no takers. And then United randomly selected passengers to offload.

The first people selected were a couple who politely exited the plane. The next man chosen refused, claiming he was a doctor that needed to see patients the next morning. According to passengers,

the man became very upset, and said he was calling his lawyer. After two security officers asked the man to leave, he still refused. A third security officer pulled the man out of his seat, bashing his head on an armrest, allegedly knocking him unconscious. His limp body was then dragged down the aisle and off the plane. Horrified passengers gasped, screaming "This is wrong!" and "Look at what you're doing!" while multiple people recorded the altercation on smart phones.

The CEO of the airline subsequently apologised after issuing a statement on the company's process. The CEO has been shamed. Meanwhile, the passenger has filed a case against United Airlines asking the court to direct the airline to preserve surveillance videos, cockpit voice recordings, passenger and crew lists, and other materials related to United Flight 3411. The Chicago Aviation Department subsequently has placed three officers on leave. **SP**

TV news crew breach airport security

Fresh fears have been raised after a reporter walked into a high-security area at a British international airport without being checked. The BBC journalist and two cameramen spent half an hour wandering among the planes in the aircraft manoeuvring area at Humberside Airport.

The Reporter said it was "surprisingly simple" to get into the airport. She walked straight through an unmanned barrier. She told the BBC Radio 4 Today programme a security expert was "absolutely stunned" she had not been stopped. She was eventually stopped by security staff while filming in the airport terminal and questioned for nearly three hours by Special Branch officers before being released without charge.

A spokesman for the airport said: "We have appropriate levels of security - appropriate to all of the sensitive areas of the airport. A fence is just one method of security measure. We have all sorts of other measures in place."

Humberside Airport, near Brigg in northern Lincolnshire, is used by holiday charter airlines and has scheduled flights to Aberdeen and Amsterdam. The breach is likely to cause concern given the increased anxiety among travellers. **SP**



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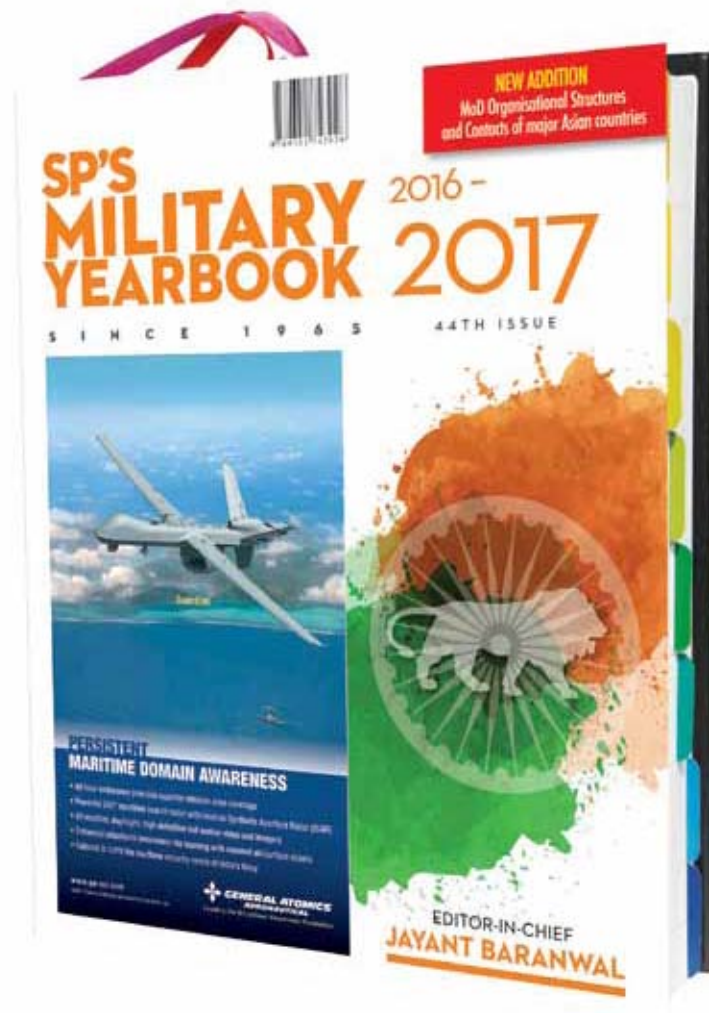


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