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HAL rolls out Hawk trainer craft with local upgrade

The first indigenously upgraded Hawk Mk132 advanced trainer aircraft, named Hawk-i, has been rolled out. It will fly in next month's air show, Aero India 2017, in Bengaluru, according to Mr T. Suvarna Raju, Chairman and Managing Director of manufacturer Hindustan Aeronautics Ltd.



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Made in India

This is the 100th Hawk aircraft produced by HAL under licence from its original maker BAE Systems and has a 'made in India' mark. "HAL has successfully achieved its programme to indigenously upgrade the Hawk Mk132 for achieving self-reliance," a HAL release quoted Mr. Raju as saying. The upgrade gives independence in matters such as the integration or of new sub-systems or modifications, avionics systems and enhancing the aircraft's operational and training capabilities.

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'Digital map generation'

Imported mission computer and data transfer units have been replaced by HAL-designed and developed systems. This allows digital map generation for improved situational awareness of trainee pilots. The other improvements are an embedded virtual training system, secured voice communication and data link capability through Softnet Radio.

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CURRENT AFFAIRS

Seaplane to Lakshadweep likely to take off in two months

Private firm to launch operation in the Kochi-Lakshadweep route The long-awaited seaplane operations are expected to commence within two months. The preparations undertaken by a private operator for flying to Lakshadweep are in final stages. The operator had been waiting for DGCA certifications and clearances. The procedures were in final stage, a top representative of the Kerala-based company told. "It is hoped that the service could be started by January-end or February," he said.

Another aircraft soon

The company, Seabird Seaplane Private Limited, had flown in a brand new amphibious aircraft, a Quest Kodiak 100, with a seating capacity of 10 persons including pilot, from the U.S. in October 2015. Eight seats will be available for passengers. One more aircraft is being added to the fleet. The company plans to commence operations in the Kochi-Lakshadweep route which has a high tourist traffic. The flights will be of 1 hour and 35 minutes duration. The flight will land at Kavaratti and Minicoy.

Other destinations

Other destinations planned by the operator are Bengaluru, Bekal, Kadavu, Kumarakom, Kollam, and Thiruvananthapuram. The flights can land either on waterbodies or at airports and airstrips. Landing on water has been planned at Kumarakom and Kollam. Kadavu is on the banks of the Chaliyar river in Malabar. Apart from carrying tourists, the flights could be chartered or utilised for evacuation purposes in times of emergency, company sources said. Alappuzha, one of the initial itineraries selected by the government, has not been included in the initial stage as the waterdrome has not been built there. The original plan to build the waterdrome at Punnamada was opposed by fishermen and the location was shifted to Vattakkayal, a few kilometers away. The equipment required to set up the waterdrome had been transported to the location, but subsequent works were not executed. The State government had officially launched the seaplane operations at Kollam in June 2013, but the move to arrange regular flights from Kollam to Alappuzha was opposed by fishermen's organisations on the ground that the flight landings on waterbodies would affect fishing, the means of livelihood of a number of people. The government had constituted an expert committee to study the issue. The panel had recommended shifting of the waterdrome from Punnamada to Vattakayal. It had drawn the government's attention to the need for a package for fishermen.

Source: <http://www.thehindu.com/>

Nuclear-capable Agni-IV missile successfully test-fired off Odisha coast

A week after test firing Agni-V, India conducted the final test-firing of another nuclear-capable strategic ballistic missile, Agni-IV, from test range off Odisha coast. With a range of more than 4,000 km, the missile was successfully test fired from Balasore. After the launch of Agni-V, the government had to clear out that its strategic capabilities were not targeted against any particular country as it abides by all applicable international obligations and expects others do the same, in a response to Chinese reaction to the development. The indigenously developed surface-to-surface Agni-IV missile is a two-stage weapon system. It is 20 metres long and weighs 17 tonnes. Agni-IV missile is equipped with 5th generation onboard computer and distributed architecture. It has the latest features to correct and guide itself for in-flight disturbances. Agni-I, II and III and Prithvi are already in the arsenal of the armed forces, giving them reach of over 3000 kms and providing the country an effective deterrence capability.

Source: <http://indianexpress.com/>

Ministry seeks duty cut for leased planes

Move intended to attract leasing companies to India The Union civil aviation ministry has proposed the lowering of customs duty for aircraft imported by leasing companies set up in India. The ministry has asked the finance ministry

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to consider reducing customs duty for lessors from 21 per cent to the prevalent rates of zero per cent for scheduled and 2.5 per cent for non-scheduled operations. Aircraft imported by non-scheduled operators, such as Alchemist Airways and Air Odisha, face a 2.5 per cent import duty whereas planes imported by scheduled operators, such as IndiGo and SpiceJet, are exempt from tax at present. Aircraft imported for any other purposes, including private use, attract 21 per cent customs duty.

'Fillip to leasing'

"Leasing companies fall under the third category. We have made a proposal to the finance ministry to reduce the customs duty on import of aircraft by lessors to give a fillip to the leasing business in India," civil aviation secretary Mr R.N. Choubey told The Hindu . According to the proposal, aircraft meant to be leased for scheduled operations and non-scheduled operations should attract the customs duty rate prevalent for such operations at present, Mr. Choubey said. So, if a leasing company imports planes for leasing it to non-scheduled operators, import duty of 2.5 per cent may be levied instead of 21 per cent. "In such cases, the leasing company will have to produce proper legal leasing document to the authorities," the secretary said. "We want to remove the obstacles for leasing companies. Reducing custom duties for importing planes would attract lessors towards setting up business in India," he said.

Tax avoidance treaty

However, some aviation consultants were unimpressed by the proposal. "India needs to set up special purpose vehicles (SPVs) in order to give a boost to the leasing business. "Further, double taxation avoidance treaty should be in place to allow leasing firms to set up their base in India as present tax rates are very high," Mr Mark D. Martin, Founder and CEO of Martin Consulting said. "There should be complete exemption on tax on leased assets for SPVs." Mr. Martin further criticised the different rates of import duties on scheduled, non-scheduled and private aircraft operations. "First of all, there should be no import duty for leased assets as aircraft is still owned by a foreign player. "Even if there is an import surcharge, there should be no discrimination between scheduled and non-scheduled operations," Mr. Martin added.

Source: <http://www.thehindu.com/>

Eye on China, India to base first squadron of Rafale fighter jets in Bengal

India will base its first squadron of Rafale fighter jets, which are also capable of delivering nuclear weapons, in the eastern sector as part of the overall policy to gradually build nuclear as well as conventional deterrence against China. With Sukhoi-30MKI fighters already operating from Tezpur and Chabua in Assam, the IAF has now finalised plans for the first 18 Rafales to be stationed at the Hasimara airbase in Bengal from late-2019. This comes at a time when India is also conducting final trials of the nuclear-capable Agni-IV and Agni-V ballistic missiles after the Strategic Forces Command inducted the AgniIII a couple of years ago. Under the Rs 59,000 crore (7.87 billion euro) deal inked with France in September last year, the IAF will get 36 Rafales in batches by mid-2022 or so. With 14 India-specific requirements, including the capability for "cold start" from high-altitude regions, the Rafale packs quite a punch with its ability to carry 9.3-tonne of weapons and simultaneously perform both air defence and ground attack missions. "The Hasimara airbase currently has MiG-27s that will be retired over the next two-three years. They will be replaced by Rafales. A team from Dassault Aviation has already visited Hasimara to review the maintenance and other infrastructure required there," said an official. "The Sarsawa base (UP), among other places, is being considered for the second Rafale squadron. Under the contract, Dassault has to ensure minimum 75% availability for the jets at all times under the performance-based logistics support for the first seven years, which can be extended by another five," he added. The IAF also activated the advance landing ground (ALG) at Tuting, in Arunachal's Upper Siang district, just 10 days ago. It is the sixth such ALG to be made operational in Arunachal apart from the ones in eastern Ladakh, all with an eye firmly on China. Moreover, the Panagarh base in Bengal is also set to get its six C-130J Super Hercules aircraft. Panagarh, of course, is also going to be the headquarter of the Army's new 17 Mountain Strike Corps being raised with two high-altitude infantry divisions, apart from other armoured, artillery, air defence and engineer brigades spread from Ladakh to Arunachal.

Source: <http://economictimes.indiatimes.com/>

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India made fighter aircraft Tejas makes its debut in 68th Republic Day

India's indigenously built light combat aircraft, today made its maiden appearance in the Republic Day fly past over Rajpath and led the fleet of fighter aircraft. It was after a gap of about two decades that an indigenously developed aircraft took to the skies on Republic Day. Marut was the last indigenous fighter aircraft to be part of the R-Day fly past in the 1980s and the 90s. Led by Group Captain Madhav Rangachari, three Tejas jets flew in 'Vic' formation at a height of 300 meters and 780 kmph. The lightweight, supersonic, multi-role single seat fighter was inducted in Indian Air Force's 45 squadron 'Flying Daggers' in July last year. Besides the LCA, "Netra", an Airborne Early Warning and Control System that can detect enemy aircraft from a distance of 400 kms and direct fighter jets to destroy them, was also part of the fly past. Netra is undergoing evaluation and will soon be inducted into the IAF. Three Mi-35 helicopters, three Super Hercules C-130J, military transporter C-17 Globemaster, two Su-30 MKIs and five Jaguar fighter jets were part of part of the aerial display. MiG-29 and Su-30 MKI aircraft performed thrilling manoeuvres, eliciting thunderous applause from the audience. The Indian Army's T-90 and BMP tanks, Brahmos missiles, Dhanush gun system and Weapon Locating Radars (WLR) Swati were the main attraction at the parade. The Defence Research and Development Organisation also showcased its Advanced Towed Artillery System and Medium Power Radar Arudha. With its submarine arm completing 50 years in service, the Indian Navy displayed submarines Kalvari and Khandheri, and warship Chennai along with mannequins of the elite Marine commandos. A model of P-81 Longtime Maritime Patrol Aircraft, induction of which has greatly enhanced surveillance capability in high seas, was also part of the Navy's tableau.

Source: <http://economictimes.indiatimes.com/>

India may assist UAE in air defence system

India may assist the United Arab Emirates in developing its air defence system and repairing defence equipment to enhance its life cycle, besides providing offshore patrol vehicles as the Gulf country hopes to expand ties beyond its traditional partner Pakistan. Robust defence ties is a key pillar of Comprehensive Strategic Partnership that India and the UAE plan to conclude during Crown Prince Mr Sheikh Mohammed bin Zayed Al Nahyan's visit to Delhi as the chief guest for the Republic Day, officials said. India sees the UAE as one of its main destinations for arms exports in the future, they said. "Air defence is another area where India can assist the UAE given the new found expertise that India is building on," Ananta Centre, a leading Indian public policy forum said in a comprehensive report on India-UAE ties ahead of the Crown Prince's visit. The report said that private shipyards in India can provide offshore patrol vessels and there are designs existing for frigates and corvettes to meet requirements of the Gulf nation. "The UAE has been buying these from Europe and the US. India could well provide the UAE these interceptor boats developed by companies like L&T and others." The trend in the UAE has been to discard defence equipment when the product develops a problem because the companies don't have the wherewithal to repair equipment. "But the Indian companies can provide the facility for the upgradation of these systems, the way the Indian Army manages to use the product much beyond its actual life," the report said. However, there can be no defence collaboration without strong economic and trade relations, Ananta Centre said. It said in the report that "there needs to be investment with impetus being given to the private industry to develop products for the Indian markets". Besides, enough opportunities need to be created to develop products and expertise to take them to the UAE market, it said. The report said that India needs to address certain bottlenecks to make the country an attractive investment destination for resource-rich UAE, which has announced investments of \$75 billion in India. "India is looking for long-term investment options but in order to attract huge investments, it has to guarantee security for their investments and ensure returns. The challenge is that the UAE only comes with capital and not expertise and hence the Indian government needs to ensure that they get returns," the report said. Another major point of contention, according to the report, is the large scale on which the UAE investors like to operate. "The commercial investments in India do not have anything to offer to the UAE in return or to absorb for instance, 500 or more million dollars of equity investment from the UAE," it said. India needs to establish a strategic partnership with the UAE where the Gulf nation can help store fuel for India's energy needs on its territory, the report said. "One positive step in this direction is that India is building three storage sites and the UAE has agreed to finance

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a portion of the Mangalore storage site to be taken up by The Abu Dhabi National Oil Company (ADNOC) and given to India for free," it said.

Source: <http://economictimes.indiatimes.com/>

Indian team to visit France to review Rafale jet production

A high-level Indian defence team will visit France next week to review the ongoing production of 36 Rafale fighter aircrafts and to formalise the modalities for the payment of the second tranche due this year in the euro 7.878 billion deal. Defence sources also said the first Rafale fighter is expected to come to India a few months earlier than the scheduled date in 2019. A team comprising of senior IAF and Defence Ministry officials will travel to France next week to work out the modalities of the payment for the second tranche, the sources said, adding the delegation will also visit the production line in Bordeaux. The Rafale fighters planes, aimed as a strategic asset against China, will be based in Sarsawa in Uttar Pradesh and Hasimara in West Bengal. India and France had on September 23 last year signed the approximately Rs 59,000 crore deal for the Rafale jets, equipped with latest missiles and weapon system besides multiple India-specific modifications. The 'vanilla price' (just the aircraft alone) will cost about 91 million euros each for a single seater and about 94 million euros for a two-seater trainer aircraft. The deal, the first fighter plane contract in 20 years, comes with a saving of nearly 750 million euros besides a 50 per cent offset clause after several rounds of negotiations. The 50 per cent offset clause means that Indian businesses, both big and small, will gain work to the tune of over three billion euros.

Source: <http://economictimes.indiatimes.com/>

Air Chief flies solo in MiG-21

It is one of the oldest fighter jets in the Air Force inventory Conveying a strong message about the safety of Mig-21 fighter jets, IAF head Air Chief Marshal B.S. Dhanoa flew a solo sortie on the jet at a forward air base in Rajasthan. "ACM Dhanoa flew a MiG-21 Type-96 aircraft solo, which is the oldest fighter fleet in the IAF inventory. He flew the same type of aircraft during Kargil operations and carried out many night strike missions in the mountainous terrain," the IAF said in a statement.

First visit as chief

Air Force officials said that ACM Dhanoa is on a visit to Air Force Station Utarlai, near Barmer in Rajasthan, from January 12 to 14, his first visit to a forward operational base after taking over as Chief of the Air Staff on December 31. He is visiting the forward air base in the western sector to assess operational readiness and review the morale of the personnel stationed there, the statement said. The ageing single engine Mig-21s procured from the Soviet Union have had a troubled history and are now in the process of being replaced. In 2001, then Air Chief ACM A.Y. Tipnis had flown a solo sortie in a Mig-21 at Chandigarh to allay concerns about their safety, following a series of crashes, and declared that it was "fit to fly."

Source: <http://www.thehindu.com/>

DEFENCE MINISTER SAYS AERO INDIA SHOW 'CAN SHIFT' TO GOA

Keeping anxieties alive over moving India's premier military aviation show, the Aero India, from Bengaluru which has hosted 10 such biennial editions on the trot since 1996, Defence minister Mr Manohar Parrikar has now said it "can be shifted" to his home state Goa. While confirming that the 11th edition of the air show, Aero India 2017, will indeed be held at Air Force Station Yelahanka, Bengaluru, Mr Parrikar reportedly said, "Goa has already successfully organised Defence Expo last year. If local population (Goans) want, we can shift both the events here including the Aero Show." Mr Parrikar, who is a former Goa chief minister, however, did express reservations over moving Aero India to Goa as

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even the Defence expo had faced stiff opposition as the locals felt the huge land at Naqueri Quitol, Quepem taluk in south Goa, where the 9th edition of Defence Expo was held last February, would eventually be transferred to the defence ministry. In fact discussions have been discreetly conducted in the defence ministry circles, including officials of the Defence Exhibition Organisation, over ultimately shifting Aero India to Goa. This came to the fore just before the 10th edition of the five-day event that was held in February 2015 in Bengaluru. At the time, when Bangalore Mirror had sought clarification and confirmation on whether the shift would happen, the defence production secretary Mr G Mohan Kumar had neither confirmed in the affirmative nor in the negative. Aero India has been steadily growing with each edition; and the problem is that the venue – Air Force Station Yelahanka (AFSY) – has been bursting at its seams. There have been more countries participating, with more aircraft and more delegates, besides a larger public participation on the last two public days of the five-day event. Besides, the humungous traffic problems posed on Bellary Road (the road to Kempegowda International Airport) every time the event is held here, has always remained a concern. Despite that the state government had expressed confidence in handling the surge in tourists visiting the air shows. Sources in the defence here said IAF had in the past several times tried to negotiate with the Indian Railways to either shift the railway tracks further to accommodate an extended runway so that larger and heavier aircraft could land at the air base. But those discussions did not yield fruit. The issue had even led to Rail India Technical and Economic Services (RITES) suggesting that IAF could design and build a runway that went over the railway tracks before Aero India 2005. But the strange idea of a “bridge runway” above the railway tracks did not convince the IAF top brass then.

Source: <http://bangaloremirror.indiatimes.com/>

UAE signals a ‘Look East’ policy

Its troops will march in the Republic Day parade as an indicator of its power in the Indian Ocean The United Arab Emirates is likely to highlight its “Look East” policy with its participation in the Republic Day celebrations in India, a prominent Gulf studies expert has said. James Onley of the Gulf Studies Centre of Qatar University said the presence of the Crown Prince of Abu Dhabi as the chief guest at the Republic Day parade and participation of a marching contingent of the country’s military in the celebrations would indicate its willingness to play a more active regional role.

Military modernisation

“The UAE will want its troops in the Republic Day parade to be viewed as the indicator of the UAE’s growing power in the Indian Ocean,” Mr. Onley said. “These troops embody the UAE and GCC’s new ‘Look East’ policy of engaging Asia as a counterbalance to the West.” The UAE has been carrying out military modernisation in recent years and, according to SIPRI, was one of the five biggest arms importers in the world between 2011 and 2015. Alongside Qatar, the UAE has spread out to several conflict zones in the world in a show of Arab assertion. Mr. Onley said the participation of the marching contingent in Delhi is part of a regional perspective. “This presence forms part of a wider GCC effort to exercise regional influence in the vacuum left by the Arab Spring and to counter similar efforts by Iran, which Abu Dhabi regards as a threat,” he said.

Strategic partnership

Crown Prince Mr Sheikh Mohammed Bin Zayed Al Nahyan, who will arrive in Delhi, is likely to conclude the comprehensive strategic partnership between the two nations, at his meeting with Prime Minister Mr Narendra Modi. The partnership, said Mr. Onley, is a recognition of the unique role of India’s immigrant population in the UAE’s development story. “There has been continuous Indian presence in the UAE since at least the 18th century. Today, Indians make up 30% of the country’s population — the single largest expatriate community in the UAE,” said Mr. Onley.

Source: <http://www.thehindu.com/>

Airbus to set up aerospace cluster at Dholera

A phenomenal 24,000 MoUs were signed on the second day of the 8th edition of the Vibrant Gujarat Global Summit, which includes an agreement with aircraft manufacturer Airbus to set up an aerospace and defence cluster at Dholera

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that will initially manufacture helicopters. “Till now 24,383 MoUs have been inked and we are still calculating the worth of these MoUs,” said Mr PK Taneja, Additional Chief Secretary, Industries and Mines Department said evening. As far as the sheer number of MoUs is concerned, those signed is more than the 21,000-odd MoUs (worth Rs 25 lakh crore) that were signed in the 7th edition of the summit. “France-based Airbus has signed an MoU to set up an aerospace and defence park at Dholera,” Mr Taneja added. Deputy Chief Minister Mr Nitin Patel later elaborated that this park will initially manufacture helicopters. Airbus currently manufactures a wide range of civil and military helicopters. Taishan Fiberglass Inc, the second largest fiberglass producer in China signed a Rs 1,700 crore MoU to set up a state-of-the-art manufacturing plant of fiberglass in Gujarat, which will be their first overseas plant. Chinese manufacturer Tsinghsan Group has signed a Rs 5,500 crore MoU for setting up a stainless steel unit. Similarly, the Japanese have expressed interest in creating a separate cluster specially for Japanese companies. “MRF Group will be investing Rs 4,500 crore and has signed an MoU with GIDC,” said Taneja. MRF greenfield manufacturing plant in Gujarat that will produce 10 lakh tyres per month. Russian companies have inked MoUs with Essar and Reliance Industries Limited (RIL) operated refineries in Jamnagar. MoUs were signed between Reliance Sibur Elastomers Pvt Ltd (a JV of RIL and Sibur Holding, Russia) and state-government arm iNDEXTb to establish a Halo Butyl Rubber Project at Jamnagar with proposed investment of Rs 1,200 crore.

Source: <http://indianexpress.com/>

India is global role model in space applications: ISRO Deputy Director

Mr S.V. Sharma, Deputy Director and Programme Director, Indian Space Research Organisation (ISRO), Bengaluru, has said that India is a global role model in space applications. Speaking after inaugurating the annual day celebrations of Don Bosco ICSE School at Kelagote here, he said that a dedicated scientist’s job is to bring to reality what is impossible. “Such is the achievement of ISRO and as a mark of respect and appreciation, a picture of the Moon’s Orbiter Mission has been put on the new 1 2,000 note,” he said. The ISRO has been sanctioned 500 acres in Challakere taluk of Chitradurga and is also launching several development programmes in that area. “Since India is the third largest country in the world in scientific manpower, students should become more competitive and try to reach higher goals in science and technology,” he said. Chitradurga Block Education Officer Mr Ravishankar Reddy said that teachers and parents in Chitradurga should prioritise imparting quality education to students. “Students should make proper use of available resources and reach expected goals in life,” he added.

Source: <http://www.thehindu.com/>

Parrikar wants private players to tap DRDO’s knowledge

Defence Minister Mr Manohar Parrikar said there is lot of knowledge and infrastructure base with the DRDO and it needs to be tapped by the medium and small-scale firms and private industries, which in turn will lead towards the establishment of a self-reliant defence industrial complex. The Minister visited the DRDO’s Dr. APJ Abdul Kalam Missile Complex. He went round the integration centre at the Research Centre Imarat (RCI) and reviewed ongoing missile technologies and related programmes. Dr S. Christopher, Secretary, DD&D and Chairman DRDO along with Dr. G. Satheesh Reddy, Special Advisor and Director-General, Missiles and Strategic Systems, briefed him on various technological developments. Industries have been significantly contributing in the realisation of various defence products with the know-how provided by the DRDO and some even graduated as lead integrators, he pointed out. The partnership between DRDO and industries is transforming the country into a global defence manufacturing hub and the synergy has provided thrust for exporting defence products. “We are taking initiatives in this direction and I am sure that our state-of-the-art missiles and weapon systems will garner the much needed interest in the global markets and generate foreign exchange,” Mr. Parrikar said. He congratulated DRDO scientists for recent successful missions like the ‘Smart Anti-Airfield Weapon, Long Range Ballistic Missiles Agni V& Agni IV, Guided Pinaka and Astra’. The Missile Complex came in for praise for its effort in indigenising technology products and strengthening the defence industrial

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base in the country as also DRDO's initiative to sign MoUs with universities in diversified research areas, a press release informed.

Source: <http://www.thehindu.com/>

ISRO helping to tag assets under MGNREGA, says Kiran Kumar

Contrary to popular belief, the Indian Space Research Organisation (ISRO) does more than just launch rockets into space, said its chairman Mr A S Kiran Kumar. He was speaking at the centenary celebrations of Century Club here. "In the 1960s, Dr Vikram Sarabhai, the then chairman, started thinking about how satellites could be used for society's development. Since then, ISRO has made contributions in several fields," he said. Technological innovations have enabled ISRO to send alerts to fishermen about where fish are available in abundance or about impending dangers, Mr Kumar said. ISRO is collaborating with the postal department and other government agencies for several projects. "The government spends crores of rupees on MGNREGA, but the project was not transparent, there were seepages. Since June last year, we have been working with National Informatics Centre to tag assets under the project, so that citizens can get all details of the assets online," Kumar said. ISRO is working on cryogenic technology and the Geosynchronous Satellite Launch Vehicle (GSLV) Mark III will be launched in March, he said. Mr Kumar and Dr U R Rao, former ISRO chairman, were felicitated at the event. Accepting the honour, Dr Rao said, "When I was given the task of constructing the Aryabhata satellite in 1975, I had to choose between Bengaluru and Hyderabad. I chose Bengaluru, but there was no facility available here." He got six sheds in Peenya industrial area cleared to build India's first satellite, the scientist said.

Source: <http://www.deccanherald.com/>

TECHNOLOGY

Fighter jet selection will begin soon, says Parrikar

The government will initiate the process for selecting a new single engine fighter jet to be built in India with extensive technology transfer as soon as the guidelines for giving a bigger role to the private sector in defence manufacturing is finalised, Defence Minister Mr Manohar Parrikar said. He said the guidelines for the 'strategic partnership' model, to be under the framework of the Defence Procurement Procedure 2016, were in the "final discussion stage" and it could be approved by this month-end. The Indian Air Force has contracted with Hindustan Aeronautics Limited (HAL) for 123 indigenous Light Combat Aircraft (LCA) Tejas jets and, to address the depleting fighter strength and replace the MiG jets being retired, intends to select another single engine fighter from the global market.

Protective agreement

He said the criteria for selection would be the cost and the extent of technology transfer. While the price discovery and selection of local partner would be through competitive process, the final deal would also have a government to government agreement. "Government to government agreement will be a protective umbrella agreement, while the actual dealing will be with the company," Mr. Parrikar said.

Detailed offers

The government had recently asked diplomatic missions in countries that manufacture fighter aircraft to get information on their jets. In anticipation of the major order for upwards of 100 jets, U.S.-based Boeing and Lockheed Martin and the SAAB of Sweden had already submitted detailed offers on their F-18, F-16 and Gripen fighters. However, F-18 is a twin engine jet which rules it out of the competition.

Source: <http://www.thehindu.com/>

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ISRO to launch record 103 satellites at one go in February

India's space agency ISRO will launch a record 103 satellites — all but three of them foreign — at one go on a single rocket in the first week of February in what will be a major feat not attempted by any country. As India looks to grab a larger slice of the lucrative commercial space market, 100 of the 103 satellites set for launch by ISRO's workhorse rocket PSLV-C37 in February from its Satish Dhawan Space Centre in Sriharikota in Andhra Pradesh belong to foreign nations, including the US and Germany. "We are making a century by launching over 100 satellites at one go," Mr S. Somnath, Director of the Liquid Propulsion Systems Centre of the Indian Space Research Organisation (ISRO), told a plenary session on the second day of the ongoing Indian Science Congress here today. The space agency had earlier planned a launch of 83 satellites in the last week of January, of which 80 were foreign ones. But with the addition of 20 more foreign satellites, the launch was delayed by a week and will now take place in first week of February, Mr Somnath said. He, however, did not specify the number of countries that would launch its satellites in this mission, but said it includes nations like the US and Germany. "These will be 100 micro-small satellites, which will be launched using a PSLV (Polar Satellite Launch Vehicle)-C37. The weight of the payload will be 1350 kgs, of which 500-600 kgs will be the satellite's weight," Mr. Somnath added. The launch will be a major feat in country's space history as no exercise on this scale has been attempted before. Last year, ISRO launched record 20 satellites at one go. The highest number of satellites launched in a single mission is 37, a record that Russia set in 2014. The US space agency NASA launched 29. Prime Minister Mr Narendra Modi's pet South Asian satellite project, meanwhile, will take off in March. The South Asian satellite will be a part of GSAT-9, which will be launched in March this year, Mr M. Nageshwara Rao, Associate Director of ISRO said. The communication satellite was to be launched in December 2016, but was slightly delayed as some other satellites are to be launched before that. Sources said talks with Afghanistan to have the country on-board for the project is in its final stages. Envisaged as a gift to its neighbours, the project, earlier known as SAARC satellite, faced stiff resistance from Pakistan. The neighbouring country wanted it to be launched under the aegis of the South Asian regional forum. It later backed out of the project. Apart from India, the satellite will benefit Sri Lanka, Maldives, Bangladesh, Nepal and Bhutan.

Source: <http://www.thehindu.com/>

IAF may get Astra by year end

The indigenous beyond-visual-range missile Astra underwent 12 tests in the last two and half years and would require at least four more trials before it is handed over to the Indian Air Force (IAF) for operational use. Scientists at the Defence Research and Development Organisation (DRDO) hoped to complete the remaining four trials before the summer of 2017, so that it could be transferred to the service later this year. The missile with 75 km range was first launched in May 2014 and integrated with the Su-30MKI aircraft by the Hindustan Aeronautics Limited, a year later. The live firing of the missile was demonstrated before President Mr Pranab Mukherjee and Prime Minister Mr Narendra Modi at the IAF's iron-fist fire power demonstration in March 2016. "We have done 12 trials of Astra firing so far and need to do four more before the missile is ready for the IAF. The remaining trials may be completed by the summer of 2017, depending on the availability of Su-30 MKI aircraft," a source told DH. Astra is already over four years behind schedule. The probable date of completion was originally fixed at August 2012 and later revised to December 2016. The missile's launch in December 2016 reportedly failed, though the officials maintain silence over this. Reports from Bhubaneswar suggest that Astra lost velocity within a few seconds after the firing, slipped from the intended trajectory, dropped and then exploded on a beach along the coastline. However, neither the DRDO nor the defence ministry responded in this regard.

Agni series

On the 5,000-km range Agni-V missile, sources said the DRDO completed four successful trials since its maiden flight in April 2012. No more developmental trials are required as the missile is ready for the user — the Strategic Forces Command — they said. The 17-metre long missile, weighing around 50 tonnes, was last launched from a road mobile canister on December 26, demonstrating its all-terrain applicability and the weapon's flexibility to be fired from any part

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of the country. The nuclear missile is capable of carrying a war-head of 1,000 kg. On January 2, the long-range surface-to-surface ballistic missile Agni-IV, with a range of 4,000 km, was successfully flight tested, showcasing the weapon's efficacy and reliability. This was Agni-IV's seventh launch, which included three developmental flights and four tests to train the users.

Source: <http://www.deccanherald.com/>

Airbus to set up MRO facility for EC725 choppers in Goa

European aviation major Airbus has chosen Goa to set up a maintenance, repair and overhaul (MRO) facility for the EC 725 helicopter, provided it wins the over Rs 2,000 crore Coast Guard contract for which it has pitched. The facility, close to the Indian Coast Guard's main center of operations, is planned as part of Airbus' offer to equip the Indian Coast Guard with 14 EC725 for its Twin Engine Heavy Helicopter (TEHH) requirement and the foreseeable future needs for a helicopter of this category by the Indian armed forces, industry sources said. Asked about their plans, Airbus in a statement said, "We cannot comment on the location of the MRO for the EC725 but it is true that such a facility is envisaged as part of our offer to supply 14 EC725 to the Indian Coast Guard. All 14 EC725 will be integrated and flight-tested at this site." The Coast Guard had first raised the requirement post 26/11 which exposed the loopholes in its surveillance and interception capabilities. The force currently uses ageing Chetaks as well as indigenous Advanced Light Choppers (ALH) for patrolling, search and rescue and casualty evacuation. The competition was between the EC725 and the now part of Lockheed Martin, Sikorsky's S 92 chopper. The Airbus has emerged as the lowest bidder and has been in talks with the Coast Guard for over an year. Sources said the MRO will enable a comprehensive Performance-Based Logistic (PBL) support service that Airbus is offering to the Indian Coast Guard to ensure maximum fleet availability of its EC 725. The PBL service covers the complete aircraft - 'nose to tail' - including the Safran engines. While Goa will serve as the main location, infrastructure will be created and maintained at four other Coast Guard bases across India to deliver the service, the sources said. The MRO activities would include the scheduled and unscheduled maintenance activities which come within the ambit of intermediate and depot-level maintenance also known as 2nd and 3rd/4th level of maintenance. Sources said the green field facility would pave the way for an inflow of new military helicopter maintenance technologies and skill sets in addition to the creation of expert jobs in India. This would happen via transfer of engineering work, technical knowhow, training and setting-up of a logistics support and warehousing system by Airbus Helicopters in India. Over 140 EC725 (now marketed globally as the H225M) have been ordered so far by France, Brazil, Mexico, Malaysia, Indonesia, Thailand, Kuwait, and Singapore. 80 aircraft are currently in service.

Source: <http://economictimes.indiatimes.com/>

HAL readies upgraded Hawk trainer for IAF

State-run Hindustan Aeronautics Ltd (HAL) has rolled out an upgraded Hawk as an advanced jet trainer for the Indian Air Force (IAF) pilots, said the defence behemoth. "The first indigenously upgraded Hawk Mk132 or Hawk-i will be showcased at the ensuing Aero India air show in Bengaluru in mid-February," said HAL Chairman Mr T. Suvarna Raju in a statement here. HAL got an order from the IAF in July 2010 to manufacture 40 more Hawks under a production license from the British BAE Systems, which supplied 66 trainers to the air force, including 24 from its facility in Britain and 42 through the Indian aerospace major at Rs 8,000 crore. The IAF has based the Hawk squadrons at its Bidar base in north Karnataka, about 700 km from Bengaluru, to train its rookie pilots in flying supersonic fighters like MiG, Jaguar, Mirage and Sukhoi. "The upgraded version is the 100th Hawk to be made in India, signifying self-reliance and indigenous capability," asserted Mr Raju. The upgraded version has home-grown designed and developed avionics systems in place of the imported mission computer and data transfer units to enhance its operational and training capabilities. "The indigenous mission computer in the dual redundant configuration has digital map generation for improved situational awareness. The Embedded Virtual Training System (EVTS) offers improved training capability," noted Mr Raju. The Hawk-i also provides secured voice communication and data link capability with the integration of Softnet Radio, which enables pilots to configure and select cockpit human machine interface for different aircraft platforms. The single engine tandem-seat trainer is used for advanced flying and weapons training to air warriors, as its cockpit provides a clear field view and the aircraft is equipped with navigation, Global Positioning System (GPS), head-up display, hands-on throttle and stick controls. With the capability to be used as a ground attack aircraft or for air defence, the Hawk also flies at night and performs a wide range of aerobatic manoeuvres. BAE has supplied to HAL Hawk's fuselage, kits for equipping them with wings, accessories and materials for 20 defined assemblies. HAL's

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avionics divisions at Hyderabad and Korba in Chattisgarh provide the integrated navigation and attack system. "We have absorbed the Hawk technology to support the IAF fleet over the next four decades," added Mr Raju.

Source: <http://economictimes.indiatimes.com/>

Boeing expands Bengaluru technology centre

Boeing's technology centre here plans to roughly double its headcount of engineers to 800 by the year-end. It will further expand its engineering strength to around 1,000 in about two years, a Boeing spokesperson said, citing senior company officials, who were in the city. Recruitments for the India centre have scaled up in the last 18 months, they said at the newly launched bigger location of the Boeing India Engineering & Technology Centre (BIETC). The Bengaluru centre is one of the six such outside the U.S. Currently the centre employs around 350 engineers to support Boeing's global activities in information technology and data analytics, engineering, test and research and technology, enhancing "Boeing's ability to deliver cutting edge aerospace innovation," a company release said. Most of them fall under the offsets clause tied to the purchase of military and civil aircraft from Boeing. Greg Hyslop, Boeing chief technology officer and senior vice-president, Boeing Engineering, Test & Technology, and Mr Pratyush Kumar, president for Boeing India, were at the new centre. BIETC will support the development of advanced environment friendly coatings, data analytics for next generation airplane health management tools, besides software tools for airlines and airports.

Source: <http://www.thehindu.com/>

Indian, French space agencies ink pact on satellite launch technology

Indian Space Research Organisation and French Space agency (CNES) today signed a partnership agreement in satellite launch technology. The agreement was signed between ISRO Chairman Mr Kiran Kumar and CNES President Mr Jean-Yves Le Gall in the presence of visiting French Minister of Foreign Affairs Jean-Marc Ayrault. Space cooperation between France and India spans over 50 years and is one of the cornerstones of the Indo-French strategic partnership. Ayrault, accompanied by the French delegation, was given a guided tour of ISTRAC (ISRO Telemetry Tracking and Command Network) by the ISRO chairman, according to a French Consulate release here. ISTRAC monitors Indian space missions, including the two Indo-French satellites currently in orbit for collecting data to track climate change. ISRO is the second partner of CNES, in terms of volume, after NASA. Of comparable size and sharing similar objectives, the space programmes of both countries are complementary, it was noted. Strengthening the CNES-ISRO partnership will enable France to benefit from the Indian model of streamlining the costs of space programmes. Later, Mr Ayrault met Mr Rahul Narayan, CEO of leading Indian "NewSpace" start-up, Axiom Research Labs. This start-up put forward TeamIndus, the only Indian team competing for the Google Lunar XPRIZE, a global competition for engineers and entrepreneurs to develop low-cost methods of robotic space exploration. USD 20 million will be granted to the first private company that successfully lands a module on the Moon, places a robot that explores at least 500 metres and transmits high-definition videos and images back to Earth. As TeamIndus races to design an all-terrain rover by end-2017 for this lunar mission, the French Space Agency will provide it with cameras, the release said. In the presence of the Minister, Mr Narayan and Mr Le Gall signed an agreement for equipping Axiom Research Lab's lunar rover with two latest-generation CASPEX micro-cameras, developed by CNES in partnership with French firm 3DPlus. In joining forces with Team Indus on this first private mission to land a rover on the moon, CNES is sending French technology for the first time on lunar terrain, the release said.

Source: <http://www.newindianexpress.com/>

ISRO gears up for 4-tonne satellite launcher GSLV MK III

Indian Space Research Organisation (ISRO) is all set to launch the first developmental flight of its future launch vehicle, GSLV MKIII that could hurl into space a four tonne class satellite in Geo Transfer Orbit (GTO), early this year. Soaring into the skies from the Satish Dhawan Spaceport in Sriharikota, the GSLV-MKIII would have a GSAT as its payload. The launch vehicle was in advanced stage of realisation, according to ISRO sources. GSLV-MKIII consists of two solid strap-ons (S200) motors, one earth storable liquid core stage (L110) and the indigenously developed C25 cryogenic stage, powered by a CE20 cryogenic engine. ISRO had in December last year successfully conducted the first flight acceptance test of the CE20 flight engine for duration of 25 seconds in high altitude simulation test facility, marking an important milestone for the Space Organisation. The test enabled ISRO to successfully cross the major engine development endeavors in the maiden attempt. This engine was conceived, configured, designed, fabricated

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and developed by Liquid Propulsion Systems Centre (LPSC) in Thiruvananthapuram. This was preceded by multiple tests on the two engines with sea level nozzle divergent and the development test conducted on these engines provided confidence in the design. The design of the flight nozzle was also validated in the medium duration High Altitude Test programme, ISRO said. The Engine High Altitude Test Programme contained a series of high altitude tests (5 hot tests with a cumulative duration of 41.20s) to demonstrate the vacuum ignition, validate the nozzle performance, propellant flow build up characteristics, chill down performance and demonstrate the ignition margins. All the test objectives were successfully achieved. The testing of engine in HAT facility has also helped in finalising the engine start and shut down sequence for flight. Summing up, the space agency said the test programme has imparted good confidence on the performance and functioning of CE20 Engine in GSLV MkIII (LVM3)-D1 mission. To test the Engine at flight identical conditions, the HAT facility was established at IPRC, Mahendragiri. This facility allows testing of the CE20 engine at its full area ratio in vacuum condition which otherwise would experience flow separation at sea level ambient pressures.

Source: <http://www.dailyexcelsior.com/>

Drones on track to boost safety

Escalators at stations, and boundary walls along tracks have cut the death rate on Mumbai's railways, and it will now be the turn of drones. The Western Railway is close to finalising a plan to deploy small unmanned aerial vehicles to monitor its tracks, and cut the number of train-hit deaths due to trespassing. The death toll along Mumbai rail tracks was 3,304 in 2015, and 3,349 persons were injured, according to official data. A senior Western Railway officer said the plan is unique and the firm Indian Eye Security will provide the drone. It can cover nearly 30 km at a stretch. Thus, the pilot project, which will be demonstrated on January 25, will be on the Churchgate to Borivali route, with a charging point at Dadar railway station. The live view from the UAV will be monitored at the control room of Railway Protection Force, where CCTV cameras are also watched. "The drone will keep an eye on trespassing, which we cannot easily detect, as we don't have CCTV cameras at all places. The new system will map real locations and vulnerable places," a railway official pointed out.

Fly at 50 metres

The drone is likely to cost the railways ¹ 10,000 to ¹ 15,000 per day to run. The images generated will enable security staff to reach an accident spot within minutes. Discussions are on between security and railway officials, and multiple clearances are required. "We have to get an okay from the electrical department for feasibility. They may suggest ways to run the system without affecting operation of trains," the official added. Overhead traction wires are located about 15-20 metres above the tracks and drones will fly at 50 metres, during peak hours. Also, drone cameras can produce superior recordings. "Sometimes, there are suicides and we can save people through live feed. After getting a location, we can immediately send security staff," said an RPF official. Mr Mukul Jain, Divisional Railway Manager, WR, said the issue was being examined in-depth.

Source: <http://www.thehindu.com/>

Milestone in cryogenic engine test paves way for GSLV-MkIII

A milestone crossed in the making of a new cryogenic rocket engine set the stage for the first flight of the country's most powerful satellite launcher to date, the GSLV-Mark III. The cryogenic stage and the entire launch vehicle's readiness is closer to fruition after the engine, technically called CE20, passed the 'high altitude flight acceptance test' lasting about 25 seconds at Mahendragiri in mid-December. The Indian Space Research Organisation (ISRO) plans to fly its new launch vehicle powered by this new engine around March, and send the 3,200 kg GSAT-19 communication satellite to space on it. The launch was earlier slated for December 2016. MkIII, when it completes trials and commences functioning in the coming years, will double ISRO's lifting power for communications satellites to 4,000 kilos.

Vital stage

In a few days from now, the rocket's complete cryogenic third stage, replete with fuel tanks and systems built around the engine, will undergo its qualifying test, Mr S. Somanath, Director of ISRO's Liquid Propulsion Systems Centre (LPSC), Thiruvananthapuram, told The Hindu. "LPSC has designed and developed the CE20 engine. We are assembling the entire cryogenic stage, which is ready for flight. It will be sent to Sriharikota in a month's time," he said. The cryogenic stage is vital for a GSLV rocket as it gets its final and biggest push in space from this stage; it can take a big communications satellite to higher reaches of 36,000 km above ground. The C25 cryogenic stage was approved at

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an estimated ₹ 600 crore as part of the overall ₹ 2,500-crore MkIII launcher project. “Realising the CE20 engine was our target in order to achieve India’s capability to lift a four-tonne satellite to GTO (geostationary transfer orbit, around 36,000 km high),” Mr. Somanath said. “We have been longing for this for a few years. MkIII will be the future work horse after the PSLV,” he said. MkIII becomes ‘operational’ or ready for regular work after two successful launches in a row. ISRO plans to have one MkIII launch in a year, and the next one is planned for December this year.

Over 200 tests

About the qualification of the CE20, Mr. Somanath said it was the culmination of over 200 tests, some repeated and taking a week to 10 days each. The project picked up pace after early tests on a full-scale engine last year. The space agency has set up a ₹ 450-crore High Altitude Test (HAT) Facility at the ISRO Propulsion Complex for testing the engine in conditions similar to an actual launch in space. Calling it an important milestone ahead of the MkIII launch, ISRO said the HAT test of December met all the test objectives. “The testing of the engine in the HAT facility has helped in finalising the engine start and shut down sequence for the flight,” Mr. Somanath added. The vehicle’s first two qualified stages are already in Sriharikota, namely the solid-fuelled S200 and the liquid-fuelled L110 stages.

Source: <http://www.thehindu.com/>

Now, a space radio to track every flight in real time

Researchers have developed a reconfigurable radio that could help air traffic controllers see in real-time the location of every plane in the air - even those flying across oceans. To design and develop the new reconfigurable, higher-bandwidth radio, NASA worked with Palm Bay, Florida-based Harris Corporation. With real-time global tracking, planes could fly with less space between them and take more direct routes. “It tremendously improves public safety and potentially saves a lot of fuel costs, because you no longer have to remain in the particular airline traffic lanes,” said Mr Jeff Anderson from Harris Corporation. The biggest selling point of the new device, which Harris sells as the AppSTAR, turned out to be its flexibility. With hardware and software both fully reconfigurable, the company could quickly and cheaply redesign the radio to fit any customer’s needs, Harris programme manager Mr Kevin Moran explained. The company has already entered into contracts with Virginia-based Aireon LLC that will use the radios to create the first space-based global air traffic control system. With Aireon flight tracking, powered by a radio developed by Harris Corporation, researchers hope that air traffic control agencies will be able to see in real time the location and heading of every plane in the air. For decades, airplanes have relied on radar surveillance via land-based radar stations. That has left huge gaps - particularly over oceans - where air traffic controllers have no real-time information. To compensate, pilots file detailed flight plans and are required to remain within prescribed lanes at different altitudes so air traffic controllers can estimate where they are and work to ensure there are no mid-air collisions. But that could change when a constellation of 66 satellites, owned by Iridium Communications Inc., goes into orbit equipped with AppSTAR radios. The radios are programmed to receive signals from new airplane transceivers called ADS-B, which automatically send out a flight’s number, location, heading and other details. “Within seconds you can keep track of all the aircraft in the world,” Anderson noted. Aireon has already signed contracts with a number of air traffic control agencies to integrate the space-based system into their flight tracking when the system goes live in 2018. A reconfigurable is also useful for NASA engineers. “A reconfigurable radio lets engineers change how the radio works throughout the life of (any space mission),” Mr Thomas Kacpura, Advanced Communications Programme Manager at NASA’s Glenn Research Center, explained in an official statement. “It can also be upgraded to work better with future missions or to enhance performance, just by adding new software,” Mr Kacpura added.

Source: <http://timesofindia.indiatimes.com/>

BUSINESS

BrahMos Aerospace bags orders worth Rs 300 crore

BrahMos Aerospace Thiruvananthapuram Limited (BATL), which was declared a sick company, will be out of the woods in 1-2 years, said its CEO and MD Mr Sudhir Kumar Mishra. Indo-Russian joint venture BrahMos Aerospace is BATL’s parent company. BATL has received production orders worth Rs 300 crore from ISRO, DRDO and European agencies, Mr Mishra said adding that the company has made profits in the past three years and that it was on a growth trajectory. “The concerns of BATL staff are displaced as investments to BATL have been continuing. The company has been working to wipe off its accumulated loss of Rs 23.4 crore, he added. “The country’s current defence procurement policy is geared for system integration and for BATL, it is an opportunity to undertake system designs for weapons development. The BATL is on a growth path and I will give the credit for it to the company staff,” he said. Hassles over

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the land acquisition for the Rs 1,000-crore Missile Integration Complex (MIC) at Muttathara has been sorted out and the BATL has partially acquired 4.5 acres. The Air Force has committed to part with remaining 3.5 acres for the project, BATL officials said. Among the orders received, was one from DRDO's arm-Bangalore-based Gas Turbine Research Establishment (GTRE), for the production of aerospace engines. The project is worth Rs 10 crore. Commander (Rtd) Vinod Sankar, the general manager of BATL said the company has received 130 orders from space and defence establishments. Its sales plan this year was worth more than Rs 60 crore, he added. Last year, BATL made Rs 1 crore profit compared to the Rs 75 lakh it made in the previous year.

Source: <http://timesofindia.indiatimes.com/>

Airbus China to deliver first A330 aircraft this year

A Chinese aircraft company Airbus is expected to deliver its first A330 aircraft in September 2017. According to Airbus China, by 2019 the Airbus China site will reach stable production capacity, completing and delivering two A330 wide-body aircraft every month, Xinhua news agency reported. On March 2, 2016, construction on the Airbus China A330 completion and delivery centre started in Tianjin, where A330 aircraft will be completed and delivered to Chinese clients. It is Airbus' first completion and delivery centre for wide-body aircraft outside Europe. The first A330 aircraft is expected to be delivered from the centre in 2017. Airbus delivered 153 aircraft to Chinese operators in 2016, its seventh consecutive year of more than 100 deliveries. The deliveries included 141 aircraft in its single-aisle A320 family and 12 of its A330 family. According to Airbus China, there are 1,383 Airbus aircraft in service on Chinese mainland, about half of China's total civil aircraft with more than 100 seats. The joint venture between Airbus and Chinese partners in Tianjin has delivered more than 300 A320 aircraft since it went into operation in 2008.

Source: <http://www.business-standard.com/>

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