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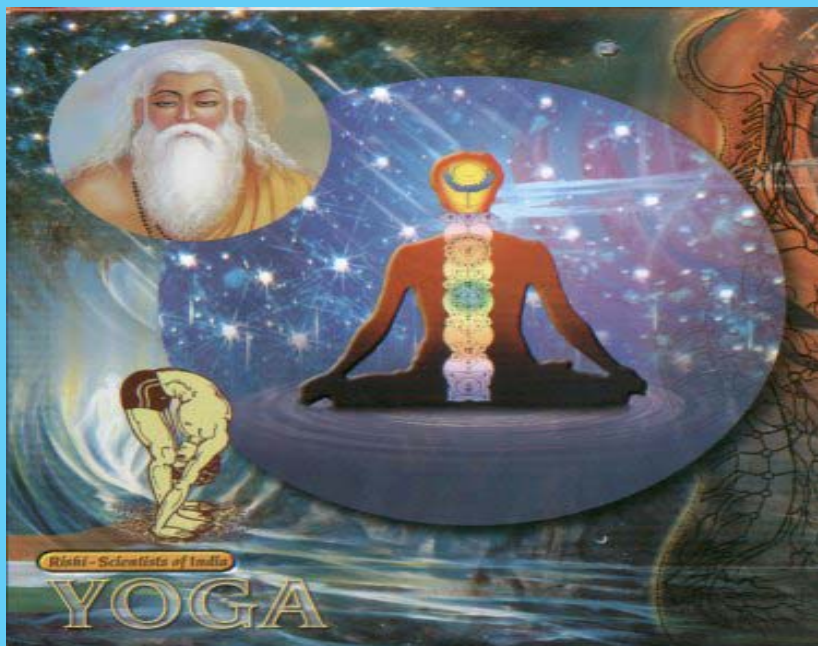
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ACHARYA PATANJALI (200 BCE)

FATHER OF YOGA

The Science of Yoga is one of several unique contributions of India to the world. It seeks to discover and realize the ultimate Reality through yogic practices. Acharya Patanjali, the founder, hailed from the district of Gonda (Ganara) in Uttar Pradesh. He prescribed the control of prana (life breath) as the means to control the body, mind and soul. This subsequently rewards one with good health and inner happiness. Acharya Patanjali's 84 yogic postures effectively enhance the efficiency of the respiratory, circulatory, nervous, digestive and endocrine systems and many other organs of the body. Yoga has eight limbs where Acharya Patanjali shows the attainment of the ultimate bliss of God in samadhi through the disciplines of: yam, niyam, asan, pranayam, pratyahar, dhyana and dharna. The Science of Yoga has gained popularity because of its scientific approach and benefits. Yoga also holds the honored place as one of six philosophies in the Indian philosophical system. Acharya Patanjali will forever be remembered and revered as a pioneer in the science of self-discipline, happiness and self-realization.

READER'S RESPONSE

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DRDO's test range to be operational by 2012

Bangalore: The new test range of the Defence Research and Development Organisation (DRDO) coming up on 4,000 acres of land in Chitradurga will be operational by 2012 and the runway will be ready by next year, said Mr Prahlada, Chief Controller, Research and Development (Aeronautics and Services Interaction), DRDO. Talking to presspersons on the sidelines of a workshop on electronic warfare, organised by the Association of Old Crows (AOC), India Chapter, here, he said that apart from its aeronautics missions for flight-testing sophisticated unmanned aerial vehicles (UAVs), air-to-ground weapons, huge parachutes, Light Combat Aircraft, aerostats, the range will also have facilities for testing electronic warfare systems for non-communication purposes, said Mr. Prahlada. He said that another testing range for electronic warfare for communication system was coming up in Andhra Pradesh, adding that the range for electronic warfare at Chitradurga would mainly use simulation mode of testing. The DRDO's budget for the next financial year would be around Rs. 9,000 crore, said Mr. Prahlada. To a query, he said that various research and development activities of the DRDO would now be able to expedite development activities as they had been out of the entity list — that denies import of critical components and sensitive technologies from the U.S. — following recent announcement by U.S. President Mr Barack Obama. Earlier, inaugurating the workshop, he said that information technology had become a crucial component in electronic warfare following digitisation and miniaturisation. Robert S Andrews, AOC International Region-1 Director, said that the organisation advocated the need for strong defence capabilities and emphasised electronic warfare and information operations to government, industry, academia, and the public. U.K. Revankar, Director, Defence Avionics Research Establishment (DARE) and President of AOC-India Chapter; H.V. Harish, Secretary, AOC-India Chapter; and Wg Cdr John Clifford, President, AOC-UK Chapter; were present.

Source: *The Hindu*

LCA Tejas completes successful maiden flight

Bangalore, Apr 24 (ANI): The Defence Research and Development Organisation (DRDO) conducted a successful maiden flight test of the Light Combat Aircraft (LCA), "Tejas" Limited Series Production (LSP)-3 aircraft. Wing Commander G Thomas, of the National Flight Test Centre (NFTC) at the Aeronautical Development Agency (ADA), flew the test aircraft. According to the DRDO, the flight took off from the Hindustan Aeronautics Limited (HAL) Airport in Bangalore, and all the objectives of the flight were met within the duration of 52 minutes. The LSP 3 aircraft is the ninth test vehicle to join the flight line to undertake development flight trials of the Light Combat Aircraft Tejas. The Tejas is expected to get operational clearance for induction in the Indian Air Force (IAF) by December. The DRDO said that the successful, copybook maiden test flight of LSP-3 is significant on many counts. The LSP-3 is a quantum jump in terms of the equipment fit on the aircraft. It is almost the final configuration including the new air-data computers, Multi Mode Radar, (MMR) new communication and navigation equipment and radar-warning receiver. The remaining effort is mostly the flight-testing and demonstration of sensors and weapon performance, DRDO said. As per procedure the first flight was accompanied by a chase aircraft which was a Tejas Trainer flown by Group Captain RR Tyagi, the Chief Test Pilot and Wing Commander (Retd) P K Raveendran, the Group Director (Flight Test). The Test Director, Wing Commander S Toffeen, conducted the test flight from the Telemetry station, under the supervision of Air Commodore Rohit Varma, the Project

Director (Flight Test). With this flight the total number of test flights accumulated across nine test vehicles of the Tejas programme has reached one thousand three hundred and fifty and has logged about 800 hrs of flight. On the successful flight of the LSP-3 Director - ADA, Mr P S Subramanyam complimented all those who worked with the project. "This is the culmination of the efforts of the Tejas Team comprising of members from HAL, IAF, CEMILAC, DG-AQA, DRDO labs, PSUs, coordinated by ADA," Subramanyam said. (ANI)

Source: *news.oneindia.in*

Nuke-capable Agni I missile test-fired successfully

Balasore (Orissa), India's nuclear capable Agni-I strategic ballistic missile, which has a striking range of 700 kms, was successfully test-fired by the Army during a user trial from the Integrated Test Range at Wheeler Island off Orissa coast today. "The trial of Agni-I was smooth and the test flight was fully successful," ITR Director S P Dash told PTI. The indigenously developed surface-to-surface single-stage missile, powered by solid propellants, was test fired from a rail mobile launcher around 1010 hours from launch pad-4 of ITR, 100 km off Orissa coast, defence sources said, adding "all parameters were met during the trial." User of the missile - the Strategic Force Command (SFC) of the Indian Army - as part of their training exercise, executed the entire launch operation with the logistic support provided by the Defence Research Development Organisation (DRDO) at the ITR, said a DRDO official. - (Agencies)

Source: *news.chennaionline.com*

DRDO testing range in C'durga by next year

'Integration of electronic warfare system on MiG-27 complete' The Defence Research and Development Organisation testing range for radar-based electronic warfare systems in Chitradurga will be operational by 2011. Speaking on the sidelines of an electronic warfare workshop organised by the Association of Old Crows (AOC), India Chapter, Chief Controller (R&D) Prahalad said: "We have already completed the groundwork and work on the runway is scheduled to begin soon. With considerable progress in the work, we are looking at inaugurating the 4,000-acre aeronautical test range next year." Besides, testing range proposed in Tandur near Hyderabad will also be completed by 2013, he said adding that the estimated cost of the ranges is between Rs 400-Rs 500 crore each. Once both these ranges are operational, experimental and research and development tests can be conducted

Source: *Deccan Herald*

Space: 'Focus will be on resources'

Space missions of the future will focus more on exploitation of resources than on research, said the first Indian to set foot in space, Wg Cmdr (Retd) Rakesh Sharma. Delivering the "Subroto Mukherjee Memorial Oration" on "Space travel - where do we go from here?" at the Golden Jubilee Conference of the Indian Society of Aerospace Medicine, Mr Sharma said

unlike research, which had been the focus of space activity so far, space programmes will now concentrate on exploitation of resources that may be available on the moon and beyond. In the event of long-duration hauls becoming regular in the future, new challenges would crop up and may have to be addressed, said Sharma who travelled to space in April 1984. He also raised questions over the earth's ability to sustain human life, given its shrinking resources. "We need to have a redundancy plan, a backup for human race," he said. There could be a need to simultaneously commence programmes aimed at colonisation of the moon and deep space exploration with long-duration flights to Mars and beyond. A lunar outpost would have to be set up for the purpose, he said.

Satellite launch

The Indian Space Research Organisation will launch Resourcesat-2 advanced remote sensing satellite on board home-made PSLV rocket in January, adds PTI from Bangalore. The Bangalore-headquartered space agency held a mission readiness review in the Sriharikota spaceport in Andhra Pradesh on Friday. Resourcesat-2 is a follow on mission to Resourcesat-1 to provide data continuity. Resourcesat-1, launched in October 2003, has outlived its designed mission life of five years.

Source: *Deccan Herald*

Tejas to get operational clearance in December

Tejas - the Light Combat Aircraft - will reach a crucial development landmark in December when it gets the initial operational clearance, a much-delayed critical step before its induction into the Indian Air Force (IAF), which is eagerly awaiting replacements of its ageing fleet. Defence Minister Mr A K Antony assured a Parliamentary panel that the LCA, under development since 1980s, was now on the way to get Final operational clearance by the end of 2011. The IAF expects to start raising two squadrons of the LCA by the middle of 2011 and will await for the introduction of improved version of the aircraft, LCA mk-II, for further orders. LCA-mk II will have more powerful GE engine which was selected recently after competitive bidding. All the systems of the aircraft, including the multi-mode radar, air data computers, navigations equipment and weapon platforms have to be in place for getting the IOC. It is a much awaited development in the project.

Source: *Indian Express*

Combat aircraft top international arms sales: think tank

Combat planes account for one third of all global arms transfers, with the United States topping the list of sellers and India, the United Arab Emirates and Israel the biggest buyers, according to the SIPRI think tank. In a report published, just a week before China opens its massive airshow in Zhuhai, the independent Swedish institute cautioned that increased sales of combat aircraft could have a destabilising effect in many parts of the world. Between 2005 and 2009, according to the report by the Stockholm International Peace Research Institute, the United States had sold 341 fighter jets, up from 286 planes sold during the previous five-year period, while Russia sold 219 planes, down from 331, and France sold 75, up from 58.

Source: *AFP*

Major ISRO centres off US blacklist

With a formal announcement by US President Barack Obama on Monday about lifting curbs on ISRO and DRDO, key ISRO centres will finally be off the US blacklist. This move will allow import of five important space-related components from American firms. ISRO units which will off the blacklist include Vikram Sarabhai Space Centre (Thiruvananthapuram), Satish Dhawan Space Centre (Sriharikota), Solid Propellant Rocket Booster Plant (Sriharikota), and Liquid Propulsion Systems Centre (Mahendra Giri, Tamil Nadu). Top officials from ISRO told The Times of India that the components which can be now be imported include travelling wave tube amplifiers used in communication satellites, microprocessors, radiation hardened components used in satellites, optics-related items and memory devices used both in satellites and rockets.

Source: *Times of India*

India To Fly Tejas LSP-5 Soon

India's fifth limited-series production (LSP-5) Tejas Light Combat Aircraft is ready for its first flight. Indian sources confirm to AVIATION WEEK that a flight readiness review meeting was held recently and the LSP-5 will fly "soon," weather permitting. LSP-4 had its first flight in June. "Two more high-speed taxi trials are remaining and after that we will be ready for the first flight," says a senior official associated with the program. "It will have internal cockpit lighting for enabling night flying, with all corrections being done. We are also testing a new communication set, similar to that on the Dhruv chopper. This would again ensure commonality of inventory in the country." LSP-5 will be the first to test the Tejas' auto-pilot mode. "The autopilot is indigenously developed by the national control law team of National Aerospace Laboratories," the official says. "With LSP-5, we are demonstrating all the final configuration of Tejas Mk-1, which will also be a final cockpit version."

Source: *Aviation Week*

'Threat of Space debris looms large'

Pollution of the air, water, soil are now a part of the daily vocabulary, but what about the pollution of the Space? Speaking about Space debris and its management at the "Pollutetech India 2010" expo in the City, Prof V Adimurthy of the Indian Space Research Organisation (ISRO) said, space research institutes across the world have come together to mitigate the problem of Space debris. Apart from the problem of disposal, scientists are worried about the long-term evolution of Space debris. According to the Inter-agency Space Debris Coordination Committee (ISDCC) in which Prof Adimurthy is the Indian representative, over 15,000 types of debris have been identified through regular monitoring amounting to 2,500 tonnes.

Source: *Deccan Herald*

Manned mission to explore dark side of Moon

LONDON: For the first time since the last Apollo landings of 1968s, scientists are planning to explore the dark side of the moon using a. Engineers with aerospace giant want to send up astronauts into stationary orbit above the planet to study it further. The American firm hopes to use remote controlled robots dispatched from their spacecraft to collect samples and explore the South Pole-Aitken basin on the Moon — one of the oldest craters in the solar system, the Daily Mail reported. Scientists hope the mission will serve as a test for a future possible mission to Mars as the six month trip would help study whether the equipment and the astronauts are able to endure long-term space travel. Nasa has in the past estimated that it could take around a year to complete a round-trip to the Red Planet and back, allowing a few months to collect samples. Lockheed's plan involves using the combined gravity of the Earth and the Moon to ensure that its craft hovers on the same spot, within sight of both planets. It has pitched what it is calling the L-2 spacecraft to do the job, which would house both astronauts and probes. If Nasa approves the mission, it will allow to see how humans respond to lengthy doses of deep space radiation, a key problem on a longer Martian trip. The first Orion missions to the moon's far side, viewed as feasible by 2016 to 2018, would accomplish science goals on the lunar surface using robotic rovers controlled by astronauts in space as practice for doing the same thing at Mars. The far side of the Moon is permanently turned away from us and at best we can only ever see one fifth of it.

Source: *Times of India*

Army's Strategic Forces Command tests Agni-1

The Strategic Forces Command of the Army fired Agni-1, the surface-to-surface missile, from the Integrated Test Range (ITR) on Wheeler Island, off Damra village on the Orissa coast. The flight was successful with the missile travelling its full range of 700 km. Fired at 10.20 a.m., the missile followed its trajectory and reached the designated target area in the Bay of Bengal. Agni-1, which can carry nuclear warheads, is a product of the Defence Research and Development Organisation (DRDO). The Advanced Systems Laboratory (ASL), a DRDO facility at Hyderabad, developed it. The Strategic Forces Command is in charge of the nuclear delivery systems. Mr Avinash Chander, ASL Director, said "the launch went off perfectly well and it was a fantastic flight." Radars, telemetry systems and electro-optical systems set up on the coast tracked the missile and monitored its health. Ships stationed near the target area witnessed the terminal event of Agni-1's flight. "It is one of the regular flights done by the Strategic Forces Command to see the readiness of the strategic deterrent. They do the flight to check whether we are ready for any eventuality," said Mr. Chander, who is also the Programme Director for the Agni series of missiles. All the mission requirements were done in real time as per the desire of the user (the Army). The missile was picked at random from among the production series and launched. The launch operations were supervised by Project Director Mr J. Chattopadhyay. The flight was witnessed by Dr V.K. Saraswat, Scientific Adviser to the Defence Minister, and Mr S.P. Dash, Director, ITR. Agni-1, which has been inducted into the Army, is a single-stage missile powered by solid propellants. Its re-entry system is made of carbon composites to protect its payload (nuclear warhead) from the intense heat generated when the missile re-enters the atmosphere. The missile weighs 12 tonnes and is 15 metres long. It can carry a one-tonne payload. The

DRDO is planning to launch a series of missiles in the coming months.

Source: *The Hindu*

Rolls-Royce to replace 40 A380 engines

Rolls-Royce may replace up to 40 engines on Airbus A380 superjumbos flown by three airlines, Qantas said, after a mid-air explosion sparked safety fears over the world's biggest passenger jet. The number accounts for nearly half the Trent 900 engines powering A380s operated by Australia's Qantas, Singapore Airlines and Germany's Lufthansa, and follows extensive checks after the November 4 blast over Indonesia. Rolls-Royce has pin-pointed a "specific component" in the Trent 900 as the cause of an oil fire behind the blast. Each A380 is powered by four engines. "Rolls may have to look at replacing up to 40 engines across the entire A380 fleet," a Qantas spokeswoman told AFP.

Source: *Indian Express*

Indigenous integrated life support system for fighter aircraft pilots

An Integrated Life Support System (ILSS), which will administer required quantities of oxygen at varying altitudes to pilots of fighter aircraft on long missions and protect them from losing consciousness due to severe gravity (G) forces, has been developed by the Defence Bioengineering and Electromedical Laboratory (DEBEL) in Bangalore. Light Combat Aircraft (LCA) Tejas will be equipped with the ILSS from February 2011. It will provide 100 per cent oxygen to pilots in case of ejection from the fighter aircraft. An important constituent of the ILSS is the On Board Oxygen Generation System (OBOGS), which keeps the pilot's oxygen status at sea-level despite flying at high altitudes. The OBOGS enables the aircraft to undertake long-endurance missions, free from the burden of re-charging the oxygen cylinders. A team of DEBEL scientists, led by its director Mr V.C. Padaki, developed the ILSS. The DEBEL, a laboratory under the Defence Research and Development Organisation, was assisted by Mr K. Tamilmani, Chief Executive, Centre for Military Airworthiness & Certification (CEMILAC) in Bangalore.

Source: *Hindu*

Govt pushes for defence indigenisation

Defence minister Mr AK Antony said that his ministry is all set to create an environment for speedy indigenisation of defence systems and platforms. "We are making all efforts to create an environment for speedy indigenisation of defence systems and platforms," Mr Antony said, while addressing Parliament's consultative committee attached to the defence ministry. He also said that certain policy decisions were on the anvil to give a big boost to the defence industry and for the production of futuristic weapon systems within the country. The meeting also reviewed the performance of the Defence Research and Development Organisation (DRDO). "DRDO-developed MBT (Main Battle Tank) Arjun is being manufactured at Avadi and is in the final phase of delivery of 124 tanks. Army wants to have 124 more

tanks of Mark-II Arjun. DRDO is now developing a futuristic MBT to meet the requirements of our army," Mr Antony said.

Source: *Economic Times*

Kaveri engine's maiden flight test successful

Defence Research and Development Organisation (DRDO) has successfully flight tested the indigenously designed and developed Kaveri Engine during the Flying Test Bed (FTB) trials at Gromov Flight Research Institute (GFRI), Moscow, Russia. The engine running right from take-off to landing flew for a period of over one hour up to at an altitude of 6000 m at a speed of 0.6 mach in its maiden flight. The engine control, engine performance and engine health during the flight were found to be excellent during the test. With this test, the Kaveri Engine is said to have completed a major milestone of the development programme.

Source: *Deccan Herald*

First advanced radar system to be ready by 2011 end

India's first indigenously developed Airborne Early Warning and Control (AEW&C) system is ready and is being sent to Brazil shortly to be integrated with an

Embraer 145jet. The development is a major milestone in India's quest for self-reliance in advanced radars and, based on the success of this system; both the Indian Air Force (IAF) and the Indian Navy (IN) could acquire a number of them over the coming years. For the present though, the Defence Research and Development Organisation (DRDO) is developing three of them for the IAF, and has accordingly ordered three Embraer 145 long-range jets.

Source: *Indian Express*

Tech to reduce aircraft down time

Trials of the Nishant Unmanned Aerial Vehicle (UAV) conducted by Aeronautical Development Establishment (ADE) at Kolar airfield witnessed a technology breakthrough. Its structural health was monitored while it was still in flight using technology developed by ADE and National Aerospace Laboratories (NAL). This enables corrective action during the flight itself and the aircraft can continue flying without being grounded. Scientists have also developed analysis algorithms that help predict onset of failures. This will be perfected using data obtained through Thursday's flight. These techniques will avoid periodic grounding of the aircraft and turn maintenance schedules into on-condition maintenance in which a specific condition is detected before failure occurs.

Source: *Times of India*

Air cargo industry set to take off post-recession

The country's air cargo industry is likely to see a growth of 12 to 14 per cent this year compared with the previous year's growth of around 6 per cent, said Air Cargo Agents' Association of India (ACAAI) President Mr J. Krishnan. Talking to presspersons on the sidelines of the three-day 37th annual convention of the association in Bangalore on Thursday, he said that business was severely affected during last year as many western countries were under recession.

'Better in south'

Things were better now. Growth is better in the southern States with 12 per cent as against the national rate of 9 per cent. The five major airports accounted for about 90 per cent of the total cargo handled in the country, Mumbai being the biggest. International cargo handled grew at 6.8 per cent, and domestic 9.9 per cent. Mr. Krishnan said that inadequate infrastructure, regulatory restrictions, fragmented electronic data interchange implementation by Customs, security hazards are some of the problems being faced by the air cargo industry. Association's Bangalore Region Chairman Mr Prem Kumar said that infrastructure for cargo agents at Bengaluru International Airport requires improvement as many agents still don't have the place to operate their transaction, unlike Hyderabad.

Source: *The Hindu*

Air France-KLM to set up plane parts repair facility in India

The aeronautical division of Europe's largest airline, Air France-KLM group, has entered India's aircraft component repair market by acquiring a 26% stake in Mumbai-based aircraft maintenance, repair and overhaul (MRO) company Max Aerospace and Aviation Ltd for an undisclosed amount. A formal announcement is expected. Air France Industries, KLM Engineering and

Maintenance and Max Aerospace will jointly build an aircraft component repair facility at a special economic zone (SEZ) that will be capable of servicing Boeing Co. and Airbus SAS planes, their executives said. Mid-sized planes made by Boeing of the US and Europe's Airbus dominate the Indian market.

Source: *livemint.com*

Navy steps up move to seal F-35 purchase

The Indian Navy is expected to soon recommend to a key defence planning directorate, the possible purchase of the US-built F-35 as it looks to replace its current ageing fleet of fighter jets with the most advanced fifth-generation combat aircraft in the world. As part of its plan to enhance future strategic reach capabilities, Indian Navy and ministry of defence officials have confirmed that naval officials have held discussions regarding the pros and cons of the F-35 and that the recommendations were positive. The discussions were held with Lockheed Martin, the US firm building the aircraft as part of an international consortium. "Yes, the naval headquarters has discussed the capabilities of the F-35 and the possibility of it fitting within the Navy's strategic purview. And the discussions have generally been positive," a senior naval officer said on the condition of anonymity.

Source: *Economic Times*

Airbus set to re-bid for IAF air-tanker deal

With the Airbus Military expected to send a positive response to the fresh tender issued by the defence ministry for the procurement of six mid-air refuellers, the defence major has an edge over its rival Boeing, since the US vendor is still awaiting the outcome of a major US air tanker programme. A senior official from the defence ministry, on the condition of anonymity said: "We are quite confident that the Airbus will participate in the fresh tender issued for the air-to-air tankers, considering they were strong contenders last time around as well. However, we expect to consider other competing aircraft as well." While media

reports have speculated that rival defence major Boeing is also expected to participate, unlike last time, the defence vendor has said its decision to take part will largely depend on the outcome of \$35-billion KC-X next generation aerial refuelling tanker aircraft programme for the United States Air Force.

Source: *Economic Times*

Defence deal cleared ahead of Obama visit

Mr Manmohan Singh government has cleared a Rs.2, 000-crore proposal to acquire a sophisticated equipment for the Indian Air Force. The deal, which may not mean much in terms of value to the U.S., was given the nod late last week. It will allow the IAF to procure state-of-the-art equipment from the U.S. through the Foreign Military Sales route, sources in the top echelons of the government confirmed to The Hindu. The decision to procure sensors for weapons may not fall under the 'big-ticket' items that the U.S. hopes to sell, but it shows the increasing trend of the government concluding defence deals through the Foreign Military Sales route rather than the multi-vendor process that the Defence Procurement Policy advocates. The authorities maintain that the equipment is procured through the Foreign Military Sales route given the requirement of the armed forces.

Source: *Hindu*

Spice jet to buy 30 aircraft

Low cost carrier Spice jet, which posted a profit of Rs 10 crore for the second quarter this fiscal, on Tuesday said it, plans to buy 30 aircraft worth \$900 million from Canadian firm Bombardier for flying to smaller cities. "The Spice jet

board approved an order of up to 30 aircraft with deliveries commencing second quarter of 2011 and we are in the process of obtaining the necessary regulatory approvals for the same," Spice jet CEO Neil Mills said here, while announcing the second quarter results. He added that with these aircraft, the no-frills carrier aims to reach tier-ii and tier-iii cities, like Shimla, Kullu-Manali and Jaipur. "India currently has about 90 such airports and we plan to enter into these areas as there are no low-cost carriers (LCCs) here," Mr Mills said.

Source: *Times of India*

World's first integrated aviation varsity in Bangalore

The Centre for Asia Pacific Aviation (CAPA) and the Bangalore-based Subramanya Construction and Development Company (SCDC) signed a joint venture agreement to set up the world's first integrated aviation university and training campus in the Karnataka capital. The Sydney-based CAPA, a globally recognised provider of industrial research and analysis, and SCDC will invest \$125 million to develop CAPA Aero Park on a 50-acre site in Bangalore by 2012. The fully developed campus will have state-of-the-art academic facilities together with full flight simulators, a flying school, engineering workshops and laboratories, research centres, accommodation for students and faculty, recreational facilities, a hotel and convention centre.

Source: *Indian Express*

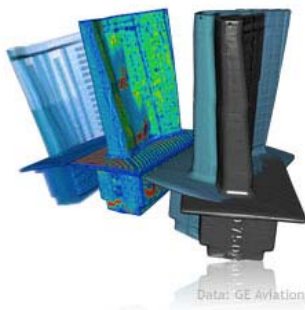
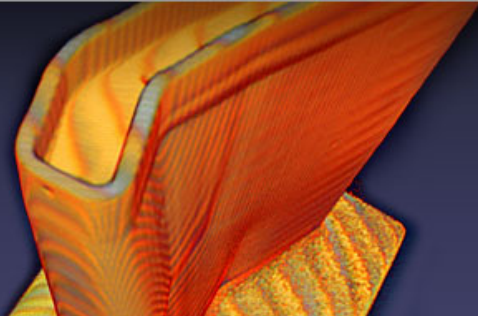
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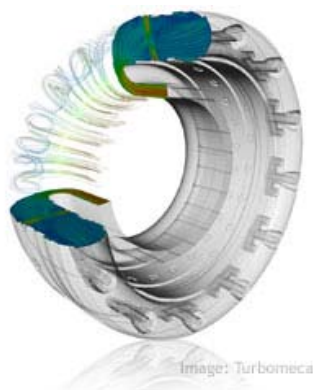
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