Thales Alenia’s Airstar Deal
Will boost development of ‘Stratobus’ telcom airship.

Norsk Ti With Spirit
Companies collaborate on 3-D printing of titanium parts.

Leonardo Nine for LCI
Leasing company is taking a mix of helicopters worth $120 million.

Airbus-L3 Flight Recorders
Target is units that will be easier to find after an accident.

DIRCM for Gulfstream G650
Customer orders $20 million Elbit unit for $67.4 million airplane.

L3’s Longsword Turboprop
Turboprop single light attack aircraft stands out in a crowd.

Lord Enhances Fly-by-Wire
A new main plant in France and a facility in the U.S. too.

Turkey’s Big Paris Showing
TAI is tackling both military and civil aerospace markets.

P&WC’s Major Milestone
The manufacturer’s 100,000th gas turbine engine has been delivered.

Mergers & Acquisitions
Opinion: M&A evolves as defense firms adapt to the modern market.

WOW Takes Europe’s First A321neo
WOW air, the Icelandic low-fare carrier, took delivery of its first A321neo at a ceremony during the Paris Air Show. The aircraft, leased from Air Lease Corporation, was officially handed over to the airline’s CEO, Skúli Mogensen. It will join WOW air’s existing all-Airbus Fleet of 15 A320 family aircraft. Powered by CFM Leap-1A engines, WOW’s A321neo is configured in a 218-seat layout. It will be based at Keflavik Airport in Iceland and operate commercial flights from Europe to North America.

Clark Sees Glimmer in Carry-On Gloom
Emirates airline president Tim Clark said here at the Paris Air Show he is optimistic the quandary posed by the U.S. ban on large personal electronic devices as carry-on items on air routes from Middle East airports will be resolved. He went to Washington last month and told officials, “Tell us what you want. If you want us to have canine intercepts at secondary search, we can do that. If you want to bring in your own officers to stand over our guys and watch what they are doing, we can do that. “Tell us what you want and we will do it.”

Lockheed, Tata Team to Build F-16s in India
Lockheed Martin and Tata Advanced Systems Limited, the defense arm of India’s Tata Group, reached an agreement here to jointly produce Lockheed’s F-16 Block 70 in India. Lockheed likely hopes this is the first step toward New Delhi electing to buy at least 100 new Fighting Falcons to replace its aging MiG fighters.
F-35 Lightning IIs have flown thousands of sorties powered by the F135 propulsion system, developed from the highly successful fifth-generation engine for the F-22 Raptor. Pratt & Whitney partners with customers around the world to provide sustainment solutions that keep the F-35 Lightning II dependable and affordable. We are proud to power today’s most advanced fighter aircraft. Now, we are advancing engine technology to provide the next generation of fighter engines for tomorrow’s defense needs.

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John Morris, editor-in-chief of ShowNews, celebrated his 500th issue here at the Paris Air Show — that’s probably more show dailies than anyone else in history.

Morris took the helm in 1994 and pioneered expansion into defense, commercial and business aviation shows around the world, including bilingual daily magazines in China English and Mandarin.

ShowNews is the world’s oldest on-site daily news magazine, tracing its history more than 50 years to the Reading Air Show in Pennsylvania.

ShowNews informs executives with crucial information at the most important shows today: Paris, Farnborough, Singapore, Dubai, NBAA, and EBACE (Geneva), and China’s ABACE (Shanghai), Aviation Expo-China (Beijing) and Airshow China (Zhuhai). It is published in digital format on the Aviation Week Network.
Stratobus Gathers Momentum With Airstar Deal

Thales Alenia Space (Chalet 263) is to take a "minority stake" in Airstar Aerospace (Hall 4 Booth B78), a company with know-how in balloon envelopes, in a bid to advance its Stratobus telecommunications airship project.

Grenoble, France-based Airstar in 2015 acquired a division of Zodiac Marine and has thus benefited from decades of experience in those stratospheric balloons that are used as probes for high atmosphere research. It therefore has expertise in how materials behave at such altitudes and how to manage internal gas, says Thales Alenia Space. It will provide Thales Alenia Space with "paper sheet-thin fabric able to carry more than 10 metric tons (22,000 lb.)," Airstar Aerospace CEO Romain Chabert adds.

Thales Alenia Space, otherwise a satellite manufacturer, believes airships have a sweet spot for some applications they can effectively address at lower cost. A payload on a Stratobus flying at 12.4 mi. (20 km) altitude could thus provide broadband internet over a small surface area. It could be well suited to upcoming 5G mobile communications, as a lower altitude – compared to a geostationary satellite's 19,900 mi. – provides shorter latency. Another mission could be surveillance over a given location, such as a war theater. A satellite could relay images to a government in a distant capital city.

The Stratobus is designed to be unmanned and would be controlled from a ground station or a satellite. The main challenge is for the airship to remain geostationary, to have powerful motors against the wind. The Stratobus' first version will gather power via photovoltaic cells featuring a 21% efficiency thanks to ongoing progress in the technology. During daytime, electric current will simultaneously be used by electric motors and a water electrolysis process. The hydrogen and oxygen it will generate will feed a fuel cell. In turn, the fuel cell will supply electric power at night.

Thanks to its electric motors, the Stratobus will be able to remain immobile, relative to the ground, against a 50-kt. wind. Depending on actual wind speed, 5 to 8 kW will be available for the payload. Winds are stronger than 50 kt. only a few days per year between the tropics, and the area would thus be the most suitable to Stratobus operations, says Jean-Philippe Chessel, Stratobus product line manager. He foresees a market of a dozen Stratobuses per year for observation and surveillance. For telecommunications, sales could amount to hundreds per year, he asserts.

A critical design review is scheduled for late next year. A prototype is slated to fly in late 2020 or early 2021, at least one year later than planned when the project was unveiled in 2014. A future version will feature solar concentrators to collect solar energy more efficiently.

—Thierry Dubois

UTC Aero/UTAS: ‘Ideas Born to Fly’ as Its New Branding

HAVING SPENT FIVE years integrating Goodrich with its Hamilton Sundstrand division, UTC Aerospace Systems has embarked on a campaign to build its own image.

“We’ve long been focused on customers but in a very non-public way,” says communications vice president Stacey MacNeil. “We really want to highlight our key strengths.”

Both Goodrich and Hamilton have decades of progress quietly making flight safe and green, she notes. “We have some of the most brilliant ideas in the industry, and we want to tell that story.

As the company says: “It takes the most brilliant thinking on the ground…to put the most innovative solutions in the air. That’s why we bring together the brightest minds to solve customers’ toughest challenges.”

The recurring theme is ideas, and their execution.

Thus “Ideas Born to Fly” will be the battle flag for UTC Aerospace Systems going forward.

UTAS Donates to Orbis Flying Eye Hospital

A US$1 million three-year contribution to Orbis International, well known for its work to eliminate avoidable blindness as well as its MD-10 Flying Eye Hospital, was announced by UTC Aerospace Systems here at the Paris Air Show.

Orbis, a leading global nongovernmental organization (NGO) provides access to quality eye health care and medical training for low- and middle-income countries.

The Orbis Flying Eye Hospital conducts multiple programs each year, training doctors, nurses and other eye-care professionals, while also conducting hundreds of critical sight-saving and restorative surgeries. Expert volunteers aboard the Flying Eye Hospital travel to countries with under-resourced medical services and train local health care teams to treat eye issues, while expanding access to future treatment and providing ongoing support to those trained.

“We focus our charitable contributions in ways that will have a meaningful impact on the world,” said Dave Gitlin, president, UTC Aerospace Systems.

Gitlin added, “It is humbling to think about how the gift of sight can improve a person’s lot in life. We are thrilled to support these efforts, and we admire Orbis for their comprehensive approach to addressing preventable blindness.”
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SEE US AT PARIS AIR SHOW 2017 Chalet A206, Israel Area
Norsk Titanium and Spirit AeroSystems have disclosed a commercial aerospace collaboration in 3-D printing, reckoning that "thousands of titanium parts" manufactured at Spirit or by its suppliers are candidates for the new technology.

Norsk Titanium’s proprietary plasma arc rapid plasma deposition (RPD) will be used to build the parts to a near-net shape, thereby reducing waste, using less energy, and cutting product costs by up to 30%, Norsk says.

"Reducing our material cost and our environmental impact is a win-win for Spirit, our customers and the communities where we do business," said Spirit President and CEO Tom Gentile.

“We recently announced becoming the world’s first FAA-approved 3-D-printed structural titanium provider and Spirit is the ideal tier-one aerostructures partner to leverage this pioneering capability," said Norsk Titanium CEO Warren Boley.

Norsk said it’s been working on the 3-D technology with Spirit since 2008.

Meanwhile, the two-way data link gives pilots the ability to make in-flight target updates.

At just 208 lb., SDB II is lighter than other glide bombs, allowing the F-35 to carry eight internally. Raytheon is also working to complete SDB II integration on the F-15E Strike Eagle and the F/A-18 Super Hornet.

Raytheon expects the SDB II will be ready for F-35 deployment in 2022, Jarrett said.

Raytheon’s SDB II Completes Tunnel Tests

RAYTHEON’S SMALL DIAMETER Bomb II recently completed a series of rigorous high-speed wind-tunnel tests, the next step to integration on Lockheed Martin’s F-35.

SDB II will be “truly transformational” to the U.S. and international partners operating the F-35, said Mike Jarrett, Raytheon vice president of air warfare systems, here at the Paris Air Show. The standoff, precision-guided glide bomb can destroy moving and stationary targets in all weather from ranges of greater than 40 mi., giving the pilot a significant operational advantage, he said.

“Enemies use adverse weather conditions to travel, because it helps them avoid detection,” said Jarrett. “Whether they are in the rain, obscured by smoke or on the move, SDB II will find them.”

He added that SDB II’s "secret sauce" is the tri-mode seeker, using millimeter wave radar, uncooled imaging infrared guidance and semi-active laser guidance to find its targets.
The skies are changing - demand for air travel is growing faster than ground infrastructure can accommodate. Leonardo designs the world's only civil-certified TiltRotor, which flies at twice the speed, range and altitude of conventional helicopters, with the ability to take-off and land vertically, revolutionising modern air travel.

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Avic Seeks More International Cooperation

China’s Avic state aviation conglomerate aims to expand cooperation with the international aerospace community this year.

It is furthering those goals here at Paris with several agreements, says Dr. Zhang Xinguo, Avic VP and president of the China Aeronautical Establishment.

Among them: the application of Dassault Systems’ digital technology to complex system manufacturing, and local software development and after-sale support for Thales in the China market for helicopter avionics.

Avicopter, Avic’s helicopter arm, just flew the AC352 with Airbus Helionix avionics last December. More new programs like the AC322 and Sino-Russo Advanced Heavy Lift helicopter, as well as upgrade programs, are also under way.

Avic is showing for the first time in the static display the weapons-carrying Wing Loong II prototype UAV, which has already won international orders.

Last September, the U.S. and China agreed to jointly research Air Traffic Management Technology through cooperation between the U.S.’s NASA and China’s CAE, a state agency under Avic’s administration. This marked the first cooperation program between state aviation research agencies from China and the U.S. in last two decades.

Here at the show, CAE will renew cooperation agreements with the Netherland’s NLR and DNW on computational fluid dynamics wind-tunnel tests, and ATM technology.

Avic is in Hall 2A, Booth D252.

Esterline CMC Emphasizes the Human Touch

Canada’s Esterline is showing its cockpit avionics displays with an emphasis on its HMI – human-machine interface – products for both forward-fit and retrofit aircraft applications.

A technology demonstrator on display in Hall 5, Booth C250 shows a selection of the latest Esterline products from the company’s Avionics Systems and Control & Communication Systems business groups. These include such avionics installations as the 15-in. displays for China’s new Comac C919 airliner, and the new touch-screen control unit display and CMC Electronics PilotView electronic flight bag (EFB) and e-connectivity solution for the Bombardier CSeries.

In news announced here, Esterline has been awarded a contract by Airbus Helicopters to supply its CMC Electronics brand integrated helicopter solution for the upgrade of the German Armed Forces’ CH-53GS/GE Sea Stallion helicopters. The package includes the Esterline CMC Electronics CMA-9000 flight management system and the Esterline MFD-3068 Smart multifunction display. These “will address obsolescence and enhance the CH-53GS/GE’s capabilities by providing a flexible, modernized cockpit with improved civil navigation features,” the company says.

Esterline also reported here this week that its Avionics Systems business unit has been awarded a contract from Pilatus to supply high-performance cockpit avionics for PC-21 turboprop trainer aircraft for the French air force. It also has received a contract for the provision of additional shipsets for the Royal Jordanian Air Force PC-21 fleet.

“Esterline has achieved an international reputation for innovation and excellence in the design and manufacture of many of our products,” said Esterline president and CEO Curtis Reusser.

“For instance,” he said, “Esterline is now the number one independent supplier of high-quality avionics displays and we created the first touch-screen control solution for overhead panels in civilian aviation, which we are now making available for a wider range of aircraft.”

Esterline is also celebrating the shipment of its 6,000th EFB, to Embraer. “Our PilotView electronic flight bag systems are in their 12th year of production and boast a solid international customer base,” said Esterline Avionics Systems president Michel Potvin. Embraer has taken “more than 500 units shipped to date.”

“In the military transport aircraft market,” Potvin said, “deliveries of our TacView system are well over 1,500 units.”

Other key products in the company’s Paris Air Show display are a Korry overhead panel with touch-screen technology for the Gulfstream G500/G600 – “the first of its kind” – and Mason primary and secondary flight controls.
The state that revolutionized the automotive industry has taken to the skies to become one of the top places in the country for aerospace business. Michigan. Home to more than 600 aerospace-related companies, Michigan is ranked among the top 10 states for major new and expanded facilities. To learn more about aerospace opportunities in Michigan, visit the MEDC booth in Hall 3 – E128 at the International Paris Air Show.
Airbus to Fit Deployable Recorders

Airbus will fit new fixed and deployable combined flight data and voice recorders as standard on long-range aircraft starting in 2019 in a bid to make it easier to find aircraft wreckage in the event of an accident over the sea.

The Toulouse-based manufacturer has teamed up with commercial and military avionics specialist L3 Aviation Products as well as DRS Leonardo to develop the devices, which will be fitted on the A350 XWB first, beginning in late 2019, before being offered on A380s, A330s and A320LRs too.

L3 will design and manufacture the lighter and more compact fixed crash-protected Cockpit Voice and Data Recorder (CVDR) which will be able to record up to 25 hr. of voice and flight data, in line with new EASA and ICAO requirements that mandate an increase from the current 2 hr. of voice recording.

L3 and Airbus will integrate the Automatic Deployable Flight Recorder (ADFR), designed and manufactured by DRS Technologies Canada, part of Leonardo DRS.

The ADFR will be fitted at the rear of the aircraft and is designed to deploy automatically via a preloaded spring system in the event of water submersion or significant structural deformation of the aircraft. It can float and is aimed at long-range aircraft that fly for extended periods over water or in remote areas.

The crash-protected ADFR can also store up to 25 hr. of recorded cockpit voice and flight data. It is fitted with an Emergency Locator Transmitter (ELT) to help rescuers locate and recover it rapidly.

The plan is the result of discussions about the difficulties of locating aircraft that have crashed into the sea, following the Air France AF447 crash in 2009 and the disappearance of Malaysia Airlines Flight MH370 in 2014.

“We have had a few cases recently where everyone is frustrated because they just don’t know what happened,” Charles Champion, executive vice president of engineering at Airbus Commercial Aircraft, said at the Paris Air Show. “Of course we could think about real-time transmission of data – it will come eventually – but in the meantime, especially in very remote areas, you need to think of a hard solution in order to be able to answer all the open questions.

Airbus said two of the new fixed CVDRs will be deployed on shorter-range A320 airliners. “This is about Airbus’ wish to go beyond the regulations to improve the chances of recovering data in the event of an accident,”

Elbit Defenses for a Gulfstream G650

J-Music DIRCM Costing $20 Million for $67.4 Million VIP Airplane

Elbit Systems has been awarded a contract worth more than US$20 million to equip a VIP Gulfstream G650 jet with its “J-Music” DIRCM (directed infrared countermeasure systems), the Israeli company said yesterday.

The Gulfstream G650 is itself priced at US$67.4 million.

The J-Music package for an Africa-based customer includes Elbit’s IR PAWS advanced infrared-based passive airborne warning system.

“Being selected to install J-Music on a VIP Gulfstream 650 aircraft is another vote of confidence and an indication of the strong demand for our high-quality, high-reliability DIRCM systems,” said ISTAR division GM Elad Aharonson.

“Given the constantly growing MANPADS [man-portable air-defense systems] threat for aviation,” he said, “we are confident that more customers will follow us in choosing our thoroughly tested and qualified DIRCM solutions.”

Elbit’s Music range of DIRCM systems has accumulated more than 30,000 hr. of operation. Elbit is at Chalet 200.
For centuries, man has been using fire and forge to shape metal parts for the demands of society – it's a dirty, often wasteful enterprise. Even today, commercial aircraft OEMs purchase titanium at a 10:1 to 15:1 buy-to-fly ratio.

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**VISIT US AT THE PARIS AIR SHOW / HALL 1 BOOTH H299**
Kawasaki’s big light-blue P-1 maritime patrol aircraft has taken center stage at the Paris Air Show, marking its debut at a major international trade show, and the first time a Japanese military aircraft has visited Le Bourget.

The distinctive four-engined aircraft was developed indigenously by Japan as a replacement for its fleet of Lockheed P-3 Orions. Currently, 11 are in service, but the Japanese Maritime Self-Defense Forces hope to grow the fleet to 60-70 to suit the island nation’s maritime security needs over the coming years.

Tokyo is also mulling whether to replace its fleet of special mission versions of the P-3 with adapted P-1s.

The P-1 is no stranger to Europe; however, in 2015, a pair visited the Royal International Air Tattoo after the UK examined the type for its maritime patrol needs.

Japan relaxed its decades-old rules on the export of defense equipment back in 2014, and since then the aircraft has generated considerable interest, but no foreign customers yet. Exports would still be limited to nations that Japan can form a defense relationship with, and share not only technology but also Tokyo’s views on international security.

Some 10 nations have sent delegations to take a look around the aircraft while it is in Paris, Takahiro Yoshida, the director of aircraft project management at Japan’s Acquisition, Technology and Logistics Agency, told Show News.

He added the aircraft was regularly operational over the Sea of Japan on anti-submarine patrols, and was routinely detecting submarines at longer ranges than was possible with the P-3 from both medium and low altitudes. Japan is currently investing in an improvement in the aircraft’s acoustics systems and plans to upgrade the aircraft with new equipment every 10 years to keep up with advances in submarine technology.

—Tony Osborne

Kawasaki’s P-1 maritime patrol aircraft was developed indigenously by Japan as a replacement for its fleet of Lockheed P-3 Orions. It is making its first appearance at a major international trade show this week in Paris – and it is the first time a Japanese military aircraft has visited Le Bourget.

Double First for Kawasaki P-1

Comlux First for Collins’ New Interior Systems Business

With the new Interior Systems business unit, Rockwell Collins (Chalet 313) is now a world leader in designing, developing and manufacturing cabin interior products and services. Among Comlux’s planned VIP completions are three Airbus ACJ320neo and two Boeing BBJ MAX aircraft for “green” delivery next year and in 2019, two to three years ahead of the next available delivery slots from the manufacturers. Comlux bought the aircraft and plans to sell them to those who can’t wait, complete them in Indianapolis, and hopefully operate them as well for the buyers.

Scott Gunnufson, vice president for sales and marketing at Rockwell Collins, shakes on the deal with Comlux Group Chairman Richard Gaona.

ROCKWELL COLLINS EARLIER this week signed the first agreement that combines the products and services capabilities of the avionics supplier and B/E Aerospace, the cabin equipment company that it bought earlier this year.

Collins Commercial Systems, Information Management Services and the new Interior Systems business unit formed as the result of the B/E Aerospace buy will provide the Comlux Group’s Indianapolis, Indiana-based VIP completions center with complete cabin solutions including the Venue cabin management system, VIP seating, divans, Nano 3X interior lighting and the option for Inmarsat Jet ConneX (JX) service for Wi-Fi connectivity.

Scott Gunnufson, vice president for sales and marketing at Rockwell Collins, shakes on the deal with Comlux Group Chairman Richard Gaona.
**Turnaround Year for Bedek? Busy in Israel and Expanding to Mexico City**

After years of difficulties, the hangars at the Bedek MRO division of Israeli Aircraft Industries are full and faces are smiling. “We are experiencing a period of increased demand for conversion into freighters and Bedek is up to its neck in work,” says senior director and group marketing and business development manager Rafi Matalon.

Bedek operates 15 hangars at Ben Gurion Airport, all of them busy and booked for years in advance. The recent “hit” is the conversion of the Boeing 767-300, a model that best meets the exponential growth in online commerce, reflected by growing need for air cargo capacity. “It takes about four months to convert this aircraft into a freighter, but we will soon reduce this time radically,” Matalon says.

With firm orders to fill, this time saving will be important for business, but it will not be enough. To deal with the order volume, IAI is opening an aircraft conversion site in Mexico City, shifting some of the 767-300 conversion workload. Mexicana MRO Services will run the new site, with Bedek providing subcontractor services. As owners of the supplementary type certificate for the conversion, IAI will retain engineering authority and overall responsibility for the conversions performed at the conversion site.

The first aircraft for conversion is expected to be induced by the end of this month, with an order for additional aircraft to follow. In light of market forecasts of continued growth in the demand for conversion into freighters, IAI expects the collaboration with Mexicana to yield projects worth tens of millions of dollars in the coming years.

The sharp growth in demand is derived from online giant Amazon’s decision to establish its own airline and cargo hub in Kentucky. Amazon plans to operate a fleet of 40 Boeing 767-300F aircraft. Sixteen of the planes are already in service, operated by Air Transport International and Atlas Air; both use aircraft converted by Bedek and have many more on order.

**Two Countries Go for M-345**

**Leonardo’s Development**

Leonardo’s development of the M-345 low-cost jet trainer may already be paying dividends after it was selected by two foreign air arms.

Company officials refuse to name the two countries in question but state they are new customers to the company’s products. The company says it hopes to sign a contract with one of the customers by the end of the year.

The aircraft, previously referred to as the High Efficiency Trainer (HET), and which took to the air for the first time at the end of December, is an evolution of SIAI-Marchetti’s S.211 jet trainer, which became known as the M311 after Aermacchi bought the rights to the aircraft in the late 1990s. The new version has been modified with a recupertured front fuselage to increase internal volume, and the air intakes have been modified to improve airflow to the Williams FJ44-4M-34 turbofan.

Italy is planning to buy 45 of the aircraft to replace the Aermacchi MB-339 in both the training role and as the mount for the Italian aerobatic team, the Frecce Tricolori. Leonardo is at Chalet 240.

—Tony Osborne

Bedek says that the cost of a converted 767 that will deliver 15 to 20 years of service is about 30% of the price of a new freighter of the type.

**Narrowbody Business**

Narrowbody business is also growing with the availability of more efficient aircraft in the feedstock. “We recently completed certification of a conversion of Boeing 737-700,” says Matalon. “The new model offers improved economics – it increases the 737 cargo capacity to 45,000 lb., the engines are more efficient and the winglets offer additional fuel saving.” For the future, Bedek expects the 737-800 to be even more attractive.

“We plan to have the STC approval for this type within a year,” Matalon said, adding that the company also plans to enter the Airbus line (A320) as feedstock of these types become available. “Both the Boeing 737-800 and A320 are expected to fulfill the role of the Boeing 757 as it reaches the end of its productive life span in a few years.” To address the demand for narrowbody freighters, Bedek has opened two conversion sites in China.

Next in line is the conversion of the Boeing 777 into a freighter. “We have reached an agreement with a launch customer to convert a few Boeing 777-200s. Upon [receiving] IAI’s top management approval, we will kick off the program while we estimate to get the STC by 36 months. Due to the high cost of the 777 feedstock, this project is not feasible yet, but we expect it to reach a price point where we will be able to deliver the 777-200 as a replacement for current 747 and MD-11-based freighters.”

Israeli Aerospace Industries is in Chalet 210.

—Noam Eshel
Lorsque vous avez atterri en France cette année pour assister au 52e Salon international de l’aéronautique et de l’espace de Paris, nous étions probablement sur place avec vous. C’est parce que l’Ontario, au Canada, fournit les trains d’atterrissage pour 75% des programmes d’avions commerciaux de Boeing et d’Airbus. Et lorsque vous avez saisi votre téléphone et consulté votre GPS pour trouver votre hôtel, il est fort possible que nous y ayons mis du nôtre aussi, puisque les pièces fabriquées en Ontario sont utilisées dans 80% des satellites de communication commerciaux.

Découvrez où les installations de R-D perfectionnées, les établissements d’enseignement de calibre mondial et les meilleurs fabricants du secteur de l’aérospatiale collaborent pour transformer les idées innovatrices en produits réalisés de façon experte pour le marché international.

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L3 Touts Longsword Payload, Endurance, Cost

In an increasingly crowded light attack aircraft market, the challenge may become standing out in the crowd. L3 Technologies aims to distinguish itself with the Air Tractor AT-802 as the Longsword, an aircraft that is all about payload and endurance.

The Longsword, based on an Air Tractor aircraft designed with firefighting in mind, can fly for up to 10 hr. or carry a payload of more than 6,200 lb. L3 made a name for itself as a special mission aircraft expert after converting the King Air 350 into the MC-12W Liberty intelligence, surveillance and surveillance aircraft, in a rapid turnaround project led by then defense secretary Robert Gates during the war in Afghanistan. L3 wants to build on that success, offering the Longsword as a low-cost ISR platform or strike aircraft on the global market. The aircraft costs just US$1,000 per flight hour to operate, says James Wise, L3’s business development director of platform integration.

On the ISR side, the aircraft can carry an L3 Wescam MX-15D high-definition electro-optical infrared sensor, an L3 ForceX Widow MMS mission software system and the Thales Scorpion helmet-mounted display and can display full-motion video. It can defend itself with an armored cockpit, self-sealing fuel tanks, the AN/AAR-47 infrared warning receiver and an AN/ALE-47 electronic warfare countermeasures dispenser system.

L3 (Chalet 306 and Static Display C2) will also convert the AT-802 into a bomb truck with a range of weapons from Hellfire missiles to Gatling guns, Mk82 bombs and M260 rocket launchers - on up to 11 hard points.

In January, the State Department approved the potential sale to Kenya of up to 14 of the aircraft, but the sale has been controversial, with the late Ron Howard, CEO of Iomax, arguing that Kenya unfairly overlooked its counterinsurgency-fighting Archangel aircraft based on the Thrush 710P crop duster. In an interview not long before his death, Howard suggested that Kenya was being sold an uncertified and still-developmental platform.

According to L3, the aircraft is certified for the ISR mission and is working with the U.S. Air Force Seek Eagle office to certify some weapons. Kenya has also asked L-3 for weather radar and communications systems to satisfy unique requirements. Kenya would have to pay for the costs to certify those, says Joseph Siniscalchi, an L3 senior vice president for business development.

For now, Kenya has asked to extend its current letter of agreement through the middle of September, Siniscalchi says. At that point, the two governments could decide to extend the deal again, or Kenya could start the process over.

Patrick Penland, VP for transport programs, is adamant that the air force did not select the Longsword. “The Kenyans chose the AT-802 Longsword. That was based on having come to Waco, Texas,” where L3’s platform integration office is based, Penland says. “Their deputy chief of air force came and saw the ISR configuration.”

Nexelle Spools Up for Global 7000 and C919

NINE YEARS AFTER General Electric Aviation’s Middle River Aircraft Systems and Safran Nexcelle teamed to form Nexcelle, the joint venture is ramping up for serial production of nacelles and thrust reversers for the Bombardier Global 7000 business jet and supporting flight tests of its advanced nacelle system on the Comac C919 airliner.

Modeled after the GE-Safran CFM aircraft engine joint venture, the Nexcelle partners “mesh together very well,” says the unit’s president, Kenneth Onderko. Under the teaming, Safran takes the lead for the C919 and GE Middle River has the Passport engine for Bombardier, while both are expanding work to support the primarily Safran-led and GE-supported production buildup for the nacelle of the Leap-1A-powered Airbus A320neo.

While Onderko says the primary focus is on finalizing design of the C919 nacelle and transitioning to production of the Bombardier system, the company is hopeful the advances it is demonstrating for both new aircraft will soon lead to further applications. These range from emerging business jets to wide-body projects such as the Sino-Russian C929.

Boeing’s new mid-size airplane may also represent an opening, though Onderko acknowledges that the airframe maker’s recent strategic move back into the nacelle business for the 737 MAX may mean more of a component supplier role for Nexcelle should CFM win a slot on the proposed new airliner.

Nexcelle’s nacelle, thrust reverser and exhaust system “performed well” on the recent maiden flight of the C919, says Onderko. Developed in lockstep with the aircraft’s Leap-1C engine, the nacelle and powerplant represent arguably the most advanced integrated propulsion system yet fielded for a commercial jet airliner. The Leap-1C nacelle system includes a translating O-Duct thrust reverser configuration as well as a fan cowl that is structurally integrated to the engine. The nacelle also incorporates an integrated mounting system for reduced engine distortion and enhanced performance.

A full-scale C919 O-Duct thrust reverser can be seen on the Safran group stand, Hall 2a, Booth A252.

—Guy Norris
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Lord Deepens Fly-by-Wire Integration

A year on from its purchase of Fly-by-Wire, Lord Corp. is busy integrating that company and its capabilities into its wider business.

A new main plant for the iconic French avionics house is due to come online next year, while a Fly-by-Wire repair facility has been established in the U.S.

“We knew, when we bought the business, that we wanted to enhance their manufacturing capabilities,” says Lord’s aerospace and defense group president, Bill Cerami. “We met with all their major customers, we were able to secure some long-term agreements with them to allow us to make investments in their manufacturing capability. This is going to be a big advantage to us strategically.

“We also now have integrated them with Lord from a business-development standpoint,” he continues. “We have talked before about Lord being really strong in helicopters, and Fly-by-Wire being strong in all other areas – so we’re now joint calling on all sorts of customers that are former Fly-by-Wire customers and now current Lord customers about what our product offerings are.”

Lord believes it will expand its existing business, both by acquiring FbW’s customer base and also by being able to offer manufacturing and support services across FbW’s product lines to extant Lord customers. But the benefits to the business go beyond just adding customers and capabilities.

“We’re also beginning to talk about our technology; about merging our expertise in electromechanical systems,” Cerami adds.

Our strategy is to participate in the electrification of this industry.”

The integration is not being achieved without significant investment in infrastructure, though the company is keeping these costs under control by reusing extant facilities and ensuring the new developments represent enhancements of current business models rather than complete revisions. The new plant in France will add capacity without costing Lord any of its FbW workforce, while the American MRO center has been established within Lord’s Cambridge Springs, Pennsylvania, site.

“We already do some MRO business there, and it’s where our U.S. electromechanical business is located,” Cerami says. “So it lends itself.”

“Fly-by-Wire was operating as a small business, and using intermediaries to deal with the after-market – and they were losing market share,” says Guy Billoud, Lord’s global director for strategic alliances and mergers. “With local service we expect to pick up a fair amount of market share in the Americas.”

Lord expects the Pennsylvania facility to receive FAA certification on June 23. Initially, it will support three part numbers on Airbus aircraft, but that will expand to more than 50 by 2019.

The new French plant will help Lord expand the FbW business. It is being built close to the current facility, to help ensure continuity of expertise and logistical advantage.

A three-month period, during which objections to the proposed development can be made, is due to end this week. Assuming no appeal against the initial governmental approval is launched, work on the new site will begin immediately.

The current FbW plant is “kind of sitting in the middle” between Lyon and Valence, in the Rhône valley, Billoud says. “We’re going to move it slightly south. The plant will be right next to the A7 auto route, which is the main road between Lyon and Marseilles, and Spain as well.”

—Angus Batey

**New President Visits Paris**

It isn’t just new technologies and businesses that Lord Corp. will be showing off at the air show: The company’s aerospace and defense industry group is also using the show to introduce its new president to customers and suppliers.

Becky Williams has worked for Lord since 1979, and moves into her new role after stints as president for the Asia-Pacific region and, before that, director of global business and marketing. She will succeed Bill Cerami, whose 40-year career with the company will come to a close when he retires at the end of 2017.

—A.B.

**Lord Fly-by-Wire Brings New Controls to Your Fingertips**

Based near Lyon, France, Lord Fly-by-Wire Systems France (FbW) designs and manufactures those parts that can be found between the pilot’s hand or foot and the flight control computer. These includes sidesticks, pedal systems, throttles and speed brake controls.

FbW has special skills in flight control ergonomics. Engineers work with airframer test pilots to design force feedback, using a complex arrangement of springs and friction devices. Growth at FbW is following that of customers, such as Airbus (FbW is on every model of the European airframer) and Bombardier (where FbW has its most recent applications, the Global 7000 and the CSeries). A purpose-built factory will open in August 2018 for better productivity and may be expanded over the next four years.

—Thierry Dubois
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TAI’s Management Pushes Ahead

He transformed Turkey’s national airline into a global carrier. Now, Temel Kotil has been charged with growing the country’s largest aerospace company, Turkish Aerospace Industries, into a multi-billion-dollar global enterprise. And two months into the job, it appears to be a challenge he is relishing.

“In Turkey, TAI is the leading technology company. All the students from the best universities, they want to work here,” explained Kotil, who with just one-week notice of the move, took over from predecessor Muharrem Dortkasli in October “And when you get the best students, and if you provide the guidance, training and work, they become cutting edge.”

Building up the company’s intellectual expertise is one area where Kotil hopes he can accelerate the growth of the company. He is targeting revenues of US$10 billion in 2026.

In 2016, TAI was expected to generate US$900 million of revenue; now it is targeting US$1.6 billion in 2017.

“At Turkish Airlines, I grew the airline at 17% annually over 12 years. Here we are talking about 25% per year over 10 years. It is doable.”

Kotil says the growth has come organically and inorganically. Last July, the company took its first steps to expansion outside Turkey, buying Grunewald Stade GmbH, a Hamburg, Germany-based supplier that builds rudders and carbon-fiber components for Airbus.

And Grunewald Stade is just the beginning, Kotil says. He is on the lookout for engineering and manufacturing firms both in Europe and the U.S. that are ripe for takeover.

Key to the expansion will be broadening the company’s workload with the major aerospace companies. TAI’s aerostructures business, from which 50% of the company’s revenues are derived, is currently doing work for Airbus, Boeing, Leonardo, Lockheed Martin and Sikorsky, and Kotil is keen to expand this business further and broaden its horizons beyond the big European and U.S. primes.

Kotil says that he is working to establish those relationships with partners in Asia, using “soft power” to project the company.

“In the future, you will see TAI working with those countries in the east as you will with those in the west,” he insists.

“TAI needs to be prepared to work with everybody and cooperate with everybody,” he adds.

The other 50% of company revenues come from domestic programs. TAI (Chalet 274 and Static Display B8) has come a long way since it was formed in the 1980s to assemble F-16 Fighting Falcons for the Turkish Air Force and license-building CN235 turboprop airlifters. As well as upgrades, modernization and integration programs, the company is working on wholly indigenous projects.

In July, the company achieved the European Aviation Safety Agency certification for the indigenously developed Hurkus-A turboprop trainer, and it is in the process of developing a six-metric-ton twin-engine utility helicopter called the T-625 to meet the needs of the Turkish armed forces and public agencies. Next year it will deliver the first Anka-S medium altitude, long-endurance unmanned surveillance aircraft to the Turkish air force.

The company also has a 49% stake in a joint venture called Freedom Aircraft with Sierra Nevada (Chalet 254), which is currently developing a competitor for the U.S. Air Force’s T-X trainer program.

And then there’s the ongoing plan to develop a Turkish national fighter, known as TF-X, aimed at delivering a prototype or demonstrator by 2023 and fielding an operational fifth-generation fighter in the 2030s.

Of all of TAI’s programs, the TF-X presents considerable challenges but also a significant opportunity for investment in the company.

“It gives me the opportunity to invest. I am upgrading the capabilities of the company to be able to produce the fighter. These will be ready from 2019.

“We can use those capabilities on the other programs and in 2021, we can start producing the fighter.”

The fighter’s development has tight timelines. Ankara wants a prototype of the jet flying over the capital by late 2023 when the Turkish republic celebrates its centenary. But decisions on the fighter’s engine, configuration and a foreign partner – BAE Systems was selected at the beginning of 2016 – are yet to be formally signed off.

Another area of growth for the company will be in space. In December, the company celebrated the successful launch of Gokturk-1, a military imaging satellite developed in partnership with Italy’s Telespazio, local electronics firm Aselsan, and the national science foundation, Tubitak.

Kotil says the company is in good shape to face the future, but he has brought several of his own people to run the company’s unmanned systems and space sectors.

“I don’t want to conquer the world but share it,” he says.

—Tony Osborne

Turkish Aerospace Industries president and CEO Temel Kotil with the T129 attack helicopter.

TAI is developing the TF-X as Turkey’s own national fighter aircraft. A prototype or demonstrator could be available by 2023.
Turkish Aerospace Industries is making its presence felt this year, with a static display of its fixed- and rotary-wing products and the international flying display debut of the company’s Hurkus turboprop trainer.

The company has sent both prototypes of the Hurkus-A aircraft to Le Bourget as the company begins an international sales drive competing against Pilatus’ PC-21, the Korean KT-1 Woong-bi and the Beechcraft T-6 Texan II.

The Hurkus is named after Turkish pilot and engineer Vecihi Hürkuş and is the first Turkish indigenous fixed-wing manned aircraft to go into production. Test pilot Murat Keles, a former Turkish Air Force F-16 pilot and founder of the Soloturk F-16 demonstration team, will put the second prototype Hurkus, painted in its distinctive black, white and yellow scheme, through its paces in the Le Bourget skies, while the first prototype, painted up to act as a demonstrator for a light attack version of the aircraft, will feature in the static.

The Hurkus-A is the basic version of the Pratt & Whitney Canada PT6A-68T-powered 8,046 lb. (3,650 kg.) gross weight trainer, which received European Aviation Safety Agency certification last July.

TAI is now building the Hurkus-B, an advanced trainer version kitted out with an Aselsan-developed avionics suite, which will be used for Turkish Air Force training. The avionics suite features simulated systems that will allow the air force to download some of its advanced training tasks from the more-costly T-38M Talon.

Some 15 Hurkus-Bs are currently on order, but the air force has options for 40 more. The first examples are in an advanced state of assembly at TAI’s plant in Ankara. The first Hurkus-B is due to fly at the end of the year.

Work on the light attack version is also advanced. In April, the first prototype Hurkus modified with wing pylons and fitted with an under-fuselage electro-optical camera carried out a successful test firing of a Roketsan Laser-Ultradutter Munition Systems (L-UMTAS)/Mizrak laser-guided missile in Konya. These tests, witnessed by senior Turkish officials, led to the signing in May at the IDEF defense show in Istanbul of a letter of intent to purchase up to 24 light attack versions, to be called Hurkus-C.

Contract signature is expected in the coming months, with the aircraft to be used by Turkish Land Forces as an adjunct to the T129 ATAK attack helicopter. Both the T129 and the Hurkus-C will use the same weaponry.

TAI ferried the Hurkus to Le Bourget via Serbia, Croatia, into Germany, and then into Paris. Keles’ demonstration will last 8 min. and will feature a series of loops, a Cuban 8, split-S and inverted flight, he told ShowNews.

TAI’s Armed Anka UAV Is Close to Service Entry

Turkish Aerospace Industries’ Anka medium-altitude, long-endurance unmanned air vehicle is being readied for service with the Turkish Air Force. The first serial-production Anka-S, which will use a satellite communications system rather than line-of-sight for command and control, should be delivered to the organization’s air arm in the coming months. The platform has been modified and its performance improved over the original Anka-A systems that first flew back in 2010.

In line with Turkish plans to arm its unmanned aerial systems, TAI (Chalet 274, Static Display B8) proved the Anka could be armed following a weapons demonstration performed in April, when it dropped Roketsan’s Small Micro Munition (SMM), also known as MAM-L – a small 50-lb. (22 kg.) laser-guided munition, which has also been used on operations from two Turkish-developed tactical platforms.

In its Turkish Air Force configuration, the Anka-S will be fitted with an improved indigenous electro-optical camera system developed by Aselsan, called the Common Aperture Targeting System (CATS). It will also feature a VHF/UHF radio relay capability that will allow it to act as a communications node for troops on the ground. Additionally, Aselsan has developed a lightweight synthetic aperture radar that can be fitted into a ventral housing.
TAI Enters Commercial Rotorcraft With T625

Less than two months after making its debut in Istanbul, Turkish Aerospace Industries has brought the mockup of its T625 utility helicopter to Le Bourget.

The six-metric-ton, medium-twin T625 is conventional in layout, and looks rather like a hybrid of Airbus’ H155 and the AW139. It features a five-blade main rotor and four-blade tail rotor and will be powered by a pair of Rolls-Royce Light Helicopter Turbine Engine Company (LHTEC) T800 turbines.

The T625 is the first commercial platform to use the T800, and was selected for its commonality with the T129 ATAK attack helicopter. However, Turkish industry has begun work to develop an indigenous powerplant of its own, called TS1400, although that program is not due to deliver results until the mid-2020s.

Like many of its competitors, the T625 features a flat floor in the cabin, which can be configured to seat up to 12 passengers. The aircraft also has tankage to carry 2,248 lb. (1,020 kg) of fuel.

TAI also claims the aircraft will have a cruise speed of roughly 150 kt., while endurance will be around 3.8 hr.

First flight is planned for September 2018, with civil certification in Turkey by the end of 2020. European Aviation Safety Agency (EASA) certification will follow later. The development program will use three aircraft, with the second due to fly six months after the first. A full icing protection system is under development and will be certified later.

One of the most challenging aspects of the program for TAI has been the development of the main gearbox and transmission, which was developed entirely in-house with the support of several international consultants.

Testing of the first prototype gearbox, produced by an outside supplier, will begin later this year, but TAI will also produce its first two gearboxes in-house during 2017.

Testing will prove the gearbox’s 30-min. dry-run capability.

In the cockpit, TAI has adopted an advanced Aselsan-developed avionics suite. The modular avionics touch-screen environment uses two large wide-area displays, one for each pilot to display flight data and map and engine information data, while the center console contains two additional touch-screen displays, for flight planning, radios and aircraft system settings.

TAI sees the T625 as a major stepping-stone toward the development of a helicopter family. Company officials have previously suggested that a four-seat training model could follow next, but development will not begin until the T625 work is complete.

TAI is at Chalet 274 and Static Display B8.

—Tony Osborne

T129 ATAK Hunts for Export Orders

TURKEY’S T129 ATAK attack helicopter is on the prowl for export orders.

Turkish Aerospace Industries has delivered 22 aircraft to the Turkish Army, and the type is currently being used operationally in the southeast of the country against Kurdistan Workers’ Party (PKK) militants.

But the company is now looking to capture the first export orders for the T800-engined aircraft, which was developed from Leonardo’s AW129 Mangusta.

The company already has a campaign under way in Poland, where Warsaw is looking for a fleet of new attack helicopters to replace its Mil Mi-24 Hinds. The aircraft has also received significant interest in Bahrain, but it seems likely that the first customer could be Pakistan, where the aircraft has been put through its paces to prove its hot and high performance.

In May, TAI and the Pakistan Aeronautical Complex (PAC) at Kamra signed a memorandum of understanding that the two organizations hope will lead to closer cooperation.

The cooperation agreed to at the IDEF 2017 defense show here on May 10 could lead to PAC opening an assembly line and becoming a supplier to the T129 program if the helicopter is chosen to join the Pakistani attack helicopter fleet. Although Pakistan has ordered Bell’s AH-1Z Cobra, it cannot afford to replace its entire fleet of aging AH-1S and AH-1F models with the more modern version.

Turkey plans to buy 59 T129s and has options on another 32, with the type replacing AH-1 Cobras and SuperCobras. The T129 differs from the Mangusta in that it features the Rolls-Royce/Honeywell Light Helicopter Turbine Engine Company (LHTEC) T800 engine and an Aselsan-developed avionics suite and mission system as well as sighting system.

Several indigenous weapons have been integrated, including the Roketsan UMTAS guided missile and the Cirit lightweight missile. The air-to-air version of the Stinger can also be fitted.

—Tony Osborne
Pratt & Whitney Canada arrives at the Paris Air Show in a festive mood, having just celebrated the manufacture of its 100,000th gas turbine engine.

Of these, 60,000 remain in service with 12,300 customers in more than 200 countries and territories. P&WC turbines of all types have generated 730 million hr. since 1963 – half this impressive total (380 million) solely attributable to the PT6 turboprop.

Serving in applications as varied as business aircraft and agricultural sprayers, the versatile PT6A ranges in power between 500 and nearly 2,000 shp. There are derivatives for other applications, including helicopters and a twin configuration for higher powers.

P&WC Celebrates Its 100,000th Gas Turbine Engine

Ontic Engineering & Manufacturing has acquired the manufacturing rights from Pratt & Whitney Canada for additional JT15D engine components. The deal, which is Ontic’s third acquisition from P&W, is targeted at strengthening the company’s portfolio of engine-support capabilities.

Ontic will manufacture and sell the additional components from its Chatsworth, California, facility, and the parts will continue to be distributed through the JT15D new-parts distributor, Aviall Services Inc.

The JT15D remains in widespread use with more than 6,700 engines produced since the 1970s. Applications include a wide range of business aircraft such as the Cessna Citation II and V and the Hawker 400A.

Lufthansa Places Order for Cirrus Trainers

Lufthansa Aviation Training and is proud to be its partner in producing world-class airline pilots for years to come,” said Todd Simmons, Cirrus Aircraft’s president of customer experience.

“Today’s forward-thinking airlines and pilot-training programs are realizing the immediate benefits of teaching and learning in the most effective equipment, available uniquely from Cirrus.” The Cirrus SR series composite aircraft includes the Cirrus Perspective+ flight deck by Garmin, a flight management system keypad controller, an electronic stability and protection system and integrated engine-indication and crew alerting/warning systems.

The SR20 comes in four- and five-seat configurations, is powered by the Lycoming IO-390 215-hp engine and includes the Cirrus parachute system.

Cirrus SR22 on display at the 2017 Paris Air Show

Ontic Makes JT15D Move

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IAe Will Fly Its N-219 Soon
Indonesian Aerospace Plans a 50-Seat Turboprop Too

Indonesia’s state-owned aircraft manufacturer Indonesian Aerospace will soon be manufacturing both 19-seat and 50-seat commercial turboprop aircraft for airline operators.

IAe technology director Andi Alisjahbana says Indonesia’s government is very supportive of both programs, because development of indigenous short takeoff and landing aircraft is considered a key pillar of the broader government effort to improve air, land and sea connectivity and infrastructure. Indonesia is a vast archipelago of 17,000 islands, so many parts of the country depend on air transportation.

First flight of the 19-seat N-219 aircraft is imminent, although Alisjahbana declines to be drawn on the date for first flight.

The N-219 is powered by Pratt & Whitney Canada PT6 engines. “We know the Honeywell TPE331 engine is lighter and more efficient, but we chose the PT6, because in Asia there is more maintenance support in [the] region for the PT6,” Alisjahbana said. “The price of the PT6 was good too.”

Price is important, because Alisjahbana says a key selling point of the N-219 is it is a highly capable – and affordable – 19-seat aircraft. “We’re not saying publicly how much the aircraft will cost to buy other than to say it will be less than US$5 million. But how much less depends on the level of customization.”

IAe has letters of intent for the N-219 from Indonesian operators Lion Air, Aviastar, Trigana Air Service and Nusantara Buana Air.

IAe is initially focusing on selling the aircraft in its home market, but after receiving Indonesian certification it plans to apply for either U.S. FAA or EASA certification, says Alisjahbana.

The Indonesian aircraft maker is also developing a 50-seat turboprop aircraft, the N-245, which is a derivative of the CN-235, a military transport aircraft jointly developed by CASA and IAe.

The N-245 will be powered by Pratt & Whitney Canada engines. The CN-235 is powered by General Electric CT7 engines. A key selling point of the N-245 is that it can land on shorter runways than other 50-seat turboprop aircraft and can utilize unpaved airstrips.

ST Aerospace Eyes Digital Drive After Award Success

ST AEROSPACE PLEDGED to embrace digital practices to keep improving as it celebrated being named Overall MRO of the Year 2017 at the Aviation 100 MRO Global Awards hosted by Airline Economics in Dublin, Ireland.

The Singapore-based MRO provider said it was further enhancing its operations by adopting Industry 4.0 Smart MRO initiatives. “By embracing revolutionary digital technologies in the factory environment, ST Aerospace plans to go paperless, adopt collaborative robotics, fabricate aircraft parts through additive manufacturing methods, and provide customized predictive analytics solutions,” it said.

The service provider also maintained its top ranking in Aviation Week Network’s biennial Top 10 Airframe MRO service provider ranking survey, continuing its unbroken run since 2002.

The 2017 ranking is based on ST Aerospace’s airframe maintenance man-hours in 2016, which at 12.5 million are far ahead of most of the rest of the industry, it said.

ST Aerospace’s global network can service 42 widebodies, 29 narrowbodies and 24 general aviation aircraft simultaneously, including at a new second hangar at its MRO facility in Guangzhou, China. —Helen Massy-Beresford
GE’s HondaJet ‘Extraordinarily Efficient for Supply Chain’

After putting it into service just a few weeks ago, the world’s largest aero-engine manufacturer is thrilled with the performance of one of the world’s smallest business jets.

GE Aviation took delivery of the first of two HondaJets toward the end of March, and is already seeing dramatic benefits in productivity and efficiency as the little aircraft whisks executives between sites in the company’s newly built supply chain.

Ramping up production of the airline CFM Leap engine – more than 12,000 are on order – has meant developing new processes and materials such as additive manufacturing and carbon matrix composites, and building new factories in the eastern half of the U.S. to feed the assembly lines. The HondaJet fits neatly into this high-tech supply chain.

“We’re flying the heck out of it, probably using four times the cycles than any other owner,” says David Joyce, vice chair of GE and president and CEO of GE Aviation (Chalet 142).

“In fact the efficiency is quite extraordinary,” he explains. For example, Cincinnati-based manufacturing executives visiting Batesville, Mississippi, used to be faced with an all-day trip, flying by airlines to Memphis, Tennessee, and then driving to Batesville. “They would be lucky to get back the same night,” says Joyce. But the HondaJet gets them there that morning, allows them to leave the plant before lunch for meetings in Ellisville, Mississippi, flies on to Auburn, Alabama, and returns to Cincinnati that day.

Those four meetings represent a week’s worth of travel by airline, Joyce notes. “It is proving extraordinarily efficient for the supply chain,” he says.

GE, whose GE Honda Aero Engines joint venture manufactures the HondaJet’s powerplants, will reap another benefit from heavy use of the aircraft. “We will create our own fleet leader program on the engines,” says Joyce. At the current rate, GE’s aircraft will become the highest-time HondaJet this October, says Brad Mottier, VP and general manager of GE Aviation’s business and general aviation and integrated systems operation.

“The most we’ve flown is 19 flights in one week,” Mottier says. The company has identified 20 manufacturing sites that can be best serviced by the HondaJet because of their location and the lack of direct airline flights.

“We can zip there in an hour, an hour and 20 min.,” he notes.

Already, GE has found the actual cost of travel is less than going by airline, renting cars and staying overnight in hotels. With four executives on board, the efficiency multiplies. “Plus it’s a productivity tool,” when executives’ time is taken into account, he says.

The full picture is being assembled. “We’re in the process now of recording all the flights and the number of people and compiling all that cost data against the historical data we have for those same people traveling to those same sites, says Mottier. Analysis will include direct operating costs and operating contracts, including GE pilots and maintenance engineering, and hangars. “Then we will know exactly what the cost/productivity benefits are, but we think they’re substantial.”

GE Aviation will take delivery of its second HondaJet next year. And Joyce, as vice chair of GE, will be encouraging the corporation’s other divisions, such as transportation, medical and energy, to assess the efficiencies being experienced by the aero engine business with the HondaJet to see if they, too, can take advantage of the light-jet end of business aviation.

—John Morris

Gardner Aerospace Finalizes Sale to China’s SLMR

AIRBUS SUPPLIER GARDNER Aerospace has completed its sale to Ligeance Investments Ltd., a Hong Kong-based subsidiary of Chinese firm Shaanxi Ligeance Mineral Resources (SLMR), according to a company press release.

Gardner (Hall 2b, Booth E140) is Europe’s largest supplier of aerospace detailed parts and subassemblies, providing parts to key aerospace firms including Airbus, Spirit, GKN and Stelia Aerospace. The company employs more than 1,400 people worldwide and has 10 facilities in the UK, France, Poland and India.

“With the long-term backing of our new owners, we will be able to accelerate our growth plans, construct operations in new locations and continue to offer our customers, such as Airbus, excellent quality production at competitive prices,” said Nick Sanders, executive chairman, Gardner Aerospace. The deal is worth more than £300 million (US$384 million), and gives Gardner access to the growing Chinese domestic market, according to the press release. SLMR started in 1993 as a mining business, but has recently diversified into the aerospace sector and now has a number of subsidiaries dedicated to engine and airframe work.

“The acquisition of Gardner Aerospace will allow us to serve our customers better – in China and the rest of the world – for decades to come,” said Zheng Zhang, chairman of SLMR.

“With the management team at Gardner Aerospace, we intend to further consolidate the global aerospace supply chain through careful, strategic acquisitions.”

—Lara Seligman
Mergers and Acquisitions Move Forward

In an active M&A market for the industry, Michael Richter, managing director and head of Lazard’s aerospace and defense investment banking group, shares his observations from the Paris Air Show.

While mergers and acquisition activity has slowed moderately over the past 12 months, the industry continues to be robust, with favorable credit markets supporting private equity participation and a greater availability of financing.

Announced global M&A transactions in 2016 totaled US$71.7 billion in value, according to DACIS’ DM&A database. Notable transactions include Rockwell Collins’ acquisition of B/E Aerospace for US$8.3 billion and Leidos Holdings’ acquisition of Zodiac Aerospace for US$8.2 billion of announced transactions, including Safran’s acquisition of Lockheed Martin’s government IT and technical services businesses for US$4.6 billion.

Transaction value remains strong year-to-date in 2017, with US$17.7 billion of announced transactions, including Safran’s acquisition of Zodiac Aerospace for US$8.2 billion and Veritas’ acquisition of Harris Corp.’s government IT services business for US$690 million.

With increasing defense budgets and shifting DoD priorities, companies are now focused on intelligence, electronic warfare, cybersecurity and C4ISR.

Defense M&A has been catalyzed recently by a positive long-term sector outlook, recovering valuations and the availability of capital. In addition to the traditional shareholder-friendly methods of distributions and capital return, companies have recently shifted toward re-prioritizing portfolios. Expanding in core growth markets through M&A has become an equally important tool for growth. Not only is the defense sector active in product-oriented acquisitions, but the supply chain is ripe for integration and consolidation, suggests Richter.

In the commercial aerospace sector, synergy-driven value creation has always been a motivator for acquisitions, but recent M&A activity seems to be a result of more deliberate strategic reshaping activities. In the current stage of the aerospace cycle, many companies are actively seeking new growth avenues. This has involved stepping up inorganic expansion opportunities, as seen in Safran’s acquisition of Zodiac and Rockwell’s acquisition of B/E Aerospace. Portfolio reshaping has also come in the form of shedding noncore assets (e.g., Safran’s divestiture of Morpho) and mitigating OEM delivery cycle exposure (e.g., Rockwell’s investments in aftermarket content and Safran’s desire for product diversification). With program transitions putting pressure on margins, M&A has become a core driver of growth across the industry.

While new orders for aircraft have seen a pronounced decline in the past 12 months, backlogs of aircraft orders remain at record highs, driving high production rates and creating increased visibility in deliveries. M&A continues to play a prominent role, whether it is in ongoing supply chain consolidation, or in the inevitable sustainment benefits of MRO opportunities. With the increased pressure on the supply chain, OEMs are creating disruptions in the market, motivating suppliers to be more competitive. Continued consolidations will help cut costs and reinvigorate manufacturing innovations in order for OEMs to compete.

Suppliers, which for years have competed against one another in order to secure large future revenue streams on emerging platforms, are now focused on execution risk and delivering products efficiently as a means for increasing margin. As OEM production volumes increase, managing the risk of part shortages from suppliers will become an important component of ensuring on-time aircraft delivery to customers.

While the supply chain has entered into a new phase of the production cycle, there are now greater threats of emerging technologies disrupting suppliers’ relationships with OEMs. On next-generation aircraft, OEMs are beginning to focus more on narrowing the margin gap with suppliers by leveraging investments into new technologies such as additive manufacturing, automation and other forms of innovations that give OEMs greater negotiating power, pressuring relationships with suppliers.

These newfound pressures will drive significant R&D and capital expenditures for suppliers to compete, and resistance against OEMs may drive a new wave of consolidation. Increased scale from M&A can allow new investments to be more efficient, and deliver the pricing required by OEMs at profitability levels that can also satisfy investors.

Lazard continues to be one of the most active M&A advisers to companies within the aerospace and defense markets. With 44 aerospace and defense-related transactions (totaling over approximately US$80 billion in deal value) since 2013, Lazard has led 14 significant M&A deals since 2016, including Safran’s acquisition of Zodiac Aerospace, LMI Aerospace on its sale to Sonaca, Harris Corp. on the sale of its government IT services business to Veritas Capital, and Tronair on its sale to Golden Gate Capital.
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