



Friday, 14 October 2016

Money for nothing (and the Sheiks! for free)

Money for nothing was a – somewhat controversial – song released in 1985 by the British rock band **Dire Straits**, as part of their fifth album titled *Brothers in arms...* Actually the song was going like this:

♪ Now look at them yo-yo's that's the way you do it
You play the guitar on the MTV
That ain't workin' that's the way you do it
Money for nothin' and chicks for free.♪

As some of you noticed last week, *The Bulletin* featured a last-minute ground-breaking news from Qatar: Boeing announced that Qatar Airways would purchase **up to 100 Boeing jets, a deal valued at no less than \$18.6bn at current list prices**. The carrier indeed ordered 30 Boeing 787-9s and 10 777-300ERs (for \$11.7bn), and also signed a Lol for up to 60 737 MAX-8s (for \$6.9bn). For Boeing this is wonderful news, especially in the context of the **persistent criticism from major U.S. airlines**, accusing Gulf carriers of receiving unfair state subsidies... But this is probably just a **small part of a much bigger picture**. Indeed, the decision comes **interestingly close after the announcement of an imminent US Congress authorization to sell up to 72 F-15 Strike Eagle fighters** – 36 up-front + 36 options – to the Qatari Air Force, in a multibillion dollars deal that had been under negotiations for years; **thus extending the St Louis production line into the early 2020s**. The linkage is officially denied both by Boeing and Qatar Airways, as it should be, but it is no secret that **Qatar plays a key strategic role in the Middle East, and has serious bargaining skills!**... As Richard Aboulafia – VP analysis at the Teal Group consultancy – recalls, **Doha has been a major purchaser of Boeing commercial and military products for decades**. According to his calculations: the cumulative “per-citizen value” of Qatari aircraft acquisitions is \$106,000, **of which \$86,000 is for Boeing products!** “*I’m quite positive this is some kind of record for any nation*”, he adds... (Who said **Brother in arms?**...)

How big a blow this announcement is for Airbus is still unclear. Although Al-Baker cunningly recalled the fact that *“Boeing has started building airplanes before everybody else”*, he also insisted to say that he would maintain his orders with the Airbus, in spite of his disappointment over the A350XWB and A320NEO service entry problems. *“There is no message to Airbus. We don’t send messages by aircraft purchases to each other.”* he added. However, some **Dire Straits** very politically incorrect words may have been remembered here and there...:

♪ See the little f* with the earring and the makeup / Yeah buddy that's his own hair
That little f*got his own jet airplane / That little faggot he's a millionaire.♪

All in all, it was a bad week for Airbus: WTO unfavorable ruling on subsidies, Qatar Airways non-order, A380 1-per-month production rate starting in 2018, falling share price (nearly 4% in one week) and the damning Polish decision reversal on Caracals, on which you will have many details below...

“The Bulletin” is a newsletter published by ADIT focusing on international aerospace and defense markets. You will find here a digest and some short analysis of a selection of news picked around the world over the last 7 days.

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SNAPSHOTS



On October 8, 2016, the **Cessna Citation Longitude** made its successful first flight from the company's east campus Beech Field Airport in Wichita. (Photo: Textron Aviation)



Late last month, General Atomics disclosed a picture of its **MQ-9 Reaper** equipped with a **network-centric communications pod (NCCP)** sometimes described as a “secure data-link wi-fi bubble” to fully connect services on the battlefield (Credit: GA-ASI)



POINTS OF VIEW

POLAND – CARACALS AND RASCALS

A cold just caught Franco-Polish relations this week: **Warsaw officially and brutally cancelled a €2.5 to €3bn helicopter contract awarded to Airbus in 2015**, turning a defense procurement spat into a **bitter diplomatic row** between the two countries. Paris canceled two top government visits to Poland due this week. French Defense Minister Jean-Yves Le Drian was due to arrive in Warsaw on Monday October while President François Hollande was expected in Warsaw on Oct. 13 for bilateral consultations... French invitations of Polish delegates to the Euronaval trade show were also cancelled...

Although the French government had acknowledged the fact that current Polish authorities, headed by Beata Maria Szydło from the hardline conservative party **Law and Justice (PiS)** and backed by PiS cofounder Jarosław Kaczyński, was mildly Eurosceptic, Paris did not believe that the Warsaw would actually call off Airbus deal. Airbus had been selected by the previous Polish government to supply 50 H225M Caracal helicopters, and the European manufacturer had committed to offer advantageous industrial **offsets to Poland**. **"Not enough"** for Polish Defense Minister Antoni Macierewicz, who blamed Airbus for the breakdown in talks. **"I want to make it perfectly clear that it wasn't the Polish side who broke off the talks,"** Macierewicz told journalists. Airbus' offer, notably in the field of industrial offsets, was considered unsatisfactory... despite the fact that **the company was selected partially on the basis of its offset proposals back in April 2015, against competitors Sikorsky and Augusta Westland**. Besides, the group now recalls that it actually offered an **"unprecedented" offset package worth 100% of the contract value**, extremely favorable to Poland. As the group disclosed this week, following the Polish U-turn, the package offered by Airbus included **a final assembly line for the helicopters in Łódź**, and assembly of their Safran Helicopter Engines by Polish state-owned company PGZ, with up to **1,250 new direct jobs created, along with 2,000 indirect jobs** throughout Poland. The company also committed to **Transfers of Technology (ToT)** along with some intellectual property rights, which would have given Poland a wide autonomy to upgrade its Caracal fleet according to its own requirements. **"Our offset offer would have transformed WZŁ1 company, a state-owned company belonging to Polish Defence Group PGZ and currently in charge of maintaining old-generation Russian helicopters, into a world-class helicopter industrial center with capabilities ranging from full assembly line, systems production, maintenance, overhaul and modernization capabilities, serving the needs of both Poland and the international market,"** Airbus Helicopters CEO Guillaume Faury detailed in an angry open letter addressed to Polish Prime Minister on Oct.11. The manufacturer had announced its intention to expand its presence in the country, **including in the commercial aviation segment**.

The Polish Defense ministry seems to have a **different view of the situation**: **"Airbus Helicopters did not make a satisfactory offer in the last phase of talks. They didn't respond to the Polish position and this is why negotiations**

on the contract stopped," Macierewicz said, adding that **"unfortunately the two sides did not see eye to eye on the offset package"**, although he declined to provide further details. But **could the government actually take another decision?** Indeed, even before gaining an absolute majority in Poland's parliament following the legislative elections of October 2015, **the PiS expressed its hostility to the Airbus deal** signed by the Christian-democratic government headed by Ewa Kopacz, and vowed to cancel the order. **"Retrospectively, it seems clear that the Poles never intended to accept the outcome of the competition,"** a French diplomatic source told AFP.

Since the Oct. 4 decision, **Airbus Group has announced that it would review its plans in Poland**, which, apart from the package offered for the helicopter deal, also included expanding the **Łódź R&D center** and the creation of a **manufacturing hub for Airbus commercial jets**. **"The decision to break the offset negotiation process was made unilaterally by the Polish Ministry of Development on October 4th"**, Faury stated. **"We spent a huge amount of efforts and money in recent years trusting that we were in a fair and professionally conducted competition,"** Airbus Group CEO Tom Enders even went further, saying that the company had the **impression of having been misled for months**. **"We will of course seek remedies,"** he added, and the manufacturer will now likely contest the decision through judicial means, both in Poland and at EU-level.

On the political side, what perhaps seems to anger Paris the most is Poland's **"free-rider" policy regarding the UE**: the country has benefited from billions of euros in development aid from the EU (**no less than €82bn for the 2014-2020 timeframe**), and repeatedly called for a stronger European defense policy (although within NATO framework), but regularly selected U.S. defense suppliers rather than European counterparts. Moreover, **France had cancelled the sale of Mistral BPCs to Russia** under intense pressure from Poland and the Baltic States, and Paris had committed to expand its military presence and support in the region under **NATO's "reassurance" policy**. France had previously fostered close ties to Warsaw, with a joint declaration between the two countries and Germany in favor of stronger European defense and security policy announced no later than August 28. France has now put a hold on bilateral ties, and the French media also reported that **current defense cooperation programs with Poland could be deeply impacted**.

Meanwhile, **on Monday, Defense Minister Antoni Macierewicz announced his government's decision to acquire 21 Black Hawk helicopters from Sikorsky**, with more orders to likely follow, either from the US manufacturer or from **Leonardo Helicopters' local subsidiar, PZL Świdnik**, which has been quite vocal since the decision to pick Airbus Helicopters and could also get a piece of the cake. Whether such decision will make sense or not from a fleet cost-effective point of view another issue.... Most observers think the very quick Sikorsky choice hints that **negotiations had probably started even before Airbus was notified** that Poland called off the Caracal deal...

Finally, despite the Black Hawks decision Warsaw finally unexpectedly indicated that... **a new tender for military helicopters could be launched to "console Airbus"!** Not sure if the words used are right, and if Poland's European partners can **still consider Warsaw as a reliable partner for both European integration and "European Defense"**. Whatever happens, the

cancellation of the Polish order remains a **major setback for Airbus Helicopters**, the company facing drop in demand from the Oil & Gas sector, and limited defense markets. The Polish Caracal deal, **valued between €2.5 and €3bn**, was seen as an opportunity to avoid sharp **declines in production rates in 2017 and 2018**. The company is now planning restructuring plans, which will be negotiated with unions this month. Meanwhile, French defense suppliers are more than ever traumatized by the Polish market and they remember Christmas **2002**, merely a few days after the official announcement that Poland was to become an EU member, **when the country selected Lockheed's F-16, despite Dassault's Mirage 2000-5 being cited as the best bidder**. Given that track record, we can wonder if France will soon again answer Poland's call when Polish Foreign Minister Witold Waszczykowski indicated during a phone call with his French counterpart Jean-Marc Ayrault on Tuesday night that Poland wanted to **buy submarines and helicopters**, and would gladly look at bids placed by French firms...

Sources: ADIT Le Figaro, La Tribune, Les Echos, Bruxelles2, Le Monde, Flight Global, Defense News, Le Journal de l'Aviation

MOROCCO – OUTSOURCING KINGDOM

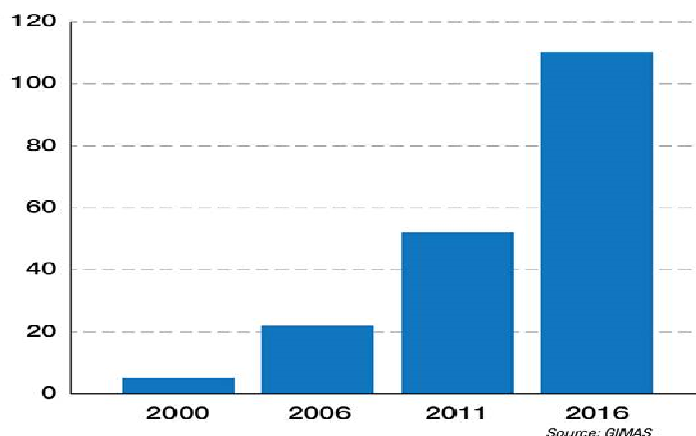
In just 15 years, **Morocco has become a major aerospace industry manufacturing hub**, with a flourishing aerospace activity: the country hosts **over 110 companies, comprising over 11,500 employees** and generating **\$1bn in exports**. And amongst aerospace manufacturers that opted for the Moroccan option, instead of Asia or Eastern Europe, some names stand out: **Boeing, Bombardier, Daher, Safran, Thales, UTC Aerospace Systems, or Latécoère**. The country has established itself as a global center for aerostructures and basic assemblies.

But how did Morocco build a growing aerospace cluster, when there was **virtually no in-country aerospace manufacturing barely two decades ago**? For the aerospace expert **Kevin Michaels**, writing in Aviation Week *"the catalyst of the cluster was Hamid Benbrahim El-Andaloussi, a former Royal Air Maroc executive. His company had been a faithful Boeing customer for many decades, yet the aircraft manufacturer had no meaningful activity in Morocco. After persistent lobbying, he convinced Boeing and Safran subsidiary Labinal to create a joint venture with RAM to produce wire harnesses for the Boeing 737."* The joint venture, **Matis Aerospace**, grew rapidly, and **new investments soon followed in the mid-2000s**, including Daher, Hutchinson Aerospace and notably Safran, the latter opening two large manufacturing facilities.

By 2006, there were 22 aerospace companies in Morocco, and the country gained traction. The GIMAS aerospace industry association, headed by Benbrahim himself, was created in 2007 and aims to accelerate the development of the aerospace sector. *"Like Mexico, Morocco had geographic proximity to a major market, a large and energetic talent pool and preferential market access courtesy of a Morocco-EU free-trade agreement. Garnering just 1-2% of European aerospace production—worth more than \$100 billion—would create a substantial success story,"* Kevin Michaels says, adding that the Morocco's political and security stability, and

the government's commitment to improve infrastructures further enhanced the country's attractiveness for foreign companies.

Moroccan Aerospace Companies



Morocco has also created specialized schools, including the IMA, modeled after French standards, for personnel training, in order to grow the skill base and better integrate Morocco in the aerospace global supply chain. Creating **skilled jobs is a priority for Moroccan authorities**, and the aerospace cluster is undoubtedly an opportunity with regards to employment and economic development. *"Given the ephemeral nature of comparative advantage, Morocco must continue its sharp focus on human capital and a business-friendly environment,"* analyzes Kevin Michaels, although the OEM's focus on cost-cutting, the outlook for Morocco is rather good.

The country's aerospace cluster is indeed expanding: **late last month Boeing signed an agreement** with the Moroccan government, committing to support the country's aerospace sector and encouraging suppliers to expand locally. The government hopes the agreement will lead to up to 8,000 new jobs and an additional \$1bn in export revenues annually. Similarly, **Thales** is seeking to make of Morocco its **"African hub"**, and expand both its civil and defense activities. Thales is involved in the expansion of the country's high-speed rail network, and has also signed various contracts in the fields of cybersecurity, public transportation and defense. The French company will notably build a **3-D printing facility in Casablanca**, scheduled to be fully operational by 2018. **Airbus** is also present through its **Stelia** subsidiary, and the company is building €40mn facilities that will manufacturer components and spare parts for Airbus' airliners, creating **up to 800 jobs through 2018**. **Latécoère** shortly followed, announced a €11mn investment to build a new factory close to Casablanca, through its LATElec subsidiary. Lastly, one could mention **Bombardier's** presence in Morocco: the **Canadian manufacturer invested \$200mn in the "Midparc" aerospace hub** close to Casablanca Airport (and IMA school), specialized in aerostructures. Bombardier's manufacturing platform opened in 2013, and created **over 800 direct jobs**, with an expected 4,500 additional indirect jobs.

Morocco's industrial plan for 2014-2020 targets 500,000 new jobs in the industry, including 23,000 in the aerospace sector, with aim to bring in 100 new investors in the country, generating over \$1.6bn in new exports revenue. In a May 2016, The Economist named the Kingdom "a rising star in the west" and cited its aerospace cluster as one reason for optimism.



VALUATION

THALES: UPGRADED TO 'A-' ON STRONG FINANCIALS AND STEADY PERFORMANCE; OUTLOOK STABLE (STANDARD & POOR'S, OCTOBER 6, 2016)

Standard & Poor's has upgraded Thales' rating from "BBB+" to "A-", citing the company's strong credit metrics in 2016-2017. The credit-rating agency sees a steady performance ahead for Thales, with solid backlogs and good growth prospects, supported mainly by a growth of aerospace, electronics and defense sectors.. The recent Rafale deals with India, Egypt and Qatar further strengthen Thales' outlook, as **the company has a 25% share in the Rafale program**. *"We think that Thales' financial leeway will be supported by continued growth across all business divisions, steady project execution, and gradually strengthening profitability at group level"*, says **S&P Primary Credit Analyst Tatjana Lescova**. She also expects profitability to improve, adding that this should result in an adjusted funds from operations (FFO)-to-debt ratio well above 60% in 2016-2017, compared 2015's FFO-to-debt ratio of 108% in 2015.

Back in 2010, Thales' credit-rating had been downgraded by S&P to "BBB+". With its new rating, the company joins a group of 21 French companies (out of France's Top 250) which benefit from S&P's "A-" or higher, guaranteeing low interest rates. **Thales' share is now valued at €82.88**, and S&P estimates that the manufacturer will generate a **free operating cash flow (FOCF) of approximately €500mn** annually, following a €1bn FOCF in 2015. Thales is also expected to maintain its **dividend short-term target of 35 to 40%**.

During the presentation of its 1H2016 results, last July, Thales CEO Patrice Caine confirmed his **€1.3-to€1.33bn EBIT target for 2016** (a 7% to 9% increase from 2015), with an estimated **5% organic growth expected** for this year. 1H2016 saw an 8.9% organic growth. The company expects a 5% organic growth annually in FY2017 and FY2018. *"The share of emerging markets has increased to 28% of total sales from 22% four years ago, and this will help drive growth in the coming years, in our view"*, notes Mrs. Lescova.,



PUBLICATION

THE MARKET FOR REGIONAL TRANSPORT AIRCRAFT (FORECAST INTERNATIONAL, SEPTEMBER 2016)

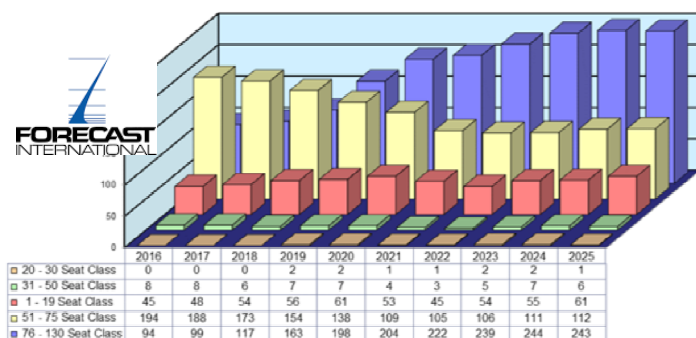
According to Forecast aerospace analyst Ray Jaworowski, the **two year-decline of regional jet orders was due to a combination of two factors: "low fuel prices, contributing to a dampening of turboprop demand; and the close of the latest regional jet replacement cycle for North American airlines"**. This replacement cycle notably saw U.S. airlines order large numbers of regional jets fitted with 76-seats, under the scope clauses agreement between major carriers and U.S. pilots' unions concerning aircraft capacity and MGTOw (maximum gross take-off weight). However, the 2012 liberalization of scope clauses in pilot contracts with U.S. mainline carriers allowed regional carriers partnering with the major operators to operate greater numbers of 76-seat regional jets, the study points out, thereby fostering demand for such aircraft, which benefited manufacturers such as Bombardier and Embraer. But scope clauses still apply with regards to seat capacity and MGTOw as of 2016, and **"pose a significant artificial obstacle to the U.S. regional aircraft market reaching its full potential. This is an important consideration for manufacturers, as the U.S. constitutes the largest geographic market for regional jets"**, the study details. According to Forecast International, the relaxation of the size and/or weight restrictions in U.S. scope clauses will likely have to wait until the end of this decade, when pilot contracts begin to come up for renewal or amendment. Such situation may affect some OEMs, notably Embraer with its E175-E2, the second generation E175, and Mitsubishi's MRJ90: both can be configured with 76 seats, but are heavier than the 86,000 pounds MGTOw restriction.

▲AND ▼ IN THE A&D SECTOR OVER ONE WEEK

	Δ over 1 week	Thursday closing value
Airbus Group	-3,69%	52,42
BAE Systems	-2,34%	5,85
Boeing	0,08%	134,53
Bombardier	0,57%	1,77
Dassault Aviation	-1,53%	983,60
Elbit Systems	0,49%	95,98
Embraer	-0,07%	14,79
General Dynamics	-1,53%	151,78
Huntington Ingalls	0,65%	157,07
Irkut	-0,66%	9,10
L-3 Communications	-2,18%	149,22
Leonardo	0,30%	9,96
Lockheed Martin	-0,87%	232,68
Northrop Grumman	2,13%	218,77
Oshkosh Corp.	-4,25%	53,66
Rheinmetall AG	-4,54%	61,00
Rolls Royce	-1,12%	751,50
Raytheon	-0,15%	138,04
Saab AB	-0,16%	307,40
Safran	-6,54%	62,15
Thales	-1,19%	81,09
Textron	-4,56%	38,09
United Technologies	-1,52%	100,53

Nonetheless, *"the market for 90-seat and larger regional jets is hardly moribund. Jets of this size will be acquired in quantity by regional airlines unencumbered by scope clauses, low-fare carriers, and even major airlines,"* Raymond Jaworowski points out. Similarly, turboprops such as Bombardier's Q400 and the ATR family remain popular, although development of larger 90-seat turboprops will likely remain a low priority for manufacturers as long as fuel prices remain low, according to the study. By contrast, increase in fuel prices would support long-term demand for fuel-efficient turboprops, although the regional aircraft market is set to remain dominated by jet-powered aircraft, accounting for 55.2% of regional aircraft production and 75.3% of production value.

The Market for Regional Transport Aircraft
Unit Production 2016-2025



(Credit Forecast International)

In the field on small regional aircraft seating 19 passengers or less, Forecast International highlights the fact that modification to current European regulations could allow commercial operations of single-engine turbine aircraft, and expand markets for such aircraft, which remain used by U.S. operators despite limited air traffic growth and route development.

More globally, the study projects that **3,817 regional aircraft (both regional jets and regional turboprops) will be produced from 2016 through 2025**, for an estimated **\$135.2bn**. Forecast International believes that annual output will remain relatively stable throughout 2016 and 2017, at just over 340 units produced annually. However, annual production is projected to increase to more than 420 units by the year 2025, a growth fueled by production ramping-up of new regional jets such as Bombardier's CSeries, Mitsubishi's MRJ and Embraer's E2 family. *"Overall demand in the regional jet market is already moving toward larger-capacity aircraft, but the overall potential of the segment continues to be hampered by scope clause restrictions in the U.S. market,"* commented Raymond Jaworowski. North America is expected to remain the largest geographical market, although Europe, traditionally a major market for regional aircraft, is set to be replaced by Asia as second largest market during the 2016-2025 timeframe. *"European regionals have struggled in recent years due to sluggish economic conditions, a difficult tax and regulatory environment, and fierce competition from low-fare carriers,"* analyzes Forecast International, while LCCs in North America tend to compete with majors rather than regional carriers.

According to the study, based on unit production, Embraer, ATR, Bombardier, and Mitsubishi are projected to be the leading regional aircraft manufacturers during the 2016-2025 forecast period. Forecast International

does outlines the fact however that competition is becoming more challenging for the three main regional aircraft manufacturers, with arrival of COMAC's ARJ-21, the MRJ and Sukhoi's Superjet 100 on the market.

During that timeframe, Embraer is projected to build 959 regional jets (a 25.1% market share), Mitsubishi 437 jets (11.5%), while Bombardier is expected to produce 591 regional aircraft (15.5%), both jets and turboprops. ATR is projected to produce 783 regional turboprops, a 20.5% market share. In terms of seating classes, 76-130-seat aircraft are expected to account for 47.8% of production during the 2016-2025 timeframe, followed by the 51-75-seat class (36.4%) and the 1-19-seat class (13.9%). In terms of value of production, the 76-130-seat class is even more important, accounting for 65.3% of total value of the regional aircraft market, followed by the 51-75-seat class (31.4%).



UNLIKELY LINK

CHILE CENTRAL AFRICAN REPUBLIC: SOUTHERN RED CROSS...

Chile - in conjunction with Argentina - is considering sending a combined engineering military unit to join the Minusca UN mission in the Central African Republic, Chilean Defense Minister Jose Antonio Gomez said in an interview with the newspaper El Mercurio.



The unit would be deployed as the Combined Peace Force "Southern Cross" (Cruz del Sur), a binational unit specifically created for peacekeeping missions and international security, and made available to the UN Stand-through the UN

Peacekeeping Capability Readiness System (UNPCRS). The initiative was launched in 2006, following the signing of a MoU between Chile and Argentina, with an official agreement creating the Combined Peace Force signed in June 2011, with UN Secretary General Ban Ki-moon attending the ceremony. The same appointed last July a Chilean diplomat, Fabrizio Hochschild, as his new Deputy Special Representative for the UN Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA). Mr. Hochschild will also be the new UN Resident Coordinator, Humanitarian Coordinator and Resident Representative of the UN Development Programme (UNDP) in the country. In the case of the CAR, only engineering units are to be deployed to support the political transition process and deliver humanitarian assistance. 110 troops, supported by helicopters, are to be sent to the CAR, with full capacity scheduled for 2017. Some of the MINUSTAH Chilean personnel formerly based in Haiti are to be deployed to the CAR.

Sources: Buenos Aires Herald, IHS Jane's, Infodefensa, UN.org



AT-A-GLANCE

CIVIL AVIATION

- ▶ **USA:** Boeing and Atlas Air Worldwide Holdings announced an order today to convert nine 767 airliners into Boeing Converted Freighters (BCF). Four of the orders were previously announced at the Farnborough International Airshow, attributed to an undisclosed customer.
- ▶ **USA:** Boeing today announced that Ihssane Mounir has been named the new V-P of Sales & Marketing for Commercial Airplanes, succeeding John Wojick, who will retire early 2017 after a 36 years career at Boeing. Mounir has held several leadership positions within Boeing's Sales organization, mostly recently as V-P of Sales for Northeast Asia. He was previously responsible for developing and implementing cross-regional strategies for Commercial Airplanes, the company added in a release
- ▶ **USA:** Spirit Airlines has become the first U.S. customer to take delivery of an Airbus A320NEO; the aircraft was delivered on Oct.7. The aircraft is one of five A320NEOs owned by AerCap that will be leased to Spirit Airlines, according to Flight Global. Spirit Airlines also has ordered 50 more A320NEOs directly from Airbus, and the carrier already operates a large fleet of Airbus narrowbodies.
- ▶ **USA:** U.S.-based lessor Intrepid Aviation has revised a firm purchase commitment with Boeing for six 777-300ERs, canceling two of the 777-300ERs in favor of two new 747-8 freighters.
- ▶ **USA:** Solar Impulse 2 pilots Bertrand Piccard and Andre Borschberg are working on an unmanned version of the solar-powered airplane that would be able to fly for several months in the stratosphere; amongst possible applications, communications, observations and data collecting were cited. An opportunity to "reconcile ecology and industry", according to both pilots.
- ▶ **USA:** Rodin Lyasoff has replaced Paul Eremenko as CEO of A3, Airbus Group's Silicon Valley outpost. Eremenko, former DARPA program manager and Google executive, is now Airbus Group's chief technology officer.
- ▶ **CANADA:** The Quebec provincial government announced a \$40mn funding to develop an ecological aircraft with ecological-friendly technologies, the SA2GE. Bombardier, CAE, Esterline CMC Électronique, TeraXion and Thales Canada will participate, and the 5 different projects (selected in 2015) are to be presented by 2020.
- ▶ **BRAZIL:** During 3Q16, Embraer delivered 29 jets to the commercial aviation market, 38% more than the same period of 2015. On September 30, Embraer's firm order backlog totaled USD 21.4bn
- ▶ **CHINA:** Boeing and China Southern Airlines finalized an order for 12 Boeing 787-9 Dreamliners, valued at \$3.2bn at current list prices. The aircraft will strengthen China Southern's expanding long-haul fleet. The 787-9s are scheduled to be delivered between 2018 and 2020. Five

aircraft will be delivered in 2018, four in 2019 and three in 2020. The transaction still needs shareholder and government approval however.

- ▶ **PHILIPPINES:** Philippine Airlines has signed a letter of intent to purchase up to 12 Bombardier Q400 turboprops, Flight Global reports. Of the 12 aircraft involved, 5 are believed to be firm orders, plus 7 options. The carrier already operates 4 Q400s and 4Q300s.
- ▶ **UAE:** Etihad Airways will potentially launch Islamic bond launch before year-end. HSBC Holdings, National Bank of Abu Dhabi and Dubai Islamic Bank have been approached, Bloomberg reported.
- ▶ **TURKEY:** Turkish Airlines will defer 39 narrowbody deliveries from a 167-strong Airbus and Boeing aircraft order, ATW reports. Indeed, the carrier faces decreased demand resulting from terrorism and economic challenges in Turkey. The 167 aircraft were to enter Turkish Airlines' fleet between 2018 and 2022. Narrowbody deliveries will be reduced from 34 to 10 for 2018; from 40 to 35 for 2019; and from 52 to 42 for 2020. However, planned deliveries for 2016 remain unchanged. The carrier recorded a 1H2016 net loss of \$644mn.
- ▶ **RUSSIA:** Embraer announced that its E170 and the E175 jets received type certification validated by the Federal Air Transport Agency of Russian Federation, paving the way for Russian airlines to acquire Embraer's regional jets, following the E190 and the E195's type certifications earlier. "This certification opens new opportunities for the two aircraft types, which have attained significant success in other regions of the world," commented John Slattery, President and CEO of Embraer Commercial Aviation, adding that the E-Jets are already quite popular in other CIS and Eastern European countries.
- ▶ **RUSSIA:** Sukhoi Civil Aircraft plans to offer a 120-seat version of the Superjet by stretching and redesigning the center of the fuselage and using larger wings. Commonality with the current 98-seat SSJ-100 will be guaranteed, according to the manufacturer. Sukhoi targets a service entry in 1H2020.
- ▶ **POLAND:** Polish Airlines has agreed to lease up to 11 Boeing 737 MAX 8s from US lessor Air Lease Corp. (ALC) for delivery in 2017-2020.
- ▶ **EUROPE:** Airbus Group has appointed François Auque and Thomas d'Halluin to lead the European and U.S. venture investment activities, respectively, of its Airbus Ventures initiative. Auque previously served as Executive Vice-President of Space Systems and CEO Airbus Defence and Space France and d'Halluin was COO of Airbus Ventures activities.
- ▶ **EUROPE:** Airbus has confirmed that final assembly of the first A330-900 has begun on Sept. 27, and final assembly of the second aircraft is scheduled to begin on Nov. 9. Final assembly of the first (and only) A330-800 test vehicle will begin on Nov. 10, 2017. Meanwhile, the first A330-900 is scheduled for delivery on Dec. 31, 2017, to launch customer TAP Portugal. 39 A330-900s are expected to be delivered in 2018.
- ▶ **SPAIN:** Low-cost carrier Vueling has closed three aircraft bases (Catania, Palermo and Brussels) and is rolling out a new restructuring

strategy. Dubbed "Vueling NEXT," the restructuring also includes a new management structure, ATW reports.

- ▶ **SPAIN:** Binter has ordered 6 additional ATR-72-600s, supplementing a previous order of 12 aircraft. Binter flies its ATRs on its Canary Islands and Cap Verde routes.
- ▶ **UK:** Four months after the Brexit referendum, the opposition Labour party has put 170 questions to the government about the latter's goals for exit negotiations, of which three concern air transport. Labour has notably asked the government if Britain would remain in the European Common Aviation Area (ECAA), and committed to the Single European Sky project. The UK's membership to the ECAA could be denied by other EU members, and even if its membership is maintained, Britain would have to accept all EU aviation laws without participating to their formulation. So far, the British government is unwilling to comment on the issue.
- ▶ **FRANCE:** Christian Scherer, currently head of Airbus Group International, is due to replace ATR CEO Patrick de Castelbajac, midway through the latter's 4-year term, Aviation Week reports. Castelbajac will be leaving his post to rejoin Airbus, where he is set to become the right-hand man of Fabrice Bregier. Rumors about an early change of CEO at ATR had added to ongoing uncertainty about the strategic direction of the manufacturer. The appointment of Scherer suggests that ATR will follow Airbus' strategy, which focuses on a re-engined ATR product line, rather than a new clean-sheet 90-seat turboprop, favored by ATR's other shareholder, Leonardo. Both GE and Pratt & Whitney are developing a new generation of turboprop engines, and could compete if a re-engined ATR program does go through.
- ▶ **FRANCE:** Figeac Aero has been selected to supply aluminum aerostructures for the future Boeing 777X program, which will include the 777-9 and 777-8, and potentially, a 777-10 (although not mentioned in the contract with Figeac). First deliveries of the 777X are scheduled for 2020. Figeac targets revenue of €650-750mn through 2020. As of March 2016, the company had a €3.9bn backlog, Air & Cosmos reports

BUSINESS AVIATION

- ▶ **USA:** Luxaviation announced this week its 500th flight of 2016 in the United States. Recently, the Luxembourg-based Group which want to expand its footprint in the region acquired its first fixed-based operation (FBO) in the Caribbean and opened a FBO in Mexico. According to Chief Executive Patrick Hansen, in an interview with Forbes in July 2016, the goal is to establish a presence by the spring of 2017
- ▶ **BRAZIL:** Embraer confirmed approvals for Legacy enhanced vision system by European Aviation Safety Agency, U.S. FAA and Brazilian administration. "The Legacy 450 and 500 are the first aircraft to set this new standard of operational performance in the midsize segment," Embraer Executive Jets chief executive Marco Tulio Pellegrini mentioned. According to the company, the system "delivers high-fidelity detection, including ground-based LED lights, allowing operators to make approved approaches at airports around the world and use lower

SPEAKERS' CORNER

"It took us 19 years to deliver the first 1000th aircraft and now only 19 months to deliver the last 1000." said Airbus CEO **Tom Enders** on the occasion of the delivery of the 6th A350 to Singapore Airlines (@airbus- 2016/10/14)

"Some old scam comes into the picture; some company gets blacklisted... It is very easy to blacklist a company but there are very few arms companies to buy material from, I can't buy a gun required for a naval ship because the main company, subsidiary, or smaller company is involved in some sort of blacklisting procedure with the government of India. In Europe, there are virtually three or four groups... worldwide, arms suppliers to India are restricted to about 10 to 12, even though the number may appear to be about 30-40... many of them are linked with each other. It becomes almost impossible to navigate through all this," said Defence Minister **Manohar Parrikar** responding to a question on the issue on completion of two years in office. (IANS - 2016/10/12)

"We have to be very careful that we don't design [autonomous] systems in a way that we can create a situation where those systems actually absolve humans of the decision about whether or not to use force;. "We could get dangerously close to that line, and we owe it to ourselves and to the people we serve to keep that a very bright line." said **General Selva**, vice chairman of the US Joint Chiefs of Staff. (*Christian Science Monitor* - Sept. 09, 2016)

19.54%. Such will be the Compound Annual Growth Rate (CAGR) of the Global Small Satellite Market at least through 2021, according to ReportsnReports.com (Aerospace Daily & Defense Report , Oct 12, 2016)

\$5mn. Such is the amount paid by Dubai-based Emirates to hire US actress Jennifer Aniston starring in its latest global advertising campaign (viationbusinessme.com , Oct. 2016)

\$260Bn Such is the potential value of the Supersonic Airliner Market over a 10-year period, as forecasted by Boyd Group International, who anticipate a 1300 aircraft production run (Aviation Week & Space Technology, Oct 12, 2016)

500. Such is the number of days spent on orbit by our little U.S. Air Force's unmanned X-37B space plane, manufactured by Boeing (*Space.com* - Oct 10, 2016)

approach minimums." Meanwhile, during 3Q16, Embraer delivered 12 large executive jets, 33% more than the same quarter of last year. However, total executive aviation deliveries fell around 17% when compared to 3Q15.

- ▶ **BRAZIL** certification authority Agência Nacional de Aviação Civil (ANAC) confirmed the approval for the Pro line fusion system on all Beechcraft King Air turboprop aircraft, Textron Aviation stated. The system produced by Rockwell Collins are standard equipment on all current production models of the King Air: King Air C90GTX, King Air 250 and King Air 350i/ER, noted Corporate jet investor.
- ▶ **MIDDLE EAST:** According to Middle East Business Aviation Association (MEBAA) airshow, the business aviation sector in the region is expected to reach a volume of \$1.2bn by 2020, with a fleet comprising 1,200 private aircraft registered in the Mena region,
- ▶ **UAE:** Dubai South is becoming the main business aviation gateway to the UAE, Flight Global reported. The airport will open for the MEBAA show its first VIP terminal in December. Dassault or German company DC Aviation are building new infrastructures like a maintenance facility or a new FBO respectively.
- ▶ **EUROPE:** According to WINGX's latest monthly Business Aviation Monitor, there were 76,983 business aviation departures in Europe in September 2016 representing 1.4% YOY growth in activity.
- ▶ **FRANCE:** Dassault aviation received European Aviation Safety Agency and U.S. FAA certifications for use of its combined vision system, known as FalconEye, aboard the Falcon 2000S/LXS. A new certification for the Falcon 8X is expected shortly, AIN said.

MILITARY AVIATION

- ▶ **USA:** Honeywell has signed an agreement with the U.S. Defense Advanced Research Projects Agency (DARPA) to further develop the next generation of precision inertial technology by improving the accuracy of Honeywell's Inertial Measurement Unit (IMU) technology by three orders of magnitude compared with its current HG1930 IMU.
- ▶ **USA:** Northrop Grumman successfully flew an Optical Bar Camera broad-area synoptic sensor on an RQ-4 Global Hawk UAV, the company announced. Northrop Grumman successfully flew a SYERS-2 intelligence gathering sensor in February of this year and plans to fly an MS-177 multi-spectral sensor before year-end.
- ▶ **USA:** The USAF is expected to order 4 additional Embraer Super Tucanos for the Afghan Air Force. The first of 20 light attack turboprops ordered began arriving in Afghanistan in January, and deliveries will continue through 2018. As with the previous "Light Air Support" contract, the Super Tucanos will be assembled at Sierra Nevada Corporation's Jacksonville facility. Deliveries are expected for 2018.
- ▶ **USA:** Bravura Information Technology Systems was awarded a \$306mn contract to operate Army aerostats under the Persistent Surveillance Systems — Tethered (PSS-T) program, C4ISR.net reports. "Filled with

...MeaNwhile...

NUTS & BOLTS

The German Air Force has grounded half of its Tornado fighter jets fleet, including six aircraft currently deployed to Turkey as part of the fight against ISIS, after discovering loose screws that cannot be properly tightened in some key cockpit equipment, media reported. No less than 42 jets are concerned, and the Air Force's spokesperson declared that the aircraft would not be allowed to fly until a solution had been found, due to security concerns. Airbus Defence and Space discovered the problem during routine maintenance, reporting it to the German military. The tornado fleet was since cleared to fly again, but it may be time to think about a future replacement at some point.

FATHER OF THE ASTROCHIMPS

Dr. Marvin Grunzke died on September 27, age 92. You may not know him, but he was the man who trained two chimpanzees, Ham and Enos, both of which were rocketed into space in 1961 to prove that humans could survive such flights. Grunzke was one of a small team of scientists who helped the chimps get used to being strapped and taught them to perform tasks in the small capsule. The astrochimps' incentive was to avoid a mild shock to the left foot, and according to Grunzke, they never failed. Both Ham and Enos survived their space flights and performed admirably, clearing the way for the first NASA manned flights. Grunzke retired from the USAF in 1978, and later taught psychology.

helium and attached to mobile mooring systems by high-strength tethers, PSS-T large and medium aerostats have scalable capabilities providing around the clock surveillance of broad areas for weeks," the company said in a statement. Bravura will partner with Lockheed Martin, which makes the PSS-T Large version, and TCOM, which makes PSS-T Medium, along with other companies involved in the program.

- ▶ **USA:** The USAF has asked Boeing to select a supplier that will provide 132 infrared search-and-track (IRST) sensors for the F-15C/D fighter jet. The \$198mn program will see over 130 units equipped with the F-15 (active duty squadrons, Air National Guard and test units) receive IRST sensors for their fighters. Boeing will integrate the sensors on the aircraft.
- ▶ **JAPAN:** Kawasaki Heavy Industries expects to deliver its second C-2 transport aircraft to the Japanese Air Self Defence Force in 2017. The manufacturer believes there is a unique niche market for its transport aircraft, Flight Global reports. Between 20 and 40 C-2s are expected to be ordered by Japan, with an annual production of potentially up to 3-4 aircraft, depending on Japanese defense budgets.
- ▶ **CHINA:** China will likely develop a new-generation AEW&C aircraft based on the locally-made Y-20 multi-purpose transport plane, introduced earlier this year, Defense World reports.

- ▶ **SOUTH KOREA:** Pratt & Whitney signed an agreement with Hanwha Techwin (which manufactures surveillance and weapons systems), the latter providing components for the next-generation P&W GTF engine. Hanwha Techwin will acquire a 30% in P&W NGPF Manufacturing Singapore, which Pratt & Whitney opened in February.
- ▶ **SOUTH KOREA:** South Korea is to acquire an additional pair of Boeing E-737 Peace Eye AEW&C aircraft to add to the four deployed since 2012, IHS Jane's reports. The E-737 AEW&C aircraft is built around the Northrop Grumman multirole electronically scanned array (MESA) surveillance radar. South Korea acquired the E-737 AEW&C as part of a wider effort to expand its airborne surveillance and early warning capabilities.
- ▶ **SOUTH KOREA:** Today, TAURUS Systems GmbH, handed over the first lot of TAURUS KEPD 350K stand-off missiles to the Republic of Korea Air Force (RoKAF). The company is a joint venture between MBDA Deutschland GmbH (67 %) and SAAB Dynamics AB (33 %).
- ▶ **PHILIPPINES:** According to IHS Jane's, the Philippine Air Force is preparing to launch a new bid to procure close-air support (CAS) aircraft, the fourth in the space of barely 2 years. The Air Force is seeking a replacement for its ageing OV-10 Bronco fleet; a request-for-proposals is expected in the next few months, and will likely pitch (once again) Embraer's Super Tucano and Beechcraft's T-6 Texan II in an armed variant. The Super Tucano is reportedly the preferred option, backed by a strong backlog and combat experience. 6 aircraft could be acquired for approximate \$100mn.
- ▶ **INDIA:** A global contest has restarted for supplying the Indian Air Force with a medium, multi-role and single-engine fighter, to be produced in India. Foreign manufacturers are expected to partner with an Indian company, with substantial ToT provided. The program picks up where the MMRCA tender failed, although the "single-engine" requirement excludes several manufacturers, including Dassault's Rafale. The fighter is expected to be a cheaper alternative to twin-engine aircraft, replacing the country's ageing MiG-21 and MiG-27 fleets. Most viable options seem to be Saab's Gripen E and Lockheed Martin's latest F-16 Block 70, with both manufacturers proposing local production and major offsets.
- ▶ **INDIA:** The Indian Air Force confirmed that it will re-engine its fleet of Jaguar strike aircraft. Honeywell is to supply 270 F125IN turbofan engines to replace the twin Rolls-Royce Adour Mk 821 engines. The modernization will concern about 120 aircraft, and is expected to provide enhanced performances for the Jaguars.
- ▶ **BANGLADESH:** Bangladesh has ordered on C295W transport aircraft; the plane is expected to be delivered in 2H2017, with the contract including customer support and training.
- ▶ **IRAQ:** The U.S. State Department has approved the sale of two additional Cessna AC-208B Combat Caravan aircraft to Iraq, for \$65.3mn. The contract includes training and support. Three Combat Caravans had previously been ordered.
- ▶ **SOUTH AFRICA:** Paramount has at least two launch customers lined up for its Ahrlac aircraft (Mwari in its military derivative), which is set to enter production in 2017, Defence Web reports. The militarized Mwari was notably displayed during the 2016 Africa Aerospace and Defence exhibition in South Africa, with Airbus Defence & Space Optronics Argos II electro-optical turret and a helmet-mounted display and a Thales Avni infrared linescanner, along with military payload. A second Ahrlac is due to take flight by year-end, and will be the test-bed for the retractable landing gear, a full mission system in both cockpits, enhanced avionics and larger fuel tanks, along with weapons. The third aircraft will be the production demonstration model. Paramount is partnering with Boeing to market the aircraft, and the U.S. manufacturer will also provide the plane's military mission system.
- ▶ **RUSSIA:** The Russian Air Force is considering a new air tanker based on the improved Il-76MD-90A platform. A first prototype is expected to be assembled by year-end. The first new air tanker based on the same airframe, the Il-78M-90A, is in the final stages of completion at Aviastar-SP, Aviation Week reports. The Il-78M-90A tanker will have older D-30KP2 turbofans replaced by more powerful PS-90A-76 engines. The aircraft will feature a rear ramp door and air drop capabilities. The Air Force is likely to place an order for the new tankers after the trials, and initiate a modernization plan for existing tankers. Ilyushin hopes to export the aircraft as well.
- ▶ **FINLAND:** The Finnish MoD announced the purchase of 28 used Grob G115E training aircraft from the UK-based Babcock International Corporation for about €6.6mn. The aircraft will be delivered through the end of this year and in 2017. The trainers will replace the country's fleet of Valmet L-70.
- ▶ **ITALY:** Airbus reportedly offered to buy back Leonardo's 25% share in MBDA for €1.1bn, according to Italian daily *Il 24 Ore*. Companies involved did not wish to comment. Airbus currently has a 37.5% stake in the missile manufacturer, alongside Bae Systems (37.5%).
- ▶ **FRANCE:** The new-generation TALIOS (TARgeting Long-range Identification Optronic System) laser targeting pod has successfully completed its 1st flight on a Rafale. Operated by Dassault Aviation at the Istres base as part of the F3R standard, the prototype took off on July 27, mounted on a single-seater aircraft, for a flight lasting over 2 hours. This test flight collected high-quality images taken using the "day" channel, and offered remarkable performances in pointing and telemetry, Thales said in a statement.

HELICOPTERS

- ▶ **USA:** Bell is facing tough times, as military orders for its V-22 aircraft are declining and sales of commercial helicopters are sluggish, mostly due to weak demand in the Oil & Gas industry. "We're in a little bit of a perfect storm where both military and commercial businesses are a challenge," said Brian Chase, Bell's vice president of global communications, quoted by Star Telegram. The manufacturer is hoping that its Bell 505 Jet Ranger will be available for customers by year-end,

pending certification, and expects flight tests of its V-280 Valor prototype to begin next year. Bell also seeks to export its V-22 abroad to offset declining U.S. orders. Bell's shipments of commercial helicopters declined 17.8% while its military shipments dropped 27%, compared to 2013 "peak" figures. The Bell 525 program has been significantly delayed following a deadly crash and subsequent grounding, and service entry, initially scheduled for 2017, is delayed as well. The company has also cut its work force from 11,500 in 2012 to 7,200 today. Bell is heavily dependent on U.S. federal orders (58% of sales). Industry analysts predict Bell's revenues will drop this year about 4%, to \$3.3bn.

- ▶ **USA:** Flight International reported that Faced with difficult market conditions and a problematic initial ramp-up, Leonardo has dropped plans to build AgustaWestland AW169 helicopters in the USA. Its initial proposal called for two assembly lines for the medium twin – one in Vergiate, Italy and a second in Philadelphia in the USA to serve the North American market. "For the time being we don't see an immediate need for a second build line in Philadelphia for the AW169," says Stefano Bortoli, sales and marketing senior vice-president at Leonardo's helicopter division. "The plan was made a few years back and as managers we have the responsibility to adapt plans to the existing market circumstances. If we have made changes it is because there were sound reasons to do so."
- ▶ **JAPAN:** FlightGlobal reports that Bell Helicopter is working with engineers from Fuji Heavy Industries on modification work prior to starting production of Tokyo's 150 UH-X helicopters. Bell Japan head Richard Thornley says one of the improvements is around transmission performance, but that Tokyo has kept tight wraps on other modifications it requires in the platform. The Fuji engineers are working on the project at a Bell's headquarters in Fort Worth, Texas. The helicopters will be locally produced by Fuji, with the first example set to be delivered in 2022.
- ▶ **MALAYSIA:** Malaysia's defense minister, Hishammuddin Hussein, has outlined an urgent requirement to upgrade the Royal Malaysian Air Force's (RMAF's) Sikorsky S-61A-4 'Nuri' helicopters. Hishammuddin was speaking on Oct 5, a day after a Nuri aircraft was forced to make an emergency landing in Sabah. The helicopter, which reportedly lost one of its rotor blades in the maneuver, was carrying 14 passengers, all of whom received injuries. The RMAF operates 27 Nuri helicopters, some of which have previously been upgraded by Airod and Heli-One. The newly proposed program is likely to provide similar capability upgrades to the earlier project, which focused on cockpit modernisation. Programs to enhance the Nuri's performance and safety are also being pursued.
- ▶ **INDIA:** HAL is set to sign a deal with Russian Helicopters and Rostec Corporation to jointly manufacture 200 Russian Kamov Ka-226T military helicopters. The deal will be signed during the 17th edition of the Indo-Russian summit, between Oct.14 and Oct.17.

- ▶ **RUSSIA:** Russian Helicopters' modernized Mi-28NM attack helicopter performed its maiden flight on Oct.12. The new variant has received a new targeting, piloting and navigational systems.
- ▶ **RUSSIA:** Moscow plans to sell up to 25% of shares of the Russian Helicopters holding by the end of the year to either an abroad investor or a Russian strategic investor. A pool of Middle Eastern buyers has been mentioned by Industry and Trade Minister Denis Manturov, reported Sputnik.
- ▶ **EUROPE:** Bell Helicopter is gearing up for service entry of the Bell 505 light single and is planning to deliver the first European-based Jet Ranger X next year, Flight Global reports. Type certification is expected before year-end. Bell recorded 70 Letters-of-Intent in Europe, surpassing 2015 figures. The manufacturer has heavily invested in Europe it says, expanding its market share, MRO capabilities and customer service network.
- ▶ **EUROPE:** Airbus Helicopters announced it has begun the flight test campaign for the public services variant of the H175 medium twin-engine helicopter. Launch customer Hong Kong Government Flying Service placed an order for 7 units. Entry into service is planned for late 2017.
- ▶ **POLAND:** Poland still plans to buy 50-70 new multirole helicopters, Polish Defense Minister Antoni Macierewicz stated, despite the mediatized breakdown in talks with Airbus in Oct.4. The Polish MoD announced the purchase of 21 Sikorsky S-70i Black Hawk helicopters for Polish Special Forces, to be built by PZL Mielec, a Lockheed Martin subsidiary. The S-70i deal will not include any offset agreement at all, IHS Jane's reports ... when the Polish MoD had previously repeatedly asked Airbus to increase its offset package. A new tender could be announced to supply the remaining 50 rotorcraft required by the Polish Armed Forces, a tender to which "Airbus could participate," according to Polish officials.
- ▶ **SWITZERLAND:** Marenco Swisshelicopter aims to begin in the coming weeks a series of flight tests to confirm the never exceed speed (Vne) of its SKYe SH09 light single. Chief executive Martin Stucki says "what we would like to achieve" is a Vne "in the region of" of 150-160kt (278-296km/h), while maximum cruise is targeted for 135kt "but it looks like we might reach 140kt or even more", he says. "135kt we think is maybe a little bit conservative, but that is the minimum we would like to achieve." Test flights have been continuing through the summer with its second prototype SH09, and a third aircraft, closer to the production standard, is to arrive in the early part of 2017.
- ▶ **ITALY:** Centaurium Aviation ordered a single AW109 GrandNew helicopter during Helitech. The aircraft is scheduled to enter service in spring 2017 and will be operated by Mountainflyers for heli taxi services from Bern Airport, Leonardo announced. Leonardo further announced an AW109 sale in Japan to an undisclosed customer, and the selection of the AW139 by Nippon TV and Chukyo TV for Electronic News Gathering missions. HeliService International GmbH signed for one AW169 to undertake offshore windfarm support missions in the North Sea. The aircraft is expected to be delivered next year. Helikorea

ordered 2 AW169s. Lastly, UK emergency medical services operator Specialist Aviation Services ordered an additional six AW609. Leonardo is ramping up AW169 production, with an announced performance upgrade (MTOW increased by 200kg).

- ▶ SPAIN: Bell Helicopter is reassembling a Model 429 full-flight simulator in Valencia, Spain and readying it for EASA recertification and use by next January, Aviation Today reports.
- ▶ FRANCE: Safran Helicopter Engines has launched a new 2,500 to 3,000 shaft-horsepower civil turboshaft program and is planning on having an airworthy engine ready by year-end, Vertical Mag reports. The manufacturer used its Tech 3000 demonstrator as a basis for the new engine design, and hopes the engine will find applications in the heavy helicopter segment. The new engine is set to compete with GE's CT7, and Safran is reportedly in talks with helicopter manufacturers to promote its design. Service entry could take place by the end of the decade.
- ▶ FRANCE: French President Francois Hollande has postponed a visit to Poland after the country backed off from a multibillion-euro purchase of French-made Caracal helicopters. Hollande had been expected in Warsaw on Thursday for French-Polish talks. The decision to postpone was made Friday, following the confirmation by Poland's defence minister that his country was breaking off offset negotiations with Airbus Helicopters, which produces the Caracal, Hollande's office told The Associated Press.
- ▶ FRANCE: On Oct 7, 2016 EASA took the decision to lift the temporary flight suspension of the Super Puma EC225 LP and AS332 L2 helicopters from Airbus Helicopters put in place following the crash of an EC225 LP helicopter in Norway. EASA will closely monitor the compliance action taken by the helicopter manufacturer and operators following the return to service along with operational information.

NAVAL SYSTEMS

- ▶ USA: Under the command of Capt. James (A. not T.) Kirk (sic) the future USS Zumwalt (DDG 1000) leaved the Naval Station Norfolk on Oct. 7 and completed a one-day transit to Baltimore, where it will be commissioned into active service this week-end.
- ▶ USA: The U.S. Navy awarded Lockheed Martin an initial \$149mn contract for full rate production of Surface Electronic Warfare Improvement Program (SEWIP) Block 2 systems with four additional option years to upgrade the fleet's electronic warfare capabilities so warfighters can respond to evolving threats.
- ▶ VENEZUELA: The Venezuelan Navy will equip its Avante 2000 Class Guaiqueri with Chinese weapons systems.
- ▶ BRAZIL: The South-Korean shipyard POSCO Daewoo has signed a \$1bn supply deal with the Brazilian Navy to provide a landing platform dock (LPD) and multifunctional patrol corvette, and modernize its shipyard, Arsenal de Marinha do Rio de Janeiro (AMRJ). The

agreement has been signed on Sept. 29. Initially, the Brazilian Navy denied this information.

- ▶ BRAZIL: The Brazilian Navy has started to assemble the first indigenous anti-ship missile, from the MA N-SUP program.
- ▶ BRAZIL: According to HIS Jane's, the Brazilian Navy Ships Projects Center's (CPN's) has completed the development of the 500-ton class NPa 500T-BR coastal patrol vessel. The concept will be refine in mid-2017, and then a contract to further developments would be explored. Meanwhile, the same source indicates that the Navy will participate as observer to the Italian Logistics Support Ship (LSS) program, which could lead to a full membership down the line.
- ▶ AUSTRALIA: The Department of Defence awarded Austal Limited the mid-life remediation program of the Armidale Class Patrol Boat (ACPB) fleet to the Royal Australian Navy.
- ▶ AUSTRALIA: The Federal Government has decided to separate State-owned ASC Shipyard into three businesses: shipbuilding, submarine sustainment and infrastructure companies. However, Canberra does not intend to privatize the company in the foreseeable future.
- ▶ AUSTRALIA: The Spanish Navy will deploy for 6 month the F-105 frigate Cristobal Colon, in order to train during 4 month Australian sailors which will be part of the crew of the Air Warfare Destroyers.
- ▶ SOUTH KOREA: Daewoo Shipbuilding will cut workforce by about 20% this year. More than 2500 jobs are planned to be cut in 2016.
- ▶ SOUTH KOREA: Daewoo Shipbuilding & Marine Engineering won a \$ 304 mn contract to build a FFX II frigate for the korean Navy.
- ▶ SINGAPORE: ST Marine launched on October 13th the 3rd Littoral Mission Vessel (LMV), the RSS Unity. The vessel has been commissioned during a ceremony held in ST Marine's Benoi Yard.
- ▶ GREECE: The Greek Foreign Ministry and the National Defense General Staff submitted to NATO a detailed complaint regarding the presence of Turkish Navy submarines in Greek territorial waters in September
- ▶ GERMANY: On October 10th, the German Navy commissioned its 6th Type 212A submarine, U-36. She's the latest of the new submarines ordered by the Navy.
- ▶ GERMANY: According to the MoD the contract for the future MKS 180 frigate will not be awarded before 2017's second part of the year.
- ▶ UK: BAE Systems has officially begun last week in Barrow the construction work on the future nuclear submarine, as part of a £40Bn Successor program.
- ▶ ITALY: Fincantieri's CEO, Giuseppe Bono called to the creation of an «*naval Airbus*» with DCNS during a conference about the European shipbuilding held in Rome on Sept. 27. According to him a partnership between the two shipyards can be the start of a big European industrial consortium.

- ▶ FRANCE: On October 11th, the Directorate General of Armaments (DGA) confirmed the award to Kership of a contract for 2 more Bâtiments de soutien et d'assistance hauturiers (BSAH) offshore support and rescue vessels for the French Navy.
- ▶ FRANCE: During Euronaval trade show to be held in Paris next week, DCNS will showcase a new digital and high technology naval solutions offer to address the new generation of operators in the coming years.

LAND & GROUND-BASED SYSTEMS

- ▶ USA: General Dynamics Land Systems Inc. was awarded a \$508mn contract for the upgrade of an estimated 215 Stryker flat bottom vehicles to the double-V hull engineering change proposal one configuration. The upgrades will restore mobility and ensure Stryker vehicles are able to accept future Army network components.
- ▶ USA: The U.S. departments of State and Commerce unveiled a pair of complementary rules Tuesday, amending export control regulations regarding which types of laser, thermal imaging and guidance equipment are considered defense items under the International Traffic in Arms Regulations.
- ▶ USA: AM General has received new HMMWV contracts and modifications to existing international and domestic contracts totaling \$151.05mn for vehicles and parts, the company announced. The contract and modifications will include automotive kits, production vehicles, spare parts and training for 433 HMMWVs to Afghanistan, 40 M1152 HMMWV ambulance units to Ukraine, and 237 additional ambulance vehicles to the US National Guard and reserves.
- ▶ BRAZIL: The Brazilian Army is soon scheduled to evaluate five prototypes of the 7.62x51 mm configuration of the IA2 assault rifle, built by state-owned IMBEL (Indústria de Material Bélico do Brasil), and additional prototypes could be requested for testing, a source told IHS Jane's.
- ▶ BRAZIL: EQUITRON Automação Eletrônico Mecânica and the Brazilian Army are scheduled to jointly conduct the first firing tests of an ENGESA EE-9 Cascavel 6x6 armored reconnaissance vehicle modernized to a new EE9U standard, a source told IHS Jane's.
- ▶ INDIA: Russia and India will likely sign tomorrow an agreement to deliver five Russian-made S-400 Triumf long range surface-to-air missiles to New Delhi, a Kremlin aide said. The deal is estimated around \$5.8bn (Rs 39,000)
- ▶ RUSSIA: KTZ concern has unveiled a brand-new tracked amphibious armored personnel carrier (APC) developed from the BMP-3 infantry fighting vehicle (IFV). Designated as the BT-3F, it has reportedly been developed to satisfy an order placed by Indonesia.
- ▶ RUSSIA: The production of Russia's latest MLRS system dubbed Tornado-S is set to begin in 2017, according to the Russian deputy

defense minister. This year the Tornado-S shall complete its government testing and evaluation program.

- ▶ RUSSIA: Local defense industry has developed the new 4x4 armored vehicle K4386 "Typhoon-VDV" especially designed for airborne troops. The design of the vehicle is made by the Company OJSC a subdivision of the Russian Company Kamaz.
- ▶ RUSSIA: The Defense Ministry is finalizing the tests of the Kornet-EM (AT-14 Spriggen) antitank guided missile (ATGM) system made by High-Precision Systems Holding Company, which subsidiary KBP, according to local newspaper.
- ▶ BELARUS: The Belarus state-owned company SPLLC OKB TSP has made the first public presentation of its new RLS-50 3D air surveillance mobile radar during the ADEX 2016 defense exhibition.
- ▶ TURKEY: Turkish sources said to Defense News that S-300MV Russian contender was "invited" to make a bid again for the acquisition of the country's first long-range air and anti-missile defense system after Turkish and Russian president's met recently. In the other hand, the undersecretary for defense industries refuted the news, saying "cooperation with Russia on this point is not on agenda".
- ▶ ESTONIA: Estonia's first 12 CV90 infantry fighting vehicles (IFVs) were delivered on 7 October, the Ministry of Defense has announced. The vehicles are the first of 44 CV9035NL IFVs that the country agreed to buy from the Netherlands in October 2014.
- ▶ GERMANY: The team of Lockheed Martin, MBDA Deutschland and Leonardo submitted its complete proposal to the German government to develop the Medium Extended Air Defense System (MEADS), hoping to be on contract in early 2017, according to Lockheed Martin's executive VP of the Missiles and Fire Control business. The program in Germany is called TLVS and will include integration of Germany's IRIS-T interceptors and the country's own battle management system.

SPACE

- ▶ USA: Boeing said on Oct. 11 that it has delayed the 1st manned flight of its CST-100 Starliner by another 6 months to mid-2018 – the 2nd time this year – due to supplier and recent technical issues that could have cost implications in its Q3 results.
- ▶ USA: Spaceflight Industries will launch multiple imaging satellites for Google-owned Terra Bella in 2017 as part of a "dedicated rideshare" Falcon 9 mission Spaceflight purchased from SpaceX in 2015, Space News reports. The mission is scheduled for late 2017, with over 20 payloads from various customers.
- ▶ USA: DigitalGlobe has reached a \$140mn deal to buy The Radiant Group, a service provider for the U.S. intelligence community, IHS Jane's reports. Meanwhile, the company announced that the launch of its WorldView-4 earth imaging satellite on ULA's Atlas V rocket is delayed to late October or early November.

- ▶ **USA:** Stratolaunch Systems will use its giant aircraft currently under development to launch Pegasus rockets from Orbital ATK as part of a "multi-year" partnership, the two companies announced Oct. 6. Under the agreement, Orbital ATK will provide multiple Pegasus XL rockets, currently launched by its own Lockheed L-1011 aircraft, to Stratolaunch Systems, Space.com reports. The companies declined to release details of agreement.
- ▶ **USA:** Lockheed Martin has been awarded a \$395mn contract to provide the 9th and 10th GPS III satellites.
- ▶ **USA:** Orbital ATK was awarded a contract with Eutelsat Communications to build the EUTELSAT 5 West B satellite, partnering with Airbus Defense & Space who will provide the communications payload of 35 active Ku-band channels. The satellite will serve video markets in Europe and North Africa for about 15 years
- ▶ **CHINA:** The China Academy of Space Technology (CAST) announced on Oct. 8, that it will launch XPNAV-1, the 1st x-ray pulsar navigation satellite, in November this year. If successful, the mission will undercut a NASA similar one by a number of months.
- ▶ **INDIA:** New Delhi and Paris have agreed to extend by four years their joint Megha-Tropiques climate-monitoring satellite mission launched 5 years ago, Air & Cosmos reports. CNES and ISRO have been partners for this program since 2001, with a first satellite launch in 2011, followed by a second launch in 2013. Both countries have also begun development of a future joint thermal infrared observation satellite.
- ▶ **AZERBAIJAN:** Turkey is to build new satellites for Azerbaijan once its current satellites in orbit (bought from Airbus Defense & Space) reach the end of their operational lifetimes, Space Watch Middle East reports
- ▶ **RUSSIA:** Russia's draft federal budget for 2017 envisages allocating about \$2.8bn on space activity, according to state media. Specifically, the draft budget allocates \$1.5bn for the implementation of the federal space program and \$335mn on the target program of the development of spaceports.



ADIT
(RCS : B 391 871 937)
62, rue Miromesnil
75008 Paris
Tel. : +33 (0)1 56 77 06 38
Fax : +33 (0)1 56 77 06 31



thebulletin@adit.fr

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