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# Newsletter

## Market Comment

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**Airbus Group Chief Executive Officer Fabrice Bregier** plans to overtake **Boeing** in its home aerospace market by opening a new factory in Alabama. The European planemaker currently accounts for only 20 percent of the U.S. market, but that number will rise to 40 percent once the U.S. major airlines receive all the single-aisle and widebody Airbuses they have on order. Mr. **Bregier** aims for more than 50 percent share in a market that was dominated by **Boeing** and **McDonnell Douglas** since the dawn of the jet age. **Airbus** opened its \$600 million **Mobile Aeroplex** single-aisle assembly plant in Brookley, Alabama, on September 14. It intends to replicate the success of the one at Tianjin, China. “Our first U.S. facility has been [three] years in the making,” and “it is the most significant, game-changing incident in U.S. aerospace in years,” he said. New production techniques and lower costs from non-unionized labor will help make it cheaper to build the planes in the U.S. than in Europe. At this moment, labor costs represent about 10 percent of the final assembly expense of building a jetliner. He said, “The aircraft which are made here are destined for sale in North America, the market is large. Long-term, we have the possibility of exporting,” perhaps to Latin America, but he added that exports are not currently planned.

The 53-acre (215,000-square meter) **Mobile Aeroplex** plant will deliver its first American-made A321ceo to **JetBlue** and the second to **American** in the first half of 2016. The two A321s were on the assembly line before the plant's official grand opening. The facility will make four A320 Family aircraft per month, by early 2018, and this will create 1,000 jobs. Starting in 2017, **Airbus** intends to assemble the new A320neo Family there as well. The new plant will help **Airbus** to boost single-aisle aircraft production to 50 per month, a rate which may require the company to build a second production line in Hamburg. The current backlog is 5,439 aircraft, or approximately 11 and a quarter years at the current production rate of 40 per month.

When asked if **Airbus** would design a new mid-sized narrowbody to rival **Boeing's** 757 replacement which is on the drawing boards, Mr. **Bregier** said the A321 “exists already. You don't need to reinvent it.” The 200- to 240-passenger A321s are becoming a mainstay of transcontinental flying by **American, Delta, JetBlue, United** and other airlines. **Airbus** produces four A319s and A320s a month in Tianjin, and the Chinese market is poised to become the largest in the world.

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**Airbus** spreads A320 Family production across four factories in China, France, Germany and now the U.S., which will give **Airbus** greater flexibility to ratchet output up, or down, while saving on land, energy and labor. If the company boosts single-aisle production above 60 jets a month, it will add a second production line in Hamburg and may double output at Brookley, if production goes smoothly over the next three years, Mr. **Bregier** said. The elegant, skylit factory on 116 acres is large enough to assemble eight A320 family jetliners a month, if **Airbus** needs that level of production. The **Mobile Aeroplex** currently employs around 260 directly-hired employees, most of who came from the local Mobile and the Gulf Coast region. The number of employees may jump to approximately 3,700 full-time jobs. The **International Association of Machinists and Aerospace Workers (IAM)** wants to organize the personnel at the new facility, and if that happens, the labor cost associated with aircraft assembly will rise. **Airbus** originally intended to build A320s at the plant, but the American market demanded the larger A321. Forty-nine of the first 50 aircraft manufactured at Brookley will be A321s. The first of them had a sticker which read, "This aircraft proudly made in the U.S.A. by the worldwide team from Airbus" affixed during the opening ceremony.

**Boeing Will Build an Aircraft Completion Plant in China**, if the cooperation agreement with **Commercial Aircraft Corporation of China (COMAC)** is implemented. This would be **Boeing's** first factory outside the United States, and the company intends to gain a foothold in the growing Chinese market. In its recent forecast, **Boeing** bumped the number of aircraft needed in China by 5 percent and now predicts that China will soon be the world's largest market and will need 6,330 planes worth \$1 trillion over the next 20 years. It does not want to cede that market to **Airbus** which currently assembles single-aisle airliners in Tianjin and which plans a widebody completion center nearby. An aircraft completion facility is where the interiors and some systems are usually installed, and where the planes are painted in the customer's livery. Then the final flight trials are finished before the aircraft is delivered to the customer. All the 737s finished in China will be delivered to Chinese customers. The agreement with **COMAC** was nearly simultaneous to a General Terms Agreement with **China Aviation Supplies Holding Company (CASC)** to buy 250 737s and 50 widebodies for Chinese lessors and airlines which were announced in mid-September. The commitment was valued at approximately \$38 billion at list prices. The order was split three ways. **CASC** will buy 190 737s and the 50 widebodies. **ICBC**

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**Financial Leasing** said it will buy 30 737-800s, worth \$2.88 billion at list prices, and **China Development Bank (CDB) Leasing** will acquire the other 30 737s (model unspecified). **Boeing** CEO **Dennis Muilenburg** said the company's plan to move 737 work to China would not cause related jobs to be lost in the United States. **Jon Holden**, President of the **International Association of Machinists (IAM) District 751** met company representatives and the union pledged to fight for jobs which could be lost to the factory in China. **Boeing** said the China plant deal would help the company win new aircraft orders. Mr. **Holden** said, "It's a tough pill to swallow to see our jobs being used as bargaining chips to win orders when we gave up so much for supposed job security. This is not simply about China. The company is creating capacity and capability outside the Puget Sound region. Those are our jobs." The **IAM** represents about 35,000 **Boeing** workers. "We'll do everything we can legally and legislatively to protect our jobs," Mr. **Holden** pledged. Last year, **Boeing** won \$8.7 billion in local tax incentives for locating work in Washington State, and the **IAM** approved a contract extension that ended their pension contributions. The workers plan to hold **Boeing** to its commitments to keep work in the Seattle area. Moving some tasks to China could free 737 production capacity in the U.S. during the proposed rate increase to 60 planes a month. All 737s are currently built in Renton, Washington. **Boeing's** press release stated, "The joint venture facility will significantly expand **Boeing's** collaboration with China's aviation industry while also enabling future production rate increases at **Boeing's** 737 final assembly factory in Renton, Washington. This China-based facility will not reduce 737 Program employment in Washington State."

Both **Airbus** and **Boeing** see that aircraft production is now completely international, but believe that if they want to sell more aircraft, they have to label them "Made in the USA" and "Made in China" respectively. Both companies have "off-shored" parts production since the 1970s when they started to offer "offsets" to foreign governments in order to influence their flag carrier's purchasing decisions. It does not help that the U.S. **Congress** has not voted to extend the charter of the national **Export-Import Bank**. Several U.S. aerospace manufacturers have threatened to move production to Europe to take advantage of the **European Union's** export financing.

## Airbus Orders

**Airbus** Sold 346 Single-Aisle and Widebody Aircraft in August, and delivered 44 aircraft to operators and customers, including 32 A320 Family, 10 A330 and two A380 aircraft. **IndiGo** ordered 250 A320neo (new engine option) jetliners, which raised the Indian domestic airline's total A320ceo and neo Family aircraft to 530. An unnamed customer ordered 32 A320neos and eight A320ceos, while **British Airways** and **Vueling** ordered 10 A320neos each, as part of the **International Airlines Group (IAG)** commitment announced in early August. An undisclosed customer signed to buy three ACJ320neo corporate jet aircraft. These contracts brought firm A320 Family orders to more than 12,000 aircraft, and the A320 Family backlog to more than 5,400. Total

**Airbus** received **EASA (European Aviation Safety Agency)** certification for the new 242 ton Maximum Take-Off Weight (MTOW) A330-200. The larger 242T A330-300 version was certified in April 2015. Certification from the U.S. **FAA** will follow. The four extra ton take-off weight increases the A330-200s range by up to 350 nautical miles/650 kilometers, allowing the airplanes to fly up to 7,250 nautical miles/ 13,400 kilometers. Aerodynamic refinements and engine enhancements will lower fuel consumption by up to two percent. The 242 ton A330-300 variant was launched in 2012 and entered service this summer.

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orders for the A320neo product line increased to 4,193, and **Airbus'** backlog of almost 6,700 aircraft was noted to be a new industry-record.

**Airbus** booked 33 widebodies during the month including 15 A330-300s that were ordered by an undisclosed customer. **Iberia** booked eight A350-900s and three A330-200s as part of the **IAG** order. Completing the month's widebody business was an unnamed customer's acquisition of three A330-300s and two A330-200s, along with another undisclosed customer's order for two A330-300s. As of August 31, the new purchases brought **Airbus'** gross orders to 754 aircraft and net orders to 708 when cancellations are taken into account. **Airbus** completed August with an industry record backlog of 6,697 aircraft, corresponding to 10 years of production at current rates. So far this year, **Airbus** delivered 397 airplanes to more than 70 customers, including 315 A320 Family, 61 A330, 17 A380 and four A350 aircraft.

**IndiGo Airlines**, India's largest domestic airline by market share, ordered 250 A320neo aircraft. The contract firmed up a Memorandum of Understanding (MOU) signed in October, 2014, and the order was list priced at \$26 billion (\$104 million each). **IndiGo** ordered its first 100 A320s in 2005 and they have been delivered. In 2011, the

low-cost carrier became a launch customer for the new engine option A320 Family with its purchase of 180 A320neos. The latest deal increased the fleet to 530 **Airbus** A320s. **IndiGo** quadrupled its profit to a record 13.04 billion rupees (\$196 million) in the fiscal year ending in March. The airline intends to launch a \$400 million initial public offering to cash in on the country's aviation boom. The low-cost carrier now flies one in every three air passengers within India and it is profitable by keeping its costs

### Airbus Orders, Deliveries and Backlog August 2015

| AUG<br>ORD        | AUG<br>DEL | AUG<br>CANX | TOTAL<br>ORD     | TOTAL<br>DEL | BACK<br>LOG |
|-------------------|------------|-------------|------------------|--------------|-------------|
| <b>A318</b>       |            |             |                  |              |             |
| -0-               | -0-        | -0-         | 80               | 80           | -0-         |
| <b>A319</b>       |            |             |                  |              |             |
| -0-               | -0-        | -0-         | 1,477            | 1,450        | 27          |
| <b>A319neo</b>    |            |             |                  |              |             |
| -0-               | -0-        | -0-         | 49               | -0-          | 49          |
| <b>A320</b>       |            |             |                  |              |             |
| 8                 | 15         | -0-         | 4,776            | 4,027        | 749         |
| <b>A320neo</b>    |            |             |                  |              |             |
| 305               | -0-        | -0-         | 3,278            | -0-          | 3,278       |
| <b>A321</b>       |            |             |                  |              |             |
| -0-               | 17         | -0-         | 1,613            | 1,143        | 470         |
| <b>A321neo</b>    |            |             |                  |              |             |
| -0-               | -0-        | -3          | 866              | -0-          | 866         |
| <b>A330</b>       |            |             |                  |              |             |
| 25                | 10         | -2          | 1,403            | 1,215        | 188         |
| <b>A330neo</b>    |            |             |                  |              |             |
| -0-               | -0-        | -0-         | 145              | -0-          | 145         |
| <b>A350</b>       |            |             |                  |              |             |
| 8                 | -0-        | -0-         | 782              | 5            | 777         |
| <b>A380</b>       |            |             |                  |              |             |
| -0-               | 2          | -0-         | 317              | 169          | 148         |
| <b>This Month</b> |            |             | <b>This Year</b> |              | <b>BL</b>   |
| 346               | 44         | -5          | 708              | 397          | 6,697       |

**Airbus sold 15,979 aircraft and delivered 9,282 as of August 31, 2015. Forty-six orders were cancelled. Total orders, deliveries and backlog include cancellations and order changes.**

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lower than rivals and filling more seats. The drop in fuel prices helped boost **IndiGo's** profits from 3.17 billion rupees in fiscal 2014. Revenue also rose 25 percent to 143.2 billion rupees from the previous year. The airline currently operates 98 A320neos.

**International Airlines Group (IAG)** signed a firm order for eight A350-900s, three A330-200s, and 20 A320neos on August 6. **IAG** converted its existing options for A320, A330 and A350 aircraft into firm orders. The A350s and A330s will be delivered to **Iberia** to replace its aging A340s, and they will also be used to open new long-haul routes. Ten A320neos each were allocated to **British Airways** and **Vueling** for fleet replacement. The A320 and A350 options were reserved in 2013, and it firmed up three A330ceo options from a contract signed last year. With this latest order, **IAG** and its member airlines, **British Airways**, **Iberia** and **Vueling**, have ordered nearly 450 aircraft from **Airbus**, and operate every aircraft in **Airbus'** current product range except the A350, which is on order.

**RwandAir** signed a firm contract for one A330-200 and one larger A330-300 in September. With this order the flag carrier became the first East African customer to buy the long-haul airliners. This agreement firms up a commitment announced earlier this year. The aircraft will be delivered in the second half of 2016, and the airline will deploy its new flagship aircraft on medium and long-haul routes serving destinations in Europe, the Middle East and Asia. The A330-200 will have 20 business class, 21 premium and 203 economy class seats, and the A330-300 will feature 30 business class, 21 premium and 223 economy class seats. The aircraft will be equipped with **Rolls Royce** Trent 772B engines. To date the A330 Family has attracted more than 1,500 orders and approximately 1,200 A330s are flying worldwide with over 100 operators.

**Wizz Air**, the largest low cost carrier serving Eastern and Central Europe, firmed-up the commitment for 110 A321neo aircraft that was signed at the **Paris Air Show** in June. This was the largest single order for the A321neo, and the deal pushes firm NEO orders above 4,300 aircraft. This order includes the latest A321neo **Airbus Cabin Flex** configuration with 239 18-inch wide seats. Currently **Wizz Air**, Hungary, operates 63 A320 Family aircraft on more than 380 routes from 22 bases. To date, **Airbus** has sold more than 12,200 single-aisle CEO and NEO aircraft and delivered over 6,700 CEOs to more than 300 operators worldwide.

**Hainan Airlines** will be allocated 20 of the 45 A330s that **China Aviation Supplies (CASC)** ordered earlier this year. The orders were part of **Airbus'** plan to set up an A330 completion center in China.

**Gulf Air**, Bahrain, talked with **Airbus** about a possible order for up to 50 single-aisle and widebody jets. Bahrain's Minister of Information Affairs, **Isa Al Hammadi** said. "**Gulf Air** met **Airbus** and discussed the airline's future narrow and widebody fleet requirements – up to fifty aircraft. Discussion will be finalized by the end of the year and an announcement will be made during the **Bahrain International Airshow**" in January 2016. The flag carrier currently operates 16 A320-200s, six A321-200s, and six A330-200s to 43 cities in Africa, Asia, and Europe. The airline has ordered 16 A320neos, 16 **Boeing** 787-8s and 10 **Bombardier** CS100s. The first examples of these three types will be delivered in 2018.

**Airbus Started Assembly of the First A350-1000** less than one year after delivering the first A350-900. The major fuselage components were shipped to **Airbus** plants in Hamburg and Saint-Nazaire.

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**Premium Aerotec** delivered the forward fuselage section to Hamburg where it will be equipped before being flown to Saint-Nazaire on board the A300 **Beluga**, and it will be mated to the nose fuselage section which came from **Stelia Aerospace**. After the forward and nose fuselage sections are joined together to form the front fuselage, it will be flown by a **Beluga** to the **A350 XWB Final Assembly Line** in Toulouse. Work started on the first A350-1000 wings in August in Broughton, U.K., and final assembly of the aircraft will begin in Toulouse in early 2016, followed by the first flight in the second half of 2016. First deliveries are scheduled to start mid-2017, **Airbus** said. The manufacturer has sold 169 A350-1000s to nine customers. The A350-1000 comfortably seats 366 passengers in a typical three-class configuration and flies on routes up to 8,000 nautical miles. It will be powered by **Rolls-Royce** Trent XWB-97 engines.

**Metal for Airbus' First A330neo** was cut one year after the program was launched, at its production facilities in Toulouse and Nantes. Machining of the first engine pylon started during the summer at **Airbus'** facility in Saint-Eloi (Toulouse), while **Airbus'** plant in Nantes began production of the first A330neo center wing box. **Airbus** said the Rib 1 uses an innovative **Isogrid** design with 330 triangular pockets which enables the part to meet all our rigidity, strength and low-weight requirements. The all-new pylon is a key element in the A330neo's innovative design, attaching the latest generation, fuel-efficient Trent 7000 engines to the wings. Made out of light weight titanium, the A330neo pylon uses cutting-edge aerodynamics, materials and design technologies derived from the A350 XWB. The A330neo pylon will be fitted with a new A350 XWB-inspired fairing made from composite materials and titanium to ensure optimized aerodynamics, **Airbus** said. The first A330-800neo and the A330-900neo are to be delivered in the fourth quarter of 2017.

## Boeing Orders

**Boeing Sold One 767 to FedEx and 51 737s in August.** **SilkAir** bought six 737 MAXs, and an **Unidentified Customer** ordered two 737 MAXs. **Ruili Airlines**, China, ordered 30 737 MAX aircraft. The **Royal Australian Air Force** purchased four P-8A Poseidon maritime patrol bombers, and the **United States Navy** obtained nine more P-8As. As of August 31, **Boeing** had sold 505 new aircraft and lost 54 existing orders, including 28 737s, and 26 787s, for net orders of 451.

**FedEx Express** officially ordered its 100th new 767-300F freighter from **Boeing** in August. The type is list priced at \$199.3 million. The cargo carrier ordered 54 767Fs with **GE** CF6-80 engines in December 2011 and now has 46 aircraft – without specified engines on order for delivery from fiscal 2018 through fiscal 2023. It also has eight 777 freighters on backorder. The 767Fs will replace a number of older freighters, including **McDonnell Douglas** MD-10Fs and MD-11Fs, and **Airbus** A300F-600s and A310Fs, which will be retired in the coming years.

**Ruili Airlines**, China, ordered 30 more 737 MAX 8s in August. At the **Paris Airshow**, the Kunming-based, low-cost carrier announced its commitment to purchase 30 737 MAX aircraft with the financial support of **AVIC International Leasing**. **Ruili** intends to lease another 30 737 MAX from **Minsheng Financial Leasing**. The deals were valued at \$6 billion (\$100 million each) at current list prices. The 60 planes were to be delivered between 2021 and 2025. **Ruili** plans to increase its fleet from the current six 737s to 26 737s by 2020. It ordered three 737-700s, five 737-800s and six 737 MAX in December 2013, and launched services with an ex-**Air Berlin** 737-800 in January 2014. **Ruili** took delivery of one -700 each in November 2014 and April 2015. It also leases three more -700s and one -800. **Ruili** was the first private carrier approved by the **Civil Aviation Administration of China** after the regulator relaxed

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restrictions on new carriers in 2013. Its parent group, **Jingcheng**, is a privately-owned conglomerate founded in 1990.

**Enter Air**, a Polish charter airline, announced its order for four previously undisclosed 737s in August. The airline operates eight leased 737-400s and nine leased -800s. The airline ordered two 737 MAX 8s and two 737-800s in October 2014 and announced the purchase at the **Paris Air Show** in June, but **Boeing** did not list the airline as a customer until late August.

**U.K. Leisure Airline Jet2.com** finalized an order for 27 Next Generation 737-800s, worth approximately \$2.6 billion (\$96.3 million each) at list prices. The carrier said it chose the 737-800 rather than the re-engined MAX because it negotiated “significant discounts” from the sticker price. **Jet2.com** will take delivery of the first aircraft in September 2016 and will accept the last in April 2018. This was the airline’s first direct order with **Boeing** and it operates a fleet of 17 737-800s, 29 737-300s and a dozen 757-200s. The new aircraft will be used on routes to leisure destinations in the Mediterranean, the Canary Islands and to several European cities. The airline is a subsidiary of **Dart Group PLC**, and it started flying in 1993. **Jet2.com** now flies over 3 million customers each year through a combination of package holidays and flight only services to 55 destinations across 364 holiday resorts from seven Northern U.K. cities. It is based in **Leeds-Bradford Airport**.

### Boeing August 2015 Orders, Deliveries

| AUG<br>ORD        | AUG<br>DEL | AUG<br>CANX | TOTAL<br>ORD     | TOTAL<br>DEL | BACK<br>LOG |
|-------------------|------------|-------------|------------------|--------------|-------------|
| <b>737</b>        |            |             |                  |              |             |
| 13                | 38         | -8          | 10,074           | 8,674        | 1,400       |
| <b>737 MAX</b>    |            |             |                  |              |             |
| 38                | -0-        | -0-         | 2,869            | -0-          | 2,869       |
| <b>747</b>        |            |             |                  |              |             |
| -0-               | 2          | -0-         | 1,541            | 1,512        | 29          |
| <b>767</b>        |            |             |                  |              |             |
| 1                 | 1          | -0-         | 1,162            | 1,079        | 83          |
| <b>777</b>        |            |             |                  |              |             |
| -0-               | 9          | -0-         | 1,575            | 1,329        | 246         |
| <b>777X</b>       |            |             |                  |              |             |
| -0-               | -0-        | -0-         | 306              | -0-          | 306         |
| <b>787</b>        |            |             |                  |              |             |
| -0-               | 14         | -0-         | 1,095            | 318          | 777         |
| <b>This Month</b> |            |             | <b>This Year</b> |              | <b>BL</b>   |
| 52                | 64         | -8          | 451              | 503          | 5,710       |

**Boeing sold 26,152 aircraft and delivered 20,442 as of August 31, 2015**

**The Current Program includes sales and deliveries of 737s, 747s, 767s, 777s and 787s. Sales totals include 54 cancellations.**

**Boeing Sold Two 787s** to an unidentified customer in mid-September. Unidentified customers have purchased 36 787s in 2015. So far this year, **Boeing** sold 52 new 787s and lost 26 existing orders for a net total of 26.

**China Aviation Supplies Holding Company (CASC)** signed a General Terms Agreement related to the purchase of 250 737s and 50 widebodies, valued at approximately \$38 billion at list prices. Chinese

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airlines, will buy 190 737s and 50 widebody aircraft, and leasing companies, **ICBC** and **CDB Leasing**, will order 30 737s each. **ICBC Financial Leasing Co.** announced it was acquiring 30 737-800s. The deal was signed while Chinese President **Xi Jinping** visited Seattle. **CASC** is a state-owned subsidiary of **China Civil Aviation Administration**, and was established in October 2002. It provides aircraft operating leases, trading, sales and leasebacks, asset management and equipment engineering services. The orders will be posted on **Boeing's Orders & Deliveries** website after all contingencies are cleared.

**Cargolux** plans to buy five more 747-8F freighters, valued at \$1.9 billion (\$380 million each) at list prices. The aircraft would be operated by a joint venture between **Cargolux** and **Henan Civil Aviation Development & Investment (HNCA)** which owns its 35 percent of the Luxembourg-based cargo carrier. The new **Cargolux China** airline will fly from Zhengzhou, in north central China, starting in early 2017. **Cargolux** recently took delivery of the 13th of the 14 747-8 freighters it ordered. It already operates a hub at Zhengzhou, which is home to **Foxconn**, the producer of **Apple's** iPhone.

**Qantas Airways** announced that it will take delivery of eight **GE** GENx-1B-powered 787-9 Dreamliners in 2018 and 2019. The 787-9s will gradually replace five of its 11 747-400s and open up new opportunities for destinations around the world, the airline said. **Boeing** has not yet acknowledged the order. The 787-9s will feature around 250 seats, including business class, premium economy class and economy class. **Qantas** will retain 15 options with guaranteed delivery dates and it holds a further 30 purchase rights for 787-9 aircraft.

**Boeing Will Boost 767 Production by 25 Percent** in 2017 to fill a recent order for 50 767-300Fs from **FedEx**. The company currently makes 1.5 767s per month and it plans to build two per month in the first quarter of 2016. **Boeing** will lift the production rate to 2.5 a month in the fourth quarter of 2017. The 767 backlog of 79 commercial orders reaches into the mid-2020s, and **Boeing** expects to see a small increase in employees in 2017. **Boeing** also is ramping up output of 737s and 787s, but it needs to cut production of the 747, which has suffered from slow sales. **Boeing** may need to temporarily reduce the 777 build rate toward the end of the decade, as it switches to the 777X, but it has not revealed its plans.

**Russia and China May Jointly Develop a Widebody Aircraft** that would compete with **Airbus** and **Boeing** jetliners. The two parties plan to sign an accord by the end of this year. Russian Deputy Industry Minister **Andrey Boginsky** said his government was ready to fund the initial stage of the twin-aisle airplane project. Later, the two may collaborate to develop an engine for the plane. **United Aircraft Corp.**, Russia, and **Commercial Aircraft Corp. of China, (COMAC)** are discussing the work plan as they firm up a Memorandum of Understanding they signed in May 2014. It was estimated that the program would need up to \$20 billion to complete. **Boeing** forecast that the world's airlines will need as many as 8,830 widebodies in the next two decades and China alone will need 1,500 twin-aisle aircraft. Russian President **Vladimir Putin** wants closer relations and trade ties with China to offset the U.S. and European sanctions. To date, Russia-China trade slumped by 29 percent in the first half of 2015 to \$30.6 billion, due to the Chinese economic slowdown and a lower income from oil and commodity sales. Currently, **Airbus** and **Boeing** are the only companies to produce twin-aisle jets, and they are unlikely to let an upstart enter the field, while **United Aircraft** plans to market it's the new planes outside of China and Russia.

**Boeing Started Final Assembly** of the first 737 MAX 8 (SN 42554), in Renton, Washington. The first MAX fuselage from **Spirit Aerosystems**, Wichita, Kansas, arrived on August 21 and mechanics began installing flight systems and insulation blankets. Crews moved the fuselage to the wing-to-body join position, and the wings were joined to the body of the airplane. The wings feature **Boeing's** new Advanced Technology winglets, which were designed exclusively for the 737 MAX. The winglets will give customers up to 1.8 percent additional fuel-efficiency improvement over today's winglet designs. **Boeing** set up a new production line exclusively for the 737 MAX in the Renton factory. Once mechanics prove the production process, the team will extend MAX production to the other two final assembly lines in Renton. **Scott Campbell**, VP and General Manager of the 737 Program, said, "The opening of a brand new production line increases our flexibility and capacity, allowing the team to continue to meet our customers' need for the world's most reliable single-aisle airplanes, well into the future." The 737 MAX team is scheduled to roll out the first completed 737 MAX by December and that plane will fly in early 2016. Launch customer **Southwest Airlines** is scheduled to take its first delivery in the third quarter of 2017. **Boeing** has firm orders for 2,869 737 MAX Family from 58 customers worldwide.

**Boeing** estimates that the Asia Pacific region will need more commercial airline pilots and maintenance technicians than North America, Africa and Europe combined, over the next 20 years. The **2015 Boeing Pilot & Technician Outlook** said 226,000 new commercial airline pilots and 238,000 new technicians will be need by 2034. This will be approximately 40 percent of the global need. **Boeing** foresees that China will require 100,000 new pilots and 106,000 technicians; Southeast Asia will need 57,000 pilots and 60,000 technicians, while South Asia must train 40,000 pilots and 37,000 technicians. Australia, Japan, New Zealand and South Korea will add a total of 29,000 pilots and 35,000 technicians. The **Boeing Pilot & Technician Outlook** is closely tied to projections for new airplane deliveries around the globe. The demand for new commercial airplanes in the Asia Pacific region by 2034 is estimated to be 14,330 new airplanes, worth \$2.2 trillion.

**COMAC**, the state-owned aircraft maker signed a preliminary agreement with **ICBC Financial Leasing** which will lease 10 ARJ21 regional jets and 10 C919 single-aisles to **City Airways**, Thailand. The deal was signed at the **China 2015 Aviation Expo**, in Beijing. **ICBC** will lease three ARJ21s and three C919s from its earlier commitment for 45 C919s and 30 ARJ21s. The lessor will help **City Airways** with the necessary leasing and financing options for its purchase of another 14 aircraft. The leasing company wants to support the export of Chinese-made aircraft to Thailand and other Southeast Asian markets. **City Airways** was founded in 2011 and it currently operates scheduled domestic services from its bases in Bangkok and Phuket, with two leased ex-**Malaysian Boeing** 737-4H6s. **Logistic Air** is repossessing one -4H6 (SN 27191) only three months after the lease started. **Logistic Air** was the third lessor in a 2-year period to repossess an aircraft from **City Airways**; the others were **BCI** and **AAR**. The legal action leaves **City** with one -4H6 (SN 27087).

**The C919 Order Book** expanded to 514 and the ARJ21 program now stands are more than 300 orders. Most of them are from domestic companies. The 90-seat ARJ21 regional jet was designed to compete against **Bombardier** and **Embraer** aircraft. The narrow-body **COMAC** C919 is targeted at competing with single-aisle **Airbus** and **Boeing** jets.

## Regional Report

**Bombardier's CS100 Test Aircraft** performed more than 85 percent of the required certification tests during more than 2,250 flight test hours. The CSeries aircraft completed all noise performance testing and preliminary data confirms it is the quietest in-production commercial jet in its class. The manufacturer claimed the aircraft's noise performance and its outstanding short-field capability made it ideal for city-center operations. The first production CS100 aircraft will soon commence function and reliability testing, signaling the start of the final flight testing phase. For these tests, the aircraft will operate on a commercial airline type of schedule from key airports in North America, **Bombardier** said. **Rob Dewar**, Vice President, CSeries Aircraft Program, said, "We announced previously that the CSeries aircraft are exceeding their original targets for fuel burn, payload, range and airfield performance. Now we are delighted that the CS100 aircraft's noise performance tests have confirmed it as the quietest in-production commercial jet in its class." The CSeries aircraft can now fly up to 3,300 nautical miles (6,112 km), which is 350 NM (648 km) more than originally targeted. The CSeries is on track to achieve certification later this year and it will be delivered to the first operator **SWISS** in the first half of 2016. **Bombardier** has booked firm orders for 243 CSeries aircraft and commitments for 360 more. The CSeries is powered by **Pratt & Whitney** PurePower PW1500G engines.

**Bombardier Commercial Aircraft** announced today that Brazil's **National Civil Aviation Agency (ANAC)** awarded type certification to **Bombardier's** 86-seat Q400 aircraft. **Alex Glock**, **Bombardier's** Regional Vice President, Sales, Latin America & the Caribbean, Commercial Aircraft, said, "Expanding our commercial aircraft presence in the Latin American market is key to our global expansion strategy and obtaining the Q400 aircraft's type certification marks an important step in placing aircraft in the region." In July 2015, Canada and Brazil signed a Memorandum of Understanding (MOU) on civil aviation to promote and expand cooperation to the mutual benefit of both countries. This MOU will help bring together key Canadian and Brazilian public and private stakeholders to discuss collaboration and cooperation in areas such as airport development, air navigation, and safety, **Bombardier** said. It opened a Latin American Regional Sales and Marketing Office and parts services depot in São Paulo. The company forecast that 1,150 units in the 60- to 150-seat category will be delivered to Latin America and the Caribbean (including Mexico) through 2034. It expects that 450 aircraft will be in the 60- to 100-seat segment, while most of the remainder will be in the 100- to 150-seat segment.

**Chorus Aviation** will add five 78-seat Q400 turboprops and five 75-seat CRJ705 regional jets to its fleet in 2016 and in early 2017 respectively. The aircraft will be operated for **Jazz Aviation** until 2025, under the **Air Canada Express** brand, per **Jazz's** Capacity Purchase Agreement (CPA) with **Air Canada**. The transaction will add another \$2.0 million to the current \$109.0 million annual fixed fee paid to **Jazz** under the CPA. The larger gauged aircraft will reduce **Jazz's** unit cost and increase its market competitiveness. The five Q400s will be sourced by **Air Canada** and leased into the **Jazz** CPA operation, while the source of the CRJ705s has not been finalized. **Air Canada Express** already operates the only 15 CRJ705s that have been built so far.

**Ryukyu Air Commuter (RAC)**, Okinawa, is the unidentified airline that signed a firm purchase agreement for five Q400 combi turboprop airliners. The order was announced at **Farnborough Airshow** in July 2014, simultaneous to the launch of the Q400 cargo-combi program. **RAC** is a part of **the Japan Airlines Group**, and started operating Dash 8-100 aircraft in 1997. It now flies four Dash 8-100s and

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one Q300 aircraft. The five Q400 combis were list priced at approximately \$168 million (\$33.6 million each).

**Embraer Sold 18 E175 Regional Jets to SkyWest** in September. Delivery of the first aircraft is scheduled for 2016. The order will be included in the manufacturer's third-quarter backlog, and it was estimated to be worth \$800 million (\$44.45 million each), based on list prices. **SkyWest Airlines** will operate the aircraft for **United Airlines** under their existing **Capacity Purchase Agreement (CPA)**. The airline has now ordered 73 E175s to date. The E175s will be fitted with 12 First Class seats, 16 Economy Plus seats, and 48 Economy seats. The E175 has captured over 80 percent of U.S. airline orders in its class in the last two years.

**Embraer** released its **2015-2034 Market Outlook for the Chinese Market** at the **China 2015 Aviation Expo**. The company forecast that 1,020 new jet aircraft in the 70 to 130-seat segment will be delivered in China by 2034. **Embraer** sees worldwide deliveries of 6,350 jets, in the large regional jet class. The estimated list price value of these deliveries will reach \$300 billion. **Embraer** won an 80 percent share of the regional aviation market in China. President and CEO of **Embraer Commercial Aviation**, **Paulo Cesar Silva**, said, "The aviation industry in China will continue to be robust in the foreseeable future. We believe China's aviation industry will keep its momentum during the next 20 years and become the largest single-country market in the world." The company said the Chinese economy will remain strong, and the annual growth rate of 5.6 percent is expected. This will lead to a 7 percent annual growth for air travel in China over the next 20 years. The government is encouraging more regional airlines to launch new routes and improve local air transportation. China's current Five-Year Plan, calls for the construction of 70 new airports and feasibility studies for an additional 28. The **Civil Aviation Administration of China** is offering incentives of up to 1 billion yuan per year to encouraging the introduction of regional aircraft. Growth in second and third-tier cities and the central and western provinces will be especially strong. Regulation of new entrants has been relaxed, leading to a surge in new private airlines, which will exploit the opportunity to operate from small bases, promoting efficiency and profitability throughout the country, **Embraer** said.

**Embraer** said the **COMAC ARJ21** regional jet has not impacted its sales in China. **Embraer China** President **Guan Dongyuan** said the hundred plus seat E190 and E195 are in a different category than the locally built 78-to 90-seat jet. China imposes a 17 percent tax on the import of aircraft under 25 tons MTOW, which is why **Embraer** no longer sells the E170 and E175 in the country. The tax may insure that the smaller **Embraer** airplanes are no longer competitive with the ARJ21. Mr. **Guan** diplomatically said, "Even if they are in the same category, just like **Airbus** and **Boeing**, nobody can dominate and monopolize the market... How can one supplier feed the demand of more than 1,000 aircraft in the next 20 years? It's very hard." Further, **Embraer** will compete against the ARJ21 in terms of quality and the support it can provide customers. The manufacturer delivered 155 aircraft in China and 62 regional jets and seven executive jets are on firm order backlog. **Chengdu Airlines** plans take delivery of two ARJ21s in November.

**Mitsubishi Aircraft** announced the first flight of its MRJ Mitsubishi Regional Jet will happen between Monday October 26 and Friday October 30. The exact date will be announced the day before. The Japanese airframer conducted static strength tests which confirmed that its MRJ is structurally ready for a "safe first flight". The tests included wing-up bending and fuselage pressurization. According to Executive Chief Engineer **Nobuo Kishi**, the primary objective of the first flight will be to confirm the

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basic characteristics – ascent, descent, circling – of the jet. He said during the flight, movable parts of the aircraft such as its landing gear and flaps will be in a fixed position and the thrust reverser system will not be engaged. The first test aircraft, FTA1 (SN10001) was used for taxiing tests, and FTA2 (SN 10002) has been doing ground vibration tests. The program is using five flight test aircraft. **Mitsubishi** won firm orders for 223 MRJs, and holds options and purchase rights for another 184.

**Tuva Airlines** signed a Letter of Intent (LOI) with Russia's **State Transport Leasing Company (GTLK)** for the lease of ten **Sukhoi Superjet 100-95s**. The commitment was announced during the **MAKS Airshow 2015** at **Moscow Zhukovsky Airport**. The first jets will be handed over in 2016, and the last is scheduled to arrive in 2018. The Tuva Republic is sandwiched between Siberia and Mongolia. The state-backed carrier plans to use the SSJ100s to replace ageing Yak-40s. The state government also intends to upgrade its capital's airport at Kyzyl to handle A320- and 737-sized aircraft.

**Canada's Viking Air** and **Vityaz Avia**, the Moscow-based sales agent, signed a contract, in 2010, to build a Twin Otter Series 400 manufacturing facility in a special economic zone adjacent to local airframer, **Aviastar**. Recently, the Ulyanovsk administration director **Denis Baryshnikov** revoked its agreement to lease land for the production facility. He said, "Local demand [for Twin Otters] is not yet sufficient enough for the launch of serial production. Hopefully, this scheme will come to fruition as the economic situation improves." **Vityaz** would have benefited from substantial tax breaks granted by the government, and production was to start this year. **Viking** and **Vityaz** expected to assemble up to 24 Series 400s per year. They were to produce parts for the aircraft on the site as well. The two were prepared to invest \$15.5 million. **Bombardier** dropped plans to build the Dash 8-400 in Russia citing the country's economic slump.

## Order Changes and Cancellations

**Airbus Reported that Inception Aviation Holdings** dropped two A330-300 orders. They were apparently picked up by an undisclosed customer on August 20, and they may be intended for **Singapore Airlines**. **Syphax Airlines** cancelled its three A320neo orders. The order numbers in the "undisclosed" category changed in August. The A319ceo orders rose from eight in July to 13 in August as five orders were switched from the A320ceo. The number of A320ceo orders rose by three to 151 from 148, and A320neo orders increased by 32 to 410 from the previous month's 378, after an undisclosed customer bought eight A320ceos and 32 A320neos on August 14. **Airbus CEO Fabrice Bregier** mentioned that **Airbus** will deliver 28 or 29 A380s, slightly less than the planned 30 deliveries. The shortfall may be due to **Transaero's** deferral of the four A380s it has on order.

**Boeing Cancellations in August:** An un-named customer dropped eight 737 orders, raising the 737 cancellation total to 28 as of August 31.

**Nippon Cargo Airlines (NCA)** dropped four orders for 747-8F freighters (SN 37395, 37396, 37397 & 37398) valued at \$1.5 billion, on September 1. This left the planemaker with zero net orders for the jumbo jet this year. **Nippon Cargo** still has two of the jets (SN 36142 & 36143) on order and has taken delivery of eight 747-8F freighters since July 2012. The Japan-based all-cargo carrier was a launch customer for the 747-8F, and ordered eight in November 2005. It placed a follow-on order for six more in March 2007. Due to the recession, **NCA** deferred delivery of several of the freighters over the years,

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so the order cancellation was not a surprise. **Nippon Cargo** is based at Tokyo's **Narita International Airport**, and it flies five 747-400Fs as well as the eight 747-8Fs.

**Boeing** has completed four 747-8Fs (SN 37654, 60117, 60118 & 60119) that are parked at Everett and Marana. The manufacturer has only nine 747-8Fs and 16 747-8I passenger planes on firm order. **Boeing** will cut production of the 747 to one plane per month in March 2016, amid waning demand for four-engine aircraft due to a stagnant air cargo market due in part to China's economic turmoil. As of September, **Boeing** had just 25 unfilled orders for the 747-8. The freighter version is list priced at \$379.1 million. **Boeing** could face an accounting charge of \$1 billion or more on the 747-8 program, if the sales slump continues. It was unclear how long **Boeing** will go without an order before triggering such an action. The 747 does have some sales prospects. **Volga-Dnepr Group**, the parent of **AirBridgeCargo Airlines**, signed a Memorandum of Understanding for 20 747-8Fs. **Boeing** also won a commitment from the **U.S. Air Force** to buy an unspecified number of 747s for the **Air Force One** presidential fleet. Neither commitment has been converted to a firm order. **Boeing** sees a need for at least 143 older freighters to be replaced, and forecast a demand for 540 very large aircraft (VLA) over the next 20 years. **Airbus** sees a market for 1,551 VLAs.

**AirAsia X Bhd.** is negotiating to delay more A330-300s due for delivery in the next two years. The low-cost long haul airline received only three of the eight A330s that were scheduled for 2015 delivery. A fourth A330-343 (SN 1619) is due in October. **AirAsia X** wants to reschedule the last four airplanes due in 2015 and nine due in 2016 and 2017. **AirAsia X** and its sister companies in Indonesia and Thailand currently operate 26 A330s. The carrier wants to convert part of its 12 A330ceo orders to the newer A330neo model, of which it has 55 in backlog. **AirAsia X** has been unprofitable for the past seven quarters due to a price war with state-owned **Malaysia Airlines**. Budget carriers in Southeast Asia have also delayed taking delivery of new planes in the face of losses and route contraction. **AirAsia X's** net losses increased to 132.9 million ringgit (\$31 million) in the second quarter from a 128.8 million ringgit loss the previous year. The company is now focusing on boosting passenger yields having dropped its previous plan to fill seats at all costs. One quarter of **AirAsia X's** 26 routes are still unprofitable, which are mainly to South Korea, where travel demand contracted due to the outbreak of **Middle East Respiratory Syndrome**. The airline expects its load factor to rebound to 80 percent in the third quarter from a low 68.4 percent in the second quarter.

## Leasing & Finance

**Air Lease Corporation (ALC)** signed long term lease agreements for 14 jet aircraft with **Oman Air**. The airline will acquire three new **Boeing** 737-800s, seven new 737 MAX 8s, and one new 787-9; all will come from **ALC's** order book with **Boeing**. The deal includes 737-71M (SN 33103) and two 737-81Ms (SN 33104 & 34242) that were purchased from **Oman Air** and leased back this spring and summer. The new deliveries are scheduled to start soon and continue through to 2019. The airline already operates 23 next generation 737s and has one 737-900ER and six 787-8s on order. The new aircraft will enable **Oman Air** to offer even more destinations within its global network. Over recent months, new services have been launched to Manila, Jakarta, Goa and Singapore. Further new routes are expected to include Bangladesh and China.

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**Malaysia Airlines** will long-term lease four **Airbus A350-900s** from **Air Lease Corporation (ALC)**. The deal gives **Malaysian** the option to lease two additional A350-900s and two A330-900neos. The A350-900s will be powered by two **Rolls Royce** Trent XWB-84 engines, and will be delivered between the fourth quarter of 2017 and the second quarter of 2018. The widebodies will come from **ALC's** order book with **Airbus**. The airline was unprofitable for years, before it was delisted from the Kuala Lumpur stock exchange in December 2014 and was reorganized by state-owned **Khazanah**, its parent company. The flag carrier operates four A330-200Fs 15 A330-300s, six A380s, 57 737-800s, two 747-400(F)s and 13 777-200ERs.

**FLY Leasing Limited** acquired a new **Boeing 777F** freighter in a sale and lease-back transaction with a leading flag carrier (possibly **Air China**) on a 12-year lease. **FLY** CEO **Colm Barrington** said,

“The 777-200F is on lease to a strong credit in a growing market, an airline with which **FLY** has had a successful multi-year relationship.” The lessor also purchased a new 737-800 and leased it back to an un-named airline for 12 years. **FLY** is adding attractively-priced new aircraft to its fleet, and they intend to invest \$750 million in aircraft this year.

**FLY Leasing** contracted to sell 12 older aircraft from its portfolio for \$240 million, which should produce a \$12 million pre-tax gain. The deal will cause \$3 million in non-cash charges relating to debt modification and extinguishment costs. The aircraft will be handed over to the new owner by the end of the year. The gain and the associated expenses will be recognized at the time of each transfer. **FLY** is selling older aircraft and reinvesting the capital into younger aircraft. It has sold or contracted to sell 57 aircraft with an average age of 13 years. The 12 aircraft have an average age of 13 years and the sales will produce approximately \$80 million in cash. This is added to the \$35 million gain and \$425 million in cash from the sale of 33 aircraft announced in June. **FLY** also sold a 22-year-old 747-400 in September.

**China Development Bank's CDB Leasing** will lease six new A321neos to **Wizz Air**. The first will be delivered in November, and the second unit will arrive in December. These aircraft are part of the Central European low-cost carrier's existing order for 27 A321neos with **Airbus**. Six of the airline's fleet of 63 A320s were financed by **CDB Leasing** upon delivery in 2014 and 2015.

**GE Capital Aviation Services (GECAS)** will purchase nine new **Airbus A321-211s** from **Frontier Airlines** and lease them back. The first new aircraft is scheduled for delivery in October 2015 and the remaining aircraft are due in 2015 and 2016. All nine aircraft will be powered by CFM56-5B3 engines and are part of **Frontier's** existing order book with **Airbus**. The new A321s will replace some of the 15 A319s that **Frontier** leases from **GECAS**. The lessor shortened the length of the A319 leases to facilitate its fleet transition.

## Engines

**Rolls-Royce** was chosen as the engine supplier for the out-sized **Beluga XL** transporter, which will be powered by two **Rolls-Royce** Trent 700 engines. The **Beluga XL** will be developed from the A330ceo. The older **Belugas** were based on the A300 airframe, and were fitted with **General Electric** CF6-80 powerplants. **Rolls-Royce** is the market leader for the A330 and will be the exclusive supplier of engines on the new A330neo. The **Beluga XL** will supplement, and eventually replace, the current five-strong transporter fleet, which is used by **Airbus** to move large aircraft sections between production

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facilities. The \$700 million agreement with **Airbus** includes long-term maintenance support. **Airbus** is aiming to put the **XL** into service in 2019, and use them to help them ramp-up of A350 production.

**Airbus' Second CFM LEAP-Powered A320neo** flew from Hamburg to Toulouse on September 29. This occurred four months after the first LEAP-1A aircraft flew, and the A320-251N (D-AVVB, SN 6642) is the fourth A320neo to join the test fleet — two -251Ns with LEAP-1A engines and two -271Ns with the rival **Pratt & Whitney** PW1100G. **Airbus** suspended flight testing of the PW1100G-powered A320-271Ns until recently, while it resolved an engine component problem. **Airbus** intends to deliver the first A320neo by the end of this year. It flew the first A320-271N (SN 6720) to be delivered to Indian budget operator **IndiGo** on September 25. **Airbus** said, "The objective is to perform flights with a production aircraft in an airline-like environment, to test reliability while optimizing resources." Launch customer, **Qatar Airways** will receive the first commercial production A320neo (SN 6772) in December.

**Rolls-Royce** delivered the first **Flying Test Bed (FTB)** Trent XWB-97 engine to **Airbus** in Toulouse. It will be installed onto the A380 flying test bed aircraft. The Trent XWB-97 has completed many key tests including x-ray and icing testing since its first run on July 11, 2014, the. Five out of eight development engines have completed 838 hours equivalent to 1,390 cycles. **Rolls-Royce** has high confidence that the engine will achieve all of the targets. It said the first 150 hour endurance test was completed in June included 16 hours at maximum take-off thrust, another development engine is at the **Stennis** facility in Mississippi, undergoing fan flutter and cross-wind tests. Some of the Trent XWB-97's parts are made through additive layer manufacturing (ALM), so-called 3D printing.

**Juneyao Airlines** signed a Memorandum of Understanding with **International Aero Engines** to buy V2500 engines to power 12 **Airbus** A321neo aircraft it ordered. Deliveries are scheduled to begin in November 2015. The deal also includes a 15-year **V-Services Fleet Hour Agreement (FHA)**.

**Sichuan Airlines** chose **Pratt & Whitney's** PurePower PW1100G-JM engines to propel its fleet of 24 A320neo aircraft that are on order, making **Sichuan** the first Chinese customer for the PW1100G-JM engines. The fleet will consist of 15 purchased and nine leased A320neos. Deliveries are scheduled to begin in 2017. The PurePower engine family has completed more than 22,000 hours and 38,000 cycles of testing.

**Rolls-Royce** delivered its 2,000th AE 2100 engine. It was installed onto a **Lockheed Martin** C-130J for the **U.S. Air Force**. AE 2100 engines have accumulated more than 8 million engine flight hours, primarily on C-130J aircraft. The AE 2100 also powers the **Alenia** C-27J aircraft, the Japanese **ShinMaywa** US-2 sea rescue aircraft and Saab 2000 civil turboprop. The AE 2100 is part of the AE family of engines, which includes the AE 1107C engine powering V-22 aircraft, and the AE 3007 line, which powers Global Hawk, Triton, and a large fleet of corporate and regional aircraft. The AE engine line overall has topped 65 million engine flight hours, **Rolls-Royce** said.

## Airline News

**Aeroflot, Russia's State-Owned Flag Airline**, agreed to take over its largest competitor **Transaero Airlines**. A government commission led by First Deputy Prime Minister **Igor Shuvalov**, approved the consolidation, and the board of state-controlled **Aeroflot** will vote to buy 75 percent plus 1 share of

**Transaero**, for the whopping sum of one rouble. **Transaero's** majority owners are the CEO **Olga Pleshakova** and Chairman **Alexander Pleshakov**, who each own about 18 percent of the carrier. The combined airline will carry 56 percent of Russia's domestic traffic. **Transaero** blamed its woes on the devaluation of the rouble for a drop in international traffic and for a leap in the cost of its foreign-denominated loans. The company borrowed heavily from 2010 to 2013 to expand its fleet. In a statement, the company said, "In an economic situation that has been fairly described as a perfect storm, **Transaero Airlines** is experiencing difficulties." Its debt at the end of last year stood at nearly \$1 billion (64.8 billion roubles) and about one third of that was in dollars or euros. Its traffic dropped 2.3 percent to 17 million boardings in the first quarter, the airline's first decline since 2009. Last year, **Transaero** recorded \$251 million in foreign exchange losses and a net loss of \$383 million. Early this year, **Transaero** got a 9 billion rouble (\$133 million) government guarantee, but it squandered the opportunity by lowering ticket prices to some popular destinations. **Aeroflot** must now take on **Transaero's** huge debts, aging fleet, outstanding orders and the liability of millions of presold tickets. The deal also rescues the **Pleshakov** family and other shareholders by leaving them 25 percent of the stock. **Aeroflot** lost \$409 million last year, and can not afford it. The schedules will be harmonized and fleets will eventually be rationalized. **Aeroflot's** near monopoly could mean higher prices for travelers and lower traffic, and/or deeper debt that the Russian taxpayers will have to support. **Aeroflot** may revert to its Soviet-era reputation for shoddy service, surly cabin staff and government interference.

**International Air Transport Association (IATA) Posts September 2015 Jet Fuel Prices.** The association updates the world's average jet fuel prices each week. On September 18, the world's average price of fuel was \$1.430 per gallon, slightly higher than the August 2015 price of \$1.382. Fuel was also 46.9 percent less than it was in September, 2014. The price of fuel is affected by location. It was only \$1.375 in the Middle East region and was \$1.416 per gallon in Latin America. In Asia, fuel cost \$1.421 per gallon. Fuel rose to \$1.437 in Europe, and to \$1.442 in North America, which was the highest price region. Since last year, fuel costs in those regions dropped by 46.6 and 46.2 percent respectively. **IATA** estimated that the global airline industry's aggregate fuel bill will total \$70.3 billion in 2015, a savings of \$85.2 billion from the previous year.

**Kenya Airways** may close two new loans necessary to finance delivery of two **Boeing** 787-8s (SN 36045 & 36046) that were built in May and June and are now in storage in Everett, Washington. The **Kenya Government** provided \$40 million to the airline and the **African Export-Import Bank** had approved a \$200 million bridging loan. **Kenya Airways** reported losses in the past three years due to a slump in tourism after several terrorist attacks in the country. Last month, **Kenya** reported a record \$293 million loss for the quarter that ended March 31. Government finance minister **Henry Rotich** said the airline might require a \$600 million bailout to keep operating. **Kenya** is trying to sell its four 777-2U8ERs to help meet its financial obligations. The airline operates 27 **Boeing** and 17 **Embraer** airplanes. The flag carrier has received \$842 million in loan guarantees from the U.S. **Export-Import Bank** which helped pay for its first seven 787-8s that were delivered from March 2014 to April 2015. The **EX-IM Bank** suspended its loan program on June 30 because the U.S. **Congress** failed to reauthorize its charter, but it's not clear if the bank's closure had any effect on **Kenya's** ability to finance new planes. The **Export-Import Bank of China** offered a loan to help the airline to reorganize its financing.

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**Qantas Group** and **Japan Airlines** will inject another ¥5 billion (\$41.07 million) each into their **Jetstar Japan** joint venture, two months after they contributed ¥4 billion (\$32.86 million). Each carrier currently holds 47.1 percent in the Japanese low-cost carrier with the remaining 2.9 percent split between **Mitsubishi Corporation** and **Century Tokyo Leasing Corporation**. **Qantas** CEO **Alan Joyce** said he expected the loss-making airline to turn profitable during the 2016-17 financial year. **Jetstar Japan** operates 20 A320-200s on domestic flights and to Hong Kong.

## Bankruptcy of the Month

**Jet Airways Will Merge with JetLite.** The board of directors decided to merge the two carriers financially, but **JetLite** will continue to operate under its own Air Operators Permit (AOP). The board wants to return to long-term profitability by 2017, and the merger should allow **Jet** to better use its available aircraft capacity while streamlining administrative and purchasing costs. **JetLite** was formed when **Jet Airways** bought **Air Sahara** in 2007 for \$340 million, and it operated as a budget carrier until December 2014. Then the subsidiary was transformed a full service airline. **JetLite** currently flies three 737-700s and five 737-800s on flights to twenty-seven cities across India.

**Syphax Airlines**, Tunisia, grounded its two A319s in July and cancelled its three A320neo orders in August. The airline said it was experiencing “financial difficulties” and services would be temporarily suspended “until solutions are found.” Usually that means eminent death, but **Syphax** secured 20 million dinars (\$10.17 million) in recapitalization funding in early September. CEO **Hatem Chabchoub** told the local press that flights would start again mid-month to Istanbul, Turkey and Jeddah, Saudi Arabia. The airline’s founder, **Mohamed Frikha**, kicked in 27 million dinars (\$13.87 million) from his own pocket. He said the funds would be used to pay staff salaries and to reimburse travelers whose flights were cancelled. Mr. **Frikha** blamed his airline’s troubles on the terrorist raid in Tunisia and the Libyan political crisis next door.

**CanJet Airlines** suspended flight operations in September. President **Steven Rowe** said, “The reason that we suspended flight operations today was really two things; basically operating one aircraft is not a very profitable exercise as you could imagine. And also we as a company — we haven’t had the ability to identify a market opportunity that we can move forward with confidence in obtaining and being successful.” Earlier, the airline announced that its 737-800 wet-lease agreement with **Air Transit** was downgraded to a dry-lease which made 13 pilots and 34 flight attendants redundant. The subsidiary of **IMP Group International Inc.**, Halifax, Canada, was founded in 1999, and it operated scheduled operations before switching to the charter market in 2006. Three years later, **CanJet** signed a 5-year capacity-purchase agreement with **Air Transat** where it flew its 737s on U.S. and Caribbean operations. That contract expired last year, and the airline launched **CanJet Vacations**, but that was closed in May 2015, due to the Canadian economic slump. **CanJet** will continue to explore other potential business opportunities with its sole 737-8AS/W (SN 29933). Over the years, the airline operated seven 737-200 Advs, one -300, nine -500s and 24 7-37-800s on short-term leases.

**SkyGreece Airlines**, Greece, filed for bankruptcy protection in Canada, two weeks after it “temporarily suspended operations” on August 27. The airline said, “It was determined by the company’s board of directors that as a result of the company’s current financial situation, seeking protection under the Bankruptcy and Insolvency Act (BIA) (Canada) would be in the best interests of the company and all of its stakeholders.” **SkyGreece** said the Greek economic crisis caused a dramatic reduction in ticket sales,

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which impacted its operations. The final straw was a technical issue with its sole 767-31AER (SN 26470) which required the airline to charter another airplane at vast additional expense, it said. Hundreds of passengers were abandoned in Toronto, Croatia and Greece, when it ceased operations, but the airline said it is trying to make amends. The company said it was working towards rebuilding and resuming services.

## Technical

**Comlux America, Comlux Group's** Indianapolis, Indiana-based completion and services center, will install a VIP interior in the first Sukhoi Business Jet. The plane (SN 95060) was ferried from **SuperJet International's** headquarters in Venice, Italy, to Indianapolis in August. It is registered to **Comlux Malta**, and is one of six long-range Superjet 100s that were ordered by **UTair Express**, Russia. The struggling carrier cancelled the order earlier this year. **Comlux KZ**, Almaty, Kazakhstan, will use the VIP airliner for charter services following the installation of the VIP interior. **Comlux Switzerland**, signed a \$200 million agreement with **SuperJet International** in 2011, covering an order for two long-range SSJ 100s, plus an option for two more. The first aircraft should be completed in seven or eight months.

**Korongo Airlines**, Congo, ceased operations in September, due to prolonged difficulties in gaining traction. The shareholders and management collectively decided to discontinue flight operations and to dissolve the company. The carrier was grounded in late August, after its sole operational aircraft, 737-3M8 (SN 25070) was damaged at Mbuji Mayi, Congo, and put out of revenue service. **Korongo** was founded in 2012 as a joint-venture between **Brussels Airlines**, several Belgian companies and 24 percent was held by local Congolese businessmen. It leased Belgian registered and maintained aircraft from **Brussels Airlines**. In spite of strong load factors, the airline was not able to expand enough to become viable. The airline talked to prospective new investors but it folded before a deal could be done. Its prospects withered with the launch of **Congo Airways**, the Democratic Republic of Congo government's new national carrier, which is also in trouble.

**Greenpoint Technologies**, a **Boeing Business Jet** specialist, will complete its first 777-200LR. The plane will be delivered to **Greenpoint's** widebody hangar in Moses Lake, Washington, early next year. **Zodiac Aerospace** said that it has already started the interior design work. The company was reluctant to give details as to whether the aircraft will be new or second-hand, and who contracted for the work. **Greenpoint** did say that the 777 joined "a long list of other **Boeing** models modified and completed, such as multiple 747s, 787s, 757s and over 20 737 BBJs." **Boeing** shows that two 777-200LRs were delivered to VIP customers and **Ceiba Intercontinental** received one -200LR. **Ceiba's** -2FBLR (SN 60116) and **Aviation Link Company's** -2KQLR (SN 40753) are in storage in Basil, Switzerland, awaiting VIP cabin installation by **Jet Aviation**. No new -200LRs are on order, according to the airframer. **Air India** has offered some of its eight 777-237LRs for sale, of which, five are leased to **Etihad Airways**, and one -237LR (SN 36306) is in storage.

**Embraer May Close its Harbin Assembly Line** if it cannot reach a resolution with Chinese authorities on taxes imposed on imported components. **Embraer China** president **Guan Dongyuan** said the manufacturer has to pay a 3 percent import duty on components that were imported into China and then a 17 percent value-added tax is added to the sale price of completed aircraft. "So there's a 20 percent cost associated to tax on our components that makes our production costs here higher than our Brazilian line. This is something very strange. How can you justify local production here in China then? It's a big challenge," he said. **Harbin Embraer Aircraft Industry** is a joint-venture between **Embraer** and

**Aviation Industry Corp. of China (AVIC)**, which now produces Legacy 650 business jets. The plant was set up to assemble the 50-seat ERJ-145 regional jet in 2003, and import taxes were waved. After delivering 41 ERJ-145s, **Embraer** switched to producing the Legacy 650, which is based on the ERJ-135. The company wanted to build the 100-seat E190 regional jet in China after it ceased ERJ-145 production, but Chinese authorities did not approve this. They also slapped taxes on airplanes under 25 tons MTOW. Mr. **Guan** said the facility only builds two aircraft per year due to the high taxes, even though it can produce up to 15 aircraft annually. So far, it delivered four Legacy 650s and **Embraer** wants to raise the production rate because it forecast a need for 835 executive jets in China over the next 10 years, and demand for 1,050 regional jets by 2034. Other than the tax problem, **Embraer** said it was very satisfied with its partnership with **AVIC** and wanted to avoid ceasing production in China. Mr. **Guan** said, “We hope we can get some feedback as soon as possible. We cannot take too long a time; we have to make a final decision before the end of next year. If we can't [resolve this issue], all other foreign companies that want to come into China will face the same problem, unless they set up in free trade zone areas, but there aren't so many free trade zone (FTZ) areas with local infrastructure.” China established the FTZs after **Embraer** had set up in Harbin.

## Cargo Pallet

**Boeing May Offer Pax to Freighter 737-800 Conversions.** **Randy Tinseth**, VP marketing at **Boeing Commercial**, said “We are looking at potentially pursuing a freighter conversion program for the 737-800. We are looking at what we want to do in the single-aisle market, where we see demand for over 1,000 conversions over the next 20 years. We see potential especially in the express market in the US and China. The business case for the 737-800BCF is maturing as planned and we are currently developing our design and production system strategies. We look forward to launching the 737BCF... once we have met our launch criteria.” The **Boeing** conversion will compete with a program launched by **Israel Aerospace Industries** this summer and the **Aeronautical Engineers Inc.** 737-800SF conversions that it initiated in March 2014. **Boeing** will also compete with the **Airbus-ST Aerospace** A320ceo passenger to freighter conversion. In total, **Boeing** sees demand for 1,420 converted freighters and 920 new ones over 20 years. These numbers include single-aisle and widebody aircraft. **Boeing** is looking at a 777-200ER conversion while **Airbus** is actively offering A330 conversions. Both **Airbus**’ and **Boeing**’s current narrowbodies are ripe for conversion since each type are being supplanted by the NEO and MAX. This will leave large numbers of existing CEO and NG models at the age and valuations that could make freight conversions attractive. The planes need to be about 15-20 years old and cheap enough to cover the cost of conversion and make a profit.

**The New Beluga Program, the Beluga XL**, ended the ‘concept phase’ and froze the design ‘at aircraft level’ **Airbus** said. Further, the Beluga XL program is robust and mature enough to move to the detailed design phase. The head of the Beluga XL program, **Bertrand George**, said, “We are proud of how much we have accomplished, in less than a year after the launch of the program. This paves the way for a successful final assembly start in 2017.” The Beluga XL was launched in November 2014 and is based on the A330-200 Freighter. **Airbus** will use much of the freighter’s components and equipment, and it will be powered with **Rolls-Royce** Trent 700 engines. Five Beluga XLs will be built and the first will enter into service in 2019. The fleet will offer 30 percent more transport capacity than the five Beluga A300-600ST Super Transporters now in operation. The Belugas are operated by **Airbus Transport International (ATI)**, an **Airbus** subsidiary airline.

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**YTO Airlines**, China, will be **Boeing's** first customer for the 737-800BDF—Boeing Converted Freighters when the program is launched. It signed a commitment for 15 conversions while Chinese President **Xi Jinping** visited Seattle. **YTO Airlines** is a new Hangzhou-based express cargo carrier that is backed by **Shanghai YTO Express Investment (Group) Co., Ltd.** The carrier currently operates two **Boeing** 737-300SFs (SN 28657 & 28662) that it leased from **Aviation Capital Group** and will lease a third airplane from **Yangtze River Express**. The carrier launched operations on September 26, and provides domestic and international air cargo services.

**Atlas Air** announced it will operate two 767 freighters for **DHL Express**. The planes will be dry leased from **Titan Aviation**. Under the agreement, **Atlas Air** will operate the aircraft through its sister company, **Polar Air Cargo**, and they will link with **Polar's** existing services for **DHL** and other customers. The two 767s are currently being converted from passenger to freighter configuration and they will enter service in late 2015 and early 2016.

**AWAS Leased One Factory-Built 747-400F Freighter to Kalitta Air**, a global provider of air cargo services based in Ypsilanti, Michigan. The aircraft came from **AWAS'** existing portfolio. **AWAS** said the 747-400F offers superior payload capability compared to converted 747-400(SF)s and are heavily favored in today's market. In addition, the main deck nose door allows for the loading of outsized items such as vehicles, helicopters, and construction materials, further enhancing the aircraft's performance capabilities. **Kalitta Air** began service in November 2000 and provides charter service for customers in the United States and around the world.

## Military Market

**Airbus Defence and Space** will not bid on a **Japanese Government** aerial tanker contract because the terms of the tender give the advantage to the **Boeing** KC-46. **Airbus** said the RFP allowed Japan to buy tankers through the **U.S. Government's** foreign military sale mechanism, where the two governments negotiate the contract directly. This did not allow for a fair price comparison between the **Airbus** A330 Multi-Role Tanker Transport (MRTT) and the offers from rival firms. "**Airbus Defence and Space** regrets that the way in which this RFP has been formulated has forced it to conclude that it would be an inappropriate use of shareholders' funds and company resources to bid on this contract and accordingly the company will not be competing. The format of the current solicitation has forced the company to conclude that it does not have a realistic prospect of winning this competition with the **Airbus** A330 MRTT. In particular allowing a competing bid to be sourced via a **U.S. Foreign Military Sale** without a mechanism to make a fair price comparison makes it extremely difficult for any other company to compete," **Airbus** said. **Boeing** did not comment. Japan wants four tankers worth more than \$1.0 billion, to supplement its four **Boeing** KC-767

**The Indian Air Force** will acquire a further two **Ilyushin** Il-76 AEW aircraft fitted with Israeli-made **Phalcon** type airborne early warning (AEW) radars and sensors. **Israel Aerospace Industries** bought the two aircraft from Uzbekistan and they are being prepared to fly to Israel by the **Tashkent Mechanical Plant** in Taganrog in co-operation with **Beriev**. **IAI's Elta Systems** division will install the AEW radars in Israel, along with the other sensors that comprise the **Phalcon** system. **India** purchased three Il-76 AEW platforms in 2004 and they were delivered between 2009 and 2011. The contract included the option to buy additional aircraft. India will receive an upgraded system, which will be compatible with the ones installed in the air force's first three Il-76s.

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tankers. The **Japanese Ministry of Defense** confirmed that it issued a request for proposals (RFP). Ten countries have chosen the A330 MRTT tankers, including South Korea which ordered four A330 MRTT tankers worth \$1 billion in June. Japan and Italy are the only two countries that use the **Boeing**-built 767-based refueling planes, while the **U.S. Air Force** plans to buy 179 purpose-built KC-46As, worth \$52 billion.

**Boeing's** first fully equipped KC-46A refueling plane flew for the first time on September 25. During the four hour flight, **Boeing** test pilots performed operational checks on engines, flight controls and environmental systems and took the tanker to a maximum altitude of 35,000 feet (10,668 m) before landing at **Boeing Field**, the company said. **Air Force** Colonel **Christopher Coombs** said the program would now run air stability tests, flight controls of the boom, and test the plane's aerial refueling pods. Brigadier General **Duke Richardson**, executive officer for tanker programs, said the program was doing well overall, despite earlier schedule delays. "We are definitely struggling with schedule. We are not struggling with performance," he said. The first flight will take place within the target range first set in April, despite two technical issues that arose afterwards. He said **Boeing** had devoted significant resources to ensuring the program stayed on track, and that he was "cautiously confident" that the manufacturer would meet its commitment to deliver 18 tankers to the **Air Force** by August 2017. A series of issues have eroded any margin in the program's schedule, but they were working through the testing required to be completed around April that would pave the way for an initial production contract for seven jets. The second tranche for 12 planes could follow shortly thereafter, unless the **Congress** blocks the budget for fiscal 2016, at the end of the month. **Congress** could vote to limit funding to fiscal 2015 levels, and this could cause "a very large problem" for the program, he said. The terms of the **Air Force's** contract with **Boeing** set stringent requirements for funding stability. The **Air Force** cannot afford to breach the fixed-price contract with **Boeing**, since renegotiation would likely result in worse terms for the government. **Boeing** reported nearly \$1.3 billion pre-tax charges against the tanker program. **Boeing** will start aerial refueling flights with **USAF** aircraft this year, which could allow the manufacturer to enter low-rate production of 179 KC-46As through 2028. **Boeing** is building four test aircraft, two configured as 767-2Cs and two as KC-46A tankers. The KC-46s will fly as fully equipped tankers through the **FAA** and military certification process, while the 767-2Cs enter flight test prior to receiving their upgrade to the KC-46A configuration and the addition of their aerial refueling systems. The program's first test 767-2C completed more than 150 flight test hours after its first flight in December 2014. The KC-46 will replace the air force's five-decade old KC-135s and 31-year-old KC-10.

**Alenia Aermacchi** announced it sold two C-27J medium transports to an undisclosed African nation. The manufacturer now has three African customers on the continent, including the Chadian and Moroccan air forces, which signed for two and four units respectively. The two **Rolls-Royce** AE 2100-engined aircraft will be delivered from 2017, and will be used for troop transport, homeland security and civil protection tasks. **Alenia** has sold 82 aircraft and delivered 67 of them to date.

## AIRCRAFT DELIVERIES & SALES

### Airbus

**Airbus A319.** No **Airbus** A319s were delivered in August. The manufacturer has only 27 A319ceos and 49 A319neos in backlog.

**Airbus A320.** **Airbus** delivered 15 A320s during August, including two -214/Ws to **China Aircraft Leasing Co. (CALC)**, which leased the first -214/W (SN 6715) to **Air India** for 12 years. The airline will lease another two A320s from **CALC** by the end of the year. **CALC's** second -214/W (SN 6742) was leased to **Shenzhen Airlines**. **Shenzhen** also leased -214/W (SN 6708) from **SMBC Aviation Capital**. **Tianjin FAL** delivered two -232s (SN 6612 & 6645) to **China Southern Airlines**, one -232/W (6624) to **China Eastern Airlines**, and -232/W (SN 6635) to **Sichuan Airlines**. **Capital Airlines** received -214/W (SN 6664) and **ICBC** leased -232/W (SN 6700) to **Tigerair Taiwan**. **Tigerair**, Australia, accepted -232/W (SN 6749). **Lion Air** transferred a second -214/W (SN 6697) to its leasing subsidiary, **Transportation Partners**, and it was leased to **Batik Air**, Indonesia. **Batik** will lease a third -214/W (SN 6722) in September. **Air Arabia** accepted -214/W (SN 6737), and **easyJet** acquired -214/W (SN 6754) for a total of 93 out of 140 on order. In the Americas, **Virgin America** took delivery of -214/W (SN 6704) and **Avianca Holdings** received -214/W (SN 6739) and leased it to **Avianca**.

**Avolon** delivered the third of four new A320-232/Ws (SN 6750) to **VivaAerobus** in September. The fourth -232/W (SN 6755) is due for delivery shortly.

**Hong Kong Aviation Capital (HKAC)** long-term leased a fifth A320-232 to **Wizz Air**, Hungary, and the second of seven A320-233/Ws (SN 6778) to **Volaris**, Mexico. The lessor purchased the plane and leased it back.

**Pakistan International Airlines (PIA)** will lease four ex-**AirAsia** A320-216s (SN 2816, 2926, 2944 & 2989) from the low-cost airline's leasing subsidiary, **Asia Aviation Capital**.

**Airbus A321.** **Airbus** delivered 17 A321s in August, including three -231/Ws (SN 6709, 6751 & 6758) to **Turkish Airlines (THY)**, for a total of 49, with 16 more on order. **American Airlines** received two -231/Ws (SN 6723 & 6745) and it has 54 more A321ceos on order. **LATAM Airlines Group** accepted two -211/Ws (SN 6718 & 6729) and sold them to **Bank of America** which leased them to **TAM Linhas Aereas**. **Vueling** acquired its fifth -231/W (SN 6740), sold it to **Avolon Aerospace** and leased it back. **BOC Aviation** leased another -211/W (SN 6747) to **EVA Airways**, and **GECAS** leased a fourth -213/W (SN 6579) to **Air China**. **TransAsia Airways** obtained

**BOC Aviation** leased A320-232/W (SN 6735) to **Vistara**, India. The aircraft was part of the lessor's contract to lease 20 A320s from its existing order book. The airline has leased a total of seven A320s from **BOC** and will lease two more later this year.

**BOC Aviation** leased A321-231/W (SN 6768) to **Asiana Airlines**, Taiwan in September. The aircraft came from the lessor's existing order book. The airline has leased three A321s from **BOC** to date and will lease -231 (SN 6796) later this year.

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its 10th of 12 -231/Ws (SN 6734), sold it to **Aviation Capital Group** and leased it back. **Transaero Airlines**, Russia, leased the second of six A321-211/Ws (SN 6726) from **ICBC Leasing**, China, in August. The airline will receive two additional aircraft from the lessor's backlog before the end of the year, and two more by March 2016. **Spirit Airlines** acquired the second of 30 new -231/Ws (SN 6736), and **JetBlue Airways** obtained its 20th of 46 -231/Ws (SN 6725). **Air Berlin** accepted its 14th -211/W (SN 6719). **Vietnam Airlines** received its 39th of 41 -231s (SN 6748), and **Etihad Airways** acquired -231/W (SN 6731).

**VietJet Air** signed a Memorandum of Understanding with **Mitsubishi UFJ** to borrow \$347.2 million loan to buy three **Airbus A321s**. The deal is part of **VietJet's** plans to buy or lease a total of 107 aircraft over the next decade, and it will receive 10 to 12 new planes a year.

**Airbus A330.** **Airbus** delivered three -200s and seven -300s during August. **International Air Finance Corp.** leased the third of five -243s (SN 1653) to **Kuwait Airways**. **Tunisair** received its second of three -243s (SN 1641), and **Libyan Airlines** accepted its fourth and last -202 (SN 1543). The **Libyan** plane was completed in June 2014 and stored at Teruel, Spain, until delivery. **Hainan Airlines** bought two -343s (SN 1634 & 1656) and has three more on order. **Singapore Airlines** acquired one -343 (SN 1648) from an unannounced customer, and the airline has one more on order. **Delta Air Lines** accepted its third 242-ton Maximum Take-Off Weight -302 (SN 1628), and **Korean Air** obtained -323 (SN 1647). **Hong Kong Aviation Capital (HKAC)** leased -343 (SN 1654) to **Garuda Indonesia Airways**, and -343 (SN 1650) to **SriLankan Airlines**.

**CIT Aerospace** leased a new A330-243 (SN 1662) to **Sichuan Airlines**, a regional airline headquartered at **Chengdu Shuangliu International Airport** in Chengdu, Sichuan, China. The aircraft was powered by **Rolls-Royce** Trent 700 engines and it is the fifth aircraft **CIT** had leased to the airline.

**Air China** became the first Chinese carrier to purchase a 242-ton Maximum Take-Off Weight

**Airbus A350.** **CIT Aerospace** leased -941 (SN 15) to **Vietnam Airlines** in September. The aircraft was powered by **Rolls Royce** Trent XWB engines and was the first of two A350 XWBs that **CIT** will deliver to the airline. **CIT** was a launch customer for the A350 when it placed its first order in 2007. It ordered its second tranche of A350s in 2012, and now has 13 A350 XWBs on backlog.

**TAM Airlines'** first A350 XWB rolled out of the **Airbus** paint shop in Toulouse, revealing the aircraft in its current red, white and blue livery. The manufacturer will install the engines; complete the cabin furnishings and cockpit fitting, before the plane is ground and flight tested. The A350-941 (SN 024) will be delivered to **TAM** in December, and it will enter service in January 2016 between Sao Paulo and Manaus. International operations will follow between Sao Paulo and Miami, and Sao Paulo and Madrid. **LATAM Airlines Group**, parent of **LAN Airlines** and **TAM Airlines**, ordered 27 A350-900s, which will seat up to 325 passengers in a three class layout. After mid-2016, the A350s will be painted in **LATAM Airlines'** new indigo and coral paint scheme.

**Finnair's** first A350 XWB completed its maiden flight in Toulouse, on September 17. The A350-941 (SN 018) will enter its final production phase, which includes further ground checks and flight tests. The aircraft is scheduled for delivery in the coming weeks. **Finnair** will become the first airline in Europe the third airline in the world to operate the A350 XWB. The flag carrier ordered 19 A350 XWBs and will operate its fleet on premium long-haul routes, beginning with services between Helsinki and New York and Shanghai.

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A330-343 (SN 1658) in September. The aircraft featured a special livery to mark the airline's 50th A330. The **Star Alliance** carrier currently operates 339 aircraft, comprising A320 family jets, A330s, and **Boeing** 737s, 747s and 777s.

**Scandinavian Airlines (SAS)** became the first European airline to receive the new A330-343 242-ton Maximum Take-Off Weight variant. The aircraft (SN 1660) was delivered to **SAS** in September and fitted with **Rolls-Royce** Trent 700 engines. **SAS** currently operates 25 A320 Family aircraft, five A330-300s and eight A340s. Another 30 A320neos are still to be delivered to **SAS**, along with another three A330-300s and eight A350-900s which were ordered in 2013.

**Airbus A380.** **Etihad Airlines** took delivery of its fourth of 10 -861s (SN 180), and **Emirates** received its 65th -861 (SN 187) in August. The airline has 75 more on order and **Airbus** has 148 A380s on backlog.

## Boeing

**Boeing 737 NG.** **Boeing** delivered 38 737s in August, including two -900ERs each to two U.S. airlines. **United Airlines** received two -924ER/Ws (SN 42191 & 42192), and now it has six additional on order. **Delta Air Lines** acquired its 44th and 45th -932ER/Ws (SN 31955 & 31956). **Alaska Airlines** bought its 29th -990ER/W (SN 44106), and it has 36 on order. **Sriwijaya Air** acquired two -9LFR/Ws (SN 41712 & 41843), which were originally built for **UTair**, Russia. The airplanes were sold to **AerGo Capital** and leased back. The Jakarta-based company operates nine -300s, four -400s, 12 -500s, eight -800s and the two new -900ERs. The 39th and last -79P/W (SN 39719) on order was delivered to **China Eastern Airlines**, which also received two -89P/Ws (SN 41476 & 41483). The latter -89P/W (SN 41483) was transferred to its wholly-owned subsidiary, **Shanghai Airlines**. **Air China** accepted two -89L/Ws (SN 44919 & 44920). **Xiamen Airlines** received three -85C/Ws (SN 39914, 39919 & 41395). **Lion Air** took delivery of three -8GP/Ws (SN 39861, 39862 & 39869). It transferred -8GP/W (SN 39862) to **Batik Air**. **Lion Air** sold -8GP/W (SN 39861) to **Aviation Capital Group** for lease to **Lion Air Thailand** and sold -8GP/W (SN 39869) to **Avolon** for lease back. An **Unidentified Customer** officially took delivery of two -8MB/Ws (SN 43881 & 43882). A search revealed that **Aerolineas Argentinas** leased the aircraft from **ICBC Financial Leasing**. **Norwegian** acquired another two -8JP/Ws (SN 41139 & 42069), for a total of 60, with 40 more on order. Lessors were busy again in August: **Avia Capital Leasing** leased the 12th -8LJ/W (SN 41211) to **Aeroflot Russian Airlines**, and **Avolon Aero-space** leased the fourth of four -852/Ws (SN 43659) to **Aeromexico**. **China Southern Airlines** leased one -81B/W (SN 41611) from **AerCap**, and **Air Lease Corp. (ALC)** leased -

8SN/W (SN 41356) to **Aerolineas Argentinas**. **COPA Airlines** leased -8V3/W (SN 39965) from **SMBC Aviation Capital**, and took delivery of -8V3/W (SN 41448) from its own orderbook. **American Airlines** accepted -823/W (SN 33243) and the **United States Navy** received one more -8FV/W -P-8A Poseidon aircraft (SN 44149). It will enter service once the electronic equipment is installed. **Shandong Airlines** acquired -85N/W (SN 41626), and sold it to **ICBC** for lease back. **Shenzhen Airlines** received -87L/W (SN 40828), and **Hebei Airlines** bought its first -8LW/W (SN

**Alaska Airlines** will take delivery of its first 737 MAX about six months after launch customer **Southwest Airlines** receives its first aircraft. The airline said **Boeing** had indicated that it may be ready a little early. **Alaska** was previously scheduled to get its first of 20 737 MAX 8s in 2018. The airline also has firm orders for 17 737 MAX 9s, and operates a fleet of 27 737-400s, 14 737-700s, 61 737-800s and 41 737-900ERs.

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42965). **Nok Air**, Thailand, obtained its first of seven -88L/Ws (SN 61293), and **SilkAir** acquired -8SA/W (SN 44228). **Comair Limited**, South Africa, took delivery of its fifth of eight -8LD/Ws (40854), and transferred it to its subsidiary, **Kulua.com**. **SunExpress Airlines** accepted its 11th -8HC/W (SN 61171), and **Virgin Australia Air-lines** received the 65th of 80 -8FE/Ws (SN 41027).

**Hong Kong Aviation Capital (HKAC)** established a new leasing relationship with Indonesia's largest low-cost carrier **Lion Air**, delivering two 737-800 aircraft on long term leases.

**Air Lease Corporation** delivered the first of three new 737-8SH/Ws (SN 61424) to **China Airlines**, Taiwan, in September. The plane was long-term leased and came from **ALC's** order book with **Boeing**. The second 737-800NG is scheduled for delivery in fall 2015, and the third in spring 2016. **Air Lease** will lease two used 737-800s to **Siam Air Transport**, Thailand. They will be handed over in the fourth quarter of 2015. **Siam Air Transport** is based at Bangkok's **Don Mueang Airport** and it currently operates two 737-300s to two destinations in China and to Hong Kong.

**The Boeing 717 Jetliner** was a sales dud when **Boeing** ceased production, but now it is a hot property. **Boeing** built 156 of the 100-seaters, and allegedly killed it so that it could sell more similarly sized 737-600s (69 sales), but it seems more reasonable that the large **Bombardier** and **Embraer** regional jets choked sales of the 717. The oldest 717 was built in 1998 and the last one rolled off the line in May 2006. **Delta Air Lines** is driving the rising valuation and lease rates of the 717, because it chose the once cheap and unloved airplane to replace its 50-seat regional jets. Other airlines, **Hawaiian Airlines**, **Qantas Airways' Qantaslink** and **Volotea**, Spain, are also trying to add to their fleets. Apparently **Turkmenistan Airways** has the only 717s available. **Delta** cornered the market when it acquired all 89 of **AirTran Airways' fleet** from **Southwest Airlines**. **Blue1**, Finland, returned its nine 717s to lessors, which leased them to **Delta**, **Qantaslink** and **Volotea**. A long time ago, **AVMARK** invented the "ubiquity index" which basically said that an airliner's popularity increased if there were a lot of them around. Popular airliners were easier to sell on the used market and they would fetch a higher price because they were popular. This seems like circular thinking but it worked. The Caravelle was a fine plane and the French sold 281 of them, but **Douglas** sold a thousand similar DC-9s and 40 years later some airlines still fly them. The 717 market counters the usual fall in values for orphan aircraft, which normally lose popularity once production ceases. **Delta** put a floor under 717 prices and the appraised values rose by 17 percent, ranging from \$7.5 million to \$10.5 million in 2015, and lease rates jumped 22 percent when airlines bid for the **Blue1** fleet. **Boeing** supports the 717 by offering engineering and spare-parts support. The manufacturer is not being altruistic; **Boeing Capital** owns 103 of the 155 active aircraft and the operating leases are worth about \$1.5 billion. It also actively marketed the **Blue1** planes to the new operators. Until **Delta** contracted to acquire all of **AirTran's** fleet, there was very little interest in the plane and so values sank to bargain basement prices. That was when **Delta** pounced on the chance to obtain a whole fleet for the price of a few new 737 NGs. It is probable that prices will fall steeply if, or when, **Delta** decides to replace its 91 717s. The airline is pretty famous for getting the very last hour out of its airplanes and then junking them. It was the last major carrier to fly DC-9s and grounded its 35-year old planes in 2014. **Delta** also

**Cathay Pacific Airways** took delivery of the airline's 70th 777 aircraft in September. It was also the 53rd and last 777-367ER (SN 60724) of its orders, which made **Cathay** the largest 777 operator in East Asia. The airline received its first 777-300ER in September 2007. **Cathay Pacific** now operates 53 777-300ERs, 12 777-300s and five 777-200s. The airline is one of the launch customers for the 777X and has 21 777-9 airplanes on order.

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bought many of the unwanted MD-90-30 in the last five years and now flies 65 of the really inexpensive 150-seat trunkliners. **UNI Air** and **EVA** in Taiwan are the only other MD-90 operators and the ex-**Saudi Arabian** MD-90s are available but so far, **Delta** seems content to fly the planes it has.

**Boeing 747.** **Korean Air** received its first of 10 -8B5 Intercontinentals (SN 40905) in August. Another four -8B5s (SN 40906, 40907, 40908 & 60407) will be delivered shortly. **Silk Way West Airlines**, Azerbaijan, accepted its third -83QF (SN 60120), and it has another two on order.

**Boeing 767.** **Federal Express** took delivery of its 21st new -3S2Fs (SN 42717) in August. The cargo airline has 79 more 767Fs on order.

**Boeing 777.** **Boeing** delivered two 777Fs and seven 777-300ERs in August. **Air China Cargo** obtained its eighth -FFT (SN 44685), and **Dubai Aerospace Enterprise** leased its 13th and final -F1H (SN 42234) to **Emirates Airlines**. The Dubai flag carrier also took delivery of two -31HERs (SN 42320 & 42321). The three 777s were delivered on August 31, a new record for 777 deliveries to a single customer on a single day. This also marked the entry of the 150th 777 into **Emirates'** fleet. The airline is the world's largest operator of the 777 and also the only airline to operate all six of the 777 variants. **Saudi Arabian Airlines** accepted its 18th -368ER (SN 42266), and **Korean Air** obtained of its 13th -3B5ER (SN 43815). **China Eastern Airlines** acquired -39PER (SN 43275), and **China Southern Airlines** accepted one -31BER (SN 43224). **China Airlines**, Taiwan, bought -309ER (SN 43977).

**Saudi Arabian Airlines** will launch short-haul domestic and regional flights on February 1, 2016, from its base in Jeddah to Damman, Dubai and Riyadh. One month later, it will deploy its Dreamliners on long-haul flights to China and Europe. **Saudi Arabian** ordered eight 787-9s and will receive its first one in late December or early January. The orders were reserved by the Kuwait-based leasing company **ALAFCO** before being shifted to **Saudia** in November 2010.

**KLM's** first 787-9 (SN 36113) will join its fleet on October 25, the second (SN 38755) will follow in November, and the third is due in February 2016. All three will be leased from **AerCap**. **Air France-KLM Group** ordered 19 787-9s in December 2011, to be split between the two carriers. Apparently the first 10 will be leased from **AerCap**, but will not come from the lessor's orderbook.

**Boeing 787.** **Boeing** delivered 14 Dreamliners in August, including six 787-8s and eight 787-9s. **American Airlines** received two 787-8s (SN 40626 & 40627), for a total of 10, with 10 more on order. **Business Jet** took delivery of **Rolls-Royce** Trent-powered -8 (SN 44572) on behalf of an undisclosed customer. **Scot**, Singapore, obtained its second of 10 -8s (SN 37118). **CIT Leasing Corporation** leased -8 (SN 37165) to **Aeromexico**, and **AerCap** leased -8 (SN 38759) to **Thai International Airways**. **AerCap** also leased -9 (SN 35322) to **LAN Airlines**. **LAN** took delivery of -9 (SN 38478) and sold it to **AerCap** for lease back. **Vietnam Airlines** received its second and third 787-9s (SN 35152 & 35153), and it has 16 more 787s on order. **Air Canada** bought its second of 29 -9s (SN 35266). It will enter service in November 2015. **Boeing** delivered one -9 (SN 41988) to **Air New Zealand**, and the eighth -9 (SN 36409) to **United Airlines**, which has 10 more on order. **All Nippon Airways** received its seventh of 44 -9s (SN 34504).

## Regional Jet

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**Bombardier** delivered three CRJ900NGs (SN 15376, 15377 & 15378) to **Mesa Air Group** in August, and the last two of the seven ordered CRJ900NGs (SN 15375 & 15379) in September. **Mesa** will operate the aircraft for **American Airlines** under the **American Eagle** brand.

**COMAC. Chengdu Airlines** will accept its first two ARJ21-700s (SN 105 & 106) on November 28, and in early December. Another three ARJ21s will arrive before the type enters passenger service in February. **COMAC** should acquire production certification from **CAAC** by the end of 2016. **Chengdu Airlines** is a subsidiary of **COMAC** and ordered 30 ARJ21s. It will launch ARJ21 flights from Chengdu to **Beijing Capital** and **Shanghai Pudong** airports.

**Binter**, a Spanish carrier based on the Canary Islands, took delivery of the first of 12 ATR 72-600s (SN 1278) that were ordered in 2014 and earlier this year. The new ATR '-600s series' aircraft will gradually replace the airline's oldest ATR 72-500s that were delivered between 2004 and 2009. **Binter** received its first ATR aircraft in 1989. The new ATR 72-600s are fitted with 70 seats and equipped with the latest navigational aids and the **Armonia** cabin. The airline flies its ATRs between the Canary Islands and on international routes to Agadir, Casablanca, El Aaioun, Madeira, and Marrakech.

**Embraer. Embraer** delivered three more EMBRAER 170-200 LRs (E175) (SN 17000497, 17000500 & 17000501) to **American Airlines** in August, for a total of 12 of the 60 ordered E175s. **Compass Airlines** will operate **American's** first 20 E175s under the **American Eagle** brand. **United Airlines** bought four E175s (17000498, 17000499, 17000502 & 17000503), and leased them to **Mesa Airlines** and **Skywest Airlines** for operation for **United Express**.



**ATR. Amakusa Airlines**, Japan, leased its first 48-seat ATR 42-600 (SN 1202) from **Nordic Aviation Capital (NAC)**, in August. The plane is the first of the type to operate in Japan and replaces a 16-year old, 39-seat Dash 8-100. **Firefly** obtained ATR 72-600 (SN 1262) and **Wings**, Indonesia, received -600 (SN 1271). **TransAsia Airways** accepted its sixth -600 (SN 1261) in August. **Myanmar National Airlines** leased its first -600 (SN 1267) from **DAE Capital**. The national flag carrier ordered six ATR 72-600s in 2014, and took options for six more, in a deal valued at \$296 million.

**Flybe** introduced its first ATR 72-600 (SN 1260) into its fleet in September. The ATR was leased from **Avation PLC**, and will be operated for **Scandinavian Airlines System (SAS)** from **Flybe's** base at Stockholm's **Arlanda Airport**. A total of five 70-seat ATR 72-600s will be leased from **Avation** in 2015 and 2016. The aircraft will serve SAS domestic and regional destinations under a six-year contract.

**Bombardier** did not deliver any new Q400 turboprops in August.

## Antiques and Other Junque

**Werner Aero Services** acquired an A320-232, powered by V2527-A5 engines, which was last operated by **SilkAir**, Singapore. The 12-year old aircraft will be disassembled and all components will be used to support **Werner Aero Services' Airbus** customers. The engines are available for immediate sale or lease.

**Soekarno-Hatta Airport**, Jakarta, Indonesia, decided to clean up its apron and will scrap at least 10 derelict aircraft in the next few months. After several years of negotiations, it will serve final notices to a number of owners. The 10 aircraft belong to **Air Gatari**, **Air Maleo**, **Indonesia Air Transport**, **Riau Airlines** and **Sky Aviation**, and they will be removed if no action is taken by the owners. The airport recently scrapped nine aircraft that were taking up ramp space. Five years ago, they removed 23 abandoned aircraft, some of which belonged to defunct carriers including **Bali Air**, **Bouraq**, **Jatayu Air**, **Mandala Airlines** and **Megantara Airlines**. Those planes were parked in the weeds before they were broken up. The airport will sue for back payment of parking fees, as well as costs incurred from the removal and scrapping of the aircraft. **Soekarno-Hatta** has been upgrading Terminals 1 and 2, renovating Terminal 3, and is building a fourth terminal. A third runway is currently under construction and a fourth one planned for opening in 2025. A quick look at **Google Earth** showed four **Fokker F.28** style aircraft with T-tails and rear-mounted engines, two turboprops and 17 airplanes that resemble **Boeing 737-200s**, with engines slung under the wings. The airplanes are parked in a jumble near hangers to the east of the main terminal.

**Scoot**, **Singapore Airlines'** low-cost, long-haul carrier, retired its last 777-212ER (SN 28510) when its second of 10 787-8s was delivered in August. The airline also operates five 787-9s and has five more on order. Three 777-212ERs are now with **NokScoot**, the Thai joint-venture with **Nok Air**, but only two are in service on **NokScoot's** route linking **Bangkok Don Mueang Airport** with Nanjing, China. **NokScoot** will launch flights to **Taipei Taoyuan Airport** in October 25. **Scoot** is selling the 777-212ERs which were in storage at Victorville and Roswell. It sold two -212ERs (SN 28507 & 28508) to **AerSale Inc.**, and traded in -212ER (SN 28519) to **Boeing Capital** in August. **NokScoot** acquired -212ER (SN 28522) in August leaving **Scoot** with only one -212ER (SN 28510) available for sale.

WORLDWIDE AVIATION MARKETING AND MANAGEMENT SERVICE

## Accidents and Safety

*From Aviation Safety Foundation*

**Rampart Aviation** lost **de Havilland Canada DHC-6 Twin Otter** (N181CS, SN 181) on September 6, 2015. The aircraft hit trees during an aborted takeoff attempt at **Louisburg-North Raleigh Airport**, N.C. Two of the three occupants were injuries. The 46-year old airplane was substantially damaged and it may be written off.

**Toll Aviation Swearingen SA227-DC Metro** (VH-HPE, SN DC-823B) suffered substantial damage to its right engine and propeller when it struck a kangaroo during its landing at **Thangool Airport**, QLD, Australia, on September 1. The crew escaped injury, but it is presumed that the kangaroo died.

**A Lukiaviatrans Antonov An-30D** (registration unknown) was damaged in a landing accident at **Keperveem Airport**, Siberia, Russia, August 31, 2015. The nose landing gear failed, and the forward fuselage scraped along the runway. A fire erupted and was quickly put out, which probably saved the aircraft. None of the seven occupants were killed.

**Cardig Air Boeing 737-3Q8BDSF** (PK-BBY, SN 23535) sustained substantial damage in a landing accident at **Wamena Airport**, Indonesia, on August 28, 2015. The two crew survived and the airplane

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was substantially damaged. The 737 landed short of the runway and came to rest on a taxiway. The extent of the damage to the **GECAS**-leased aircraft was not reported.

**Viking Air** DHC-6-400 Twin Otter (JA201D, SN 915) operated by **First Flying (Dai-ichi Koku)** was substantially damaged when it left the runway upon landing at **Aguni Airport**, Japan, on August 28, 2015. The Twin Otter landed and veered off to the right off the runway, and hit a fence and trees. The crash twisted the right main landing gear, crushed the nose section and bent the propeller of the Number 2 engine. Some of the 14 people on board suffered minor injuries. The new Twin Otter entered service on August 2.

**Two Dubnica Air Let** L-410UVP aircraft (OM-SAB (SN 750405) and OM-ODQ (SN 841320) crashed near Vršatec, Slovakia, following a mid-air collision, on August 20. Both aircraft were carrying two pilots and 17 skydivers each for a practice jump. Most skydivers managed to parachute from the stricken aircraft. All four pilots and three skydivers were killed.

**Luxair Bombardier** DHC-8-402Q (LX-LGH, SN 4420) aborted takeoff at **Saarbrücken-Ensheim Airport**, Germany, on September 30, 2015. None of the 16 passengers nor four crew members were seriously injured. The crew aborted the takeoff shortly retracting the undercarriage, and the -400Q landed back on the runway on its belly. The press reported that smoke was developing in the rear of the cabin, but it was not clear whether this happened before or after the gear-up landing.

**Nigerian Air Force Dornier** Do-228 transport (NAF030, SN 8219) crashed into a house soon after taking off from **Kaduna Airport** on August 29, killing both crew members and all five passengers. The crash left the air force with one **Dornier** 228-100 and five -200s.

**British Airways Boeing** 777-236ER (G-VIIO, SN 29320) was substantially damaged in a fire at **McCarran International Airport**, Las Vegas, Nevada, on September 8, 2015. The crew aborted its takeoff when the Number 1 engine suffered an uncontained failure. The plane stopped on the runway and the left wing caught fire, burning the fuselage. The crew radioed a Mayday and evacuated the aircraft, and the airport fire services extinguished the blaze. Two of the 13 crew and 159 passengers were injured during the evacuation. It is probable that the 17-year old airplane will be written off. After the accident, it was reported that some passengers delayed the evacuation by stopping to collect their carry-on baggage. In spite of obvious fire on the left side, the crew opened the emergency exits near the fire, allowing smoke to fill the cabin. In 1985, a **British AirTours** 737-200 suffered an engine fire; the crew aborted the takeoff and then tried to evacuate the airplane. They opened all the emergency doors allowing a cross wind to push live flames into the cabin. Fifty-five passengers were killed.

**AVMARK** apologizes for the delay in delivering the **September Newsletter**. We suffered a death in the family and were distracted by the details associated with the memorial and legal matters.

The **October Newsletter** is written and will be ready for publications in the next 10 days.

Thank you for your patience.

# AVMARK CAPABILITIES

Since its establishment in 1962, AVMARK has been providing consulting management services to all sectors of the aviation community. From offices in Washington DC and Singapore, together with associates based in United States (North America), Ecuador (South America), Spain (Europe), Congo (Africa), New Delhi (India and Asian Market), we serve a worldwide clientele. Our staff is comprised of professionals with extensive, successful careers in technical, commercial and managerial areas of aviation enterprises; combining real world operational experience with sophisticated analytical tools to provide our clients with the most effective solutions to their problems.

## ASSET MANAGEMENT PROGRAMS

Aircraft appraisal, inspection and technical monitoring; analysis of market conditions and forecast of values; assistance with aircraft acquisitions and placement; valuation of facilities, equipment and other assets.

## AIRLINE IMPROVEMENT PROGRAMS

Our staff undertakes corporate reviews of entire airlines or specific aspects of airline operations, advising airline executive management, government and international organizations (i.e. World Bank), on various aspects of airline restructuring and/or privatization. Specific issues addressed include airline valuation, strategic planning, scheduling and fleet planning, market development, revenue management, operations and maintenance efficiency. We also provide a full range of services for start-up carriers.

## ECONOMIC & TECHNICAL ANALYSES PROGRAMS

We prepare traffic/operation forecasts and financial analysis for airport and other facilities planning; competitive evaluation of performance/design characteristics and market potential for new aircraft; critical assessment of capability, marketing strategy and opportunities for suppliers of products and services; and air service needs related to tourism development.

## PUBLICATIONS

We publish the *AVMARK Newsletter* monthly; containing market information, various analyses and commentary; also reports all orders, purchase sales and leases of new and used transport aircraft. We also publish several other statistical compilations from our extensive database on aircraft, carriers, traffic, costs and operations.

*AVMARK's Transport Aircraft Values (TAV)*; reports current fair market values by year of build and projects the future value of all transport category aircraft.

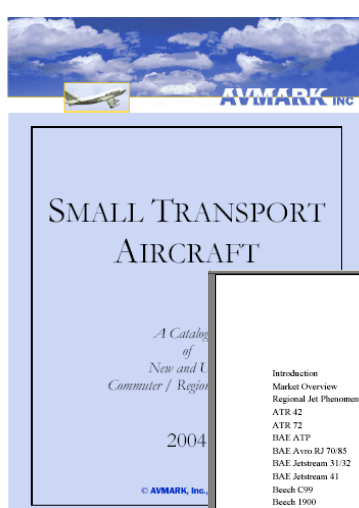
*AVMARK's Historic Jet and Turboprop Values*; summary of the then current fair market values as published in the AVMARK Newsletter for all jets and turboprops in service.

*AVMARK's Small Transport Aircraft Catalogue (STA)*; designed as an easy to use reference guide to compare the operating and cost parameters of 35 regional jet and turboprop aircraft.

# Sample of Avmark Publications

## SMALL TRANSPORT AIRCRAFT CATALOG

STA is designed as an easy to use reference guide to compare the operating and cost parameters of 35 regional jet and turboprop aircraft. Information includes development history, current production status, configuration and operating performance and costs as reported to the DOT. Pictures of each aircraft are also included.



**SMALL TRANSPORT AIRCRAFT**  
*A Catalog of New and Used Commuter / Regional Aircraft*  
 2004  
 © AVMARK, Inc.

**MARKET OVERVIEW**

Most dynamic and fastest growing segment in the world is using old generation propeller aircraft to carry 90 million passengers using state of the art technology.

Airline Association (RAA):

Source:

Ref:

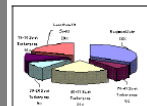


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**ATR 42-300**

In Service: 1985 Orders: Out of Production Deliveries: 284

| Specifications                      |                      |
|-------------------------------------|----------------------|
| Accommodations                      |                      |
| Passengers*                         | 46                   |
| Pilot                               | 2                    |
| Cabin Attendants                    | 1                    |
| Powerplant                          |                      |
| 2 Pratt & Whitney PWC120 Turboprops | 1,800 SHP / 1,342 kW |
| Hamilton Propellers                 | 4 blades             |
| Dimensions                          |                      |
| Length                              | 74 ft 5 in           |
| Wingspan                            | 80 ft 7 in           |
| Height                              | 24 ft 11 in          |
| Weight                              |                      |
| Empty                               | 48,815 lb            |
| Max Ramp                            | 58,155 lb            |
| Max Takeoff                         | 53,510 lb            |
| Max Landing                         | 33,510 lb            |
| Max Ramp                            | 10,525 lb            |
| Max Takeoff                         | 9,920 lb             |
| Max Landing                         | 62,500 lb / sq ft    |
| Max Ramp                            | 10.23 ft/lb thrust   |

**ATR 42-300**

Standard Equipment: Right engine Propeller Brake, Airsearch Air Conditioning, Stall Warning.

Optional Equipment: KLN 500 GPS, FME Area Navigation (RNAV), Microwave Landing System, VLF/UHF Long Range Navigation System, Dual Honeywell AZ-800 Digital Air Data Computers, PA System, HF Radio, Collins Avionics in place of King Avionics, CAT II.

Avionics: EDZ 820 Electronic Flight Instrument System (EFIS) - 4 CRT's for dual Altitude and Heading Reference Systems (AHRS), Dual Autopilots, Dual Flight Computers (ADC), 1 DFZ 600 Automatic Flight Control System (AFCS), Dual King Gold Crown VHF Nav, Radios, DME, Radio Altimeter, Honeywell P-800 Weather Radar.

| Price List  |               |
|-------------|---------------|
| Years Built | Base (\$ mil) |
| ATR 42-300  | 85-99 3.0     |

| Direct Operating Costs (\$ per block hour) |                |
|--------------------------------------------|----------------|
| Utilization (Block Hours / Year)           | 2              |
| Average Stage Length (nm)                  | 100 300        |
| Flying Operations                          |                |
| Flight Crew, Salaries / Expenses           | \$198 \$160    |
| Fuel, Oil, Taxes                           | \$173 \$162    |
| Other                                      | \$3 \$3        |
| Aircraft Costs                             |                |
| Insurance                                  | \$3 \$3        |
| Maintenance                                | \$478 \$415    |
| Depreciation                               | \$62 \$62      |
| Rentals                                    | \$318 \$318    |
| Total Direct Operating Costs               | \$906 \$833    |
| Cost per Available Seat Mile - \$          | 12.33 8.65     |
| Cost per Airplane Mile                     | \$5.67 \$4.44  |
| Cost per Seat Block Hour                   | \$16.67 \$15.1 |

Note: Data from DOT Airline Reports.

**ATR 42**

THE AVIONS DE TRANSPORT REGIONAL (ATR) first flew in August 1984, and entered service in December 1985 with the French regional Air. The aircraft is a joint venture between Aerospatiale of France and Aeritalia of Italy. The ATR 42's name originally designated it as a 42 passenger aircraft, but subsequent reduction of the forward baggage compartment now allows for a seating configuration of up to 50 passengers.

The baseline aircraft is the ATR 42-300/320 powered respectively by PW120/121 engines. The latest version is the ATR 42-500 powered by PW127x engines and Hamilton six-bladed propellers. This increasing the payload to 12,015 lb and the cruise speed to 300 kts.

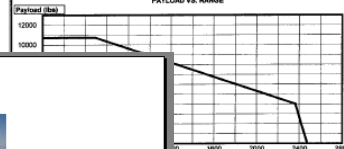
The standard front cargo door allows the aircraft to be quickly converted from a passenger layout to freighter. Unique among turboprops, is the integration of a Propeller Brake on the right engine, which allows running of the engine in "Idle Mode" to provide aircraft electrical power and air conditioning without the inconvenience and safety hazards of a rotating propeller.

The ATR 42 and ATR 72 have a very high degree of commonality, allowing for cross-crew qualification, and a common spare parts holding.

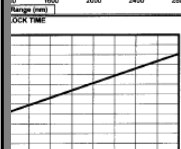
**TYPICAL CABIN CONFIGURATION**

48-seats in a four-abreast layout with a center aisle. Access to the cabin is by an air stair at the rear passenger door, and a modular galley in the rear of the aircraft is serviced through the same door. A standard toilet is located in the rear of the aircraft behind the passenger door. Baggage is accommodated in overhead bins on both sides of the cabin, under seat storage, in an externally accessed forward and aft baggage compartment, and in a closet.

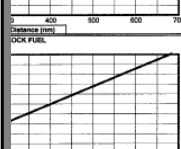
**PAYLOAD VS. RANGE**



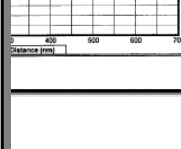
**RANGE (nm)**



**CLOCK FUEL**



**CLOCK FUEL**



US \$ 350.00

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(TAV) today.**

## Sample of Avmark Publications

### TRANSPORT AIRCRAFT VALUES (TAV)

TAV reports current fair-market values by year of build and projects the future value of 116 transport category aircraft. The future values are based on an economic model that projects the values based on the earning stream of approximately 130 different types of aircraft for their useful lives. The model takes into account the operating cost and characteristics of each aircraft, worldwide and future traffic volumes, fare levels and current and future fleet compositions. The values are presented in both constant and then-current dollars.

**Select Aircraft Type**

Available Aircraft

- Airbus A300B4-600R
- Airbus A300B4-600RF
- Airbus A310-200
- Airbus A310-200F
- Airbus A310-300
- Airbus A310-300F
- Airbus A318
- Airbus A319-100
- Airbus A320-100
- Airbus A321-100
- Airbus A321-200
- Airbus A330-200
- Airbus A330-300
- Airbus A340-200
- Airbus A340-300
- Airbus A340-500
- Airbus A340-600
- Airbus A350-800
- Airbus A350-900
- Airbus A380-800
- Avro RJ-100
- Avro RJ-70
- Avro RJ-85
- BAe 111-200/300/400/500

Picture



Selected: Airbus A340-300

Description: Widebody 4 Engine Passenger

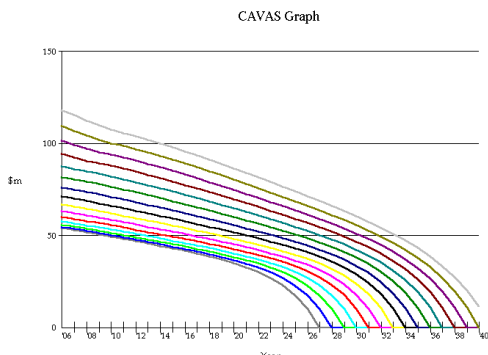
Manufactured: 1992 To 2006

Values: \$54.00m \$118.00m

Estimated Life: 35 years File No. 013

Search Term

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CAVAS Figures

| Year | 1992  | 1993  | 1994  | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  | 2002  | 2003  | 2004   | 2005   | 2006   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 2006 | 54.00 | 54.61 | 55.83 | 57.66 | 60.10 | 63.14 | 66.80 | 71.07 | 75.94 | 81.43 | 87.52 | 94.23 | 101.54 | 109.47 | 118.00 |
| 2007 | 52.85 | 53.49 | 54.73 | 56.56 | 58.99 | 62.01 | 65.62 | 69.85 | 74.66 | 80.17 | 85.92 | 92.18 | 99.12  | 106.73 | 115.25 |
| 2008 | 51.68 | 52.36 | 53.61 | 55.43 | 57.85 | 60.84 | 64.42 | 68.69 | 73.65 | 79.18 | 84.76 | 90.48 | 96.97  | 104.20 | 112.39 |

**Profit & Loss Report**

Aircraft Type: Airbus A340-300

| Period                         | 1                 | 2                 | 3                 | 4                 | 5                 | 6                 |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>REVENUES (US\$)</b>         |                   |                   |                   |                   |                   |                   |
| Passengers                     | 49,328,754        | 49,270,739        | 49,212,559        | 49,154,213        | 49,095,701        | 49,037,226        |
| Freight & Mail                 | 8,879,176         | 8,868,733         | 8,858,261         | 8,847,758         | 8,837,226         | 8,826,714         |
| Other Revenue                  | 986,575           | 985,415           | 984,251           | 983,084           | 981,914           | 980,744           |
| <b>TOTAL OPERATING REVENUE</b> | <b>59,194,505</b> | <b>59,124,887</b> | <b>59,055,070</b> | <b>58,985,055</b> | <b>58,914,841</b> | <b>58,844,684</b> |
| <b>VARIABLE EXPENSES</b>       |                   |                   |                   |                   |                   |                   |
| Fuel                           | 6,918,975         | 6,917,742         | 6,916,509         | 6,915,276         | 6,914,043         | 6,912,810         |
| Landing Fees                   | 3,021,823         | 3,021,823         | 3,021,823         | 3,021,823         | 3,021,823         | 3,021,823         |
| Enroute Charges                | 392,440           | 392,440           | 392,440           | 392,440           | 392,440           | 392,440           |
| Pax Commissions                | 7,399,313         | 7,399,313         | 7,399,313         | 7,399,313         | 7,399,313         | 7,399,313         |
| Freight Commissions            | 1,331,876         | 1,331,876         | 1,331,876         | 1,331,876         | 1,331,876         | 1,331,876         |
| Food & Supplies                | 3,993,194         | 3,993,194         | 3,993,194         | 3,993,194         | 3,993,194         | 3,993,194         |
| Passenger Liability Insurance  | 379,590           | 379,590           | 379,590           | 379,590           | 379,590           | 379,590           |
| <b>TOTAL VARIABLE COST</b>     | <b>23,443,212</b> | <b>23,443,212</b> | <b>23,443,212</b> | <b>23,443,212</b> | <b>23,443,212</b> | <b>23,443,212</b> |
| <b>SEMI-VARIABLE EXPENSES</b>  |                   |                   |                   |                   |                   |                   |
| Crew Salaries & Expenses       | 5,177,760         | 5,177,760         | 5,177,760         | 5,177,760         | 5,177,760         | 5,177,760         |
| Maintenance & Engineering      | 587,650           | 587,650           | 587,650           | 587,650           | 587,650           | 587,650           |

**Profit & Loss Report**

Aircraft Type: Airbus A340-300

| Period                              | 1                 | 2                 | 3                 | 4                 | 5                 | 6                 |
|-------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>FIXED EXPENSES</b>               |                   |                   |                   |                   |                   |                   |
| Station Overhead                    | 346,597           | 345,923           | 345,249           | 344,575           | 343,901           | 343,226           |
| Maintenance Burden                  | 176,295           | 176,295           | 176,295           | 176,295           | 176,295           | 176,295           |
| Other Overhead                      | 0                 | 0                 | 0                 | 0                 | 0                 | 0                 |
| <b>TOTAL FIXED COST</b>             | <b>522,892</b>    | <b>522,218</b>    | <b>521,544</b>    | <b>520,870</b>    | <b>520,196</b>    | <b>519,522</b>    |
| <b>TOTAL OPERATING COST</b>         | <b>31,464,497</b> | <b>31,464,497</b> | <b>31,464,497</b> | <b>31,464,497</b> | <b>31,464,497</b> | <b>31,464,497</b> |
| General and Admin. Allocation       | 1,573,225         | 1,573,225         | 1,573,225         | 1,573,225         | 1,573,225         | 1,573,225         |
| <b>TOTAL COST</b>                   | <b>33,037,722</b> | <b>33,037,722</b> | <b>33,037,722</b> | <b>33,037,722</b> | <b>33,037,722</b> | <b>33,037,722</b> |
| <b>OPERATING PROFIT OR LOSS</b>     | <b>26,156,782</b> | <b>26,156,782</b> | <b>26,156,782</b> | <b>26,156,782</b> | <b>26,156,782</b> | <b>26,156,782</b> |
| <b>D-CHECK ADJUSTMENT</b>           |                   |                   |                   |                   |                   |                   |
| Cumulative Hours                    | 4,830             | 9,650             | 14,459            | 19,257            | 24,045            | 28,833            |
| Cumulative Dollars                  | 315,000           | 0                 | 0                 | 0                 | 0                 | 0                 |
| <b>ADJUSTED CASH FLOW</b>           | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> |
| <b>AIRCRAFT LIFE ADJ. CASH FLOW</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> | <b>25,841,782</b> |

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