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AVMARK INC.®

WORLDWIDE AVIATION MARKETING AND MANAGEMENT SERVICE

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Newsletter

Market Comment

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The Birds Came to Roost at the Singapore Airshow. The aerospace industry is worried that the faltering global economy and tensions in the South China Sea will affect the so far rapidly growing airline traffic that is driven by rising Asian household incomes, and higher airline profits that benefited from low oil prices. The industry is looking into the maw of a down cycle in traffic while the manufacturers pump out ever greater numbers of airliners each month. One consultant did not foresee an impact in the next 24 months, but he saw some softening in demand after that. Asia is the industry's major market for narrow body airliners, having placed large orders in recent years. China, India and Southeast Asia account for 908 737 orders, out of 4,378, or more than one fifth of the orders that are identified. Another 827 737s were ordered by undisclosed customers, and many of them are in China. The Asia/Pacific region accounts for 1,557 of the 5,531 outstanding A320 Family orders, or 28 percent of the total, not including 635 orders from undisclosed customers, again many of which come from China. Most of the narrowbody orders are for expansion, and few are for replacement, since the region was pretty quiet until 2000. In spite of the appearance of overcapacity, some carriers in the region, including **Garuda** and **Philippine Airlines**, are expected to order new aircraft shortly because they are playing catch-up with their more nimble and ambitious rivals. **International Air Transport Association (IATA)** Director General **Tony Tyler** told the press at the **Singapore Airshow**, "The budget carriers have captured a lot of market share but one has to ask how profitable are they and are the growth plans that some of them have realistic." He said, "It's easy to place these orders when times are looking good. I'm sure that the planning departments of all these airlines are now studying their orders in the context of what the market is telling them." Mr. **Tyler** said he would not be surprised if some of the deliveries were pushed back. Carriers in Indonesia and Malaysia are now confronted with challenges such as overcapacity and intense competition. Both **AirAsia** and **Garuda** have sold new aircraft or delayed deliveries to keep their capacity in line with traffic. The decade of economic growth created a new class of first-time flyers from Vietnam to the Philippines. Now budget airlines in the region control 54 percent market share, more than twice the global average, but fares and profitability have declined, which challenge the industry. He said Asian airlines profitability was weak compared with other regions. **IATA** forecast that an overall profit per passenger of \$5.13 in Asia will remain well behind the U.S. and Europe, where airlines earn a profit per

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passenger of \$21.44 and \$8.80, respectively. Turbulence in financial markets had impacted global premium traffic, and the Chinese economy had slowed down, but air travel there remained robust. “We are seeing still reasonably strong traffic within and into and out of China,” he said. **IATA** still forecasts that low oil prices and healthy demand for travel would boost global airline profits again in 2016.

Investors are looking for signs of waning travel and slackening aircraft demand and whether the supply chain is in danger of breaking as manufacturers work to turn a record backlog of orders into a smooth flow of deliveries. The **Zodiac** seat shortage is a foretaste of potential problems. **Airbus** and **Boeing** are undeterred as they battle for new customers for their latest widebody designs. **Airbus** wants to stretch the A350 again to close the gap between its new 369-seat A350-1000 and the 406-seat **Boeing** 777X, and it is looking for a launch customer such as **Singapore Airlines**. **Boeing’s** 777X sales have stagnated and it struggles to fill the gap in its 777 production line with more -300ER sales until the 777X arrives in 2020.

The Manufacturers are Still Optimistic. **Boeing** forecast that Southeast Asia will need 3,750 new aircraft worth \$550 billion in 20 years from 2015. Seventy six percent will be for single-aisle aircraft such as the **Boeing** 737 and **Airbus** A320. This will be largely driven by low-cost carriers, and the growth of markets such as Indonesia, Myanmar and Vietnam. Passenger traffic in Southeast Asia has grown by more than 9 percent since 2010, with intra-Southeast Asian traffic projected to increase by 7.7 percent over the next 20 years. The Asia Pacific region, as a whole, will require 14,550 aircraft, which is more than a third of the 39,050 aircraft that will be needed globally, **Boeing’s** forecast said. **Dinesh Kesar**, VP of **Boeing International Trading** said at **Singapore Airshow**, “Most of our customers have been ordering 25, 30, 40 aircraft at a time and then replacing them every three to four years.” **AVMARK** wonders where the four-year old airplanes will go after that. The jets have a 25-year economic life so who will fly them after the first customer? We hope the airframers have a Plan B for when overcapacity causes the airlines to cut back on new planes and decide to keep their old ones.

Airbus Orders

Airbus Sold Two A320ceos in February, and delivered 46 single-aisle and widebody jetliners. The two A320ceo (Current

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Engine Option) aircraft were ordered by an undisclosed customer, bringing total orders for the single-aisle family to 12,463 in both the CEO and NEO (New Engine Option) versions. The manufacturer delivered 39 A320 Family jetliners, four A330s, one A350 XWB and two A380s. **Singapore Airlines** became a new A350 XWB operator when it received their first A350-900 out of a total of 67 orders placed by the carrier. At the end of the month, **Airbus** had a backlog of 6,774 jetliners, representing 10 years of production.

Air China said it ordered 12 A330-300s for delivery through 2018. The commitment was announced two days before the ground breaking ceremony at the new A330 completion facility being built in Tianjin, China. The new plant is near **Airbus'** A320 Final Assembly Line and completion center at the **Tianjin Free Trade Zone**. The state owned flag carrier currently operates 23 A330-300s on domestic flights as well as to Hong Kong, Taiwan, Europe, the Indian subcontinent, Middle East, ASEAN countries and Australia. The majority of its A330s are based in Beijing and Chengdu. **Airbus** has not officially booked the order from **Air China**, but the planes may be part of **China Aviation Supplies Holding Company's (CASC)** order for 30 A330s that was placed in October 2015. **CASC** was established in October

2002 and is one of the six holding companies of the **China Civil Aviation Administration** to provide air transportation and support. It has entered into 14 framework agreements with **Airbus** and **Boeing** and purchased a total of 779 aircraft for China's airlines.

Airbus Orders, Deliveries and Backlog February 2016

FEB ORD	FEB DEL	FEB CANX	TOTAL ORD	TOTAL DEL	BACK LOG
A318					
-0-	-0-	-0-	80	80	-0-
A319					
-0-	1	-0-	1,472	1,454	18
A319neo					
-0-	-0-	-0-	50	-0-	50
A320					
2	25	-0-	4,761	4,167	594
A320neo					
-0-	-0-	-0-	3,344	1	3,343
A321					
-0-	13	-0-	1,642	1,230	412
A321neo					
-0-	-0-	-0-	1,114	-0-	1,114
A330					
-0-	4	-0-	1,424	1,265	159
A330neo					
-0-	-0-	-0-	186	-0-	186
A350					
-0-	1	-0-	777	16	761
A380					
-0-	2	-0-	319	182	137
This Month			This Year		BL
2	46	-0-	11	68	6,774

Airbus sold 16,362 aircraft and delivered 9,588 as of February 29, 2016. Seven orders were cancelled. Total orders, deliveries and backlog include cancellations and order changes.

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Oman Air CEO, Paul Gregorowitsch, told the press that the flag carrier may replace its fleet of four A330-200s and six A330-300s with A350s. He said the airline had considered the A330neo offering but ultimately settled on the A350 as a better long-term option. As such, **Oman Air** may take around thirteen A350s from 2020 onward, he said. The airline already operates two 787-8s and has four more on order. **Oman Air** will supplement them with two 787-8s that will be wet-leased from **Kenya Airways** for the next three years.

India's Air Traffic Growth is driven by urbanization, the growth in the middle class, tourism and trade. India's population is set to surpass China's by 2025, and the Indian middle classes will grow to 600 million people by then. By 2034, on average, Indian passengers will fly four times as often as they do today. Traffic in the Indian market is set to grow at 8.4 percent per year over the next 20 years, well above the world average 4.6 per cent. Domestic Indian traffic will grow at 9.3 percent, which will make India the world's leading emerging aviation market. According to **Airbus'** latest global **Market Forecast**, India will require over 1,600 new passenger and freighter aircraft to help meet growth in demand by 2034. These planes will include 1,230 new single aisle aircraft and 380 wide-body passenger and freighter aircraft, valued at \$224 billion. **Airbus** has more than 56 percent of the in-service fleet and 70 percent of the backlog orders.

The First Airbus A321 produced by the **Airbus Manufacturing Facility** in Mobile, Alabama, flew on March 21. The A321-231/W (SN 6512) is destined for **Jetblue**. The test flight is a normal step in aircraft production and takes place prior to the delivery of the aircraft to the customer, and the aircraft will go through a few more weeks of final delivery preparations. Five more A321s are being assembled at Mobile. Their vertical tails are painted with a stylized U.S. flag that is part of the **American Airlines** color scheme. The first is -231/W (SN 6621). **Airbus** plans to build four narrowbody airplanes per month by the end of 2017, and it has the capacity to double that rate.

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Airbus Established a Pilot and Maintenance Training Center in Delhi, to fill the country's need for new **Airbus** pilots. The training center is a key **Airbus** initiative in line with the country's "Skill India" program which was launched in 2015 by the **Indian Government** to develop a wide range of advanced competencies. The center will be owned by **Airbus Group India** and training will be delivered by **Airbus'** specialized training instructors. The center will initially accommodate four A320 full-flight simulators, and the potential to expand is built in. The new center will accelerate the pace of training to help match the A320neo deliveries to India, and it will train over 8,000 pilots and 2,000 maintenance engineers over 10 years from 2018 onwards. **Airbus** already provides maintenance training at its existing facilities in Bangalore since 2007, and has so far trained over 2,750 maintenance engineers.

Airbus is Pre-Marketing its new 400-seat jetliner provisionally named the A350-8000 to counter the 406-seat **Boeing 777-9**. **Boeing** sold 306 of its biggest twin-engined jets, the 777-8 and -9, mostly to Gulf-based airlines. **Airbus** is expected to market to airlines that do not require the performance needed for extreme Gulf heat conditions. **Airbus** sales chief **John Leahy** said, "It would have similar capacity and range (as the 777-9) and substantially lower seat-mile costs. We are showing it to airlines right now." The manufacturer has shifted its priorities from upgrading the slow-selling A380 to the new A350 project. Both airframers see a big market for widebody twinjets which is valued at about \$1.9 trillion over 20 years. **Airbus** is seeking feedback from **Singapore Airlines** and **British Airways**, which have ordered the A350-900 and A350-1000 respectively, but neither has bought the 777-9. Apparently, **Airbus** wants to keep it that way. The two manufacturers have played leap-frog with their largest twin

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jets. **Airbus** launched the joint-platform A330/A340 program in the late 1980s and **Boeing** countered with the 777-200/300. Later it developed the 787 and **Airbus** launched the A350 XWB (Extra Wide Body) family in 2006 to compete. **Boeing** responded by upgrading its 777 series and selling 235 777-8s and -9s, two three Gulf airlines in 2014. To date, the 777-9 has outsold the A350-1000 by about 40 percent but sales stalled since an unidentified customer bought 10 777Xs in June 2015. **Airbus** has sold 181 of its A350-1000s. The A350-8000 would use a derivative of the **Rolls-Royce** Trent XWB which is standard equipment on the A350-1000. The new Trent would be able to offer up to 100,000 pounds of thrust, up from the current 97,000 pounds that the Trent XWB can produce. The -8000 model would also have a maximum take-off weight of more than 319 tons, compared with MTOW of 308 tons on the A350-1000. The higher gross weight would reduce the range, from the 8,000-mile A350-1000. If and when the A350-8000 is launched, the decision will be announced at the **Farnborough Airshow** in July.

Boeing Orders

Boeing Sold one 737-800BBJ to a **Business Jet/VIP Customer** and one 737-800 to **United Airlines** in February. The airline has now ordered 131 737-800s and taken delivery of 130. The manufacturer reported the loss of two 737 orders during the first part of the month. **Boeing** delivered 40 737NGs, one 767-300F, five 777s and 10 787s in February, for a total of 56.

In March, Boeing Recorded 53 New Orders. **FedEx** bought its one 767-300F, for a total of 102. **United Airlines** purchased 25 737-700s and ordered four 777-300ERs. Concurrently, the airline dropped four 787-10s. The order was officially announced as coming from an **Unidentified Customer**, but it was widely reported in the press in February as coming by **United**. The **U.S. Navy** committed to buy another two 737-800-based P-8A Poseidons. The **Navy** bought 16 of them in January and it now has ordered 88 P-8As and taken delivery of 51, according to **Boeing**. The first P-8As were ordered in June 2004 and the first was completed in August 2008. Late in

Boeing February 2016 Orders, Deliveries

FEB ORD	FEB DEL	FEB CANX	TOTAL ORD	TOTAL DEL	BACK LOG
737					
2	40	-2	10,226	8,920	1,306
737 MAX					
-0-	-0-	-0-	3,072	-0-	3,072
747					
-0-	-0-	-0-	1,539	1,520	19
767					
-0-	1	-0-	1,163	1,084	79
777					
-0-	5	-0-	1,585	1,372	213
777X					
-0-	-0-	-0-	306	-0-	306
787					
-0-	10	-0-	1,143	380	763
This Month			This Year		BL
2	56	-2	70	105	5,758

Boeing sold 26,564 aircraft and delivered 20,806 as of February 29, 2016

The Current Program includes sales and deliveries of 737s, 747s, 767s, 777s and 787s.

Sales totals include two cancellations.

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the month **Pegasus Airlines** purchased five 737-800NGs and an **Unidentified Customer** ordered six 737 MAX aircraft. Late in the month, **Eastern Air Lines** ordered 10 737 MAX aircraft and cancelled its previous order for 10 737-800NGs. So far this year, **Boeing** has sold 93 737NGs and only 16 MAX. Is **Boeing** cannibalizing the market for the higher-priced MAX by selling 737 NGs at bargain basement prices?

The United Airlines Order for 25 737-700s was booked in March, and the deal was valued at just over \$2 billion (\$80 million each) at list prices. The new planes will be delivered from the end of 2017 through 2019. The 126-seat -700s will replace 50-seat regional jets, leaving **United** with fewer than 100 small aircraft by 2019. The airline switched five 787-10s to the -9 model and advanced the delivery dates from 2020 to late 2017. Another four 787-10 orders were changed to four 777-300ERs. After the changes, **United** had outstanding orders for 65 737-700s, one 737-800, 14 777-300ERs, seven 787-9s and 14 787-10s.

Boeing Projects a Demand for 3,750 new airplanes, valued at \$550 billion, over the next 20 years in Southeast Asia. Its **Southeast Asia Current Market Outlook (CMO)** forecast that the region will continue to see strong annual traffic growth of 6.5 percent. "Southeast Asia continues to be an important market for **Boeing** and we expect airlines in the region will need 3,750 new airplanes worth \$550 billion over the next 20 years," said **Dinesh Kesar**, **Boeing** Senior VP of Asia Pacific and India Sales. "In this highly competitive market, airlines are adding capacity and adapting with new business models, such as the growing number of low cost carriers." The annual forecast projects three-fourths of Southeast Asia's new deliveries will be for growth, with largest demand for single-aisle airplanes. There will also be demand for 800 twin-engined widebody airplanes. The number of low cost carriers is expected to grow to more than 45 percent of the total Southeast Asian market.

Turkey's Leading Low-Cost Carrier, Pegasus Airlines, finalized its order for five Next-Generation 737-800 airplanes, which were valued at approximately \$505 million based at list prices. **Pegasus** and its subsidiaries, **Air Manas** and **Izair**, operate a fleet of 58 737-800s and 10 A320s. The carrier is based at **Istanbul Sabiha Gökçen International Airport**, and operates an extensive network of domestic and regional services. **Pegasus Airlines** was launched as a charter airline in 1990, and started operating scheduled flights in 2005. It is owned by **ESAS Holding**, and now flies to 33 destinations in Turkey and to 70 cities in 40 countries.

Okay Airways announced its commitment to buy eight MAX 8s, three 737 MAX 9s and one Next-Generation 737-900ER at the **Singapore Airshow** on February 16, 2016. The agreement was valued at \$1.3 billion (an average of \$108.3 million each) at current list prices and the deal needs to be approved by the **Chinese Government**. **Okay Airways** ordered six 737 MAX aircraft in May 2014, and it now has purchased 17 MAX airplanes, and the airline has the right to exercise options for eight additional 737 MAX 8s.

China Eastern Airlines will order ten more 777-300ERs. When the transaction is completed, the planes will be added to the carrier's existing order of 20 777s, which will be delivered by the end of 2018. The airline also ordered 15 A330s in August 2015. The new jets will allow the carrier to move forward with its plans to expand international service. It is launching several new long-haul routes this year. To help sustain its ambitious growth plans, **China Eastern** CEO **Ma Xulun** said the airline may take on a strategic investor, which would require the government to dilute its current shareholding to less than 50 percent. **China Eastern** is looking at the 787-9 and the A350-900 for its long-term fleet renewal.

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Boeing Commercial Airplanes Chief Ray Conner told his employees that he wants to figure how the company should address a major strategic dilemma – what it should build to counter the A321neo. The two options are to produce a larger, revamped 737 MAX or to design an all-new “797” airplane. It is expected that the larger MAX could be assembled in Renton, where **Boeing** builds the current MAX. An all new “797” could be built at the non-union North Charleston plant in South Carolina. Industry observers suggested that **Boeing** might build the new plane more cost effectively in a less union-friendly area than in Washington State. **Boeing** VP of Marketing **Randy Tinseth** said management will come up with a business plan for its next move, and is looking at the costs of developing a new airplane, the cost of building them are “always one of the critical aspects.” They need to decide whether to share development costs with partners, whether to build it from metal or composites, and where the jet will be built, will all be part of **Boeing’s** assessment, he said. A decision could come this summer at the earliest. **Boeing** wants the A321neo competitor to be bigger than the 757 and offer more range. The Renton-built 757 went out of production 10 years ago. The 757s powerful engines and large wings gave it more range and flexibility than any other contemporary single-aisle jet. Today, it is used as a narrowbody trans-oceanic airliner by several carriers. The A321neo is smaller and slightly less capable, but the upcoming A321neo will fit the niche pretty well when it enters service in 2017. **Boeing’s** 737 MAX 9 doesn’t fly as far or carry as many passengers as the NEO. **Airbus** booked 1,052 firm orders for the A321neo, including 100 from **American Airlines**, while the MAX 9 won just 290 orders. There is a sense of urgency at **Boeing** because **Delta Air Lines** and **United airlines** each plan to replace their aging 757s, and the former has ordered 45 A321neos already. An industry source said **Boeing** should not let U.S. airlines jump into an A321neo buying frenzy. Unfortunately, the U.S. manufacturer is too busy with the MAX and the 777X to design another new airplane before 2021. The company needs to offer a much better product than the A321neo to forestall a rush of A321neo orders. As it stands, **Boeing** waited five years too long

The Boeing Company may advance the in-service date of its 777-9 widebody twin to December 2019. Although this represents an acceleration of only months or even days, from the previous target of 2020 for the first customer delivery, the shift is psychologically significant. An un-named source said **Boeing** was working for airframe and **General Electric** GE9X engine certification by a December 2019 service entry. A launch airline confirmed that it is planning for the arrival of its first 777-9 before 2020, but **Boeing** denied that it altered the timing for the widebody. “Nothing has changed with the 777X schedule. The program is still on track for first delivery in 2020,” it said. The manufacturer declined to say when in 2020 it expects to hand over the first aircraft or the name of the launch customer. **Emirates** is the largest customer with 115 777-9 orders, but **Etihad Airways** and **Lufthansa** were the first airlines to place orders, on November 17, 2013, for 17 and 20 777-9s respectively. **Boeing** has booked 53 orders for the 777-8 and has a backlog of 253 777-9s. **Boeing** is under pressure to lessen the gap between the end of production of the 777-300ER and 777 Freighter and the arrival of the 777X family. The airframer sold 22 777-300ERs and 16 777Fs in 2015, leaving backlogs for the -300ER and Freighter at 172 and 41, respectively. **Boeing** announced it would reduce the 777 production rate to seven aircraft per month in 2017, down from approximately eight at this time. The company needs to sell another 200 777s by 2019 in order to sustain that output level. **Boeing’s** 777-9 will carry 400-425-passengers, and assembly will begin in 2017. The smaller 350-375-seat -8 will follow around two years later, and will enter service in 2021 or 2022. The 777X features a longer composite wing, a stretched fuselage, and a new 100,000 pound-thrust (445kN) GE9X engines.

to offer its better option. If it can come up with a maximum sized 737 MAX in two years, it may have a chance to dent the A321neo. Its only other choice is a carbon fiber, mini 787 with smaller engines to sit just above the A321neo in size and range. **Airbus** sales chief **John Leahy** said he was “quite content with where we are,” and the industry has no need for a new midmarket plane, since **Airbus** is already selling the A321neo. He said if **Boeing** produces a new plane by 2022 or 2023, then **Airbus** will “have the luxury of sitting there, looking at what they do, and answering at a later date” with something better. Doubters think increasing the size of the 737 MAX could be a stretch too far, while an all-new plane would be too expensive. Their advice is to forget the middle of the market. An all-new **Boeing** jet would cost \$15 billion to \$20 billion to develop and there was the risk of 787-like delays and cost overruns. Another analyst said stretching the 737 MAX fuselage, adding new, more powerful engines, raising the landing gear and beefing up the wings would do the trick. It would be a lot less risky than a clean sheet design for **Boeing**. **General Electric** offered the simple solution of installing a bigger **CFM International** LEAP engine on the 737 MAX 9.

Regional Report

The **Canadian Government** studied a request from **Bombardier** for \$1.0 billion in aid and it will make an announcement within weeks. The Canadian airframer wants the money to help finance its CSeries. The **Province of Quebec** invested \$1.0 billion in the CSeries last October and now they want the national government to help protect thousands of aerospace jobs in Montreal. **Bombardier** formally asked for federal help on December 11, and the two sides are still talking about what form possible aid could take. Senior government sources said **Ottawa** was likely to offer some sort of aid. The province wants the CSeries program to be spun off into a separate entity, and for Canada to take a one-third stake for the billion dollars, leaving **Bombardier** with one-third, and **Quebec** with a third. The province currently controls 49.5 percent of the CSeries and the manufacturer holds a majority. This would take the troubled 100-150 seat aircraft off the company’s books and boost its short-term financial results. The first CSeries will be delivered to the launch customer, **SWISS International Air Lines**, by June. The planes will enter service in the third quarter. **Bombardier** recently completed a series of route trials from the airline’s Zurich base.

Airlines in India Want to Buy Regional Aircraft. They are talking with **ATR**, **Bombardier** and **Embraer** about smaller planes to fly to connect the country’s booming second and third tier cities. **Air India** plans to add 13 turboprop planes and 27 regional jets by the end of 2017. Chairman **Ashwani Lohani** said the airline would launch “a major foray” into flying to smaller cities this year. The flag carrier already leases eight **ATR** turboprops and three 70 seat **Bombardier** CRJ700s. Low-cost carrier, **SpiceJet**, wants to add to its fleet of 14 **Bombardier** Q400 turboprops. The **Indian Government** outlined plans to boost regional aviation connectivity by reopening many of the 350 unused airstrips as no-frills airports. India’s passenger numbers grew by 20 percent in 2015 to 81 million; because low fuel prices and rising disposable incomes have helped many more millions fly. Most domestic travel is between the country’s largest and wealthiest cities. The government wants to make air travel more accessible for the masses, but critics say that forcing airlines to fly potentially unprofitable routes will encumber the carriers with unfair costs. **John Moore**, head of sales at **ATR**, said, the government will encourage “airlines to go into these markets, and this creates an opportunity for us.” **ATR** aims to sell about 90 planes to Indian airlines in the next three to five years, where 30 are now in operation. India’s Civil Aviation Minister, **Ashok Gajapathi Raju**, said the government will unveil the final civil aviation rules detailing the regional connectivity program in April.

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Embraer Commercial Aviation released its market forecast for Asia Pacific region (including China) at the **Singapore Airshow**. The company said that airlines will take delivery of 1,570 new jets, valued at \$75 billion, at list prices, in the 70- to 130-seat segment over the next 20 years. This will account for 25 percent of the worldwide demand. The **Embraer Market Outlook** reports the entire market will require 6,350 new jets valued at \$300 billion over the period. **Embraer** believes the Asia Pacific market will become more affluent, competitive, and open, which will stimulating airlines to seek system efficiencies, brand differentiation, and improved service levels. The 70- to 130-seat jet segment will support the intra-regional development in Asia Pacific. The region experienced rapid social and economic development in recent decades. The region's above-average economic expansion will result in higher household incomes and increased discretionary spending, including air travel. **Paulo Cesar Silva**, President & CEO, **Embraer Commercial Aviation**, said, "We are showing to airlines the benefit of moving away from a crowded marketplace and [to] seek out opportunities in markets that are currently underserved, or not served at all, where yields are also stronger, moving from one to two digits." The Asia Pacific region's projected annual GDP growth rate is 4.1 percent for the next 20 years. **Embraer** said the rise of Low Cost Carriers was a direct and natural response to the surge in demand for air travel in the region, however, the large inflow of capacity has influenced ticket prices and created a new dynamic: a vicious cycle in which lower yields force lower unit costs, leading to larger aircraft that add more capacity which, in turn, lower load factors that promote even more fare discounting. Reducing fares to offset falling load factors has its limits. There are already signs of saturation; despite 8.6 percent RPK growth in 2015, carriers earned an average net margin of only 2.9 percent. Profitability remains elusive for Asian carriers facing the challenge of surplus capacity. More than 250 markets, or 30 percent of routes served exclusively by narrowbodies are served by less than one daily frequency. These would be better served with 70- to 130-seat jets. **Embraer** sees an opportunity to replace more than 250 jets in the 50- to 150-seat category which are more than 10 years old. The manufacturer has more than 20 customers and more than 200 aircraft flying in the region.

Embraer Delivered 33 Commercial and 45 Executive Jets in the fourth quarter of 2015. The company delivered 101 commercial aircraft, and 82 light and 38 large executive jets which met or surpassed the official estimates for 2015. **Embraer's** revenues reached \$2,074.4 million in the fourth quarter and \$5,928.1 million for the full year, which also met the company's 2015 Revenue Guidance range of \$5.8 to \$6.3 billion. Earnings Before Interest and Taxes (EBIT) and Earnings Before Interest, Tax and Depreciation (EBITDA) margins were 3.1 percent and 7.9 percent, respectively, in the fourth quarter, and the margins were 5.6 percent and 10.9 percent, respectively for the full year. The Chapter 11 filing of **Republic Airways Holdings**, lowered EBIT and EBITDA margins from 8.0 percent and 12.8 percent, respectively in the final quarter, and from 7.3 percent and 12.6 percent, respectively for the entire year. The bankruptcy and uncertainty about **Republic's** 24 E-Jet orders caused **Embraer** to fall short of its Guidance EBIT range and equal its EBITDA range. Free Cash Flow was strong in the fourth quarter and the company reported \$660.0 million in cash, and the 2015 Free Cash Flow was \$177.8 million, with net cash of \$7.2 million vs. net deficit of \$38.7 million at the end of 2014. The company forecasts net revenues of \$6.0 to \$6.4 billion in 2016 and they expect to deliveries from 105 to 110 airliners, 40 to 50 large jets and 75 to 85 light bizjets. Its **Defense & Security** unit revenues are expected to range from \$700 to \$750 million for the year.

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Zagros Airlines reached a preliminary agreement with **Embraer** covering an order for 20 aircraft with “135 seats”. If the orders are finalized it seems likely that the Iranian carrier will buy EMBRAER 195s or E195-E2s. The deal is still subject to approval by the United States due to the remaining sanctions still in place, the airline said. **Zagros** currently operates one A319-100, 10 A320-200s, five MD-82s and three MD-83s. Some of its **Airbus** aircraft are damp-leased from **Khors Aircompany** and **Dart Airlines** in the Ukraine.

Order Changes and Cancellations

Airbus Changes. One A319 order was transferred from the **Undisclosed** category to **China Eastern Airlines** and the airline took delivery during the month. **Air China** ordered two A320-200s, **Shenzhen Airlines** ordered its 57th A320, **Sichuan Airlines** purchased its 32nd A320, and **Spring Airlines** acquired two A320s in February. The orders were transferred from the **Undisclosed** category and all four airlines took immediate delivery of their airplanes. **Vueling Airlines** switched three A320ceo orders to the A321ceo variant. The airline has now committed for 15 of each type. **Aercap** exchanged 13 A320neo orders for 13 A321neos. **China Eastern** took delivery of two A321ceos that were previously listed in the **Undisclosed** category. **Undisclosed** orders now stand at 10 A319ceos, 12 A319neos, 115 A320ceos, 410 A320neos, 91 A321ceos and 57 A321neos.

Air France converted orders for its last two outstanding A380-800s into three A350-900s according to **Air France-KLM Royal Dutch Airlines'** financial statements for its 2015 fiscal year. It dropped its A380 options too. **Airbus** has not reported the change. The A380s were originally scheduled to be delivered in 2013 before being deferred to 2017, due to the French

Hindustan Aeronautics Ltd (HAL) Wants a Joint Venture Partner for 50-80 Seat Aircraft. The **Indian Government** dropped plans to develop an indigenous Regional Transport Aircraft (RTA), so state-owned **HAL** made a Request for Information (RFI) for the domestic manufacture of a 50- to 80-seat regional aircraft. “Considering the current situation where a limited number of models are already developed and in service, **HAL** intends to form a joint venture in India with the OEM,” its RFI stated. Proposals need to be submitted by April 11. Last year **HAL** had intended to design and build a domestic RTA in partnership with the Bangalore based, **National Aerospace Laboratories (NAL)**. Now the airframer is looking for a new joint venture partner to license build an existing aircraft, under a ‘Made in India’ initiative proposed by the government. **HAL** requires an airplane capable of regular passenger and cargo operations, as well as use in military transport, maritime surveillance and electronic intelligence gathering roles. The RFI asks for, “provision for a ramp door/sliding door option, bubble window, radome, etc” which could allow for air-drop operations. **HAL** is open to twin-engine turbofan or turboprop power and the ability to operate from short and semi-prepared runways. There also needs to be adequate ground clearance for installation of radar/equipment in the military aircraft’s belly and it must be able to accommodate under-wing pylons for carriage of stores, including light armament and rocket pods, etc. It seems that several Indian government agencies are not talking to each other, since **Airbus** has offered to co-produce the C295W with **Tata Advanced Systems** in India. That plane is intended to replace the **Indian Air Force’s** obsolete **HAL**-built HS-748 transports. The government is supposed to buy 56 new C295Ws to replace the HAL 748s, and the deal is the first where **HAL** would not participate in the local assembly of transport aircraft. **HAL** partnered with **Hawker Siddley** to build 89 HAL 748s by 1984, and with **Dornier** to manufacture the Do-228 passenger/utility aircraft after 1984.

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flag carrier's weak economic performance at the time. The new A350 orders raise **Air France-KLM's** A350 order backlog to 28.

Qatar Airways delayed deliveries of four new **Airbus** A380s two years ago, before the recent fuel price decline made the aircraft's operating costs more palatable. The four A380s were originally scheduled to join the Gulf carrier's fleet in 2016 and in 2017, and each one was deferred by nearly one year, CEO **Akbar Al Baker** said. Its next A380 is to be delivered by the end of 2016 or in early 2017. Today, the airline operates six GP7200-powered A380s. He said the airline needed to "protect" itself against high fuel costs, when it changed the schedule in 2014, but the A380 "becomes very efficient when the oil is where it is now." If oil prices stay below \$60, he said, there may be "a possibility" that **Qatar** would exercise options for three additional A380s. The down side is that the cuts in commodity prices led to reduction in premium traffic as companies cut back travel costs.

VLM, Belgium, dropped earlier plans to lease four Sukhoi Superjet 100-95LRs from Russian lessor **Ilyushin Finance**. The regional carrier signed a Letter of Interest for four aircraft in 2014 but they could not take delivery of the first aircraft in 2015 because of delays in the **EASA** certification. CEO **Hamish Davidson** said **VLM** was considering other aircraft types to replace or supplement its fleet of 11 **Fokker** F.50s that it uses on scheduled and charter flights, as well as a wet-lease contract on behalf of **CityJet**, Ireland. **CityJet** is planning to take delivery of its first four of 15 SSJ 100-95s this year.

Cathay Pacific will take delivery of its first **Airbus** A350-941 (SN 029) in May, a three month delay from the original February date. The plane made its first flight on March 24, and it will now enter the final phase of production including cabin completion, further ground checks and test flights before delivery. The delay is due to a "cabin product issue" the airline said, which is a polite way of saying that seat-maker **Zodiac** is behind schedule with its seat production. **Cathay** will take delivery of 12 A350s this year, and another 10 in 2017, and 26 A350-1000s from 2018 through to 2020. **Cathay** retired one A340 in February, and it brought forward the retirement of its three remaining **Boeing** 747-400s by one year, from 2017 to later this year.

Thai Airways is still talking with **Airbus** and **Boeing** about deferring deliveries of aircraft it no longer needs. The company said it had returned to profit in the final quarter of 2015, but it grounded 38 aircraft as part of the turnaround. They plan to attain an 80 percent load factor this year by filling the planes it still operates. It announced in January that it needed to delay the delivery of 12 A350s, and two 787s. **Thai Airways** President **Charamporn Jotikasthira** told the press, "Today we still have 73 percent cabin factor so we don't need to expand anywhere. Financially we don't need the planes and commercially we have not sold enough tickets. The more capacity we have the more trouble we will run into, so the more we can delay the better." **Thai Airways** will honor its contractual obligations to take the planes if a deferral is not possible. He also said there would be no need for a delay if tickets sales prove better than expected before the planes arrive. He forecast a return to annual profit this year and said, "According to the plan, we should be able to reach about 60 percent of the target profit that we want to do this year with the full potential next year."

Boeing Reported Two Cancellations in February and 14 in March. The manufacturer lost two 737NG orders in early February. **United** dropped four 787-10 orders when it bought four 777s and 25 more 737-700s in March. **Eastern Air Lines** cancelled its order for 10 737-800s when it ordered 10 737 MAX aircraft in March. The start-up airline ordered the 10 737 NGs in May 2014.

Leasing & Finance

Nordic Aviation Capital (NAC), the world's largest turboprop aircraft lessor, is acquiring **Jetscape Aviation Group**, which is a leading player in regional jet leasing. The deal will see **NAC** acquire **Jetscape's** 28 owned **Embraer** E-Jets, and commitments for 11 E-Jets. The lessor also has 18 E-Jets under management. "This is a significant strategic development for **NAC** and we are pleased to diversify with the addition of an exceptional deal-focused, customer-centric organization with highly experienced management and dedicated staff. **Jetscape's** solid reputation in regional jet leasing can only enhance the strong brand which **NAC** already enjoys in the turboprop sector," **NAC** Chairman **Martin Moller** said. His counterpart, **Jetscape** CEO **John Evans**, said, "We are delighted to bring **Jetscape** into **NAC**. Joining forces with them gives us an expanded geographical reach and most importantly, a firm financial platform to further develop regional aircraft leasing activity." **NAC** is the world's largest independently owned aircraft leasing company with over 275 aircraft in its portfolio, including **ATR** ATR 42, ATR 72, **Bombardier** Dash 8-300/Q400, CRJ900/1000, **Boeing** 737, **Airbus** A320, and **Saab** 2000 aircraft. **NAC** focuses on regional aircraft, mainly turboprop, serving 40+ customers worldwide. **Jetscape** was founded in 2000, and owns 16 E190s, nine E175s, one E170s and two E195s. In addition, **Jetscape** has commitments to purchase 10 E190s and one E195 in 2016.

Private Equity Firm Terra Firma rejected two bids from **HNA Group**, China, for its **AWAS** leasing subsidiary. **HNA** made its first bid, late last year, which valued **AWAS** in line with its fleet's book value of approximately \$2.0 billion. The offer excluded several aircraft which were to be sold. The second and most recent bid upped the offer by roughly 10 percent, to \$2.2 billion, representing a premium to book value. **Terra Firma** is run by British financier **Guy Hands**, and it bought 75 percent of **AWAS** from **Morgan Stanley** in 2006 for \$2.5 billion. In 2007, it acquired rival **Pegasus Leasing** for \$5.2 billion, and merged the groups to create what became the world's third-largest plane lessor. It currently has a fleet of 257 planes leased to operators in 45 countries. Last year, **Terra Firma** contracted to sell a portfolio of 87 aircraft to **Macquarie Group** for \$4 billion. The total **HNA** deal, including debt, is valued at more than \$7 billion. Last year, **HNA** bought Ireland's **Avolon Leasing** for about \$7.6 billion, through its **Bohai Leasing** arm. The Chinese company wants to become one of the top three aircraft leasing companies, alongside Netherlands-based **AerCap** and **GECAS** in the United States. Another huge aircraft lessor, the highly ranked, Japanese-owned, Dublin-based **SMBC Aviation Capital**, reportedly made an offer for **AWAS**.

Arctic Aviation Assets (AAA), the leasing subsidiary of **Norwegian Air Shuttle**, will lease 12 A320neos to **HK Express**. The twinjets will be delivered between 2016 and 2018. The **Hong Kong Airlines'** subsidiary currently operates 13 A320-200s on flights to Cambodia, China, Japan, Myanmar, South Korea, Taiwan, Thailand and Vietnam. **AAA** reportedly signed a separate agreement to lease 10 230-seat A321s with an unknown airline. **Norwegian** ordered 100 A320neos in January 2012 and optioned another 50. Some of those airplanes will be transferred to **AAA** upon delivery. **Airbus** has not reported a change in its backlog or customer list to account for the A321 leases.

Norwegian will lease two new **Boeing** 787-9 Dreamliners from **AerCap** in 2018. The airline wants to expand its international presence and launch even more intercontinental routes. With this new agreement, the airline's long-haul fleet will consist of 40 Dreamliners by 2020.

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Air India and ALAFCO Signed a Lease Agree-ment for 14 A320neo aircraft at the **India Aviation Exhibition 2016** in Hyderabad, India. The first planes will be delivered in 2017. **Air India** already operates 22 A319s, 24 A320s and 20 A321s. **Air India** became the first airline in India to operate A320s when its subsidiary **Indian Airlines** took delivery 27 years ago.

FLY Leasing reported net income of \$27.7 million for the fourth quarter of 2015, compared to net income of \$15.5 million for the same period of 2014. The 2015 results include an impairment charge of \$18.9 million related to three older aircraft, as well as \$17.0 million in gains on sales of aircraft and \$37.9 million in end of lease income (of which, \$15.0 million relates to the three impaired aircraft). The lessor had \$139.0 million in total revenues in the quarter, compared to \$120.3 million for the same period in 2014. For the year 2015, adjusted net Income was \$131.0 million as compared to \$80.4 million for the previous year.

Airline News

Juneyao Airlines intends to nearly triple its fleet to 150 airplanes by 2020. It and its low-cost subsidiary, **9 Air**, operated 51 A320 Family aircraft and seven 737-800NGs, respectively, by March 2016. The Shanghai-based carrier has already placed orders for new aircraft. Chairman **Wang Junjin** said, "Our seats will increase around 29 percent alone this year as more new planes arrive." **Juneyao** forecast its net profit would increase to 160 percent, and its revenue rose more than 40 percent from the previous year in the first two months of 2016. Mr. **Wang** dismissing worries about China's slowing economy by saying, "Some sectors in the economy are slowing, but there are still quite a few bright spots. Only one out of three people in China gets to fly once every year nowadays," he said. The airline was approached to join several major global airline alliance groups, and Mr. **Wang** said he did not rule out joining an alliance.

Atrak Air, Iran, said it acquired three A320neos which will be handed over in June. The airline operates two A320-231s (SN 314 & 393). **Atrak Air** will add six **Embraer** E-Jets as well.

Ryanair launched its corporate jet charter service with a newly customised **Boeing** 737-73S/W (SN 29078), which accommodates 60 passengers on reclining leather business class seats. The plane is crewed by **Ryanair** pilots and cabin crew. More than 25 million business travellers fly with **Ryanair** every year and they can now enjoy the benefits of its corporate jet service, the airline said.

Rayani Air, Malaysia, recently secured its **Air Services License (ASL)** and **Air Operators Certificate (AOC)** from the **Department of Civil Aviation (DCA)**, and started full-service passenger operations on December 20, 2015. It operates two ex-**Malaysia Airlines** 737-4H6s on flights between Langkawi and Kuala Lumpur. It plans to add Kota Bharu, Kuching and Kota Kinabalu shortly.

International Air Transport Association (IATA) Posts January 2016 Jet Fuel Prices.

The association updates the world's average jet fuel prices each week. On February 5, the world's average price of fuel was \$1.021 per gallon, 9 percent lower than the January 2016 price of \$1.130. Fuel was also 40.5 percent less than it was in February 2015. The price of fuel is affected by location. It was only \$0.95 in the Middle East region and was \$1.105 per gallon in Latin America, which was the highest priced region. In Asia, fuel cost \$0.984 per gallon. Fuel dropped to \$1.022 in Europe, and fell slightly to \$1.045 in North America. Since last year, fuel costs in those regions dropped by 42.2 and 38.9 percent respectively.

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The airline intends to acquire two 737-800s in 2017. It is jointly owned by the oil and gas firm, **Merdeka Jayabumi Enterprise**, and the mining company, **Terus Maju Metal**.

Hongtu Airlines, China, took delivery of its first of two A321-211/Ws (SN 6156), and it will receive its second -211/W (SN 6268) shortly. The airplanes were allocated to **UTair**, Russia, but never entered service. They are owned by **VEB Leasing**. The Kunming, Yunnan-based airline will start operations as soon as it secures its **Air Operator Certificate (AOC)** from the **Civil Aviation Administration of China (CAAC)**. **Hongtu Airlines** is a joint venture between **Kunming Evergreen Financing** (30 percent), local tycoon **Tang Longcheng** (20 percent), and the remaining 50 percent is owned in equal share by five local companies. It was launched with 600 million yuan (\$96.6 million) in start-up capital. The start-up carrier will operate domestic passenger and cargo services from Kunming.

Jetstar Pacific Airlines will retain the A320ceo as the backbone of its fleet instead of buying the more efficient but more expensive A320neo. The current low oil prices and the higher acquisition costs had made the A320neo economically unviable. Chief Operations Officer (COO), **Leslie Stephens**, said the Vietnamese low-cost carrier will extend the short-term leases of its current fleet. **Jetstar Pacific** intends to double fleet of 12 A320-200s to 24 by 2018. The airline will acquire six A320-200s each in 2017 and 2018, and another six by early 2019. The carrier is also looking at other long term fleet options, such as the **Bombardier** CSeries and **Embraer** E-Jet E2 families. The airline wants to bolster its share of the domestic Vietnamese market and to expand internationally in Southeast and North Asia. **Jetstar Pacific** will return its two dry-leased A321-231s (SN 2261 & 2267) to **Vietnam Airlines** later this year.

Vietnam Airlines transferred its routes from Hanoi to Dien Bien Phu and Vinh City to **VASCO Vietnam Air Services** on January 1, 2016. **VASCO** operated two ATR 72-500s turboprops until it received two A321-200s from **Vietnam** for the new routes. In 2015, **Vietnam Airlines** distributed various internal routes to its **VASCO** and **Jetstar Pacific Airlines** subsidiaries to improve their efficiency as well as profitability. **Jetstar Pacific** now operates routes from Hanoi and Ho Chi Minh City to Tuy Hoa and Tamky with A320 Family aircraft.

LAW – Latin American Wings, Chile, started operations on January 27 with one 737-3G7 (SN 24634) that it acquired from **Chilejet**. It offers scheduled passenger flights from Santiago de Chile to Bolivia, Brazil, Dominican Republic, Paraguay and Uruguay. The airline is owned by a consortium of businessmen involved in the Chilean insurance, construction and aviation industries.

Nepal Airlines is expected to take delivery of its first widebody jet in December. The order must be approved by the airline's board, and the **Nepalese Government**. The airline signed a Memorandum of Understanding for one A330-200 at the **Dubai Airshow** in 2009. It has already received two A320-233/Ws and it apparently has two more on order for delivery in May and July of 2017. The first two A320s were supposed to replace **Nepal's** two 28-year old 757s but the 757s are still in service. The airline wants to stimulate growth and revenue by expanding its route system to include leisure flights to Australia, Japan, North America and the United Kingdom.

The Pakistani Government Plans to Launch Pakistan Airways. The airline is expected to start international operations by August 2016 with 10 to 12 new aircraft. It will operate alongside the current government-owned, flag carrier **Pakistan Inter-national Airlines (PIA)**. **PIA** is still expected to

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replace its ageing fleet of A310-300s with A330s later this year. The exact level of future cooperation between the two carriers is still being reviewed. **Pakistan International Airlines** had to cancel its flight operations during a six-day strike against the government's plan to privatize the money losing carrier. Three protesting workers were killed during clashes with police in Karachi, on February 2. More than 600 flights were cancelled and the nearly bankrupt airline suffered losses of billions of rupees. Flights resumed February 8. **PIA** employees some 19,000 people and half of them were hired on political grounds the government said. The airline is facing an accumulative loss of Rs320 billion (\$3.055 billion).

French Blue will launch revenue operations on September 15 with four times weekly Paris **Orly**-Punta Cana, Dominican Republic services. The airline is owned by **Groupe Dubreuil**, which ordered A330-300HW (SN 1727) for delivery in the third quarter. The airline will receive a second A330 and one A350 in 2017. A second A350 is expected in 2018. The A330s will be deployed on flights of up to nine hours while the A350s will be used on thirteen hours flights. The airline will inaugurate routes to St. Denis de la Réunion and Mauritius in June 2017. The A330s will be fitted with 350 seats in 'Eco blue' and 28 in 'Premium blue' classes. The A350s will feature 415 seats. **Groupe Dubreuil** also owns **Air Caraïbes** and sister carrier **Air Caraïbes Atlantique**.

Volotea Airlines Chief Executive Officer, **Carlos Munoz**, said the low-cost carrier will replace its 19 **Boeing** 717s with "mid-age" **Airbus** A319s that have reached 10 to 12 years of age and they will be "typically second-lease" from "large lessors like **GECAS** or **AerCap**". The Spanish airline will acquire 30 to 40 used A319s over the next two to three years. **Volotea** leased its first A319-132 (SN 2113) from **AerCap** in March and it will receive another three A319s (SN 2122, 2240 & 2253) from **AerCap** and **GECAS** before the end of May. The carrier contracted for six in total and will source more from **AerCap** and **GECAS** over the next few years. They will typically be leased for six to 10 year terms, he said. The four A319s are fitted with 150 seats, while the 717s seat 125. The first four A319s will be stationed at Nantes, France, and after May, all 25 routes from Nantes will be operated by A319s. The 717s will be gradually transferred to other 717 operators such as **Delta Air Lines**, **Hawaiian Airlines** and **Qantas**. The 10- to 15-year old 717s will be returned to lessors **Falko Regional Aircraft** and **Boeing Capital**.

Brussels Airlines will replace the four **AVRO** RJ100s that it uses on regional European routes, with three A319-100s and two A320-200s this summer. Last year, the airline said it would retire all 12 RJ100s by the end of 2017, and replace them with A319/A320 aircraft. As **Brussels** adds A320s, it will use them to replace the smaller A319s.

Aeroflot Group combined its three subsidiary airlines, **Donavia**, **OrenAir (Orenburg Airlines)** and **Rossiia**, on March 27. The airlines were united under a single Air Operator's Certificate with **Rossiia – Russian Airlines** as the survivor. The **Federal Air Transport Agency (Rosaviatsiya)** said the three airlines had a total fleet of 51 aircraft as of February 2016. This includes 26 **Airbus** A319s, seven A320s, 15 **Boeing** 737-800s and three **Boeing** 777-200ERs. According to **Aeroflot**, the consolidation will increase **Rossiia's** fleet to 74 aircraft, because the merged fleet is expected to receive 14 747-400s, five 767-300s and five 777s previously operated by **Transaero**. **OrenAir** transferred its 10 **Airbus** A319s to **Rossiia**. The carrier's 19 **Boeing** aircraft, three 777-2Q8ERs and 16 737-800s, were returned to lessors for onward lease to **Rossiia**. Some of **OrenAir's** aircraft may be based in Orenburg, but most will go to **Domodedovo Airport**, Moscow, or to **Rossiia's** hub in St. Petersburg. **Donavia**, **Aeroflot's**

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subsidiary in Rostov, has started the process of transferring its fleet of eight A319-111s, leased from **AerCap** and **GECAS**, to **Rossiya**. It is not clear if **Donavia's** base in Rostov will remain open.

Bankruptcy of the Month

The Never Ending Saga of Kingfisher Continues. Seventeen Indian banks, seeking to recover \$1.36 billion in loans from **Kingfisher Airlines**, have symbolically taken possession of nine **Kingfisher** trademarks, which may be worthless. **Kingfisher Beer** and airline owner, **Vijay Mallya**, decided to vacation in London in March, and the lenders asked the **Indian Supreme Court** to demand his return and to impound his passport. Indian Finance Minister **Arun Jaitley** told parliament "As far as the government is concerned the clear instructions are that the banks must go all out to take every possible action," against Mr. **Mallya** and other defaulters. He said there were some cases of "willful default even bordering [on] fraud." India has very weak bankruptcy laws and now scofflaws have \$120 billion in unpaid debt due to the Indian financial system. **Kingfisher** stopped flying in October 2012, and left creditors, suppliers and employees with unpaid IOUs. It owes the banks 90.91 billion rupees (\$1.36 billion) as of November 2015, Mr. **Jaitley** said. Mr. **Mallya** has been called a willful defaulter by some banks. He is chairman of **United Breweries**, maker of India's best-selling beer, **Kingfisher**, and **Heineken** is its biggest shareholder. The **UB Group** is so far not affected by the airline's demise. Mr. **Mallya** was ranked the 45th-richest Indian with a net worth of \$1 billion by **Forbes** in March 2012. Now he is hounded by politicians, creditors, federal investigators, unpaid workers and media, who are on a "hysterical witch hunt," he said. He told the British press that the time was not right for him to return to India. He said, "I didn't flee from India and neither am I an absconder. Once a media witch hunt starts, it escalates into a raging fire where truth and facts are burnt to ashes." He reported from an undisclosed location, that he was trying to reach a "one-time settlement" with lenders.

Seven Kingfisher Airlines Airplanes rot away at **Chennai Airport** in southern India. The decaying aircraft, **Airbus A319-133CJ** (SN 2650) and **ATR 72-500s** (SN 612, 613, 737, 738, 739, 750), were damaged by flooding late last year. **ATR 72** (SN 750) is leased from **KF Turbo Leasing**, the rest are owned by **Kingfisher**. Now the government is getting ready to auction off Mr. **Mallya's** assets, including the personal **ACJ319**, in order to recover service tax dues of Rs 812 crore (\$122 million), which includes penalties and interest. The government wants to sell the five **Kingfisher ATR 72s** and three helicopters. The aircraft have been attached by the service tax department. A senior **Central Board of Excise & Customs (CBEC)** official said the reserve price for the aircraft will be set by **MSTC Ltd**, a government company that has expertise in auctions. The 2006-era **ACJ319** will be sold at auction on May 15-16. A new **A319** is list priced at nearly Rs 600 crore (\$90 million), but the 10-year old **VIP jet** will be worth a small fraction of that amount in its present condition. Of the total Rs 812 crore, Rs 32 crore (\$4.81 million) is tax that was collected from passengers but not deposited with the government. The tax department had sought Mr. **Mallya's** arrest last year, but a Mumbai magistrate let him free after he posted a personal recognizance bond of Rs 50 lakh (\$5 million). The tax department asked the court to force Mr. **Mallya** to surrender his passport, but this did not happen.

Engines

Pratt & Whitney's PurePower Geared Turbofan engines successfully completed its first test flight on the **Airbus A321neo**. The 35,000 pound thrust **PW1135G-JM** is the most powerful engine

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on the A321neo. The A320neo's PW1100G-JM engine was certified in 2014, and the A320neo received certification in November 2015. The PurePower engine family has completed more than 50,000 cycles and 32,000 hours of testing.

Pratt & Whitney President **Robert Leduc** boasted, "We're 99 percent dispatch reliable at **Lufthansa**. An engine that's not robust, an engine that's not durable, does not demonstrate 99 percent dispatch out of the box." **Lufthansa** took delivery of the first **Airbus** A320neo, equipped with PW1100G-JMs, in January. The German flag carrier said that issues with the Geared Turbofan engine were not fully fixed and it was not ready to put more of the aircraft into commercial service. **Lufthansa** CEO **Carsten Spohr** said, "The engine issues are slowly improving, we're not there yet, that's why we have not agreed to take the second aircraft into the fleet." **Pratt & Whitney** is currently installing a hardware fix on current-production engines that will be delivered in June, and will retrofit engines made earlier. By the end of the year, the hardware fix will improve engine start times so they are close to what airlines are used to with other engines. Mr. **Spohr** said that the software issues are about 50 percent resolved, while **Pratt** said the nuisance messages generated by the engine control system had been reduced by more than 80 percent. The company said, "**Pratt** will implement another software fix next month that will reduce nuisance messages further." **Lufthansa** is flying the A320neo within Germany, where it has a large base of engineers, **Spohr** said.

Pratt & Whitney said it was installing fixes on engines for **Qatar Airways'** **Airbus** A320neos. At the **Singapore Airshow**, **Qatar's** CEO **Al Baker** said he would "not accept an aircraft with those engines unless they are very much corrected." **P&W** said, "We have met with Mr. **Al Baker** previously and explained that we have fixes for the issues he identified. They are being installed in engines being built today and they will be in place prior to him receiving his engines." The airline ordered 50 A320neos. ®

WORLDWIDE AVIATION MARKETING AND MANAGEMENT SERVICE
Technical

British Airways (BA) will repair the **Boeing** 777-236ER (G-VIIO, SN 29320) that was badly damaged by an engine fire in Las Vegas, and return it to service. The aircraft is being repaired at **McCar-ran Airport** by **Boeing** engineers. They inspected the airframe and concluded that the damage was "limited" and "suitable for repair", **BA** said. "A team from **Boeing** will carry out the repair work, which will be certified to the same high standards as if the aircraft was brand new," the airline added. The 777's left-hand **General Electric** GE90 powerplant caught fire while the airplane was on the ground. The damaged engine was removed and it will be replaced. **BA** did not offer an estimate as to how long the repairs will take but it said the 16-year old 777 "will resume flying once stringent checks have been completed."

Zodiac Aerospace, the troubled French group, said it put a recovery plan in place to deal with the

Lufthansa Technik's Completion Center has finished the VVIP cabin conversion of a second **Boeing** 747-8 in Hamburg. The aircraft has now been delivered to an undisclosed customer, possibly the **Abu Dhabi Amiri Flight**. The 747-8 incorporates new features in its 440m² (4,740ft²) cabin, including integrated cabin management and onboard entertainment system with broadband internet, wireless local area network, TV and satellite communications equipment, **LHT** said. It is now finishing its third VVIP 747-8. **LHT** has completed and delivered 14 VIP 747s since it was established in 1994. It has finished more than 100 VIP airliners, including 40 **Boeings**. The manufacturer has sold eight BBJ 747-8s to governments for use as VIP transports.

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seating production delays but that it would take longer than the 18 months originally forecast. The company said it faced a delivery backlog of 300 seats, down from 500 in November. In January, the management said the company had listened to concerns about delays in production of cabin equipment and vowed to address the problem.

ST Aerospace opened its new VIP aircraft interiors center at the **Seletar Aerospace Park** in Singapore. The company said it will offer its full suite of VIP luxury cabin interior design, engineering, installation and maintenance services to the region, and serve customers from across Asia Pacific and the Middle East, with a core team of highly skilled engineers and craftsmen. This is **ST's** second VIP conversion center having established its first at San Antonio, Texas, in 2011. The Singapore VIP aircraft interiors center will design, upholster and fabricate cabin interiors, as well as provide maintenance for narrow-body VIP aircraft, including the **Boeing Business Jets (BBJ) 737** and **Airbus Corporate Jets (ACJ) A320 Family**, while conceptual design and certification continue to be supported by its San Antonio VIP interiors team. All the engineers and craftsmen received skills training at San Antonio, the birthplace of large aircraft VIP completions which has access to the skilled craftsmen and highly trained engineering talent pool in that region. **ST Aerospace's AERIA Luxury Interiors (AERIA)** installed its first VIP interior in its first green **Boeing Business Jet 737-BBJ** after its delivery in late 2014 and it was re-delivered to an undisclosed customer in December, 2015. The BBJ VIP interior features a dedicated forward crew lounge, finished galley, conference room, large resting lounge, and master suite. 3D printed items are showcased in the interior as decorative pieces with elegant finishes including the application of precious stone. Multiple hi-definition monitors complement the modern digital entertainment system. The luxury cabin was also outfitted with humidification and zonal drying system. A custom designed exterior paint scheme was included with the design package created by the in house **AERIA** design team, **ST Aerospace** said.

Cargo Pallet

MASKargo, Malaysia, will retain its four A330-200Fs, and it will retire its two 747-400(F)s. The **Malaysia Airlines** subsidiary is shifting its entire operation from main deck to belly hold cargo space as part of its parent's ongoing restructuring program. The airline still operates two A330Fs on routes throughout China, Japan, the Indian Sub-continent and Southeast Asia. It leased one to **Turkish Airlines** unit **Turkish Cargo**, and intends to lease out its fourth A330F, which is currently stored at **Kuala Lumpur International Airport**. The airline will shift its long-haul services to

Amazon.com signed an agreement to lease 20 Boeing 767 widebody freighters from U.S. provider of air cargo transportation, **Air Transport Services Group (ATSG)**, in order to ensure capacity to fulfill its promise of one and two-day deliveries in the United States. The world's biggest online retailer is offering ever-faster, and sometimes free, deliveries for millions of online orders. It also is trying to assume more control over its supply chain and to reduce costs. **Amazon** currently relies on **United Parcel Service (UPS)**, **DHL** and **FedEx** to deliver most of its packages. The first leased planes will go into operation on April 1, and the lease terms are from five to seven years. **ATSG's** subsidiaries **ABX Air** and **Air Transport International (ATI)** will operate the 20 freighters for **Amazon.com's Fulfillment Services** division. The deal was announced on March 9 and it gives **Amazon.com** the option to purchase up to 19.9 percent of **ATSG's** shares over a five year period. **ABX** operates 19 767-200(F)s and eight 767-300ERFs, while **ATI** flies two 767-200(F)s. In December 2015, **Amazon.com** established a trial operation using aircraft operated by **ATSG**, and the mail-order giant had negotiated with several other air cargo companies, including **Atlas Air** and **Kalitta Air**.

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Europe to partner carriers. CEO **Ahmad Luqman Mohd Azmi** said, “We will still operate 747 freighters, but not on our metal, that’s the sort of fleet synergy we are looking at. We believe in growing, not organically with our own metal, but through partnerships that will be the new network philosophy for **MASkargo**.” It recently signed a Memorandum of Cooperation with **Silk Way Airlines**, Azerbaijan. The agreement will allow **MASkargo** to continue serving Amsterdam, via **SilkWay’s** Baku hub. It is talking with an undisclosed operator to operate flights to Sydney, Australia, and to **Mumbai International**.

Bombardier and **Air Inuit** have announced that they are jointly working on a passenger to freighter conversion program for the Dash 8-300 turboprop. **Air Inuit** currently operates 11 Dash 8-300s, and two are already operated in an all-cargo configuration. Those planes lack a large cargo door. The new program will design, develop and install large cargo doors in three Q300s, transforming them into dedicated freighters. The Canadian regional carrier also operates BAe 748 and Twin Otters in cargo configuration.

Aeronautical Engineers (AEI) will provide **Kalitta Charters** with its second 11-pallet position 737-400SF freighter conversion. The high gross weight aircraft (SN 24271) was built in 1989 and is being modified at **Commercial Jet’s** Miami, Florida, facility. The freighter will be re-delivered to **Kalitta** in June, 2016. The **AEI** 737-400SF is the only passenger to freighter conversion product that offers operators ten full height 88” x 125” container positions.

Precision Aircraft Solutions re-delivered two more 757 PCF-Precision Converted Freighters for operation by **DHL** affiliates. The first conversion, a former **Yakutia** -23N (SN 27974) was completed by **HAECO Americas** in Greensboro, North Carolina, and re-delivered to **Blue Dart Aviation** in Chennai, India. The second conversion, a former **Nordwind** -2Q8 (SN 29443) was completed at **Flightstar**, Jacksonville, Florida, and handed over to **EAT Leipzig**. The **DHL** global network now operates 22 Precision-converted 757s around the world, including several in Australia, Bahrain, India, North America, and Panama.

The PACAVI Group and GAMECO (Guangzhou Aircraft Maintenance Engineering) reported that both companies are on track to complete their first joint effort **Airbus A320/A321 Passenger-to-Freighter conversion** in 2017. **GAMECO** will also convert **PAC-AVI’s** A321 Freighter LITE prototype in Guangzhou. **PACAVI Group** CEO Dr. **Stephan Hollmann** commented, “Our STC program, started in January 2015, is progressing on schedule, as well as the conversion of our prototype A320 Freighter LITE at the **HAITEC** facility in Frankfurt/Hahn, Germany. After we performed the Preliminary Design Review in December, we now have successfully completed the first pre-modification tests. As we move on with these tests, a Critical Design Review will take place in just a few weeks from now.” The **PACAVI Group** said, the “A320 Freighter LITE will carry up to 21 metric tons of cargo, flying routes of nearly 3,200 nautical miles, depending on load weight (2,300 nm at structural limit). The Freighter LITE conversion program includes a new 140-inch main deck cargo door, a Class E cargo interior, a 9G barrier and a manual cargo loading system. A typical configuration would accommodate up to 10 88-inch x 125-inch x 82-inch unit load devices (ULDs) or pallets, and one smaller container or 88-inch x 61.5-inch pallet, resulting in a main deck container volume of about 3,860 cubic feet. The A320 Freighter LITE can also accommodate containerized freight in the aircraft’s belly holds, a unique capability among competing narrowbody freighters, adding a lower deck cargo volume of 1,322 cubic feet.”

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Precision Aircraft Solutions handed over 757-28A(PCF) (SN 27621) to **SF Airlines**, a subsidiary of **SF Express**. The conversion is the 14th **Precision** passenger-to-freighter 757 aircraft to join the **SF** cargo operation.

Military Market

Airbus Defence & Space delivered only 11 A400M transports in 2015 which prompted **Airbus Group** CEO **Tom Enders** to promise to deliver 20 or more A400Ms in 2016. "We delivered 11 A400M in 2015, and we cannot be satisfied with that level of delivery; we planned for more. We still have some problems [with] that program. I expect, in terms of deliveries to customers in 2016, there will be a 'two' in front, so that means 20-plus deliveries of A400M in 2016. This is of course all subject to discussions with the various customers."

The program faced a challenging year due to the type being grounded after the crash of an A400M intended for the **Turkish Air Force**. Some customers called for schedule changes which lead to slower output than planned. **Airbus** originally expected to deliver 13 aircraft in 2015. Mr. **Enders** said, "We're making good progress on the industrial delivery, progressing on the military capability, and we have discussions with customers on deliveries this year, and also in relation to the military capabilities." The company needs to upgrade the aircraft's military capabilities, he said. The sale of 14 A330 Multi Role Tanker Transports (MRTT) in 2015 improved the **Defence & Space's** outlook. France bought eight, South Korea signed for four and Australia is buying two refurbished A330s for conversion into MRTTs. Defense sales accounted for €11 billion (\$12 billion) of **Airbus'** total sales of €64 billion last year.

The Indian Government will purchase two additional Airborne Early Warning (AEW) platforms from **Israel Aerospace Industries (IAI)**. The **Cabinet Committee on Security (CCS)** approved a special budget of approximately \$1.2 billion for two **Ilyushin** Il-76 transports and the Israeli-made **Phalcon** sensor. India ordered three converted Il-76s in 2004, and they were delivered between 2009 and 2011. The contract included options for additional aircraft. India intends to purchase the two Il-76s from Uzbekistan, and they will be modified at the **Tashkent Mechanical Plant** facilities in co-operation with **Beriev** in Taganrog, Russia. The planes will be flown to Israel where **IAI's Elta** division will install the radar in the IL-76 dome along with the other sensors that comprise the **Phalcon** system.

The U.K. Royal Air Force won **U.S. State Department** approval to buy nine torpedo-carrying **Boeing** P-8A Poseidons from **Boeing**. The maritime patrol aircraft will replace the **BAe** Nimrod MR2 MPAs that were retired in 2010. The deal is valued at \$3.2 billion, and is likely to be approved by the **U.S. Congress** during a 30-day notification period. Similar submarine and surface ship hunters are being exported to Australia and India. The British **Ministry of Defence** spurned the offer of a C295-based MPA made by **Airbus Defence & Space** and the **Kawasaki** P-1 from Japan.

AIRCRAFT DELIVERIES & SALES

Airbus

Airbus A319. One **Airbus** A319 was delivered in February, a -115/W (SN 6836) to **China Eastern Airlines**. The airline accepted a second previously unannounced -115/W (SN6890) in March. **Airbus** reports that it has another nine A319ceo orders from undisclosed customers.

Airbus A320. Airbus delivered 25 A320s during February, including four -214/Ws (SN 6947, 6953, 6985 & 6992) to **Lufthansa**. Two of the -214/Ws (SN 6953 & 6992) were leased to **Eurowings**. Elsewhere in Europe, **easyJet** obtained three -214/Ws (SN 6970, 6977 & 6981), and **Aegean Airlines** leased -232/W (SN 6961) from **ALAFCO**. **Aeroflot Russian Airlines** acquired its first of 16 -214/Ws (SN 6963) from **Aerospace Trading Holding Ltd.**, and **airberlin** leased its sixth -214/W (SN 6966) from **GECAS**. In China, **Airbus** handed over two -232/Ws (SN 6882 & 6932) to **Air China**; the first was built by **Tianjin Final Assembly Line (FAL)**. **Spring Airlines** accepted another two -214/Ws (SN 6452 & 6858). The first one was stored since January 2015 and the second was flown into storage upon delivery. **Spring** has 58 A320s in its fleet, but six of them have not entered service yet. **China Development**

Bank (CDB) leased **Tianjin FAL**-built -214/W (SN 6847) to **Loong Air**, **Sichuan Airlines** received -214/W (SN 6937), and **Shenzhen Airlines** acquired -232/W (SN 6984). Also in Asia, **Lion Air** transferred two -214/Ws (SN 6951 & 6962) to its full-service subsidiary **Batik Air**. The first was sold to **Avolon** and leased back. **Garuda Indonesian** transferred -214/W (SN 6980) to **Citilink**. **VietJet Air** took delivery of -214/W (SN 6958) and sold it to **AWAS** for lease back. In the Americas, **Virgin America** received two -214/Ws (SN 6939 & 6965). **Volaris**, Mexico, bought -233/W (SN 6969), and **VivaAerobus** acquired -232/W (SN 6955) and sold it to **SMBC** for lease back.

IndiGo, India's largest airline by passenger numbers, took delivery of its first A320neo (-271N, SN 6799) on March 10. It received its second -271N (SN 6819) five days later. The airline is the first A320neo operator in India and in Asia, and it is one of **Airbus'** biggest A320 Family customers. **IndiGo** ordered 180 A320neos in 2011 and another 250 A320neos in 2015. It placed its initial order for 100 A320s in 2005 and all of them have been delivered. **IndiGo** will receive another 13 NEOs by the end of the year and 12 more in the first quarter of 2017, 21 in the second quarter, 27 aircraft in the third quarter and 24 aircraft in the fourth quarter of fiscal year 2017, the airline said. It will return some of its oldest A320neos to lessors as the NEOs arrive.

Aeroflot reported that it took delivery of A320-214/W (SN 6963) (see above) and the transaction was supported by the **State Transport Leasing Company (GTLK)** through its subsidiary, **GTLK Europe**. **Aeroflot** expects to receive seven A320s through **GTLK Europe** in 2016, and **CMB Leasing**, China, is also taking part in financing the deal. **GTLK** is developing partnerships with Asian financial institutions to "diversify funding sources, which is the company's primary task under current economic conditions," it said. At the beginning of 2016, **GTLK** had 58 aircraft in its portfolio, and the total amount of its investment in Russian commercial aviation reached 90 billion rubles. **Aeroflot** intends to take delivery of nine A320s in 2016 and will retire six. In 2017, it will acquire 11 A320s and phase out seven older ones, and in 2018 it will receive 10 new A320s and dispose of 15. The airline will also obtain 13 A321s, and retire three in the next few years.

Airbus A321. Airbus delivered 13 A321s in February, including two -211/Ws (SN 6957 & 6960) to **China Eastern Airlines**, and two -231/Ws (SN 6987 & 6990) to **Turkish Airlines**. **Thomas Cook Scandinavia** acquired two -211/Ws (SN 6968 & 7003) from **Thomas Cook Airlines**, and the latter was sold to **AVAP** and leased it back. **LATAM Airlines** transferred two -211/Ws (SN 6949 & 7005) to **TAM Linhas Aereas**, Brazil. **American Airlines** bought -231/W (SN 6983), and **BOC Aviation** leased an eighth -211/W (SN 6999) to **EVA Air**. **Spirit Airlines** received -231/W (SN 6994), **Vueling** accepted -231/W (SN 6933), and **Wizz Air** obtained -231/W (SN 6976).

Delta Air Lines took delivery of its first A321-211/W (SN 6923), in Hamburg on March 16, and it will take delivery of 14 more A321ceos this year. It was the first of 45 A321-200/Ws on order, and they will replace ageing **Boeing** 757-200s. The airline plans to debut the A321 on flights between Atlanta and Orlando on May 2. **Delta's** A321s will seat 20 people in first class, 29 in economy comfort and 143 in economy.

Airbus A330. **Airbus** delivered one -202 (SN 1700) to **Iberia**, and one -243F (SN 1708) to **Qatar Airways Cargo** in February. **China Southern Airlines** acquired -323 (SN 1699), and **Turkish Airlines** obtained -303 (SN 1704).

Airbus Flies First U.S. Built A321. The first aircraft produced at the **Airbus U.S. Manufacturing Facility** flew on March 21. The A321-231/W (SN 6512) is destined for **JetBlue Airlines** and it took off from the **Mobile Aeroplex** at Brookley, Mobile, Alabama, at 9:36 a.m., and flew for 3 hours and 26 minutes. The flight crew of six performed tests on systems, engines and the structure performance. More than 300 employees watched the plane take off. The aircraft will go through a few more weeks in final production before being delivered to **JetBlue** later this spring. The plane was painted by **MAAS Aviation** at its new facility located at **Mobile Aeroplex**.

TAP Portugal will obtain two A330-243s (SN 365 & 372) from sister carrier **AZUL Linhas Aéreas Brasileiras** as part of its fleet expansion and renewal program. The aircraft are owned by **Deucalian Aviation Funds**. The A330s will join other **AZUL** aircraft, including nine **Embraer** E190s operated by **PGA Portugalia Airlines** and eight ATR 72-600s operated by **White**, both for the **TAP Express** brand name.

Airbus A350. **Singapore Airlines (SIA)** took delivery of its first A350-941 (SN 026) in Toulouse, France, on February 26. **SIA** is the fifth operator for the type. The A350 XWB will form the backbone of **Singapore's** future mid-size widebody fleet, and they will be configured with 253 seats, comprising 42 Business Class, 24 Premium Economy and 187 Economy. The plane will initially operate regional services to Kuala Lumpur and Jakarta before the aircraft is deployed on long haul flights to Amsterdam and Dusseldorf, starting in May. The airline has ordered 60 A350-900s, and seven -900LRs which will be delivered with an ultra-long range capability for flights of up to 19 hours. The standard -900s will operate selected regional services and on long range flights. **SIA** will resume non-stop flights to the U.S. with its seven -900LRs. **Singapore Airlines** currently operates 19 double decker A380s and 29 A330-300s. To date, **Airbus** has recorded a total of 783 firm orders for the A350 XWB from 42 customers.

Airbus A380. **Emirates** accepted its 74th -861 (SN 206). The A380 is fitted with 519 seats in three classes. **British Airways** received its 11th -841 (SN 194), and it has one more (SN 215) on order. **Airbus** has 137 of its flagship airliners on backlog.

Boeing

Boeing 737 NG. **Boeing** delivered 40 737s in February, including a record nine -8AS/Ws (SN 44711, 44718, 44719, 44720, 44721, 44722, 44723, 44724 & 61580) to **Ryanair**. The airline has taken delivery of 392 -800NGs and it has 139 more -800NGs and 100 MAX-8s on order. **Turkish Airlines** received three -8F2/Ws (SN 60013, 60014 & 60015), and **Southwest Airlines** accepted three -8H4/Ws (SN 36737, 36904 & 36932). **Air Lease Corp. (ALC)** leased one -8SH/W (SN 41339) to **Aerolineas Argentinas**, and -8SH/W (SN 42053) to **Sunwing Airlines**. **GECAS** leased a third -86N/W (SN 43411)

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to **Myanmar National Airlines** and the 14th -86N/W (SN 60689) to **Hainan Airlines**. **China Eastern Airlines** took delivery of its 52nd and 53rd -89P/Ws (SN 41484 & 61681) from a total order of 90. The second one was transferred to **China United Airlines**. **China Development Bank Financial Leasing (CDB Leasing)** leased the first of 20 -89P/Ws (SN 60162) to **China Eastern Airlines**. **Alaska Airlines** bought two more -990ER/Ws (SN 41728 & 41729) and it has 28 on order. **Delta Air Lines** acquired its 53rd and 54th of 100 ordered -932ER/Ws (SN 31964 & 31965). **EL AL Israel Airlines** received two -958ERs (SN 51157 & 51158) and has one more on order. **United Airlines** obtained its 130th -924ER/W (SN 42198). The airline has one -800, 65 737-700s and 100 737 MAX on order. The **U.S. Navy** received its 51st -8FV (P-8A Poseidon, SN 49952), and **American Airlines** accepted its 268th of 305 -823/Ws (SN 31236). **WestJet** took delivery of its 33rd -8CT/W (SN 40837), and it has five on order. **GOL Airlines** accepted -8EH/W (SN 41179) and sold it to the **Bank of Utah**. The airplane was placed in storage at **Chennault International Airport**, Lake Charles, Louisiana. In Europe, **AerCap** leased -89P/W (SN 41816) to **Shanghai Airlines**. **Aeroflot** leased its 16th -8LJ/W (SN 41216) from **Avia Capital Leasing (ACS)**. **Norwegian Air Shuttle** acquired its 67th -8JP/W (SN 42071), and it has 33 more on order. **Turkish Airlines** accepted -8F2/W (SN 60014), which was listed as delivered to an Unidentified Customer by **Boeing**. **Comair Limited**, South Africa, received -8LD/W (SN 40972), and **Lion Air** bought -8GP/W (SN 39879) for lease to **Thai Lion Air**. **All Nippon Airways** obtained its 35th of 36 -881/Ws (SN 62640) and sold it to **SMBC Aviation Capital** for lease back.

Boeing delivered Nok Air's 21st Next-Generation 737-88L/W (SN 61295) during a ceremony on March 10. This was the airline's third -800 to be purchased directly from Boeing. Boeing Flight Services pilots flew the 737 to Bangkok and kicked off a world-class flight training program with the airline to help strengthen the capabilities of its rapidly expanding flight crews. Boeing said its Flight Services department "provides integrated offerings to drive optimized performance, efficiency and safety through advanced flight, maintenance and cabin safety training as well as simulator support and services through a global network of campuses on six continents." The manufacturer forecast a need for 226,000 new commercial airline pilots and 238,000 new technicians in the Asia-Pacific region through 2034.

GE Capital Aviation Services (GECAS) leased one 737-86N/W (SN 43412) to Chinese airline **Okay Airways** in March. The carrier leases a fleet of 15 737-800/Ws, three -900ERs and one -300(SF) freighter and provides scheduled cargo and passenger service to domestic and international destinations from its base in Tianjin.

Boeing 767. One 767-3S2F (SN 42720) was delivered to **FedEx Express** in February. In March, **AWAS** leased -328ER/W (SN 27427) to a repeat customer, **Boliviana de Aviacion (BOA)** to support its growing international services. This was **AWAS'** third -300ER to be leased to **BOA** and the airline's first 767 fitted with winglets for added payload-range capability and fuel burn improvement. **AWAS** also leased one 737-73A (SN 28498) to **BOA**, helping the airline with their fleet modernization and expansion plan. Both aircraft came from **AWAS'** existing fleet.

Boeing 777. **Boeing** delivered one 777-FFX freighter (SN 62744) to **Etihad Airways** in February. **Emirates Airlines** took delivery of its 82nd of 120 ordered -31HERs (SN 42329), and **Saudi Arabian Airlines** obtained its 20th -368ER (SN 42268). **Air Lease Corp. (ALC)** leased one -306ER (SN 44555)

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to **KLM Royal Dutch Airlines**. **American Airlines** received its 19th -323ER (SN 33538) and it has one more on order.

Boeing 787. **Boeing** delivered three 787-8s and seven 787-9s in February, including two -8s (SN 40631 & 40632) to **American Airlines**, and one -8 (SN 38344) to **Qatar Airways**. **United Airlines** accepted two -9s (SN 37813 & 37815), and **Air Canada** obtained its fifth -9 (SN 37171). **Saudi Arabian Airlines** received its third -9 (SN 41546) and **Japan Airlines** took delivery of its third of 20 -9s (SN 38137). **MG Aviation** leased its first -9 (SN 37307) to **Norwegian Long Haul**. The lessor has three more 787s on order and they will be leased to **Norwegian**. **KLM Royal Dutch Airlines** leased its third -9 (SN 38763) from **AerCap**.

Air Europa and **SMBC Aviation Capital** celebrated the delivery of the carrier's and the lessor's first 787-8 Dreamliner (SN 36412) on March 15. The Dreamliner was built at **Boeing's** 787 assembly site in North Charleston, South Carolina and flew nonstop to Madrid on March 16, a distance 4,128 miles (6,643 kilometers). The 787 is the first of eight that the Spanish carrier ordered in March 2007. It also ordered 14 787-9 Dreamliners in 2015. The 787s will replace **Air Europa's** long-haul fleet of 13 A330-200s and four -300s. The airline's next two -8s (SN 36413 & 36414) will be delivered this year.

Oman Air signed a three year agreement with **Kenya Airways** to wet-lease two of the carrier's nine 787-8s (SN 36045 & possibly 36046). The airplanes are the newest ones in **Kenya's** fleet and they are leased from **BOC Leasing**. **Oman Air** recently acquired additional slots at **London Heathrow Airport** and it will use the 787s to add a second daily frequency on the route from Muscat. The flag carrier already operates two 787-8s which it bought from **Boeing** in late 2015. **Kenya Airways** is cutting its long-haul capacity and retired its fleet of seven 777s, but it will retain its 787-8s.

Crystal Luxury Air, Aruba, will acquire one 787-8 (SN 35507) in 2018. It was one of the early model "terrible teens" 787-8s that were built about 5 years ago and never delivered to the airlines that originally ordered them. The **Crystal** 787 was originally built for **Royal Air Maroc** and then was allocated to **Rwandair**, but that deal fell through when the flag carrier bought two A330s. The 787 will be fitted with GENx-1 engines and a VIP interior and used for high-end charters in support of **Crystal Cruise's** luxury cruise liners. The airline will put its 777-29MLR (SN 40955) into service in 2017, after the 88-seat VIP interior is installed. The 777 was purchased from **Air Austral** in November 2015.

The Abu Dhabi Amiri Flight and the **Saudi Ministry of Finance** will each take delivery of one 787-9BBJ. The airplanes were ordered in 2006 and the Saudi airplane will be delivered in 2017. The **Amiri Flight** 787 is line number 537, but a serial number has not been assigned.

British Airways said deliveries of two 787-9s (SN 38623 & 38624) will be delayed for several months because **Zodiac**, the seat manufacturer, is not delivering seats to **Boeing** on schedule. **BA's** -9 (SN 38625) was delivered on time, in March.

Regional Jet

Bombardier. **PSA Airlines** received three CRJ900NGs (SN 15386, 15387 & 15388) in February, and they will be operated for **American Airlines** under the **American Eagle** brand. The airline took delivery of three more CRJ900NGs (SN 15389, 15391 & 15392) in March, for **American Eagle**. **China Express**

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Airlines accepted CRJ900LR (SN 15395) in February and (SN 15396) in March. In March, **SAS Scandinavian Airlines** obtained CRJ900LR (SN 15398) and leased it to **CityJet**, Ireland. The airline will lease eight new CRJ900s from **SAS** for regional operations from Finland. **Air Nostrum**, Spain, acquired two CRJ1000s (SN 19045 & 19046) in March, and it has another (SN 19047) on order.

Embraer. Embraer delivered four more EMBRAER 170-200 LR (E175) (SN 17000536, 17000537, 17000541 & 17000542) to **Republic Airlines** for operation for **United Express** in February. **American Airlines** acquired two E175s (SN 17000536 & 17000537), for its **American Eagle** regional operation.

Sukhoi. **Aeroflot Group** took delivery of three Sukhoi Superjet 100s (SSJ 100) so far in 2016, including two SSJ 100-95Bs (SN 95094 & 95099) in January and a third in March. Three more will be delivered before the year's end, raising its fleet to 30. **Aeroflot's** general director **Vitaliy Savelyev** recently said that the carrier was ready to place another firm order for 20 SSJ 100s, which may be delivered in two equal batches in 2017 and 2018.

Irish Regional Carrier CityJet is expected to take delivery of its first Sukhoi Superjet 100 (SN 19102) in May. The delivery was originally scheduled for the first quarter of 2016. A spokesperson for **SuperJet International (SJI)**, a SCAC /**Alenia Aermacchi** joint venture which is responsible for selling the SSJ 100 outside Russia, said the aircraft was ferried to **SJI's** base in Venice where it is being customized and outfitted with 98 seats. Its interior design was done by **Pininfarina**, an Italian firm, which also designed the interiors for **Interjet's** SSJ 100. The airplane flew in December 2015, and is the first out of the batch of 15 ordered by the Irish airline. **CityJet** optioned 16 more aircraft, which could be confirmed by the third quarter of this year. Three SSJs will arrive this year, and the last of the 15 firm orders should be filled by the end of 2017. **CityJet** will be the first, and so far, the only operator of the SSJ in Europe.

IrAero, Irkutsk, Russia, is planning on adding four Sukhoi Superjet 100 regional aircraft. The airline said the first jets are expected in May. **Sukhoi Civil Aircraft (SCAC)** has not commented on the sale. **IrAero** recently received permission to acquire the SSJ 100, and the company has already trained its staff to work with the aircraft. The SSJs will be used on a network of middle-range routes extending beyond Irkutsk region. The airline currently operates six **Bombardier** CRJ200 jets, and 17 **Antonov** An-24s and -26s turboprops. **IrAero** had planned to lease four more CRJ 200s by 2016, but those plans have been postponed for the time being. It is possible that **IrAero** will acquire four ex-**Aeroflot** SSJs (SN 95013, 95014, 95017 & 95039) that are in storage. Three of the SSJs are owned by **VEB Leasing**.

Turboprop Aircraft

ATR delivered two more ATR 72-600s (SN 1308 & 1313) to **BRA – Braathens Regional Airlines** for a fleet total of three.

Bombardier delivered one new Q400 NextGen (SN 4516) to **Air Canada Encore** in February. The airplane is operated by **Jazz Air**. **Westjet Encore** received two Q400NGs (SN 4517 & 4518).

Aurora, Russia, commenced Dash 8-400 revenue operations in February, a month after the **Aeroflot** subsidiary received its first Q400 (SN 4351). The airline will acquire two more Q400s from

March 2016

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Aeroflot this year, and the **Government of Sakhalin Oblast** will buy two that will be used for medical charter flights.

Antiques and Other Junque

Avtrade purchased two serviceable **Boeing 737-7K9s** (SN 28088 & 28089) from **Babcock Brown Asset Management (BBAM)**. The ex-**GOL Airlines** aircraft will be parted out at **Avtrade's** Tucson, Arizona, facility and the components will support the company's global services to more than 3,000 customers worldwide, including over 500 airlines.

EgyptAir Holding Company said it would immediately dispose of seven A320-200s and four 737-500s. It will sell three A340-212s and four 777-266ERs at a later date. The A340s and two 777s are leased to other operators. **EgyptAir** is launching a wide-ranging restructuring program aimed at curbing continuous losses. It plans to place a narrow and widebody order later this year.

Boeing's First 727 took off for its final flight in March, from **Paine Field** in Everett, Washington, and landed safely at **Boeing Field** about 15 minutes later. The plane will be put on permanent display at Seattle's **Museum of Flight**. The 727-22 (N7001U) made its first flight in 1963, and was operated by **United Airlines** for 27 years. The airline donated the plane to the **Museum of Flight** in 1991. It sat idle for 25 years while dozens of volunteers worked to restore it and ensure it could fly one last time. **Boeing** said the 727 was one of the first planes to make jet travel more accessible in America and helped solidify **Boeing's** place in the commercial airplane market. The museum will park the 727, painted in a 1960's **United** paint scheme, outside until the fall, when it will move into the **Aviation Pavilion**, a 140,000-square-foot facility that will house about 20 restored aircraft, including the first 737 and first 747.

Greece is again trying to sell **Olympic Airlines'** last two A340-313s (SN 280 & 292). The Greek government acquired the aircraft from the former national carrier in 1999 before leasing them back to **Olympic** until it folded in 2009. It decided to sell the jets in 2014, but the process was delayed after it failed to transfer the aircraft to the **Hellenic Republic Asset Development Fund (HRADF)** in time. The planes are parked at **Athens International Airport**. **HRADF** is looking to conclude the sale by mid-June, due to the high maintenance and parking fees it is paying, but the deal is contingent on Athens transferring the jets to the **HRADF**. The two A340s last flew in September 2009 and are due for C and D checks. **Olympic's** two other A340-313s (SN 235 & 239) have already been scrapped, which is the probable fate for their sisterships.

The Kuwait Ministry of Finance issued a public invitation for bids on a VIP A310-308 airliner (SN 648), which is used for head-of-state and government transportation and operated by state-owned carrier **Kuwait Airways**. The **Kuwaiti Government** will take delivery of a new **Boeing 747-8** in the next few months. The VIP-configured A310 was built in 1992 and powered by **GE Aviation CF6** engines. It was bought new from **Airbus** after **Trans European Airways** cancelled its order. The A310 will be auctioned off by May 2.

Lufthansa has officially ended its 737-530 operations and sold the last of 30 aircraft (SN 24945) to its new owner, **Automatic Leasing**, on March 22. The plane was flown to Orlando, Florida. The German flag carrier continues to operate seven 737-300s, having disposed of 36 of the type.

March 2016

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The LATAM Airlines Group said it would complete the disposal of its four A330-223s and three A330-203s by the end of this year. **VAS Aero Services** recently announced it would acquire four of the A330s still with **TAM Linhas Aéreas** along with fourteen spare **Pratt & Whitney** engines. The jets will be ferried to **Lourdes/Tarbes Airport**, France, for teardown by **VAS's** European partner, **Tarmac Aerosave**. The 100-inch **Pratt & Whitney** PW4168A engines will be rented out. Two -223s (SN 968 & 1112) will be returned to lessor **AerCap** and leased to **Air Berlin**. **TAM** has one -223 (SN 259) and one -203 (SN 700) are still in active service. The A330s are being replaced by A350-900s. **LATAM Group** carriers, **LAN** and **TAM**, will begin their gradual transition to a single unified brand and the first aircraft will be rolled out of the paint shop in the new livery in April.

Accidents and Safety

From Aviation Safety Foundation

FlyDubai Boeing 737-8KN/W (A6-FDN, SN 40241) impacted airport terrain during a second approach attempt to land at **Rostov-On-Don Airport** in bad weather, on March 19. All 55 passengers and seven crew were fatally injured and the airplane was destroyed. The flight departed Dubai at 18:37 hours UTC on March 18 and tried to land for a second time nearly six hours later. The aircraft crashed at the airport during an approach to runway 22. ADS-B data recorded by **Flightradar24** show the aircraft descending to an altitude of 1,550 feet when it began to climb again at 3 NM (5.6 km) short of the runway. It reached about 3,975 feet until the airplane entered a steep descent before hitting the ground. The data recorders were recovered.

True Aviation Antonov An-26B freighter (S2-AGZ, SN 13408) crashed in shallow waters in the Bay of Bengal shortly after takeoff from **Cox's Bazar Airport**, Bangladesh, on March 9. Three Ukrainian crew members died in the crash and another was critically injured. Shortly after takeoff, one of the engines failed and the crew tried to return to the airport, but the plane hit the water.

Royal Malaysian Air Force IPTN/CASA CN-235M-VIP (M44-07, SN N.055) crash-landed in shallow waters in a swampy beach area off Kuala Selangor, Malaysia, on February 26, 2016. The aircraft caught fire, but all eight crew members survived, although a local fisherman drowned while trying to help.

Aviación del Ejército Ecuatoriana IAI Arava 201 transport plane (E-206, SN 0090) crashed in Pastaza Province, Ecuador, on March 15, 2016. All three crew members and 19 skydivers on board were killed.

Jet Airways Boeing 737-95R (VT-JGD, SN 33740) landed at **Mumbai-Chhatrapati Shivaji International Airport**, India, on March 3, and the right hand main landing gear folded up as the jet was rolling along at 60 to 80 knots. The strut penetrated the wing, and the airplane came to rest on the number 2 engine. The 120 passengers and eight crew members escaped without serious injury.

Boeing-owned 787-9 (G-VDIA, SN 37975) that was due for delivery to **Virgin Atlantic Airways** was damaged by an engine fire in January. Apparently the wing was damaged by an engine fire while the engine was running during a test on the flight line at North Charleston, South Carolina. The 787 was repaired and was supposed to be delivered on March 17, but it is still in **Boeing's** hands as of March 24.

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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.

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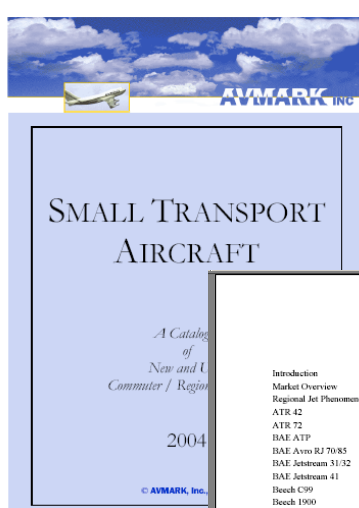
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AVMARK's Small Transport Aircraft Catalogue (STA); designed as an easy to use reference guide to compare the operating and cost parameters of 35 regional jet and turboprop aircraft.

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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
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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:

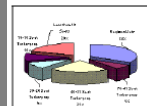


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Embraer 170	121
Metrol	124
Fokker 50	128
Fokker 70	132
Let 410/420	136
Saab 340	140
Saab 2000	144
Shorts 330	148
Shorts 360	152

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	22,875 lb
Max Ramp	10,325 lb
Max Takeoff	9,920 lb
Max Landing	62.53 lb / sq ft
Max Ramp	10.23 lb / cu ft

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

Optional Equipment: KLN 500 GPS/W, FME Area Navigation (RNAV), Microwave Landing System, VLF/OMG 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 Director, Dual King Gold Crown Dual King Gold Crown VHF Nav, Radios, DME Radio Altimeter, Honeywell P-800 Weather Radar.

Price List

Years Built	Base (\$ mil)
85-99	3.0

Direct Operating Costs (\$ per block hour)

Utilization (Block Hours / Year)	Average Stage Length (nm)	Flying Operations	Flight Crew, Salaries / Expenses	Fuel, Oil, Taxes	Other
100	300	\$198	\$160	\$173	\$162
				\$3	\$3

Aircraft Costs

	\$3	\$3
Insurance	\$478	\$478
Maintenance	\$62	\$62
Depreciation	\$318	\$318
Rentals		

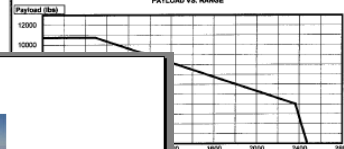
Total Direct Operating Costs

	\$906	\$883
Cost per Available Seat Mile - \$	12.33	8.65
Cost per Airplane Mile	\$5.67	\$4.44
Cost per Seat Block Hour	\$16.67	\$15.11

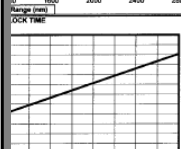
Note: Data from DOT airline filings.

ATR 42-300

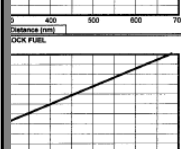
PAYLOAD VS. RANGE



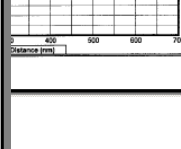
Range (nm)



Distance (nm)



Distance (nm)



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.

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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

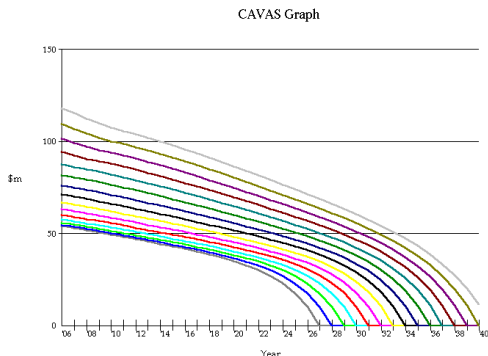
Manufactured: 1992 To 2006

Values: \$54.00m \$118.00m

Estimated Life: 35 years File No. 013

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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
REVENUES (US\$)						
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
TOTAL OPERATING REVENUE	59,194,505	59,124,887	59,055,070	58,985,055	58,914,841	58,844,684
VARIABLE EXPENSES						
Fuel	6,918,975	6,917,743	6,916,510	6,915,277	6,914,044	6,912,811
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
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
TOTAL VARIABLE COST	23,443,212	23,443,212	23,443,212	23,443,212	23,443,212	23,443,212
SEMI-VARIABLE EXPENSES						
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
FIXED EXPENSES						
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
TOTAL FIXED COST	522,892	522,218	521,544	520,870	520,196	519,522
TOTAL OPERATING COST	31,464,497	31,464,497	31,464,497	31,464,497	31,464,497	31,464,497
General and Admin. Allocation	1,573,225	1,573,225	1,573,225	1,573,225	1,573,225	1,573,225
TOTAL COST	33,037,722	33,037,722	33,037,722	33,037,722	33,037,722	33,037,722
OPERATING PROFIT OR LOSS	26,156,782	26,156,782	26,156,782	26,156,782	26,156,782	26,156,782
D-CHECK ADJUSTMENT						
Cumulative Hours	4,830	9,650	14,459	19,257	24,045	28,833
Cumulative Dollars	315,000	0	0	0	0	0
ADJUSTED CASH FLOW	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782
AIRCRAFT LIFE ADJ. CASH FLOW	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782

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