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Newsletter

Market Comment

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Etihad Airways Purchase of Alitalia Stalled. The Abu Dhabi flag carrier still wants to buy 49 percent of **Alitalia**, but it demanded major job cuts and debt restructuring. **Etihad** could purchase nearly half of the Italian flag carrier for €500 million (\$694 million), but talks stalemated as of late April. **Etihad** wants lender banks to convert half of **Alitalia's** €800 million debt into shares and the other €400 million in debt written off. The press reports that the bank shareholders are willing to consider converting some of the debt into more shares, but they want clear guarantees from **Etihad** that **Alitalia** can be turned around. **Etihad** also called for the airline's Italian creditor banks, including **Intesa Sanpaolo** and **UniCredit**, to provide at least €300 million in additional financing. The Gulf carrier also wants the Italians to fire 2,000 to 3,000 of the 14,000-member workforce. The demand for substantial job cuts is opposed by Italy's powerful unions, but since **Alitalia** has few options outside the **Etihad** offer, union officials are ready to negotiate. So far, **Etihad** has refused to talk with Italy's unions. **Etihad's** CEO **James Hogan** and Italy's Prime Minister **Matteo Renzi** have met and the government believed **Etihad's** demands on jobs were not insurmountable. **Alitalia** is being kept afloat by a government-backed €500 million (\$691 million) rescue package initiated in 2013. The government needs to find a cash-rich partner quickly to keep the airline flying. The alternative is bankruptcy and cessation of operations. Italy believes the airline is strategically important to ensure the country has sufficient domestic transport connections, and because it is a large employer. **Alitalia** was privatized six years ago and tried to become a strong regional player. The strategy failed in the face of aggressive competition from low-cost airlines and high-speed trains. The airline is quickly running out of cash. It is estimated that **Alitalia** has less than a €100 million left, and a profitable summer season will keep it afloat until mid-August at the latest. **Etihad** could give **Alitalia** the money it needs in order to focus on its more-lucrative long-haul routes. **Air France-KLM**, which still owns around 7 percent of **Alitalia**, said it could reinvest in the airline if a deal with **Etihad** can be reached. Italy is Europe's fourth-largest travel market and the airline flies 25 million passengers a year.

Airbus Orders

Airbus booked 40 orders during March, including 12 A320 Family and 28 A330 aircraft. The **Chinese Government** approved the purchase of

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28 A330s by four domestic airlines through **China Aviation Supplies Holding Company (CAS)**. **Air China** bought four -300s, **China Eastern** ordered five -200s and two -300s, **China Southern** acquired nine -300s and **Hainan Airlines** ordered two -200s and six -300s. One of **Hainan's** A330-300s will be transferred to **Hong Kong Airlines**. China's decision to unblock 27 A330 orders (placed in 2010 and 2013) was due to lessened tensions between China and the **European Union** over EU rules to reduce aviation emissions. **Philippine Airlines** booked eight A321neo (new engine option) jetliners in March. These are in addition to its previous order for 10 A321neo aircraft placed in August 2012. **SaudiGulf**, a new Saudi Arabian airline, purchased four A320ceo (current engine option) aircraft.

The Manufacturer Delivered 45 A320 Family aircraft in March, including **Airbus'** 6,000th single-aisle A320 Family aircraft. India's newest airline, **AirAsia India**, received a Sharklet-equipped A320 as its first aircraft, and became the newest operator of this type. The manufacturer also handed over eight A330s to airlines, and one to the U.K. **RAF**. One A380 jetliner each was delivered to **British Airways** and **Lufthansa**, and **Emirates** received two more A380s. **Philippines Airlines** dropped five A330-300 orders when it bought the eight A321neos. **Aircraft Purchase Fleet** cancelled its 12 A350-800s. **Airbus'** 158 orders were reduced to a net intake of 103 aircraft after accounting for 55 cancellations during the first quarter of 2014.

SaudiGulf, a new Saudi Arabian airline, signed a firm contract for four A320ceos. They will be delivered in early 2015. The aircraft will be equipped with Sharklet fuel saving wing tip devices. The wholly-owned subsidiary of the **Abdul Hadi Al Qahtani Group of Companies** was one of two airlines to recently win licenses to operate domestic and international flights from Saudi Arabia. The airline will increase the Kingdom's air transport services within the country and to international destinations. **SaudiGulf** plans to launch its operations out of Dammam, in the first quarter of 2015, and will expand to Riyadh and Jeddah. The airline also ordered 16 **Bombardier** CS300s in January and optioned 10 more.

The A350-800 Backlog Shrinks Further. Aircraft Purchase Fleet, a Dublin-based leasing firm, was originally set up to provide capacity for **Alitalia**. It cancelled a dozen A350-800s. This reduced the type's orderbook to only 34. **Airbus** is deliberately encouraging the remaining A350-800 customers to switch to different aircraft. The manufacturer sold a total of 180 -800s

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by 2008, but watched the backlog shrink over the last few years. It now wants airlines to buy the larger A350-900 or the yet to be launched A330neo, which will be a re-engined and updated version of the A330. The A330neo will be about the same size as the A350-800 and may cost less to develop and to operate. The -800 is a shortened version of the -900 and it will be less efficient because it will have to carry some unnecessary structure and weight from the larger base model. **Airbus** is encouraging its remaining -800 customers, **Aeroflot**, **Asiana Airlines**, **Hawaiian Airlines**, **Yemenia** and lessor **AWAS**, to drop the A350-800 and may have to offer compensation to convince them to switch. The first A350-800 was scheduled to enter service with **Asiana** in 2016. **Airbus** does not want to pour money into a slow-selling model that will lose money for the manufacturer and for the airline operators. Years ago, **AV-MARK** developed the "Ubiquity Index" which essentially said that "the more popular an aircraft is, the more it will be worth on the used market." **Boeing** built only 116 MD-90s from 1993 to 2000 and 3,188 similarly-sized 737-800s from 1998 to March 2014. There is only one major airline, **Delta**, that wants MD-90s and it sets the price it will pay for the aircraft, while more than 80 airlines operate the 737-800 and more than 22 leasing companies have ordered the type. Sales and leases of used aircraft are robust and residual values of the 737-800 are strong. If **Airbus** were to deliver the 34 A350-800s to airlines, the second hand market for the airplane would be very small and the used sale prices would be minimal.

Airbus Americas' President Barry Eccleston said the company could decide whether to launch the re-engined A330neo by the middle of this year. **Airbus** needs to make a decision in order to ensure that the A330neo is competitive with the **Boeing** 787, but it does not want to cannibalize sales of the A350. The A330neo could enter service in 2017 or 2018, a time when the A350 and 787 production lines are sold out. Mr. **Eccleston** said the decision will be contingent on airline interest. **Steven Udvar-Hazy**, CEO of **Air Lease Corporation**, said, "There are airlines that are receptive to an A330neo that aren't going to order the [A350]-800. Some of them have been converted to the [A350]-900, but the [A330]neo is

Airbus Orders, Deliveries and Backlog March 2014

MAR ORD	MAR DEL	MAR CANX	TOTAL ORD	TOTAL DEL	BACK LOG
			A318		
-0-	-0-	-0-	79	79	-0-
			A319		
-0-	-0-	-0-	1,509	1,400	109
			A320		
4	32	-0-	6,654	3,619	3,035
			A321		
8	13	-0-	2,011	908	1,103
			A330		
28	9	-5	1,336	1,070	266
			A350		
-0-	-0-	-12	812	-0-	812
			A380		
-0-	4	-0-	324	128	196
This Month			This Year		BL
40	58	-17	103	141	5,521

Airbus sold 13,918 aircraft and delivered 8,397 as of March 31, 2014. Fifty-five orders were cancelled. Total orders, deliveries and backlog include cancellations and order changes.

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getting more attention and we will have to see what happens. Further he suggested that "There is one large U.S. airline [Delta] that's very interested in the re-engined A330. They have a large number of ageing 767s and 747-400s that they need to do something [about] in the next five years. Delta requested proposals for up to 50 widebodies to replace its 16 747-400s and its oldest 767-300ERs in April. The airline is looking at the A330-200/300, the A350-900 and -1000, the 777-300ER, and all three models of the 787. It could place an order as soon as the second half of this year. Previously, the airline said it is considering aircraft that are currently available, but it did not specifically rule out a possible A330neo buy. Steve Mason, VP of Aircraft Analysis at CIT Aerospace, said several Asian and Chinese carriers and major European airlines are possible launch customers for the A330neo. Airlines are expected to need more 250- to 300-seat aircraft between 2018 and 2021. The A330neo may be a direct replacement for the A350-800 for the four airlines that still have them on order. They are all operators of the current A330. The A330neo would offer more than a new engine. Mr. Eccleston said, "We'd probably be looking to upgrade the engine technology to what we see in the 787 today. We'd do other things to the airplane as well, some aerodynamic tweaks, a Sharklet maybe. The A330neo could be powered by General Electric GEnx or Rolls Royce Trent engines. The A330neo would extend the life span of the 20-year-old A330 program. The A330-300 is list priced at \$246 million, but industry sources say the A330 typically sells for less than half the list price. The A330s backlog stands at 266, representing 30 months production at the current rate of nine per month.

China and Europe reset aviation trade relations after a year of discord. **China Aviation Supplies Holding Company's (CAS)** signed a **General Terms Agreement (GTA)** for the purchase of 28 A330s worth more than \$6 billion. CAS confirmed previous commitments for 27 A330s and purchased another one for **Hong Kong Airlines**. **Air China** bought four -300s, for a total of 20, with 10 delivered. **China Eastern** ordered five -200s and two -300s, for a total of 33 -200s and 18 -300s, with 23 -200s and 15 -300s delivered. **China Southern** acquired nine -300s for a total of 24, with 12 delivered. **Hainan Airlines** ordered two -200s and six -300s. It has bought three -200s and seven -300s to date. One of **Hainan's** A330-300s will be transferred to its subsidiary, **Hong Kong Airlines**. China remains the world's fastest-growing aviation market and **Boeing** has sold more of its wide-body jets (68 777 orders and 41 787 orders) than **Airbus** has (106 A330 and 10 A350 orders). Both companies are steeply discounting their aircraft to win China's business. **Airbus** has aimed its new A330 "regional" at China's crowded domestic market, but so far, none have been sold.

Airbus Group Will Limit A350 Cabin Options in order to maintain high residual values when the aircraft changes hands. By minimizing the work required to outfit them for the next user, airlines and lessors will retain more of the sale price. **Chris Emerson**, Senior VP of Marketing, said **Airbus** offered customers a broad set of options for seats, galleys and lavatories, but it dropped the "carte blanche" approach taken with the A380 superjumbo. Banks and leasing companies do not want to incur huge costs to reconfigure the aircraft for the next customer. **Airbus** began designing the A350 around 2010 and having a standardized cabin was a critical criterion. Mr. **Emerson** said, "A good part of the A350 market is lessors who wanted a quick way to lower their costs of configuration. We learned from other programs that you need tight control over your customization." The airlines' choices in the economy cabin are largely confined to the catalog, while there are options to go beyond the standard equipment for business- and first-class seating. Even so, 50 percent of customers stick to options in the book,

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Airbus said. Two of the five test A350s are outfitted with passenger cabins. The first one (SN 002) shows off different design options for both the cabin and crew-rest areas.

Boeing Orders

Boeing Sold 163 737 Aircraft in March. Air Canada finalized its order for 61 737 MAXs and GECAS purchased five 737-800s. Boeing sold the first 737 BBJ MAX 8 to Boeing Business Jet. One Unidentified Customer bought 30 737-800NGs and 30 737 MAX on March 14. Another Unidentified Customer purchased 10 737 MAXs and one 737-800NG. An Unidentified Customer bought 25 737 MAXs on March 28. The manufacturer lost 28 737 orders at the end of the month. The company ended the first quarter with 5,154 unfilled orders.

Boeing Delivered 66 Aircraft in March, including a new record 44 737NGs. It also handed over two 747-8s, 10 777s and 10 787s. The manufacturer lost 28 737NG orders last month.

Air Canada finalized the order for 61 737 MAX aircraft. The planes will be used to replace the airline's single-aisle fleet of 22 A319s, 37 A320s and 10 A321s. The order was valued at \$6.5 billion (\$106.6 million each) at list prices, and consists of 33 737 MAX 8s and 28 737 MAX 9s, as well as 18 options and 30 rights to purchase additional 737 MAXs. The 737 MAX improves fuel efficiency and reduces carbon emissions by 14 percent, while reducing the operational noise footprint by 40 percent, compared to today's aircraft, **Boeing** said. Further, the company said, the MAX will incorporate the latest technology LEAP-1B engines from **CFM International** with other advancements including **Advanced Technology** winglets, large flight deck displays and the **Boeing Sky Interior** to deliver the highest efficiency, reliability and passenger comfort in the single-aisle market. The 737 MAX has accumulated 1,934 orders since its launch in 2011, from 37 customers worldwide. Development of the 737 MAX is on schedule and the first one will fly in 2016.

Boeing sold five more 737s to an Unidentified Customer by mid-April and lost five existing 737 orders. It appears

Boeing March 2014 Orders, Deliveries					
MAR ORD	MAR DEL	MAR CANX	TOTAL ORD	TOTAL DEL	BACK LOG
737					
163	44	-28	11,774	7,980	3,794
747					
-0-	2	-0-	1,538	1,486	52
767					
-0-	-0-	-0-	1,110	1,061	49
777					
-0-	10	-0-	1,548	1,188	360
787					
-0-	10	-0-	1,031	132	899
This Month			This Year		BL
163	66	-28	235	161	5,154
Boeing sold 24,531 aircraft and delivered 19,377 as of March 31, 2014. The Current Program includes sales and deliveries of 737s, 747s, 767s, 777s and 787s. Sales totals include 40 cancellations.					

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that a customer switched some of their 737NG orders to the MAX type. Another **Unidentified Customer** purchased 50 737s at the end of the month, and another two 737s were cancelled, raising total 737 sales to unnamed customers to 188 this year. The manufacturer has lost 47 737 orders since January 1.

Ryanair finalized an order for five additional 737-800NGs, valued at \$452 million at list prices. The Ireland-based ultra-low-cost carrier now has 180 737-800NGs on order. Last year the airline ordered 175 -800s and it is currently the world's largest 737-800 customer, having ordered 528 of the type. **Ryanair** operates more than 1,600 daily flights from 68 bases connecting 186 cities in 30 countries. It took delivery of its first 737-800 in 1999 and currently operates more than 300 -800s. The April 30 announcement raised **Boeing's** 737 sales to more than 11,000, and the manufacturer had more than 3,700 unfilled orders for 737NG and 737 MAX airplanes.

Shandong Airlines signed a commitment to buy 16 Next-Generation 737s and 34 737 MAXs in late April. The airline plans to expand its capacity to meet growing demand in China and Northeast Asia. When the order is confirmed, it will be posted on the **Boeing Orders & Deliveries** website. **Shandong's** deal was worth \$4.65 billion at list price, and the aircraft are scheduled to be delivered between 2016 and 2020.

The Qatar Emiri Air Force (QEAF) announced that it would buy three **Boeing** 737 Airborne Early Warning and Control (AEW&C) aircraft for QAR6.6 billion (\$1.8 billion). It is not clear how much of the purchase price accounts for training, support, and sustainment. The 737 AEW&C is already in service with Australia (six), South Korea (four), and Turkey (four). It is built around the **Northrop Grumman** multirole electronically scanned array (MESA) surveillance radar that is mounted in a dorsal fairing above the rear fuselage. The aircraft can be refueled by either the standard boom-and-receptacle method, or via a hose-and-drogue conversion. The **QEAF** is also procuring two **Airbus** A330-200 MultiRole Tanker Transport (MRTT) aircraft, which can offload fuel through either method.

Boeing Launched the Boeing Business Jet (BBJ) MAX Family after receiving the first order for a BBJ MAX 8 from an undisclosed customer. It is based on the 737 MAX 8 and is the newest business jet to join the BBJ family. The BBJ MAX will be delivered "green" (without an interior) in 2018, and a completion center will install the jet's VIP interior. Capt. **Steve Taylor**, president, **Boeing Business Jets** said, "We are honored that an existing BBJ customer has become the first to select the BBJ MAX. The BBJ MAX provides more room, longer range and emits fewer emissions than its nearest competition, making it an ideal choice for today's BBJ customers." **Boeing** claims the BBJ MAX 8 will offer a range

SpiceJet, an Indian budget airline controlled by billionaire **Kalanithi Maran**, agreed to buy 38 737 MAX jets valued at about \$3.9 billion. The airline ordered 30 new aircraft and will swap eight of its 17 existing 737-800NGs orders for the upgraded MAX model. The carrier will also take options for up to 42 more jets. The first MAX jets will be delivered in 2018. **Boeing** was eager to sell the first MAX jets in the world's fastest-growing aviation market, and where **Airbus** is providing medium-range twinjets to most of the airlines. **Boeing** said unidentified airlines bought 164 737s at the end of December 2013, and it is possible that the **SpiceJet** order was included in that number. **SpiceJet** operates 25 787-800s and six 737-900ERs. The MAX development is on schedule and it will fly in 2016 and the first deliveries are due in 2017. **Boeing** has sold more than 1,700 737 MAXs, according to its website. **Boeing** forecast that India will need 1,450 planes in the next 20 years, including 1,201 single-aisle airplanes.

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of 6,325 nautical miles (11,713 km), an increase of more than 800 nautical miles (1,482 km) over the BBJ2, based on the 737-800NG. It will share the same cabin size with the current BBJ2, offering customers a 19-foot (5.8 meter) longer cabin and three times the cargo space of today's BBJ (737-700NG). The BBJ MAX family also will include the BBJ MAX 9, based on the 737 MAX 9, and it is expected to offer a 6,255 nautical mile (11,584 km) range with an even larger cabin than the BBJ MAX 8. Plans for a BBJ MAX 7 are still being studied.

Regional Report

Embraer Will Challenge Airbus and Boeing in the Small Trunkliner Market. The manufacturer will stretch its largest regional jet, the EMBRAER 195, in order to compete in the lower-capacity portion of the narrow-body airliner market. The updated E2 family's biggest plane, the E195 E2 can be fitted with 144 seats, up from the 124 seats in the current E195 model. The first E195 E2 will be delivered in 2019, four years after the first **Bombardier** Cseries deliveries and around the same time the **Boeing** 737 MAX and **Airbus** A320neo have entered service. The E195 E2's seating capacity puts the jet into a market segment that also includes the Chinese **Comac** C919 and Russian **Irkut** MS 21 even though **Embraer** says it's not taking on the more-established manufacturers. Chief Commercial Officer **John Slattery** said, "We're not directly competing with **Boeing** and **Airbus**. Our friends at **Bombardier** are." **Boeing**

has delivered 69 737-600s and 1,099 -700s, and has outstanding orders for 121 -700s and 55 MAX 7s. **Airbus** delivered 79 A318s and 1,400 A319s, and has 61 A319neos and 39 A319neos in backlog. The A319neo will seat 124 passengers in two classes and the MAX 7 will seat 126. Most airlines prefer to larger 737 MAX 8s and MAX 9s and the A320neo and A321neo for their future fleets. This leaves the bottom of the market to the stretched regional jets. Neither **Airbus** nor **Boeing** is ready to yield the market to the upstarts. An **Airbus** spokesperson said, "There is definitely a market for the A319. Our single-aisle family now offers every configuration and size our customers want," while **Boeing** said "market demand for 737 MAX 7-sized airplanes [will be] about 10 percent of the new single-aisle airplane demand." **Nick Heymann** at **William Blair & Co.** disagreed, "Time will ultimately see **Boeing** and **Airbus** in essence cede this end of the market to **Embraer** and to **Bombardier**. The re-engined aircraft from **Embraer** will still be more cost-competitive than the neo and the MAX." **Embraer's** VP of Market Intelligence, **Claudio Camelier**, said, "We see E-Jets as potential substitutes"

Airlines in Russia and the Commonwealth of Independent States (CIS) are an important market for **Boeing**. The planemaker has recorded 117 orders from Russian airlines since 2006, another 56 orders from airlines in the CIS, and 50 737NG orders from **Avia Capital Leasing**. **Boeing** forecast in 2013 that the countries in the **Commonwealth of Independent States**, including Russia, Ukraine and Belarus, will buy 1,170 aircraft worth \$140 billion over the next 20 years. The company delivered seven aircraft to Russian airlines in 2013, which were list priced at \$2.1 billion. **Boeing** buys about 35 percent of its titanium from **VSMPO-AVISMA Corp.**, which is a subsidiary of **Russian Technologies (Rostec)**, a Russian state owned industrial conglomerate. **Rostec** also produces parts for the 787 Dreamliner, and 737 narrow-body jets and other models. **Boeing** intends to buy Russian titanium, aerospace design-engineering services and other services and materials, worth \$27 billion over the next three decades. These trade deals could be cancelled if the United States places hard sanctions on the Russian Federation, due to its annexation of the Crimea. **Boeing** spokesman, **Doug Alder**, said, "We are watching developments closely to determine what impact, if any, there may be to our ongoing business and partnerships in the region. We won't speculate on the potential impact of sanctions or any other potential government actions."

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for airlines that can't fill the larger jets on some routes. "It's a big market opportunity for us." **Bombardier** saw exactly the same opportunity with the C-Series, "to go after a segment of the market that was not served by optimized platforms," said **Philippe Poutissou**, VP of Marketing. The all-new C-Series seats 110 to 160 people. **Bombardier** has the advantage that its C-Series is currently undergoing test flights, but its clean-sheet design has cost the manufacturer \$4.4 billion to develop, while **Embraer** expects to invest about \$1.7 billion in the E2 program. The E2 models will be bigger than current E-Jets and will feature new **Pratt & Whitney** PW1000 geared turbofan engines. The smallest airplane in the family, the E170 E2, will seat up to 90 people, while the largest will carry as many as 144 passengers. The upgraded E-195-E2 is now list priced at \$60.4 million, some \$25 million less than the 737 MAX 7. So far the E2 family is selling well. Launch customer **ILFC** bought 25 E195 E2s and 25 E190 E2s in 2013, and **Air Costa**, India, placed a similar order in 2014. **Embraer's** road ahead may still be rough. There are risks of delays that seem to strike every aircraft-development program. **Cowen Securities LLC's Cai Von Rumohr** said the company's focus on existing planes, not constructing new ones, helps minimize possible snags. "The biggest challenge for **Embraer** is to hold that cost advantage of not starting from scratch. Mr. **Heymann** is optimistic that as the redesign progresses, **Embraer** will have the flexibility to further stretch the E2 jets. He said, "I wouldn't be surprised if they go to 150, 160 [seats] before they're finished."

Bombardier Aerospace sold two Q400 NextGen aircraft to a customer in the Middle East and Africa region, who wish to remain unidentified at this time. The order is valued at approximately \$62 million (\$31 million each) at list price. **Bombardier** has sold more than 200 Q-Series turboprops, CRJ regional jets and C-Series airliners to approximately 50 customers and operators in the region. **Bombardier's Commercial Aircraft Market Forecast** predicts the delivery of 480 aircraft in the 20- to 149-seat category to the Middle East and 700 units to Africa for the period 2013-2032.

Embraer delivered 14 commercial jets during the first quarter, and handed over 20 business jets, for a total of 34 aircraft. In the same quarter last year, it delivered 29 aircraft. As of March 31, 2014, the manufacturer's order backlog totaled \$19.2 billion, representing an increase of \$1.0 billion above the year end 2013 backlog.

Order Changes and Cancellations

Airbus Order Changes and Cancellations. **Aircraft Fleets Purchasing** cancelled its 12 A350-800 orders. The planes were to be leased to **Alitalia** upon delivery. **AviancaTaca Holding** exchanged five A319 orders for three A320s and two A321s. The parent of **Avianca** and **Taca** now has 22 A319s, 23 A320s and six A321s on order. **Spirit Airlines** switched 10 of its A320 orders for 10 more A321s. The airline now has purchased 88 A320s and 40 A321s.

Boeing Cancellations and Changes. **Boeing** lost 28 737 orders in March. **Aviation Capital Group** cancelled three 737-700s and exchanged one -700 order for the -800. The lessor still has 14 -700s and seven -800s on order. On March 14, **Jet Airways** dropped 25 -800 orders. The airline has six -800s in backlog for delivery by 2016. It was reported in the Indian press that **Jet Airways** would buy 737 MAX aircraft. **Boeing** disclosed some unannounced orders upon delivery to the respective airlines; **Shenzhen Airlines** (1 737-800), **Hainan Airlines** (1 737-800), **Shanghai Airlines** (1 737-800), **China Eastern** (1 737-800), **TUI Travel** (1 737-800), and **British Airways** (1 777-300ER). **Lion Air** switched one of its

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737-900ER orders to the -800 type. It now has outstanding orders for 80 -900ERs and 18 -800s. **CIT Leasing** switched one 787-8 order to the 787-9 model. The leasing company now has four -8s and six -9s on order.

Leasing Companies

Avolon, the Irish-based international aircraft leasing group, reported that at the end of the first quarter 2014, its committed fleet reached 202 aircraft, up from 167 aircraft at end of the first quarter 2013. The company purchased 20 aircraft in the quarter, which were valued at \$1.3 billion. **Avolon** sold 12 aircraft in the past 12 months, and a total of 21 aircraft in the past two years. The leasing group sourced \$800 million of debt commitments in the first quarter of 2014, bringing its total debt to \$6.1 billion. It has contracted to lease all of the aircraft it has scheduled for delivery by the first quarter of 2016. The company now serves 47 customers globally.

Philippine Airlines (PAL) cancelled five of the 10 A330-300 orders that it placed in September 2012. The airline now has 16 A330S in service and seven more scheduled for delivery by the end of this year. **PAL** compensated for the loss of the A330s by ordering eight more A321neos. They bought 10 A321neo aircraft in August 2012. The press reports that **Philippines** was forced to cancel the five A330s due to their range limitations. The aircraft were supposed to fly non-stop to Europe through Siberian air space, but the airline was unable to come to agreement with Russian authorities. Without Russian approval, the A330s will have to fly two hours longer from Manila through Thailand, India, and Iran to London. It is believed that **PAL** will fly to other European cities using a route that is closer to the equator when it launches services later this year. **PAL** is currently leasing eight A340-300s for its long-range services, but these airplanes need to be replaced with modern fuel-efficient twin-jets. The A350-900 is short listed to replace the A340s.

BOC Aviation achieved a record net profit after tax of \$277 million in 2013, marking 20 years of profitability since **BOC** was founded in November 1993. The profit in 2013 was 23 percent higher than in 2012. The lessor's assets totaled \$10.2 billion, up 12 percent from the \$9.1 billion reported at the end of 2012. **BOC Aviation** ended the year with \$501 million in unencumbered cash and \$2.3 billion in unutilized committed credit facilities. The company raised more than \$2 billion in new financing from the debt capital markets and banking markets in 2013. In 2013, **BOC** took delivery of 48 new aircraft, and sold 21 owned airplanes. They had 226 aircraft at year end, including 206 owned and 20 managed aircraft in service with 56 airlines in 31 countries. The company's owned fleet is one of the youngest in the industry at less than four years of age. The lessor recently ordered 25 **Airbus** A320 Family aircraft and it finished the year with commitments to purchase 114 aircraft through to 2019. **BOC Aviation** was purchased by the **Bank of China** seven years ago.

BOC Aviation agreed to purchase four **Boeing** 737-800s and one 737-900ER from **Lion Air** for lease-back. The airplanes will be delivered in 2014 and 2015. In November 2012, **BOC** contracted with **Lion Air** to buy and lease-back six 737-800s and three 737-900ERs. The nine aircraft have been delivered. **BOC Aviation** will lease three new **Embraer** E190 jets to **Grupo Aeromexico**. **BOC's** newest customer will take delivery of the E190s between April and June this year.

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Air Lease Corporation will lease three new **Boeing 737-800** to **China Airlines**. The 737s are scheduled for delivery in 2015 and 2016, and will come from ALC's order book from **Boeing**.

FLY Leasing added one 2004-model **Airbus A319** and three **Boeing 737-800s**, dating from 2008 to 2010, to its fleet. The aircraft are leased to leading airlines in Europe and Asia for an average remaining lease term of 6.3 years. **FLY** now has a fleet of 119 aircraft on lease to 65 airlines in 34 countries.

Nordic Aviation Capital (NAC), Denmark, delivered new **ATR 72-600** and a **Bombardier CRJ1000** to **Garuda Indonesia**. The **ATR 72-600** (SN 1140) was handed over to **Garuda's** budget subsidiary **Citilink**, and was part of a 25-aircraft lease agreement signed in 2013. **Garuda** already leases three **ATR 72-600** from **NAC** and the airline will lease another five -600s from **NAC** in 2014. The **CRJ1000** (SN 19038) was the eighth of a 12-aircraft lease agreement with **Garuda**. The final four **CRJ1000s** are due by 2015.

Engines

Air Canada Ordered 122 LEAP-1B Engines. The **CFM International LEAP-1B** engines will power 61 **Boeing 737 MAX** airplanes. It also took options and reserved

purchase rights for another 96 **LEAP-1B** engines. The firm engine order is valued at \$1.6 billion at list prices. The flag carrier currently operates a fleet of 89 **CFM56**-powered **Airbus** aircraft, having taken the first one in 1990. The **737 MAX** will be exclusively powered by the **LEAP-1B**, and the plane is scheduled to go into production in 2017. **Calin Rovinescu**, **Air Canada** President and CEO, said, "Air Canada's investment in its narrowbody fleet renewal is an important element in the airline's on-going cost transformation program. The introduction of **Boeing 737 MAX** aircraft powered by **CFM LEAP** engines is expected to yield significant cost savings and improvements in environmental impact. Our projected fuel and maintenance cost improvements of more than 20 percent per seat will generate an estimated **CASM** reduction of approximately 10 percent compared to **Air Canada's** existing narrowbody fleet." The first **LEAP** engine began ground testing in September 2013. **CFM** is on track to begin flight testing **LEAP** engines at **GE's** facilities in California. Sixty engines will be tested over the next three years and they will accumulate approximately 40,000 cycles before entry into service in 2017.

Azul Lineas Aereas (Azul), Brazil's third largest airline, will lease three **Airbus A330-200** and five **A350-900** aircraft from **International Lease Finance Corporation (ILFC)**. The airline will acquire another three **A330-200s** from another source, either a lessor or the manufacturer. The first **A330s** will be handed over late this year, and the first of five **A350s** will arrive in early 2017. The planes are worth close to \$2 billion at list prices; **Rolls-Royce** engines will power the leased aircraft. **Azul** signed a \$400 million **TotalCare** engine service support contract with **Rolls**. The aircraft will be operated on the airline's new international routes from **São Paulo/Campinas Airport** to Florida and New York, starting in early 2015. **Azul** is a major domestic airline and serves 104 destinations with 80 **Embraer E-Jets** and 56 **ATR-72s**. The expansion will transform **Azul** from a niche regional carrier into an international player which will directly challenge the country's Number 1 airline, **Latam Group's TAM Linhas Aereas**, and Number 2 airline, **GOL Linhas Aereas**. The upstart is also jumping from 120-seat **Embraer** regional jets to double-aisle twin jets capable of 10-hour flights. **Azul** will fit its **A330s** with 245 seats, and the **A350** can carry more than 320 passengers. CEO **David Neeleman** chose not to make a stepped upgrade by buying **A320s** or **737s**. The sizable improvements in fuel efficiency of the **737 MAXs** and **A320neos** made it "foolish" to buy the older versions currently on the market, he said. **Azul** had looked at acquiring early-production **787s** from **Boeing**. The planes, which are known as the "teens" and are heavier than later production **787s**, would have been deeply discounted.

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Rolls-Royce started assembly of the first higher-thrust Trent XWB-97 which will exclusively power the **Airbus** A350-1000. The 97,000lb-thrust version of the Trent engine will start the ground-test program later this year, and the first flight is scheduled for the end of 2016. The aircraft/engine combo will enter service in 2017. The increased thrust will be achieved through a combination of new high-temperature turbine technology, a larger engine core and a higher-flow fan that will be enabled by advanced aerodynamics. These improvements will allow **Airbus** to increase the A350-1000's payload, range and maximum take-off weight. The manufacturer is now building the first production 84,000lb-thrust Trent XWB engines. They will power the first A350-900 XWB to enter commercial service with **Qatar Airways** later this year.

All Nippon Airways (ANA) selected **Rolls-Royce** to provide Trent 1000 engines to power 25 more **Boeing** 787 Dreamliners. The engine order was worth \$1.1 billion. The airline already has 55 of the aircraft in service or on order. All of them will be equipped with the Trent 1000. The Trent 1000 powered the first 787 Dreamliner to enter service with **ANA** in 2011. Trent 1000s have now completed over 220,000 in-service flying hours with an engine dispatch reliability of better than 99.9 percent - the best ever reliability figures for a widebody engine on entering airline service, **Rolls-Royce** said.

Azul Lineas Aereas (Azul) will acquire 11 Trent-powered **Airbus** aircraft, and signed an agreement worth \$400 million for **TotalCare** engine service support. **Azul** will operate six A330-200s and five A350-900s which will be powered by Trent 700 and Trent XWB engines respectively. The airline will lease the A350s from **ILFC**.

AirAsia X, Malaysia, selected **General Electric** CF6-80E1 engines to power its fleet of 25 new **Airbus** A330-300s. **GE Aviation** announced that the low-cost carrier signed a Memorandum of Understanding (MOU) to buy the engines for \$1.5 billion. The deal included a service agreement with **Airbus**. **AirAsia Group's** Chief Executive Officer, **Tan Sri Tony Fernandes**, said, "With this order, **GE** will become **AirAsia X's** second core engine supplier

Lufthansa Split its A320neo Engine Order.

The German flag carrier selected **Pratt & Whitney's** PurePower PW1100G-JM Geared TurboFan engines for another 30 A320neo family aircraft. The contract doubles the number of PW1100G-powered aircraft in **Lufthansa's** fleet to 60. The first will be delivered in 2019 and the last will arrive by the end of 2021. The airline previously selected PW1100G-JM engines in 2011, when it ordered 30 A320neo Family aircraft. Delivery of the first batch will start in 2015. **Pratt & Whitney** has completed more than 8,000 hours of testing across the PW1000G engine family, including more than 900 hours of flight testing. **Pratt & Whitney** said "the Geared TurboFan engine will deliver double-digit improvements in fuel efficiency, environmental emissions and noise." To date, the PW1000 PurePower engine family has won more than 5,300 orders and commitments, including options, from more than 50 customers worldwide.

Lufthansa placed a firm order for **CFM International's** LEAP-1A engines to power the 15 **Airbus** A320neo and 25 A321neo aircraft that it ordered in 2013. The firm engine order was valued at more than \$1.0 billion at list prices. The German flag carrier selected the LEAP-1A to power further A320neo family aircraft when they are ordered. The **Lufthansa Group**, including **Austrian**, **Germanwings**, **Lufthansa** and **Swiss**, currently operates more than 560 CFM56 engines fitted to single-aisle **Airbus** A319/A320s, long-range, four-engine A340-300s, and **Boeing** 737 Classic aircraft. The **Lufthansa** deal brings the total LEAP orderbook to more than 6,100 engines, which is the fastest order ramp up in commercial aviation history, **CFM International** said.

[after **Rolls-Royce**]. Our fleet size has reached sufficient scale to support two engine types, with sufficient spare engine coverage, specialist engineers and technicians, and strong on-site service commitment from both engine providers. The engine selection was based on technical reliability and fuel efficiency performance, Mr. **Fernandes** said. He wants **AirAsia X** to be one of the lowest unit-cost airline operators around the world. More than 560 CF6-80E1 engines are installed on A330 aircraft.

Airline News

China to Launch More Low Cost Carriers—LCCs. The country's first low-cost airline, **Spring Airlines**, was launched in 2006 and has been profitable since then. It operates 40 A320s and carried about 11 million passengers last year, which is less than 5 percent of the total China market. Two other LCCs, **Jiuyuan Airlines** and **China West Air** have been erected since 2012. The privately owned **Juneyao Group**, recently founded the budget carrier, **Jiuyuan Airlines**, in Guangzhou, southern China's most important aviation hub. **Juneyao** operates as a full-service carrier out of Shanghai, and serves 60 domestic and several foreign cities with 34 A320s. **HNA Group**, the parent of **Hainan Airlines**, converted its subsidiary **China West Air** into a budget airline at the end of 2012. **China West** flies between Chongqing and smaller cities with four A319s and nine A320s. It flew 3.3 million passengers last year and reported a load factor of about 90 percent. The **Civil Aviation Administration of China's (CAAC)** deputy director general, **Xia Xinghua**, recommended the development of more budget airlines at a low-cost carrier forum in Beijing in November 2013. This prompted China's government-backed carriers to look at the market. **China Eastern Airlines** is converting its Beijing-based subsidiary **China United Airlines**, into a budget carrier, and **Air China** said it was studying the low-cost market. China's budget airlines will be based on the **Southwest Airlines** template which should put more people in airline seats. One in four Chinese flew in 2013 and **Airbus** predicts that almost the whole population will fly by the 2030s. The **CAAC** intends to build nearly 80 new airports by 2020, and will spend \$14.5 billion to build a second airport in Beijing. The current Beijing airport is one of China's busiest, and the LCCs have been blocked from serving it. The **CAAC** pledged to assign slots to all airlines in a more fair way. The aviation authority urged the country's airports to build new terminals and convert existing facilities to handle budget airlines. So far, pilot shortages, limited airspace and delays have retarded the growth of the LCCs and the airlines must compete with fast and affordable trains.

Technical

Southwest Airlines flew its first 737-800 equipped with **Aviation Partner Boeing's Split Scimitar Winglets** in April. The newly designed winglet is an upgrade of the **APB** wingtip that was previously installed on **Southwest's Boeing 737** fleet. It features aerodynamic scimitar tips and a large ventral strake on the bottom of the blended winglet structure. The Split Scimitar 737s will save 3.5 percent more fuel than the older Blended Winglets. The new winglet will reduce carbon dioxide and nitrogen oxide emissions. **Southwest** will install

IATA Posts April Jet Fuel Prices. Fuel prices were remarkably stable in 2013. The association updates the world's average jet fuel price each week. On April 14, 2014, the average price of fuel was \$2.879 per gallon. The fuel price was \$2.891 per gallon on March 14, 2014. The April price was 0.2 percent higher than in March, and was 0.9 percent higher than in April 2013. The price of fuel is affected by location. It was only \$2.80 in the Middle East region and was as high as \$3.007 per gallon in Latin America. **IATA** estimated that the global airline industry's fuel bill will total \$123.3 billion in 2014. This will be a decrease of \$6.2 billion over 2013.

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Split Scimitar Winglets on 33 new 737-800s this year. The airline plans to retrofit 52 of its newest 737-800s by early 2015.

AMAC Aerospace, a Swiss-based provider of corporate aviation maintenance and completion services, was awarded its first completion contract for an ACJ319 from an Asian-based client. The aircraft will undergo a complete nose to tail completion using designs provided by world renowned interior designer **Alberto Pinto**, **AMAC** said. The project will be started this summer and the plane will be re-delivered by the second quarter of 2015. This is **AMAC's** third A319 project, and the work will be performed at one of **AMAC's** purpose built state-of-the-art hangars at **EuroAirport Basel**, Switzerland, the company said.

Sabena technics developed the capability to retrofit A320 Family aircraft with Sharklet wingtips. It can install the Sharklets on late-model A319 and A320 aircraft at its facilities in Bordeaux, France. **Sabena technics** will combine the modification with scheduled base maintenance activities, cabin reconfiguration and/or painting in order to optimize the aircraft ground time, and to provide the customers with an offer tailored to their needs, the company said.

Cargo Pallet

Aeronautical Engineers (AEI) formally launched Passenger to Freighter and Passenger to Combi Conversion Programs for the **Boeing** 737-800. **AEI** studied both programs for the past year and they will be marketed as the 737-800SF (Special Freighter) and 737-800C (Combination Passenger and Freighter), respectively. The development program costs are funded by **AEI**. The modification touch labor will initially be performed by **Commercial Jet** in Miami, Florida. The company expects development and certification to take from 30 to 36 months. After the **FAA** issues the STC, **AEI** plans to certify both conversion programs with the **EASA**, **CAAC**, **ANAC** and Russian authorities. **Robert T. Convey**, Vice President of Sales & Marketing, said, "As with many successful freighter conversion programs in the past, the 737-800 has now entered the 'Zone of Conversion' with the oldest units approaching 15 years of age. This conversion program is unique when compared to past programs, in that the 737-800 is still in production and its replacement, the **Boeing** 737 MAX 8 is nearing entry into service. What this means is that owners and operators will for the first time have access to modern narrowbody converted freighters." The **AEI** 737-800SF will include 12 pallet positions and will be able to carry 52,000

Air France-KLM's board will discuss the airline group's cargo business in a meeting in April. They may recommend that the fleet of dedicated freighters be sold. A decision is due by September. **Air France** plans to return its two 747-428ERFs (SN 32866 & 32867) to **ILFC**, leaving only two **BOC**-leased 777-F28s in its dedicated freighter fleet. **KLM's Martinair** unit owns five 747-400Fs and six MD-11Fs. **Air France-KLM's** cargo operations lost \$202 million (\$281 million) last year due to a general slump in the market. It once was one of the biggest global freight carriers, but now more airborne cargo is carried in the belly holds of widebody passenger airliners, and dedicated freighters are hauling a shrinking percentage of merchandise. **Air France-KLM's** net losses widened to \$1.83 billion last year, due in part to costs tied to disposals and the depreciation of losses on its balance sheet. Its earnings before interest, tax, depreciation and amortization (EBITDA) rose 34 percent to \$1.86 billion, so the airline is turning the corner. It predicts \$2.5 billion EBITDA in 2014 and the company's **Transform** savings plan has committed the group to shrink its freighter fleet to 10 units by 2015.

pounds (23,587 kg) on the main deck. It will feature an 86 inch by 140 inch main deck cargo door and a low profile 1.25 inch thick **Ancra International** cargo loading system. The **AEI 737-800C** will include five main deck pallet positions and seats for 90 passengers in coach class configuration, as well as the same cargo door and cargo floor. The 737-800 is the most ubiquitous passenger narrowbody aircraft and is the lessors' favorite model. There are approximately 3,142 **Boeing 737-800s** in service with more than 169 airlines around the world. There are another 1,410 aircraft in backlog. The first conversion is due by 2017 and is estimated to cost more than \$3 million. The 737-800SF will be able to carry one more pallet than the 737-400SF and will offer newer technology engines. The projected half-life value of the oldest 737-800 will be approximately \$10 million each in 2017, down from \$15 million this year. By then, the 1997 vintage 737-800s will be 20 years old and will be replaced by the first 737 MAX 8s (or A320neos) in top tier airline fleets. The competing 737-400 is now valued at \$3 to \$4 million, but the -300/400SF fleet now averages 22 years and is ripe for replacement. It is estimated that up to 200 -800s will be converted into freighters. This will be less than 5 percent of the -800s in service or on order. So far **Airbus** has not re-launched the A320 cargo conversion program that was cancelled several years ago.

Aeronautical Engineers (AEI) delivered the first of five 737-400SF freighters to **Southern Air** which will operate them for **DHL Express** in the Americas. The first aircraft, a standard gross-weight 737-400SF (SN 29487), was built in 1999 and converted at **Commercial Jet's** Dothan facility. The aircraft was sourced and financing provided through **Strategic Air Finance LLC**. The other four will be completed by August. Two **DHL 737-400SFs** will be based in Caracas, Venezuela, and operate to cities in northern South America and the Caribbean. In the U.S., three 737-400SFs will fly from **DHL Express'** Cincinnati hub to several cities in the Northeast and Midwest. **AEI's** expects to deliver 30+ freighter conversions in 2014.

Aeronautical Engineers delivered the second of three 737-400SF 11 Pallet freighters (SN 29914) to **Yangtze River Express**, Shanghai, China. The 1998-model, standard gross-weight 737-400 was converted at the **Boeing Shanghai Aviation Services** facility. This was the seventh freighter that **AEI** completed so far this year.

Atlas Air Worldwide ACMI (aircraft, crew, maintenance & insurance)-leased two **Boeing 747-87UF** freighters to **DHL Express**. The two aircraft will be operated by **Atlas's Polar Air Cargo Worldwide** on trans-Pacific express services. The 747-8Fs replaced two 747-400F Freighters in ACMI service for **DHL**. The 747-400Fs will be placed into **Atlas Air's** revenue service.

Military Market

Airbus Defence and Space handed over the first of 10 new generation A400M Atlas airlifters ordered by the **Turkish Air Force** in April. Following the contractual transfer of title, **Airbus'** third production A400M was flown to **Kayseri Air Base** in central Turkey, where it will initially be used for training. The **Turkish Air Force** is replacing its 20 C-160T Transalls with the much larger A400M. This will dramatically increase Turkey's air transport capability. The nearly 50-year old Transall can carry 8.5 tons of cargo for 5,000 kilometers (km), or 16 tons for 1,700 km, while the 21st Century A400M can fly 20 tons for nearly 6,400 km and 30 tons for 4,500 km. **Airbus** said, "The A400M is an all-new military airlifter designed to meet the needs of the world's armed forces. Thanks to its advanced technologies, it is able to fly higher, faster and further, while retaining high maneuverability, low speed, and short, soft

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and rough airfield capabilities. It combines both tactical and strategic/logistic missions. With its cargo hold specifically designed to carry the outsize equipment needed today for both military and humanitarian disaster relief missions, it can bring this material quickly and directly to where it is most needed. The multipurpose A400M can do more with less, implying smaller fleets and less investment from the operator. To date, **Airbus** has commitments for 174 Atlas aircraft.

Boeing to Close C-17 Globemaster III Production in mid-2015, three months earlier than previously planned. The manufacturer will also shut its Long Beach, California, C-17 final assembly facility where they built the quad-jet airlifter for two decades. This also ends commercial and military aircraft production at Long Beach after 73 years. **Douglas Aircraft** opened its Long Beach plant in 1942. Based on current market trends and the timing of expected orders, **Boeing** anticipates completing the last C-17 in mid-2015, nearly two years after announcing the program's end in September 2013. The company forecast inventory-related charges of approximately \$50 million, which will be recorded in the first quarter as a result of the announcement. **Boeing** delivered three C-17s in the first quarter of 2014.

Airbus Defence & Space reported that the **Republic of Singapore Air Force** ordered six A330 MRTT (multi-roll tanker-transport) air-to-air refueling aircraft. Singapore is the sixth nation to select the A330 MRTT. **Qatar** is buying two A330 MRTT aircraft for the **Qatar Emiri Air Force**. **Qatar's** choice of the A330 MRTT makes it the seventh nation to select the type. India is also in final negotiations to acquire six aircraft. A total of 17 A330 MRTTs are currently in service with the air forces of Australia, Saudi Arabia, the United Arab Emirates and the U.K., and another 17 are on backlog. The A330 MRTT is derived from the highly successful A330 commercial airliner and proven in-service as a tanker/transport with multi-role capability, **Airbus** said. The A330 MRTT can also be used as a pure transport aircraft, able to carry up to 300 troops, or a payload of up to 49.5 tons/99,000 lb. It can also easily be converted to accommodate up to 130 stretchers for Medical Evacuation (MED-EVAC).

Airbus Defense and Space delivered the 17th HC-144A Ocean Sentry maritime patrol aircraft to the **U.S. Coast Guard (USCG)** in April. This was the second of three Ocean Sentrys to be delivered this year. The HC-144A is based on the **Airbus** CN235 tactical airlifter, of which 235 are currently operated by 29 countries. The 17 aircraft are operating from **Coast Guard Air Stations** in Cape Cod, Massachusetts, Mobile, Alabama, and Miami, Florida. The **Coast Guard** is planning to form a fourth HC-144A air station in Corpus Christi, Texas, later this year. The airplane has been in service with the **USCG** since 2008.

The Israeli Air Force's first **Lockheed Martin** C-130J "Samson" tactical transport was formally delivered to **Nevatim Air Base** in April. Israel has operated earlier versions of the C-130 since 1971, and has a dozen C-130E and C-130H transports and three KC-130H tankers in service. There are three more C-130Js on order for delivery between late 2014 and early 2015. Israeli sources said the government is negotiating the final terms to buy another two aircraft. Israel's aircraft are built to a similar configuration as the C-130Js flown by **U.S. Special Forces**. This includes a three-crew cockpit layout to support high workload operations. The planes will be equipped with some Israeli-developed systems to further enhance their operating capabilities.

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The U.S. Navy cut eight **Boeing P-8 Poseidon** anti-submarine warfare aircraft from its fiscal year 2015 budget request. It had originally planned to take delivery of 16 P-8s in FY2015, and now the service plans to acquire 109 P-8s through FY2019. **Boeing** reported the P-8 unit prices were likely to climb, even though the Navy still wants to buy its full complement of 117 aircraft. The USN's budget proposal requires **Congressional** approval, and the service indicates it still wants to buy the P-8s by including them in a list of unfunded priorities it sent to **Congress**. The budget request estimates that the P-8s including weapons systems will cost nearly \$271 million each in FY2015.

AIRCRAFT DELIVERIES & SALES

Airbus

Airbus A319. No A319s were delivered in March. In April, **Tibet Airlines**, the Tibetan Autonomous Region of China, took delivery of its first A319 that was fitted with Sharklets. The -114 (SN 5855) was built at the **Airbus Tianjin Final Assembly Line (FAL)**, and joins the airlines's fleet of eight A319-115s. The aircraft is powered by CFM56-5B engines and features a two class cabin with eight seats in business class and 120 seats in economy. It was the 165th A320 Family aircraft to be assembled at **Tianjin FAL**. The **Tianjin**-assembled A319s and A320s are in service with 13 Chinese and Asian airlines. The **FAL** in Tianjin is based on the state-of-the-art **Airbus** single aisle final assembly line in Hamburg, Germany. The aircraft delivered in China are assembled to the same standards as those that are built and delivered in Europe.

Airbus A320. **Airbus** delivered 33 A320s in March. **AWAS** leased the third of four new -214/Ws (SN 6025) to **Vietjet Air**. It also leased the third -214/W (SN 6039) to **Vueling**, the Spanish low cost airline. **Aeroflot** leased winglet-equipped -214/W (SN 6017) from **AWAS**. It was the seventh of eight A320s that the Russian flag carrier contracted. The three planes came from the lessor's new order pipeline and were factory-fitted with Sharklet wing tip devices. **Aeroflot** leased one -214/W (SN 5989) from **ICBC Financial Leasing**, and one -214/W (SN 6022) from **SMBC Aviation Capital**. **SMBC** leased one -214 (SN 6004) to **Peach Aviation**, Japan. **BOC Leasing** leased a second -232/W (SN 6037) to **Air Astana**, and a -232/W (SN 6018) to **China Southern Airlines**. **GE Capital Aviation Services** delivered a third new leased -214/W (SN 6012) to **Aigle Azur** to expand the French carrier's fleet to 12 **Airbus** aircraft, which fly to more than 25 international destinations. **AirAsia India**, India's newest airline, leased its first Sharklet-equipped -216/W (SN 6015) from **AirAsia**. The Chennai-based domestic airline will take delivery of another nine A320s this year. The new airline is a joint venture between **AirAsia Group**, **Tata Sons** and **Telstra Tradeplace**. **AirAsia** acquired -216/W (SN 6034) for its own fleet. **LATAM Airlines Group** received two -214/Ws (SN 5965 & 5995). The first was sold to **ICBC** and leased to **LAN**

Qingdao Airlines, a new Chinese start-up airline, took delivery of its first aircraft in April. It leased an -214/W (SN 6061) equipped with Sharklets, from Hong Kong-based **China Aircraft Leasing Company (CALC)**. The airline made its first commercial flight from its home base of Qingdao in Eastern China to Chengdu, the capital city of Sichuan Province in Southwestern China. The A320 was powered by CFM56 engines, and featured a two-class cabin with eight business and 144 economy class seats. **Qingdao Airlines** placed an order for 23 A320 Family aircraft in 2013.

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Airlines, and the latter was sold to **Avolon** and leased to **Pegasus Airlines**. It was the fourth A320 that **Avolon** leased to **Pegasus**, and all four were purchased from the **LATAM Airlines Group**. **South African Airways** received a pair of -232s (SN 5956 & 6007). **IndiGo** accepted two -232/Ws (SN 5992 & 6010), raising their fleet total to 77. Elsewhere in Asia, **Airbus** delivered the 23rd -214/W (SN 6000) to **Air Arabia** on March 6. It was the 6,000 A320 Family aircraft to be produced. **Hong Kong Airlines** acquired its first **Sharklet**-fitted -214/W (SN 6003) in late March. It was the airline's sixth A320. **Tianjin FAL** delivered one -232/W (SN 5864) to **China Eastern Airlines** and one -232 (SN 5896) to **Sichuan Airlines**. In the Pacific region, **Airbus** delivered one -232/W (SN 5993) to **Air New Zealand**, for a total of 22, and the 13th -232 (SN 6032) to **Tigerair Australia**. **Cebu Philippine Air** received -214/W (SN 6021). In Europe, **Lufthansa** accepted two -214/Ws (SN 6006 & 6033), **Wizz Air Hungary** acquired -232/W (SN 6001), and **easyJet** received -214/W (SN 6011). **Iberia** took delivery of -232 (SN 6028) and leased it to **British Airways**. **Niki** accepted -214 (SN 5957) and sold it to **Chengdu Airlines**. In the Americas, **Volaris** received -233/W (SN 6014) and **Spirit Airlines** bought -232/W (SN 5999). It was sold to **SMBC Aviation Capital**, which leased it back to the airline. This was the first of a four aircraft sale and leaseback deal.

Airbus A321. **Airbus** delivered a record 13 A321s in March, including another two -231/W Transcontinentals (SN 5991 & 6020) to **American Airlines**. **American's** merger partner, **US Airways** received its 94th and 95th -231s (SN 6027 & 6035). The airline has 26 more A321s on order. **Vietnam Airlines** accepted its 36th -231 (SN 5994), and **Air China** acquired its 43rd A321 (an -213, SN 6013). It has one more on order. **TACA International Airlines/Avianca** took delivery of its seventh -231/W (SN 6002), and **UTair** acquired its sixth -211/W (SN 6016). **GECAS** leased two -211/Ws (SN 6024 & 6042) to **EVA Air**. **Aviation Capital Group** leased another -211/W (SN 6038) to **Thomas Cook Airlines**. **Germania** acquired its second -211/W (SN 6005) in March, and **TransAsia Airways** took delivery of its fifth and final -231/W (SN 6009).

Avinco arranged the sale of a second **Nouvelair Tunisia** A321-200 (SN 995) to **Apollo Aviation Group** in late April. It, and the other **Nouvelair** A321 (SN 970), were leased to **Germania**.

Airbus A330. **Airbus** delivered three -200s and six -300s in March. **China Eastern Airlines** received its 21st -243 (SN 1500). It was the 1,500th A330/A340 Family aircraft to be built. **US Airways** accepted its 13th -243 (SN 1502), and **Airtanker** took delivery of -243MRTT (SN 1498) for operation by the **Royal Air Force**. **Turkish Airlines** acquired its 14th -303 (SN 1501), and **Air China** accepted its 13th -343E (SN 1509). **Airbus** delivered one -343 (SN 1504) to **Philippine Airlines**, and another -343 (SN 1503) to **Cathay Pacific**. **Lufthansa** bought -342 (SN 1497) and **Iberia** acquired -302 (SN 1507).

Airbus A380. **Airbus** delivered two A380-841s (SN 142 & 147) to **Emirates Airways** in March, for a fleet total of 47. The airline has 93 more on order. **British Airways** accepted its fifth -841 (SN 148) and **Lufthansa** received its 11th -841 (SN 146).

Skymark Airlines' first A380 made a successful maiden flight in April, following the completion of the airframe assembly and system tests in Toulouse, France. The A380 was flown to Hamburg, Germany, for cabin installation and painting. **Skymark Airlines** will take delivery of its first aircraft later this year and will be the first A380 operator in Japan. It will deploy its six ordered A380s on international trunk routes, in particular linking Narita to destinations in the U.S.

Boeing

Boeing 737 NG. Boeing delivered 44 737s in March, including four more -924ER/Ws (SN 42177, 42747, 43533, & 43534) to **United Airlines**, for a total of 86, with 53 more on order. Elsewhere in the Americas, **Delta Air Lines** received two -932ER/Ws (SN 31928 & 31929) for a fleet total of 18, with 82 more on order. **Alaska Airlines** accepted its 16th and 17th -990ER/Ws (SN 36352 & 36363), and **American Airlines** took delivery of two -823/Ws (SN 31190 & 33234). The first was sold to **SMBC Aviation Capital** and leased back. This was the fifth of an eight aircraft transaction. The second was sold to **Aercap Leasing** for lease back. **Southwest Airlines** acquired two -8H4/Ws (SN 36896 & 37004). The **United States Navy** took delivery of its 25th -8FV-P-8A Poseidon (SN 42253). Boeing delivered one -8EH/W (SN 39636) to **GOL Transportes Aéreos**, and one -8V3/W (SN 40782) to **COPA Airlines**. Five lessors bought a total of eight -800s. **GECAS** leased one -86N/W (SN 35645) to **China Southern Airlines**, the first of three -86N/Ws (SN 41247) to **Solaseed Air**, and one -86N/W (SN 41272) to **Spring Airlines**. **Avolon**, the international aircraft lessor, leased the first of two -8MA/Ws (SN 40945) to **China Airlines** in March. **AWAS** long-term leased the first of two new -81D/Ws (SN 39348) from its new order backlog to a new customer **Sunwing Airlines**, Canada. **BBAM** leased one new -8FZ/W (SN 39336) to **Nok Air**, Thailand, and **SMBC Aviation Capital** leased -85N/W (SN 39937) to **Shandong Airlines**. In Europe, **TUI Travel PLC** took delivery of two -8K5/Ws (SN 37241 & 44272) and leased them to **Thomas Airways** and **TUIFly Nordic**, respectively. **Turkish Airlines** accepted two more -8F2/Ws (SN 40988 & 42004), and **Pegasus Airlines** received -82R/W (SN 40010). **Norwegian Air Shuttle ASA** took delivery of the airline's 48th -8JP/W (SN 39031), and **Air Berlin** bought -8K2/W (SN 37790). It was sold to **GECAS**, which leased it to **Transavia France**. **KLM - Royal Dutch Airlines** took delivery of -8K2/W (SN 42150) and sold it to **Transavia**. In Asia, Boeing delivered two -8H6/Ws (SN 40156 & 40157) to **Malaysia Airlines**. They were sold to **GECAS** and leased back. **Lion Air** accepted two -9GPER/Ws (SN 38748 & 38749) and leased them to **Thai Lion Air**. **EL AL Israel Airlines** received its third of eight -958ER/Ws (SN 41556), and **Iraqi Airways** acquired its third -81Z/W (SN 40089) from the **Iraqi Government**. **UTair** took delivery of its second of 30 -8LP/Ws (SN 41708), and **SilkAir** gained ownership of its second Next-Generation -8SA/W (SN 44218). Six -800s were delivered directly to Chinese airlines, including one -89P/W (SN 39732) to **China Eastern Airlines**, and one -89L/W (SN 41095) to **Air China**. **China Southern Airlines** received one -81B/W (SN 38915), and **Hainan Airlines** acquired one -84P/W (SN 39209). One -87L/Ws (SN 37618) was delivered to **Shenzhen Airlines** and one -86D/W (SN 39307) was purchased by **Shanghai Airlines**.

Boeing Delivered the 8,000th 737 to come off the production line to **United Airlines**, on April 16, marking another important milestone for the 737 program. The Next-Generation 737-924ER/W (SN 43535) featured a special logo. **Boeing** said the 737 was the first commercial airplane in history to reach this delivery milestone. The program has a backlog of more than 3,700 airplanes on order, including 1,934 orders for the new 737 MAX. **United** was the first airline to order and take delivery of the 737-200. Since 1965, **United** and its merger partner, **Continental**, have taken delivery of more than 550 737s and operated nearly every model, except the 737-100 and the 737-600. The airline has another 50 737-900ERs and 100 737 MAX aircraft on order. The -900ERs and MAX 9s will replace older, less fuel-efficient aircraft, including the fleet of 111 757-200s.

The Indonesia Air Force (TNIAU) received **Boeing Business Jets** BBJ2 (737-8U3 BBJ2, SN 41706) in April. It will be used for presidential transport duties, and cost \$89.6 million. The air force previously

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chartered aircraft from **Garuda Indonesia** for presidential use. The BBJ2 accommodates up to 67 passengers, and was equipped with meeting rooms and executive areas. It has a fuel capacity of 10,300 gallons and can fly up to 4,660nm (8,630km) with 50 passengers on board.

Avolon purchased the sixth and final 737-8GP/W (SN 38750) from **Lion Air** in April and leased it back to the airline.

AWAS long-term leased one new 737-800NG (SN 39439) from its backlog to **Aeromexico**. The lessor will also purchase one new -800NG from the airline and lease it back. **Aeromexico** is part of **Grupo Aeroméxico, S.A.B. de C.V.**, a holding company which operates more than 100 aircraft on more than 600 daily flights from **Mexico City International Airport**. The airline flies to more than 80 cities on three continents, including 47 destinations in Mexico, 18 in the United States, 10 in Latin America, three in Europe, two in Asia and one in Canada.

AviaAM Leasing leased its first 737-3K2 (SN 24327) to **Belavia**, Belarus. The aircraft was delivered to the carrier's base at **Minsk National Airport** in March. **AviaAM Leasing** performed comprehensive maintenance works, provided necessary CAMO support as well as painted it in the livery of the Belarusian national airline. It is **Belavia's** seventh 737-300. The airline also operates six 737-500s, four CRJ 100/200s, two Embraer 175s and three TU-154Ms to more than 30 airports across Europe, the CIS and the Middle East.

Turkish Airlines (THY) received its 75th Next-Generation 737 airplane. The 737-800 arrived at Istanbul's **Ataturk Airport** on April 26. **THY** now operates more than 100 **Boeing** airplanes, including 737-700s, -800s, -900ERs and 777-300ERs. The airline has ordered 40 737 MAX 8s, 10 737 MAX 9s and 20 Next-Generation 737-800s, valued at \$6.9 billion at list prices in 2013.

GE Capital Aviation Services leased a new 737-800 from its existing order book to China's **Okay Airways**. It is the first of two scheduled for lease to **Okay Airways** in 2014. **GECAS** leased a second 737-800 to **Transavia.com**, France. The third 737 is scheduled for delivery in May.

Go2Sky, Slovakia, leased its second 737-49R (SN 28882) from **GRAF1** of Ireland. The ex-Sky Airlines' aircraft was equipped with 170 economy leather seats and will be flown on ACMI services from Italy during the summer of 2014. The airline acquired its first 737-4Q8 (SN 24332) from **ILFC** in July 2013. **Go2Sky** was advised by its sole agent, **ISIS Aviation Services** of Norwich, England. The aircraft was remarketed by **World Star Aviation**.

Boeing 747. **Boeing** delivered the 12th 747-830 Intercontinental (SN 37838) to **Lufthansa** in March. The airline has seven more on order. **Korean Air** accepted its fifth -85BF freighter (SN 37655). It has two more on order. **Boeing** ferried the yet-to-be delivered 747-8Z5 (SN 37501) to Marana, Arizona. The airplane was built as a VIP transport for the **United Arab Emirates Government**. **Cargolux's** 747-8R7 (SN 38077) was also flown to storage in Marana.

Boeing 767. **Boeing** did not deliver any 767s in March. **Cabot Aviation** arranged the purchase of -319ER (SN 24876) by its client **Wings Aviation** from **ILFC**. The plane was previously leased by **North American Airlines** and is now leased to **Fly Jamaica Airways**.

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Boeing 777. Boeing delivered 10 777s in March, including two 777-FFTs (SN 44679 & 44680) to **Air China Cargo**. **Turkmenistan Airlines** received its second of three -22KLRs (SN 42296), and **Biman Bangladesh Airlines** took possession of its fourth and final -3E9ER (SN 40121). **Aeroflot - Russian Airlines** took delivery of its seventh -3M0ER (SN 41682), and **Air China** received its 18th and penultimate -39LER (SN 41443). **Emirates** purchased its 62nd -31HER (SN 41361), and has 58 more on order. **Qatar Airways** acquired its 25th -3DZER (SN 37661), and has two in backlog. **British Airways** took delivery of its sixth and last -336ER (SN 43703), and **Singapore Airlines** accepted its 22nd -312ER (SN 42237), with five more on order.

Boeing 787. Boeing delivered 10 787-8s in March. Two airlines received two -8s each. **Japan Airlines** accepted its 14th and 15th -8s (SN 34847 & 34850) and has 10 on order. **Qatar Airways** took delivery of its tenth and 11th -8s (SN 38326 & 38327). **ILFC** leased -8 (SN 35310) to **Norwegian Long Haul**, and -8 (SN 35311) to **Aeromexico**. **Air India** acquired its -13th 8 (SN 36273), and **United Airlines** took possession of its tenth -8 (SN 34826). **Royal Brunei Airlines** received -8 (SN 23789), and has two more on order.

Boeing delivered the first -8 (SN 35510) to **Kenya Airways** in March. The flag carrier plans to use the 787 to expand its long-haul operations. The African airline is scheduled to receive nine more 787s, and it has also expressed interest in acquiring several 777-300ER aircraft, Boeing said. Kenya plans to expand and modernize its commercial fleet from 44 aircraft to 107 airplanes and will double its 62 destinations to 115 by 2021. The airline currently operates an all-Boeing long-haul fleet of six 767-300ERs, four 777-200ERs and one 777-300ER. To date, more than 130 Dreamliners have been delivered to 17 customers worldwide.

United Airline's first 787-9 rolled out of the Boeing final assembly factory in Everett, Washington, in April. The carrier plans to begin operating the 787-9 on nonstop service between Los Angeles, California, and Melbourne, Australia, in October. United will be the North American launch customer for the 787-9.

Regional Jet

Bombardier delivered CRJ900 NextGen (SN 15309) to **Delta Air Lines** in March. It was leased to **Endeavor Air** for operation under the **Delta Connection** brand. The airline now has 18 CRJ900NGs in its fleet, another 22 on order, and 30 on option. **Adria Airways** took delivery of CRJ900 NextGen (SN 15283) in March and sold it to **Falko Regional Aircraft Limited (Falko)**, a global lessor which is focused on the regional aircraft sector. The plane was leased back to the airline. The lessor agreed to buy and leaseback Adria's second new CRJ900NG when it is delivered. Falko bought a CRJ900 from **Mesa Airlines** a few months ago. **Nordic Aviation Capital** leased one new CRJ1000ER (SN 19038) to **PT Garuda Indonesia**.

GA-Finance successfully placed two CRJ200LRs (SN 7622 & 7591) with **Cimber A/S**. The aircraft were previously operated by **Air Nostrum** and will

Sukhoi. Sukhoi Civil Aircraft Company (SCAC) delivered two Sukhoi Superjet 100 SSJ-95Bs (SN 95041 & 95043) to the Russian flag carrier **Aeroflot** in January. The airline accepted another SSJ-95B (SN 95044) in March. Aeroflot transferred SSJ-95B (SN 95015) to **Center-South Airlines** in February. **Gazpromavia** received two long-range Superjet 100LRs (SN 95055 & 95056) in late January.

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continue to be managed by **GA-Finance**. The lessor said the unsuccessful placement of these aircraft in a challenging environment demonstrates that the aircraft type is still in demand for a specific operator base in Europe. **GA-Finance** is an independent asset finance company globally active as a regional aircraft lessor with special focus on **ATR**, **Bombardier**, **Embraer** and **Fokker** aircraft. The company is based in Amsterdam, the Netherlands, but also has operations in the U.K. and Ireland.

Embraer delivered two EMBRAER 170-200 LRs (E175) (SN 17000386 & 17000387) to **United Airlines**, which leased them to **Mesa Air Group**, in March. The aircraft are the first of 30 on order by **United** to be incorporated into **Mesa's** growing **United Express** fleet. **Mesa** currently operates as **United Express** from hubs in **Washington Dulles** and **Chicago O'Hare** with a fleet of 20 **Bombardier** CRJ700 regional aircraft. The first E175s will enter service in June 2014 and are configured in the **United Express** dual-class 76-seat layout. **Republic Airways** accepted two more E175s (SN 17000392 & 17000393) for operation on behalf of **American Eagle**. **J-Air** accepted E170 (SN 17000389). **Skywest Airlines** took delivery of E175 Enhanced (SN 17000390). **BOC Aviation** leased two EMBRAER 190s (E190) (SN 19000658 & 19000659) to **KLM Cityhopper**. **Azul Linhas Aereas Brasileiras** acquired another E195 (SN 19000660).

CIT Commercial Air, a global leader in aircraft finance, leased one **Embraer** E190 (SN 19000616) to **Arkia Israeli Airlines** in March. The plane was powered by **General Electric** CF34-10E7 engines and is the first aircraft **CIT** has delivered to the airline.

Turboprop Aircraft

ATR. SAS-Scandinavian Airline System took delivery of two more ATR 72-600s (SN 1120 & 1131) in March. They were leased from **Nordic Aviation Capital (NAC)** and are operated by **Jet Time**. **UNI Airways** received one -600 (SN 1136), and will lease two new ATR 72-600s from **Avation PLC** with delivery in the third quarter. **Avation** took delivery of -600 (SN 1137) in March and sold it to an unknown lessor. The plane was leased to **Mann Yadanarpon Airlines**, Burma. The airplane was originally allocated to **Virgin Australia Regional Airlines**. **Azul Linhas Aereas Brasileiras** leased the fourth of five -600s (SN 1138) from **Nordic Aviation Capital**. **NAC** leased -600 (SN 1140) to **Garuda Indonesia**. **Avianca** acquired its sixth -600 SN (1142). **TransAsia Airways** will receive its second ATR 72-600 (SN 1141) in April. The airline has 10 ATR 72-600s on order.

Nordic Aviation Capital leased one ATR 72-500 (SN 538) to **Nusantara Air Charter** in March. **NAC** is a global aircraft leasing company dedicated to the worldwide sale, purchasing and financing of commercial jet and turboprop aircraft. It is the largest lessor of turboprops in the world.

Bombardier. Luxair accepted 8Q-402 NextGen (SN 4468) in March. **Westjet Encore** received 8Q-402 NextGen (SN 4462) in February and -402NG (SN 4466) in April.

Viking. The manufacturer delivered two DHC-6 Series 400 Twin Otter (SN 872) to the **Vietnamese**

Saab. Regional Express (REX), Australia, purchased 18 **Saab 340Bplus** aircraft from their owner(s) after the leases expired in March 2014. The airline originally leased 25 aircraft and the other seven were purchased in July, 2013, at their lease expiry. **REX's** operating cash flows partly funded the acquisition and the rest came from bank financing. Now **REX** owns its entire fleet of 51 **Saab 340** aircraft.

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Navy in March. **Viking** will hand its 50th production Series 400 (SN 894) to **MASwings**, a subsidiary to **Malaysian Airlines**, which has already received three of its six Twin Otters on order.

Antiques and Other Junque

Southwest Airlines will retire its 737-300 fleet by the end of the decade. **Jim Sokol**, VP of Maintenance Operations, said the airline will ground its first 737-300s in 2016, and the whole fleet will be gone by 2019 or 2020. The airline launched a structural modification program on its youngest 737-300s to avoid unscheduled maintenance events before they reach retirement, he said. **Southwest** will replace the ñupper crown portion of the skin panel on the youngest 78 737-300s. The modification entails replacing approximately 12 skin panels on the upper portion of the fuselage and some window belt panels, he said. The modification program will be finished by November 2014. Mr. **Sokol** said the airline was turning a non-routine maintenance into routine maintenance for better reliability. The 59 oldest 737-300s will not be modified and will be the first to be replaced starting in 2016. **Southwest** will withdraw three of its 15 737-500s this year and the last will leave by the end of 2016. The airline stored 10 -500s over the last two years. **Southwest** repainted 21 of its subsidiary **AirTran**'s 737-700NGs as it integrated the two fleets. It will convert the other 42 aircraft to **Southwest** colors by the end of this year. The airline transferred 13 of its 88 **Boeing** 717-200s to **Delta Air Lines** in 2013 and will hand over another 48 to **Delta** by the end of this year; the last 27 aircraft will go to **Delta** in 2015.

A Royal Netherlands Air Force McDonnell Douglas DC-10 transport/freighter was flown to **Newquay Airport** in the U.K., after three years of operation. It will be dismantled. The DC-10-30CF (SN 46987) was acquired from **United Airlines** in 2004, and was extensively modernized before entering service in May 2011. It was declared surplus to requirements after defence cuts were announced later that year. The plane was offered for sale, but no one was interested. Some parts from the retired aircraft will support the Netherlands' pair of KDC-10-30CF tanker/transport, which have also received the same cockpit and systems upgrades.

Biman Bangladesh Airlines retired its last DC-10-30 (SN 48317) in February. Another DC-10-30 (SN 46995) was grounded in November 2013. They were the last two DC-10s in passenger service. The **Biman** fleet was replaced by four new 777-300ERs.

TrueAero is tearing down an ex-**ARSA** 737-500 at its Sebastian, Florida, facility. The airframe components will be offered for sale and the CFM56-3C1 engines will be added to the existing lease pool. The company recently broke up three ex-**Veuling** A320-211s (SN 0191, 0240 & 0241).

Accidents and Safety

From Aviation Safety Foundation

An Ukraine Air Force Antonov An-30B (registration and serial unknown) was hit by hostile small arms fire while flying over Slavyansk, Ukraine, on April 22, 2014. The plane was on a reconnaissance flight over a rebel-held eastern town when it was hit by several bullets. One crew member was wounded.

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Indian Air Force – IAF lost Lockheed C-130J-30 Super Hercules (KC-3803, SN 5640) near Karauli, Madhya Pradesh, India, on March 28, 2014. All five crew were killed. The plane was on a training mission with a second C-130J. Both aircraft had descended to 300 feet altitude for a simulated drop, when KC-3803 hit the wake turbulence of the lead aircraft and probably stalled. The plane was too low for the crew to recover. More than 300 C-130Js have been built since 1999 and two of them have been lost to accidents, and one was destroyed by enemy action.

AVMARK CAPABILITIES

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

ASSET MANAGEMENT PROGRAMS

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

AIRLINE IMPROVEMENT PROGRAMS

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

ECONOMIC & TECHNICAL ANALYSES PROGRAMS

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

PUBLICATIONS

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

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

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

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

Sample of Avmark Publications

SMALL TRANSPORT AIRCRAFT CATALOG

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

SMALL TRANSPORT AIRCRAFT
A Catalog of New and Used Commuter / Regional Aircraft
2004
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MARKET OVERVIEW

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

Airline Association (RAA):

Aviation:

DOT:

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Saab 340	140
Saab 2000	144
Shorls 330	148
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ATR 42-300

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

Specifications	
Accommodations	
Passengers*	46
Pilot	2
Cabin Attendants	1
Powerplant	
2 Pratt & Whitney PWC120 Turboprops	1,800 SHP / 1,342 kW
Hamilton Propellers	4 blades
External Dimensions	
Length	74 ft 8 in
Wing Span	60 ft 7 in
Height	24 ft 11 in
Weight	
Empty	48,815 lb
Max Ramp	56,155 lb
Max Takeoff	53,510 lb
Max Landing	22,875 lb
Max Ramp	10,325 lb
Max Takeoff	9,920 lb
Max Landing	40.53 lb / sq ft
Max Ramp	10.23 lb / sq ft

Standard Equipment: Right engine Propeller Brakes, Airsarch Air Conditioning, Stall Warning.

Optional Equipment: KLN 900 GPS/W, FMS, Area Navigation (RNAV), Microwave Landing System, VLF Omega 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 Attitude and Heading Reference Systems (AHRS), Dual Autopilots, Dual Computers (ADC), 1 CFZ 600 Automatic Flight Director, Dual King Gold Crown VHF Nav, Radios, DME, Radio Altimeter, Honeywell P-800 Weather Radar.

Price List

Years Built	Base (\$ mil)
85-99	2.0

ATR 42-300 85-99 2.0

Direct Operating Costs (\$ per block hour)

Utilization (Block Hours / Year)	
Average Stage Length (nm)	100 300
Flying Operations	
Flight Crew, Salaries / Expenses	\$198 \$188
Fuel, Oil, Taxes	\$173 \$162
Other	\$3 \$3
Aircraft Costs	
Insurance	\$3 \$3
Maintenance	\$478 \$415
Depreciation	\$62 \$62
Rentals	\$318 \$318
Total Direct Operating Costs	\$906 \$833
Cost per Available Seat Mile - \$	12.33 8.65
Cost per Airplane Mile	\$5.67 \$4.44
Cost per Seat Block Hour	\$16.67 \$15.1

Note: Data from DOT Airline Reports.

ATR 42-300

PAYLOAD VS. RANGE

Range (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 PW127s engines and Hamilton six-bladed propellers. Thus 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 "Hotel 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 stowage, in an externally accessed forward and aft baggage compartment, and in a closet.

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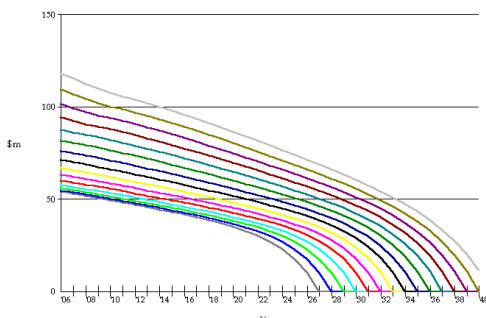
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CAVAS Graph



Profit & Loss Report

Aircraft Type	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	49,037,189	48,978,677
Freight & Mail	8,879,176	8,868,733	8,858,261	8,847,758	8,837,226	8,826,673	8,816,110
Other Revenue	986,575	985,415	984,251	983,084	981,914	980,744	979,574
TOTAL OPERATING REVENUE	59,194,505	59,124,887	59,055,070	58,985,055	58,914,841	58,844,626	58,774,411
VARIABLE EXPENSES							
Fuel	6,918,975	6,917,340	6,915,705	6,914,070	6,912,435	6,910,800	6,909,165
Landing Fees	3,021,823	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	392,440
Pax Commissions	7,399,313	7,399,313	7,399,313	7,399,313	7,399,313	7,399,313	7,399,313
Freight Commissions	1,331,876	1,331,876	1,331,876	1,331,876	1,331,876	1,331,876	1,331,876
Food & Supplies	3,993,194	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	379,590
TOTAL VARIABLE COST	23,443,212	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	5,177,760
Maintenance & Engineering	587,650	587,650	587,650	587,650	587,650	587,650	587,650
TOTAL SEMI-VARIABLE COST	5,765,410	5,765,410	5,765,410	5,765,410	5,765,410	5,765,410	5,765,410
TOTAL OPERATING COST	29,208,622	29,208,622	29,208,622	29,208,622	29,208,622	29,208,622	29,208,622
OPERATING PROFIT OR LOSS	29,985,883	29,916,265	29,846,647	29,777,029	29,707,411	29,637,793	29,568,175
D-CHECK ADJUSTMENT							
Cumulative Hours	4,830	9,660	14,490	19,320	24,150	28,980	33,810
Cumulative Dollars	315,000	0	0	0	0	0	0
ADJUSTED CASH FLOW	25,841,782	25,329,851	24,506,290	23,686,100	22,869,282	22,052,464	21,235,646
AIRCRAFT LIFE ADJ. CASH FLOW	25,841,782	25,329,851	24,506,290	23,686,100	22,869,282	22,052,464	21,235,646

Profit & Loss Report

Aircraft Type	Period	1	2	3	4	5	6
FIXED EXPENSES							
Station Overhead	346,597	345,923	345,249	344,575	343,901	343,227	342,553
Maintenance Burden	176,295	351,824	526,586	700,581	873,810	1,047,039	1,220,268
Other Overhead	0	0	0	0	0	0	0
TOTAL FIXED COST	522,892	697,747	871,835	1,045,156	1,217,711	1,390,266	1,562,821
TOTAL OPERATING COST	31,464,497	32,185,749	32,907,121	33,628,481	34,349,833	35,071,185	35,792,537
General & Admin. Allocation	1,573,225	1,609,287	1,645,180	1,680,903	1,716,455	1,751,907	1,787,359
TOTAL COST	33,037,722	33,795,036	34,552,301	35,309,384	36,066,288	36,823,092	37,579,896
OPERATING PROFIT OR LOSS	26,156,782	25,329,851	24,506,290	23,686,100	22,869,282	22,052,464	21,235,646
D-CHECK ADJUSTMENT							
Cumulative Hours	4,830	9,660	14,490	19,320	24,150	28,980	33,810
Cumulative Dollars	315,000	0	0	0	0	0	0
ADJUSTED CASH FLOW	25,841,782	25,329,851	24,506,290	23,686,100	22,869,282	22,052,464	21,235,646
AIRCRAFT LIFE ADJ. CASH FLOW	25,841,782	25,329,851	24,506,290	23,686,100	22,869,282	22,052,464	21,235,646

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 A320-200
- Airbus A321-100
- Airbus A321-200
- Airbus A330-200
- Airbus A330-300
- Airbus A340-200
- Airbus A340-300
- Airbus A340-500
- Airbus A340-600
- Airbus A350-800
- Airbus A350-900
- Airbus A380-800
- Avro RJ-100
- Avro RJ-70
- Avro RJ-85
- BAe 111-200/300/400/500

Picture

Selected: Airbus A340-300

Description: Widebody 4 Engine Passenger

Manufactured: 1992 To 2006

Values: \$54.00m \$118.00m

Estimated Life: 35 years File No. 013

Search Term

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Aircraft: Airbus A340-300 - Widebody 4 Engine Passenger

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	54.70	56.56	58.99	62.01	65.62	69.95	74.86	80.37	85.52	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
2009	50.49	51.19	52.46	54.29	56.70	59.67	63.24	67.50	72.44	77.95	83.52	89.23	95.06	101.00	107.00
2010	49.28	49.99	51.27	53.10	55.50	58.46	62.01	66.24	71.15	76.64	82.21	87.94	93.81	99.81	105.94
2011	48.05	48.77	50.05	51.88	54.28	57.23	60.77	64.98	69.85	75.35	80.90	86.60	92.44	98.44	104.64
2012	46.80	47.52	48.80	50.63	53.03	55.98	59.51	63.71	68.56	73.95	79.48	85.14	90.94	96.94	103.14
2013	45.53	46.25	47.53	49.36	51.76	54.71	58.23	62.42	67.26	72.64	78.16	83.81	89.59	95.59	101.79
2014	44.24	44.96	46.24	48.07	50.47	53.42	56.93	61.11	65.94	71.32	76.83	82.47	88.24	94.24	100.44
2015	42.93	43.65	44.93	46.74	49.14	52.09	55.60	59.78	64.60	69.96	75.46	81.10	86.88	92.88	99.08
2016	41.60	42.32	43.60	45.41	47.81	50.76	54.27	58.44	63.25	68.60	74.09	79.71	85.46	91.46	97.66
2017	40.25	40.97	42.25	44.06	46.46	49.41	52.92	57.08	61.88	67.23	72.72	78.34	84.09	89.99	96.19
2018	38.89	39.61	40.89	42.70	45.10	48.05	51.56	55.72	60.51	65.85	71.34	76.96	82.71	88.61	94.81
2019	37.50	38.22	39.50	41.31	43.71	46.66	50.17	54.33	59.11	64.50	70.00	75.61	81.36	87.26	93.46
2020	36.09	36.81	38.09	39.90	42.30	45.25	48.76	52.91	57.69	63.08	68.57	74.17	79.87	85.77	91.97
2021	34.66	35.38	36.66	38.47	40.87	43.82	47.33	51.48	56.26	61.65	67.14	72.74	78.44	84.34	90.54
2022	33.21	33.93	35.21	37.02	39.42	42.37	45.88	49.93	54.71	59.99	65.38	70.87	76.46	82.16	88.06
2023	31.74	32.46	33.74	35.55	37.95	40.90	44.41	48.46	53.24	58.62	64.11	69.69	75.28	80.98	86.88
2024	30.25	30.97	32.25	34.06	36.46	39.41	42.92	46.97	51.75	57.13	62.62	68.20	73.79	79.49	85.29
2025	28.74	29.46	30.74	32.55	34.95	37.90	41.41	45.46	50.24	55.62	61.11	66.69	72.28	77.98	83.78
2026	27.21	27.93	29.21	31.02	33.42	36.37	39.88	43.93	48.71	54.09	59.58	65.16	70.74	76.44	82.24
2027	25.66	26.38	27.66	29.47	31.87	34.82	38.33	42.38	47.16	52.54	58.03	63.61	69.19	74.89	80.69
2028	24.09	24.81	26.09	27.90	30.30	33.25	36.76	40.81	45.59	50.97	56.46	62.04	67.62	73.32	79.12
2029	22.50	23.22	24.50	26.31	28.71	31.66	35.17	39.22	43.99	49.37	54.86	60.44	66.02	71.72	77.52
2030	20.89	21.61	22.89	24.70	27.10	30.05	33.56	37.61	42.38	47.76	53.25	58.83	64.41	70.11	75.91
2031	19.26	19.98	21.26	23.07	25.47	28.42	31.93	35.98	40.75	46.13	51.62	57.20	62.78	68.48	74.28
2032	17.61	18.33	19.61	21.42	23.82	26.77	30.28	34.33	39.10	44.48	49.86	55.44	61.02	66.72	72.52
2033	15.94	16.66	17.94	19.75	22.15	25.10	28.61	32.66	37.43	42.81	48.19	53.77	59.35	65.05	70.85
2034	14.25	14.97	16.25	18.06	20.46	23.41	26.92	30.97	35.74	41.12	46.50	52.08	57.66	63.36	69.16
2035	12.54	13.26	14.54	16.35	18.75	21.70	25.21	29.26	34.03	39.41	44.79	50.37	55.95	61.65	67.45
2036	10.81	11.53	12.81	14.62	17.02	19.97	23.48	27.53	32.30	37.68	43.06	48.64	54.22	59.92	65.72
2037	9.06	9.78	11.06	12.87	15.27	18.22	21.73	25.78	30.55	35.93	41.31	46.89	52.47	58.17	63.97
2038	7.29	8.01	9.29	11.10	13.50	16.45	19.96	23.99	28.76	34.14	39.52	45.10	50.68	56.38	62.18
2039	5.50	6.22	7.50	9.31	11.71	14.66	18.17	22.20	26.97	32.35	37.73	43.31	48.89	54.59	60.39
2040	3.69	4.41	5.69	7.50	9.90	12.85	16.36	20.39	25.16	30.54	35.92	41.50	47.08	52.78	58.58
2041	1.86	2.58	3.86	5.67	8.07	11.02	14.53	18.58	23.25	28.63	34.01	39.39	44.97	50.55	56.35

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