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AVMARK INC.®

WORLDWIDE AVIATION MARKETING AND MANAGEMENT SERVICE

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Newsletter

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Market Comment

Order Glut? What Order Glut? Many airline executives and manufacturers' managers argued at various conferences and air shows that the record 11,500 commercial aircraft on order does not represent an order bubble. The always vocal and informative **Qatar Airways** CEO **Akbar Al Baker** said, "I don't think there will be an excess glut of capacity," at the **IATA AGM** conference in Doha. "There is a huge requirement for fleet replacement." His airline will use half of the approximately 226 aircraft it has on order for replacement in the next decade he said. **Qatar** currently operates 126 aircraft (43 A320 Family and 83 widebodies). It has 155 **Airbuses** (including 80 A350s and 10 A380s) and 69 **Boeing** widebodies on order, so it will replace 90 percent of its fleet in the next 10 years. **Qatar's** fleet averages 5.5 years old. The panel's consensus was that the majority of orders from airlines in mature markets will be used for replacement, while much of the emerging market's orders will likely be for growth. **Flightglobal's Ascend** consultancy said the 11,500-unit backlog represented about 55 percent of the in-service fleet and that slightly less than half of the approximately 6,000 new deliveries since January 2008 have been used for replacement. The talk of glut was dismissed as misplaced idle chatter, because the current backlog has a significantly longer delivery horizon – stretching into the early 2020s. **Ascend** asserts that "Only 40 percent of the end-2013 backlog is scheduled to be delivered in the three years through to 2016, and 60 percent over the five years through 2018. This is far lower than the three-year delivery level of 75 percent, and five-year level of 90 percent, evident back in 1991." The longer delivery horizon will mitigate the risk of developing an order bubble. To counter the argument, **AVMARK's** research shows that **Boeing** sold only 273 new aircraft in 1991 and 2,126 new planes in the three years prior. So far this year, **Boeing** has sold 877 new planes and a total of 3,724 in the prior three years, approximately twice the 1991 numbers. Over the past decade, the volume of new aircraft deliveries was stable, and represented about 6 to 7 percent of the in-service fleet. **Ascend** predicted the delivery of approximately 16,500 new passenger jets in the next 10 years, and the annual volume of 1,650 per year will remain within 6 to 7 percent of the fleet total. **Ascend** believes if 48 percent of deliveries will replace aircraft which will be withdrawn to storage or part-out, then 7,100 new aircraft will replace older models. Other observers say that nearly 1,000 airplanes will be retired per year. This suggests that more airplanes will be grounded at an earlier age, especially during the next economic down cycle. If the manufacturers build airplanes at a constant rate, the airlines will adjust their retirements

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to match the need for capacity (see **Delta** 747s on Page 24). **AerCap** President **Philip Scruggs** argued that manufacturers were too rational to let an order bubble create a situation that could "kill the industry". In the past 50 years, **AVMARK** has seen airframers do lots of irrational things such as discount prices to raise their market share, so we are less sanguine. Mr. **Scruggs** said it was important to differentiate between an order bubble and a delivery bubble. "We have to assume that the OEMs are rational players, and the number aircraft that are delivered... when they are delivered, may differ from the dates that are currently set and the orders that we see out there." He said the manufacturers' propensity to double-book their schedules, with the expectation that some customers will defer or cancel, puts some flexibility and slack into the system. His leasing company recently purchased 200 A320neos. **Delta Air Lines** CEO **Richard Anderson** welcomed a "huge bubble" in orders for narrowbody aircraft, "so those residual values are going to plummet, which is going to be a great buying opportunity for a carrier like **Delta**." He thought the bubble would affect **Airbus** narrowbodies first. Declining A320 Family residual values would lower maintenance costs by allowing the airline to buy used aircraft for parts, cutting the need to buy new parts from **Airbus**, Mr. **Anderson** said. Also **Delta** could buy airworthy used aircraft cheaply. The airline is known for buying unpopular 717-200s and MD-90s at knock down prices. **Delta** also ordered soon-to-be obsolete A321ceos and standard A330-300s. Representing the manufacturers' opinions, **Airbus** CEO **Tom Enders** tried to reassure investors that the commercial aircraft market was still strong for the foreseeable future, despite record sales at the Paris, Dubai and Farnborough air shows where customers ordered hundreds of planes worth approximately \$100 billion. "I know we have a lot of nervousness about the market, and I can try to assure you that we're not approaching the end of a cycle. Yes we have local airlines going bust, but that is something that globally active companies can cope [with]." Analysts look at a slowdown in new orders, and multi-billion dollar announcements, but the money is earned when the aircraft are delivered. There will not be a glut of deliveries unless the economy falls flat on its face again due to wars, pestilence, or huge financial shock, such as an oil price spike, which are hard to predict.

It seems the real question that no one is asking is what happens to the older airplanes that will be replaced over the next decade? There is very little market for the hundreds of 737 classics that the U.S. airlines retired in the past few years. The used market

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will be flooded with early A320s, which cannot be converted into freighters as there are no P2F programs. In a few years, the oldest 737NGs will come on the market. The first of them were delivered in 1998. The A320ceo will soon be superseded by the A320neo and the early adopters will return their 1990's era ceos to lessors or dump them on the market too. Residual values should fall dramatically. It will be even worse if the world economy falls back into recession, as it is wont to do every decade. Low aircraft prices will threaten the lessors' and airlines' balance sheets as assets decline in value faster than anticipated. A sudden jump in oil prices will ground more of the previous generation of aircraft, exacerbating the glut further.

Airbus Orders

Airbus logged 465 orders for its A320 Family aircraft in July. Sales were led by **SMBC Aviation Capital's** purchase of five A320ceos and 110 A320neos at **Farnborough Airshow**. **AerCap/ILFC** confirmed options for 50 A320neos and **Hong Kong Aviation Capital** signed a firm order for 40 A320neo and 30 A321neo aircraft. **BOC Aviation** contracted for 23 A320s and 17 A321s. An **Undisclosed Customer** ordered 38 A320s and seven A321s during the show. **Air Lease** acquired 60 more A321neos, for a total commitment for 110 A320neo Family aircraft. At the end of the month, **All Nippon Airways (ANA)** purchased seven A320s and 23 A321s. Early in July, **AirAsia** switched 23 A320ceo orders to the New Engine Option type, and **LATAM Airlines Group** dropped 16 A320ceos in favor of 12 A320neos. **Qantas** cancelled five A320s from an order placed in October 2011. As of July 31, **Airbus** sold 10,925 A320 Family aircraft, and delivered 6,171 of the single-aisle jetliners. The backlog was 5,912 jetliners, composed of 4,756 A320 Family aircraft, 236 A330s, 742 A350s and 180 A380s.

Airbus delivered 49 aircraft in July, included 39 A320 Family aircraft, seven A330s and three A380s. Taking July's orders, cancellations and conversions into account, **Airbus'** net bookings for 2014 reached 705 aircraft and gross sales rose to 980. The 275 cancellations included **Skymark's** six A380s, and

Airbus Orders, Deliveries and Backlog July 2014

JUL ORD	JUL DEL	JUL CANX	TOTAL ORD	TOTAL DEL	BACK LOG
			A318		
-0-	-0-	-0-	79	79	-0-
			A319		
-0-	3	-0-	1,508	1,415	93
			A320		
321	23	-44	7,072	3,720	3,352
			A321		
144	13	-0-	2,266	957	1,309
			A330		
-0-	7	-0-	1,342	1,106	236
			A350		
-0-	-0-	-0-	742	-0-	742
			A380		
-0-	3	-6	318	138	180
This Month			This Year		BL
465	49	-50	705	352	5,912

Airbus sold 14,520 aircraft and delivered 8,608 as of July 31, 2014. Two hundred seventy five orders were cancelled. Total orders, deliveries and backlog include cancellations and order changes.

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AirAsia's and **LATAM's** switching 39 A320ceos to A320neos.

SMBC Aviation Capital placed a firm order for five A320ceo and 110 A320neo aircraft at **Farnborough**, in a deal worth around \$11.8 billion (\$102.61 million each) at list prices. The lessor has the option to convert the majority of the A320neo aircraft and all of the A320ceo aircraft to the A321 variants. It will announce its engine selection at a later date. It has ordered a total of 206 A320 Family aircraft. The **SMBC** order pushed the A320neo order book to 3,090 from 57 customers, which represents 60 percent of the market in its category.

BOC Aviation purchased 40 A320 Family aircraft in July, split between 23 A320s and 17 A321s. The lessor is buying at least seven new engine option aircraft and the rest will be powered by **IAE V2500** or **CFM56** engines. Deliveries will start soon and end in 2019. With the latest purchase agreement, **BOC Aviation** has ordered 17 A319s, 167 A320s, 65 A321s and six A330s for a total of 255. As of the end of July, 142 have been delivered and another 55 are contracted for lease to airlines.

AerCap exercised options to purchase 50 A320neo Family aircraft at the **Farnborough International Airshow 2014**. The order was worth \$5.14 billion (\$102.8 million each) at list price, and it was **AerCap's** first major aircraft order after it purchased **International Lease Finance Corporation (ILFC)** in May. The 50 options were part of a contract that **Airbus** and **ILFC** signed in 2011. The first A320neos will be delivered to launch customers in 2015. **AerCap/ILFC** has now ordered 200 A320neo Family aircraft and its total orders for **Airbus** aircraft stand at 945. **AerCap** is now **Airbus'** largest customer, both in number and value of aircraft pur-

Emirates Wants A380neo. The airline wants an improved A380 with updated **Rolls-Royce** engines. **Rolls** is ready to go on a new engine **Emirates'** President **Tim Clark** said, but he did not think **Engine Alliance** will invest in a new-technology powerplant. He said the potential A380neo could offer 10-12 percent improvement in economics. Mr. **Clark** said, "Rolls can do a better engine. We can get more weight out of the aircraft. We can improve the aerodynamics." So far, **Airbus** is dragging its feet and running the numbers. **Emirates** operates 50 A380s, and has 90 more on order. Its current super jumbo jets are fitted with **Engine Alliance** GP7000 engines. The airline opened its newest order for 50 A380s to competition and said it was ready to announce its choice between **Engine Alliance** and **Rolls-Royce** soon. He said, "The first 25 are being delivered in 2016-17 on the old spec. The second 25 are targeted for a neo, post 2020. If they don't produce the neo we will still take that 25 under the old version." It seems that **Emirates** is waiting for **Airbus** to launch the upgraded A380neo before it makes its engine choice. He said **Rolls** would be the sole source engine supplier because **Engine Alliance** doesn't see a strong business case for an updated GP7000. "I'm not sure if **Engine Alliance** has an appetite to spend their money. GE is caught up on the 777X program, and it focused on developing the GE9X that is the sole engine offered on the 777X, he said. Conversely, **Rolls** sees a good business case, because they have developed an engine for the 777X program, but it was not picked. "So **Rolls** thinks that with sufficient orders, from us, [the A380neo] would be a possibility," Mr. **Clark** said. **Rolls** worked on the RB3025 engine for the 777X, which offered 100,000 pounds (445kN) of thrust with a bypass ratio of 11 to 1. **Airbus** must be reluctant to invest more money in a program that has yet to break even, but the airframer has to keep its biggest customer happy. The A380neo may attract more customers due to its extremely low seat-mile costs in a high-capacity configuration.

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chased. **AerCap** said it had already placed 48 of the previously ordered A320neos under firm contract or letter of intent.

Hong Kong Aviation Capital (HKAC) signed firm order for 40 A320neo and 30 A321neo aircraft. The \$7.76 billion contract was finalized at the **Farnborough Airshow**, and it solidified a Memorandum of Understanding signed at last year's **Paris Air Show**. It was **HKAC's** first direct order with any aircraft manufacturer, although the lessor has more than 50 single and twin-aisle **Airbus** aircraft in its portfolio.

International Airlines Group (IAG) converted eight A350-900 options into firm orders for **Iberia** in August, making the airline the newest customer for the A350XWB Family. The aircraft will be equipped with **Rolls-Royce** Trent XWB engines. **IAG** secured the delivery slots in April 2013, when it ordered 18 A350-900s for **British Airways** and optioned 18 more. At the end of July 2014, the A350 XWB had won 742 orders from 38 customers worldwide.

International Airlines Group (IAG) converted 20 A320neo Family options into firm orders, and chose to buy 13 A320neos and seven A321neos. These aircraft will replace 21 of **British Airways'** short-haul aircraft. The neos will be delivered in 2018 and 2019. **British Airways** already operates 120 **Airbus** single-aisle aircraft, including two A318s, 44 A319s, 56 A320s and 18 A321s. **IAG** reserved 100 A320neo options in August 2013, when **Vueling** ordered 30 A320neos and 32 A320neo Family aircraft, and optioned 58 more. The remaining **IAG** options can be used by **British Airways**, **Iberia** or **Vueling** for aircraft replacement.

ANA Holdings firmed up the commitment for seven A320neo and 23 A321neo aircraft that it made in March 2014. The aircraft will replace **All Nippon Airways'** existing single-aisle fleet when deliveries start in 2016. **ANA's** A320neo Family will be equipped with **Pratt & Whitney** PW1100G-JM engines.

Airbus disclosed an order for 45 A320 Family aircraft at **Farnborough**, from **Unidentified Customer(s)**. The order included 21 A320neo and seven A321neo jets. The other 17 A320s will be chosen from the current engine option program. **Airbus** did not give details as to the engines nor whether the orders came from one or several customers.

The Airbus A350-900 Successfully Completed Route Proving Trials around the southern hemisphere. It visited 14 cities in 20 days, ending at Toulouse, France, on August 13. The technical Route Proving aircraft (SN 005) demonstrated its readiness for airline operations on a global scale. These flight trials were required for Type Certification, which is expected in the third quarter of 2014. The A350 XWB flew over the North Pole, each ocean and stopped at 14 major international airports. It flew approximately 81,700 nm (151,300 km) in approximately 180 flight hours. The aircraft was operated by **Airbus** and **Qatar** flight crews on different legs of its trip. The Airworthiness Authority pilots from the **European Aviation Safety Agency (EASA)** also participated and flew the aircraft twice. The plane flew from

Prior to Farnborough, Ethiopian Airlines said it would decide whether to buy up to 30 narrow-body aircraft from **Airbus** or **Boeing** for its fleet expansion plans. The airline is considering both the A320neo and 737 MAX, which could be worth \$3 billion at current list prices. Both airframers announced large orders for single-aisle aircraft from unidentified customers at the air show. **Ethiopian** said it wants to nearly double its fleet to 112 planes and carry 18 million passengers over 92 routes by 2025.

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Johannesburg Tambo International Airport, located at 5,558 feet elevation, to Sydney, Australia. From there it flew to Auckland, Santiago de Chile and Sao Paulo, demonstrating its capability to fly ultra-long-haul routes or Extended-range Twin Operations (ETOPS). The plane left Toulouse on July 24 and flew to Frankfurt, Singapore and Hong-Kong before returning home. On the fourth and final journey, the A350-900 flew to Perth, then to Doha, Moscow and Helsinki. Checks were made on standard maintenance as well as typical airport operations and compatibility, **Airbus** said. The A350 XWB's automatic landing capability was also successfully demonstrated.

Boeing Orders

Airlines and Lessors Bought 238 777s, 60 737s and 26 787s in July. **Boeing** booked 324 orders, the largest sales figure it has ever booked in a single calendar month. This raised the jet maker's total of 823 net orders so far this year. Following all the sales activity at the **Farnborough Airshow** last month, **Boeing** ended July with a commanding lead over rival **Airbus** in both jet orders and deliveries. **Airbus** sold 705 airplanes this year, including 465 A320 Family aircraft in July alone, but **Boeing** is the leader in sales of the bigger and much more expensive widebody jets, with 273 sales. The month's sales included two huge orders for a total of 200 new 777Xs from Gulf carriers **Emirates** (150) and **Qatar** (50). The deals were announced at the **Dubai Airshow** last fall, and were confirmed in July. **United Airlines** traded a previous order for seven 787-8 Dreamliners for seven of the larger, more expensive 787-10s. The change was worth nearly \$200 million more to **Boeing**. The company reported 54 737 cancellations because many airlines upgraded to the 737 MAX family.

In the First Two Weeks of July, Boeing sold 284 new aircraft. **Air Lease Corporation (ALC)** picked up 10 additional 737s and six 777s, and it announced a previous order for 10 737s. **CIT Leasing Corporation** bought 10 more 787s. **Intrepid Aviation** ordered six 777s and **MG Aviation Limited** placed a repeat order for two 787s. **Unidentified Customer(s)** purchased 50 737s. At the end of the month, **All Nippon Airways** purchased 40 long-haul widebodies, including six 777-300ERs, 20 777Xs, and 14 787-9s, raising **Boeing's** monthly total to 324 new sales.

Boeing July 2014 Orders, Deliveries					
JUL ORD	JUL DEL	JUL CANX	TOTAL ORD	TOTAL DEL	BACK LOG
737					
60	39	-0-	12,095	8,143	3,952
747					
-0-	1	-0-	1,538	1,489	49
767					
-0-	-0-	-0-	1,110	1,062	48
777					
238	10	-0-	1,789	1,222	567
787					
26	8	-0-	1,057	170	887
This Month			This Year		BL
324	58	-0-	823	400	5,503
Boeing sold 25,119 aircraft and delivered 19,616 as of July 31, 2014.					
The Current Program includes sales and deliveries of 737s, 747s, 767s, 777s and 787s.					
Sales totals include 54 737 cancellations.					

Boeing Delivered 58 Aircraft in July. Customers accepted 39 737NGs, 10 777s and eight 787s. **Boeing** also handed over another 747-8F to **Cargolux**, one of its biggest -8F freighter customers. In the first seven months, **Boeing** delivered 400 new jets, 48 more than **Airbus**. The U.S. airframer expects to complete from 715 to 725 airplanes, including approximately 110 Dreamliners this year. **Airbus** expects to build approximately 626 new jets, the same as last year.

Boeing Raised List Prices by 3.1 Percent, nearly twice the rate of the increase last year. The plane maker raised prices across the board, based on a formula that takes into account increases in the cost of goods, services and labor. It also reflects the demand for its jets. Popular aircraft, including the 787, are sold out through the end of the decade. Its most expensive model is the newly launched 400-seat 777-9X, which is list priced at \$388.7 million. The larger, but slower selling, 747-8 jumbo freighter has a sticker price of \$368.4 million. The 777X won more than 300 orders and commitments since its launch in November, and will enter service in 2020. **Boeing's** backlog of 5,503 aircraft are worth nearly half a trillion dollars.

Air Lease Corporation (ALC) ordered six 777-300ERs and 10 737 MAX 8 airplanes at **Farnborough**. The lessor also revealed that it ordered 10 737 MAX in March as an unannounced customer. The 26 aircraft were valued at \$3.9 billion at current list prices. The 737 MAX order was list priced at \$100 million each and the 777s are worth more than \$1.9 billion (\$316.7 million each) at list prices. The lessor has now ordered 104 737 MAX airplanes, and 21 777-300ERs.

The CIT Group announced that **CIT Aerospace** purchased 10 787-9 Dreamliners, valued at \$2.5 billion at current list prices, in July. The contract raised the leasing company's total 787 orders to four 787-8s and 16 787-9s.

Intrepid Aviation Group ordered six 777-300ER aircraft, which will be powered with GE90-115B engines. The purchase was valued at \$1.9 billion (\$316.7 million each) at list prices. The company has an option to purchase another four 777s, worth another \$1.3 billion, **Boeing** said. **Intrepid** focuses primarily on twin-engine widebody equipment, and has ordered seven A330-200s and 13 A330-300s. This was its first 777 purchase directly from the manufacturer.

Emirates Airline finalized its order for 35 777-8Xs and 115 777-9Xs prior to the **Farnborough** show. The commitment was first announced at the **2013 Dubai Airshow**, and was valued at \$56 billion (\$373.3 million each) at list prices. **Boeing** said this was part of the largest product launch in commercial jetliner history and was the largest single order in aviation history. The order included purchase rights for an additional 50 airplanes that, if exercised, could increase the contract's value to approximately \$75 billion at list prices. **Emirates** now has 208 **Boeing** 777s in backlog, and it currently operates more than one of every 10 777 aircraft ever built. The airline currently flies 138 777s. The 777X will enter service in 2020, and will be powered by the new technology **General Electric** GE9X.

Qatar Airways finalized its order for 50 777-9Xs, which were valued at \$18.9 billion (\$378 million each) at current list prices. The airline reserved 50 additional 777-9X purchase rights, also worth \$18.9 billion. The order was announced as a commitment at the **2013 Dubai Airshow**. The airline intends to order four 777 Freighters and option four more, with a combined value of \$2.4 billion (\$300 million) at list prices. The four new 777F orders will raise the airline's 777 freighter fleet to 12, of which half have been delivered. To date, the 777X has accumulated 300 orders and commitments from six customers worldwide.

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MG Aviation Limited finalized an order for two more 787-9 Dreamliners, valued at \$499 million (\$249.5 million each) at current list prices. **MG Aviation** purchased its first two 787-9s in 2006. The lessor is part of **Jordache Enterprises**, the **Nakash** family's global conglomerate that also operates **Arkia Israeli Airlines**. **Arkia** will lease the first two 787s from **MG Aviation** and may be the recipient of the latest order as well.

An Unidentified Customer ordered 50 737 MAX aircraft at the air show, valued at more than \$5.1 billion (\$102 million each) at current list prices. The 737 MAX has surpassed 2,100 orders from 42 customers worldwide and is the fastest selling airplane in **Boeing** history, the manufacturer said.

ANA—All Nippon Airways finalized its order for six 777-300ERs, 20 777-9Xs and 14 787-9 Dreamliners on July 31. The \$13 billion (list price) commitment was originally announced in March. The launch customer of the 787 is now the world's largest Dreamliner customer having ordered 80 airplanes. The airline currently operates 29 787s and has a backlog of 43 787-9s and eight 787-8s.

In August, Boeing sold 10 777s to one **Unidentified Customer**. Another customer ordered 10 737s and a third purchased two 777s. **Boeing** lost five 787 orders during the month.

Boeing Will Build the 787-10 exclusively in North Charleston, South Carolina. **Boeing** will continue to assemble the smaller 787-8s and 787-9s in Everett, Washington, and North Charleston. The 787-10 design work is taking place at Everett, and final assembly of the first 787-10 is scheduled to begin in 2017. **Larry Loftis**, VP and General Manager of 787 Program, said, "We looked at all our options and found the most efficient and effective solution is to build the 787-10 at **Boeing South Carolina**. This will allow us to balance 787 production across the North Charleston and Everett sites as we increase production rates." The 787-10 will be 18 feet (5.5 meters) longer than the 787-9, and the 787-10 mid-body will be too long to be transported efficiently to the Everett facility. All of the mid-bodies are built in North Charleston, and the systems integration work is completed there as well. The Everett facility will continue improving productivity as it focuses on the 787-8 and 787-9, **Boeing** said. The two production plants currently build a total of 10 airplanes per month, and the 787 production rate will increase to 12 airplanes per month in 2016 and 14 per month by the end of the decade.

Boeing 747's Days of Future Are Past. The jumbo jet is flying slowly into the sunset because the 777-300ER and new 777X have superseded it. The air freight market is in the doldrums and few airlines see a need for a four-engined jumbo when a twin-engined widebody is almost as capable. To date, **Boeing** has sold 51 747-8I Intercontinentals and nearly 20 percent of those planes were purchased as governmental/executive/VVIP transports. The sales of the 747-8F freighter are slightly better at 69, but 49 of them have been delivered already. This year **Boeing** will bid to build several new "Air Force One" presidential aircraft. The company is expected to win the competition because the specifications call for a four-engined aircraft. The 747-8Is will replace two 1990-era VIP 747-200Bs and four 747-200B "Doomsday" jets which are hardened against nuclear blasts and used as mobile military command posts. The problem is that **Boeing** may build down its existing backlog of 49 aircraft before the "Air Force One" contract can be implemented. The manufacturer is currently building 1.5 747s per month and will run out of customers by early 2017. The **U.S. Air Force** is planning to replace the 747-200Bs by 2023. The **White House** proposes spending \$1.65 billion over the next five years to replace the two "Air Force One" 747s. The funds would cover the purchase of the first new aircraft for delivery in fiscal 2018, the **Air Force** said. One wonders why the **Air Force** does not look at the 777-300ER and 777X instead of

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the soon to be obsolete 747-8. **Boeing** recently offered the 747-8I to **Emirates**, but that airline said it was not interested. It bought 150 777X aircraft instead. If the airframer cannot sell more 747s it will have to write off its billion dollar investment in the -8 program. In the first quarter, **Boeing** said, in a stock market filing, that it expected to recover \$1.2 billion of deferred production and tooling costs from firm orders, while another \$1.01 billion would be recovered from expected future orders. **Boeing** Vice President for Marketing, **Randy Tinseth** said, "We expect 747-8 sales to increase with the economy, and customers flying the airplane tell us they love its strong performance. That's why we continue to invest in the 747-8 to make it even better."

Boeing May Increase 737 Output to 52 Per Month. Chief Financial Officer **Greg Smith** said, "We continue to see very strong demand. In particular on the 737 there is more pressure on the upside, and we will address that in the months to come," **Boeing** currently makes 42 737s a month, and it plans to lift that rate to 47 per month in 2017. The company constantly evaluates its production rates and informed its suppliers that demand is sufficient to go to 52 a month. The Renton factory is getting ready to build the 737 MAX which will enter service in 2017.

Regional Report

Embraer delivered 29 commercial, 22 light and seven large executive jets in the second quarter of 2014. The company's revenues were \$1.761 billion and the firm order backlog was worth \$18.1 billion at the end the quarter. As a result of aircraft deliveries, coupled with revenues from the company's **Defense & Security** business, the quarter's year-over-year growth rose 13.1 percent. Revenues in the first six months were \$3.004 billion, representing growth of 13.6 percent above the second quarter of 2013. The EBIT (earnings before interest and taxes) margin was 10.6 percent in the second quarter of 2Q14, and for the first six months of 2014, was 9.3 percent. Net income for the quarter was approximately \$143.4 million, and net income for the half year was \$254.0 million. **Embraer** maintained its lead in the 70- to 130-seat commercial jet segment with over 50 percent of the sales and 60 percent of the deliveries to the worldwide market since the E-Jets' entry into service in 2004.

Embraer's Ahead-Pro System. **Embraer** signed a 10-year contract with **SkyWest Airlines** to provide the **Ahead-Pro (Aircraft Health Analysis and Diagnosis – Prognosis)** system, the company said. The manufacturer will provide a 12-year

Embraer June 30, 2014 Orders & Deliveries

Type	Total Orders	Total Options	Total Deliveries	Current Backlog
E170	188	26	188	-0-
E175	378	375	211	167
E190	570	157	508	62
E195	145	2	134	11
E175-E2	100	100	-0-	100
E190-E2	50	50	-0-	50
E195-E2	50	50	-0-	50
Total	1,481	760	1,041	440

Type	2nd Quarter Deliveries	2014 Deliveries
Light Exec Jets	22	39
Large Exec Jets	7	10
Embraer 170	-0-	1
Embraer 175	16	24
Embraer 190	8	12
Embraer 195	5	6
Total	58	92

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component management service for the airline's entire fleet of E175 jets as well. The contract includes more than 160 replacement parts for the **SkyWest** fleet. **Tianjin Airlines**, the first E190 customer in China and the largest E-Jets operator in Asia, became the launch customer of **Embraer's Ahead-Pro** system in China. The system will be installed in the entire **Tianjin's** fleet of 50 E-Jets.

Embraer Concluded the Joint Definition Phase (JDP) of the E190-E2 jet, at the end of May. It completed the preliminary design review while finishing the wind tunnel tests for the first model of the second generation of the E-Jets family. The first E-Jets-E2s are planned to enter service in 2018. The next step in the development of the E190-E2 is the critical design review, when the product's maturity will be validated, enabling prototype production to begin. The E195-E2 is derived from the E190-E2, and is scheduled to begin revenue service in 2019. It recently entered its Joint Definition Phase. **Embraer** also concluded the concept studies of the E175-E2, which is expected to enter service in 2020, and it has started the preliminary studies as well as the aerodynamic wind tunnel tests, the company said.

***Bombardier June 30, 2014
Orders & Deliveries***

CRJ	Total Orders	Total Deliveries	Current Backlog
Challenger	33	33	-0-
CRJ1/2/440	1,021	1,021	-0-
CRJ700	350	336	14
CRJ900	359	299	60
CRJ1000	70	38	32
Total	1,833	1,727	106
CSeries	Total Orders	Total Deliveries	Current Backlog
CS100	63	-0-	63
CS300	140	-0-	140
Total	203	-0-	203
Dash 8	Total Orders	Total Deliveries	Current Backlog
Q1/2/300	671	671	-0-
Q400	499	464	35
Total	1,170	1,135	35

Bombardier delivered 17 CRJs and six Dash 8-400s this quarter.

Netherlands Aircraft Company is pushing forward with its plans to resume production of the Fokker 100 twinjet. The company is securing the financing and supply chain partners to launch its F120NG. CEO **Maarten Van Eeghen** told the press at **Farnborough**, "We are not going to give a timetable or timeline at this stage, but the fact that we are sharing more details demonstrates we are confident the funding is imminent and the project will make significant steps in the coming few months." The F120NG will be a 125- to 130-seat stretch of the basic **Fokker** F100 design. They will change the wing, to give it more span, winglets and some small alterations to the wing profile. The F120NG will be powered by **Pratt & Whitney** PurePower PW1X17G engines, which are very similar to the PW1217G engines that will power the Mitsubishi Regional Jet. They will be rated at 17,600 pounds thrust. **Netherlands Aircraft Company** and **Pratt & Whitney** have approved the engine-airframe integration. The company said the combination of the geared turbofan with the F100 airframe produces an aircraft that burns 50 percent less fuel per seat than the original **R-R** Tay powered F100. **Netherlands Aircraft** claimed the aircraft is uniquely positioned to complement the **Airbus** and **Boeing** fleets, and covers the 90- to 150-seat segment with the lowest seat mile and trip cost. The project has been developed over the last decade and has been suffered a couple of false starts. Mr. **Van Eeghen** said the programme has matured over the last year, and promises to be competitive with current and projected projects. It competes directly with the **Bombardier** CSeries and **Embraer** E-Jets E2 in the upper end of the market

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and with the current CRJ1000, E195 and **Sukhoi** SSJ, as well as the **Mitsubishi** MRJ and **COMAC** ARJ-21 programs in the under 100-seat segment. The first F120NGs could enter service in 2019, after a five-year development and testing program. It will be assembled in the Netherlands, a country not noted for its cheap labor. **Netherlands Aircraft Company** is wholly owned by the Dutch group **Panta Holdings**, which holds a variety of interests in airlines and aviation service companies, including **Rekkof Aircraft**, which purchased the rights to build **Fokker** jets after the manufacturer ceased operations in 1996. **AVMARK** thinks the deck may be stacked against a resurrection of the Fokker 100, because the basic design is 30 years old, and the aircraft will be built from aluminium and not composite materials. It will cost a billion dollars to redesign, test and certify a derivative airliner that is competitive with larger and more established programs. The current competitors (except **Embraer**) are having a hard time selling enough airplanes to break even, indicating there may be little room for a warmed-over jet with new engines. The A320neo and 737 MAX are doing well because they benefit from **Airbus** and **Boeing's** huge customer base and the manufacturers' financial power. **Fokker** sold only 47 F70s and 283 F100s, and all the F70s and 160 F100s are still in service. Most of the 31 current operators are small airlines, and that may not be a large enough customer list to tap into. Some of the larger airlines have already ordered replacement aircraft from other manufacturers, which have deep pockets and government backing.

Order Changes and Cancellations

Airbus Order Changes and Cancellations. In July, **Air Lease Corporation** changed five A320 orders to the larger A321 model when it ordered 60 A321neos. **Qantas** cancelled five A320s from an order placed in October 2011. **AirAsia** cancelled 23 A320ceos when it ordered 23 A320neos and the **LATAM Airline Group** converted 16 A320ceo orders to 12 A320neos. **CALC** switched one A321 order to the A320. It now has four A321s and 31 A320s on order. **CIT** changed one A330-300 order to the A330-200, and **Intrepid Aviation** dropped one A330-200 and ordered one A330-300.

Airbus Group CEO Tom Enders Comments on Cancellations. The manufacturer lost 225 total orders this year, including **Emirates Airlines'** order for 70 A350s, which was called "unforeseen" by Mr. **Enders**. **Skymark Airlines** cancelled its order for six A380s shortly before the first one was to be delivered. "Roughly 140" of the cancellations were for single-aisle aircraft, and that most of those customers would end up converting orders for legacy single-aisle passenger jets to the new re-engined versions of the A320, he said. Mr. **Enders** stated the manufacturer does not want to be selling A320ceos (current engine options) through 2020 and it is encouraging customers to take the new version instead. So far airlines have dropped 65 A320ceos and ordered the new engine option A320neo. This was a reversal of **Airbus'** previously stated desire not to let the A320neo cannibalize the backlog for A320ceos. Recently Mr. **Enders** stated, "We don't want to move ceos into, say '18, '19, [or] '20. In these years we want to build neos." It's quite inevitable that we'll have cancellations, [or rather] conversions from ceos into neos, [which] usually gets us a higher price [and] better margins." He told investors that they can expect to see more **Airbus** single-aisle cancellations through the second half of the year. Mr. **Enders** expects the same situation at **Boeing** when it brings its re-engined 737 MAX to the market in 2017. "I have no doubt that our competitor is able to handle that." What Mr. **Enders** did not mention was that customers were cancelling near term A320 deliveries in favor of production slots closer to 2020. So far the manufacturer has had no problem placing the "white tails" with other operators, and has done so rather quickly.

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Skymark Airlines' order for six A380s was cancelled in July.

Airbus Keeps Kingfisher Orders on its Books. The manufacturer said it would keep **Kingfisher Airlines'** 82-plane order on its books, because there is still some chance that the bankrupt Indian carrier could find a buyer. **Airbus** reports that **Kingfisher** and its low-cost **Kingfisher Red** subsidiary had 67 A320s and 15 A330-200s in backlog. They are worth a total of \$6.8 billion at list prices. **Airbus** Executive VP of Sales and Marketing, **Kiran Rao**, told the press, "If **Kingfisher** finds a new buyer for the airline, that buyer would need single-aisle planes, so for that reason we'll keep them until the airline is completely shut down." The airlines ceased operations in October 2012 and lost its operating license in February 2013. It owed 91.4 billion rupees (\$1.5 billion), as of the end of 2013, and it defaulted on payments to lenders, staff, airports and lessors. Its fleet of airplanes was repossessed by lessors in 2013. **Airbus** reported the cancellation of **Kingfisher's** five A380s and five A350-800s from its books last year, because a successor airline would need to operate for five years and have at least 20 aircraft before it could fly abroad. The airline said its license will expire at the end of 2014 if it does not resume flying by then.

Boeing reported no cancellations or changes in July.

Embraer said that **Linhas Aereas de Mocambique** cancelled its final EMBRAER 190 order in the second quarter. **Azerbaijan Airlines** was the previously unannounced customer which ordered two E190s in the second quarter. The airline has now ordered six E190s.

Leasing & Finance

AerCap Reported its Second Quarter Results. The lessor completed the acquisition of **International Lease Finance Corporation (ILFC)** from **American International Group** on May 14, 2014, so **ILFC's** results were consolidated in **AerCap Holdings N.V.'s** second quarter income statement and cash flow statement as of the purchase date. The Irish lessor stated the **ILFC** integration activities were on track. The net spread for the second quarter was at a 5-year high of 10.1 percent, and fleet utilization was nearly 99 percent. At the quarter's end, **AerCap/ILFC** was committed to purchase 350 aircraft scheduled for delivery up to the end of 2022. More than 90 percent of the aircraft it will receive in 2014, 2015 and 2016 are under lease contract or a letter of intent, and approximately 50 percent of the aircraft contracted for purchase from 2014 through 2022 are placed as well. **AerCap/ILFC** executed 122 aircraft transactions during the second quarter of 2014. It had targeted aircraft sales of more than \$1 billion per year on average and sold airplanes worth more than \$2 billion since December 2013. Ninety percent of the **ILFC** aircraft have been transferred to **AerCap's** operations in Ireland. The lessor had \$6.5 billion of available liquidity of as of June 30, 2014, and \$7 billion of funding was raised through unsecured, revolving, term-loans and **ILFC** acquisition related take-out financing. The integration of the two lessors should be completed in 2015. **AerCap/ILFC** executed \$3 billion of financing transactions, including the previously announced private placement of \$2.6 billion of notes for the **ILFC** acquisition. During the second quarter of 2014, the lessor purchased 10 aircraft with a total value of \$700 million. The average age of its owned fleet at the end of the first half was 7.6 years and the average remaining contracted lease term was 5.5 years.

Air Lease Corporation (ALC) will long-term lease two more new **Boeing 777-300ERs** to **KLM** (The Netherlands). They are scheduled for delivery in the second half of 2016 and in early 2017. The airline

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previously contracted to lease two new 777-300ERs from **ALC** in early 2015 and early 2016. The 777s will come from **ALC**'s order book. **ALC** will long-term lease one used A320 to **Viva-Colombia**. It is scheduled for delivery in the spring of 2015. **ALC** acquired the CFM56-5B-engined A320 in May 2011, and the aircraft is presently on lease to an Asian airline.

Air Lease Corporation reported another consecutive quarter of fleet revenue and profitability growth. Its revenues increased 23 percent to \$256 million for the three months ending June 30, 2014. This compared favorably to the \$208 million it reported in 2013's second quarter. Income before taxes increased 44 percent to \$96 million with a pretax margin of 37 percent for the period. Its income before taxes at the same time in 2013 was \$66 million and the pretax margin was 32 percent for the three months. **Air Lease** reported \$13.6 million in gains from aircraft sales, trading and other activity during the quarter.

Aircastle reported its second quarter 2014 net income was \$3.1 million and its adjusted net income was \$47.7 million. The second quarter results included lease rental and finance lease revenues of \$187.1 million, up from the \$162.0 million reported in the second quarter of 2013. **Aircastle** sold 17 aircraft and offered two 747-400 freighters for sale. The sales net contributed to a pre-tax income of \$8.2 million.

China Investment Corporation (CIC), a Chinese sovereign wealth fund worth \$653 billion, intends to buy **Avolon**, a Dublin-based aircraft leasing firm. **Aviation Industry Corporation of China (AVIC)**, the state-owned aerospace and defense company will join **CIC**'s bid for **Avolon**. The Chinese have been working on the deal for several months, and the transactions may take many more months to close. **Avolon** is owned by private equity firms **Cinven**, **CVC Capital Partners** and **Oak Hill Capital Partners**, as well as Singapore's sovereign wealth fund, and it is estimated to be worth around \$2.5 billion. Since its launch in May 2010, **Avolon** has acquired a fleet of more than 190 aircraft which are placed with 46 customers in 27 countries. It has raised \$7.2 billion in capital and delivered 34 new aircraft to its customers valued at more than \$2 billion in 2013 alone. The proposed purchase could cost from \$4 billion to \$5 billion if debt is included. Simultaneous to discussions with **CIC**, **Avolon** has been pursuing an initial public offering. There is strong demand for aircraft assets from Asian buyers because the region is world's fastest growing market, and China is now the world's biggest buyers of aircraft. Its airlines are trying to fulfil the growing desire for business and leisure travelers to fly.

GE Capital Aviation Services (GECAS) will lease two new **Boeing 737-800s** to **Kenya Airways** to expand the carrier's fleet. The aircraft will come from the lessor's existing order book and are scheduled for delivery in early 2015. **GECAS** agreed to lease four more 777-300ER aircraft to **EVA Airways**. The airline contracted to lease two 777-300ERs in February 2014 as well. The six aircraft were scheduled for delivery in 2016 and 2017. The 777s will replace older aircraft in **EVA**'s long-haul fleet.

FLY Leasing acquired a **Boeing 737-800** and leased it to a "leading airline in North America" and a 737-800 on a long-term lease to a "leading European carrier," the lessor said. **FLY** will acquire three **Airbus A330-300s** in sale and leaseback transactions with a "leading airline in Asia." **FLY** will purchase the first of the aircraft in the coming weeks and the two remaining airplanes later this year. Two of the aircraft were manufactured in 2013 and the third in 2014. **FLY** now has a fleet of 118 aircraft on lease to more than 65 airlines in 35 countries.

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Intrepid Aviation announced it will long-term lease two **Airbus A330-300s** to **EVA Airways**, Taiwan. The aircraft will be delivered in late 2014. **Intrepid Aviation** delivered the third of five A330-343Es (SN 1542) to **Skymark Airlines**, Japan. The aircraft was equipped with **Rolls-Royce Trent 772** engines and was subject to a long-term lease to the Japanese carrier. The airline will lease two more -343Es (SN 1554 & 1574) later this year.

SAS A330 Sale and Leaseback. The Nordic carrier will sell four **Airbus A330-300** Enhanced aircraft to Chinese bank **Bocomm**, and will lease them back when they are delivered in late 2015 and early 2016. The lease term will be 12 years.

Pakistan International Airlines (PIA) accepted a bid to lease three **Airbus A320s** from **AWAS**. **PIA** sought proposals to dry-lease up to 10 narrowbodies for eight years in February. The airline specified that the aircraft were to be manufactured in 2010 or later, have a minimum of 175 seats, and will be available by August 14. **PIA** accepted bids to lease eight A320s from **Qatar Aviation Lease (QALC)**, but apparently that contract was not executed. **AerCap** offered nine A319s, but the bid was rejected. Recently **PIA** issued a new tender to wet-lease up to four 140+ seat narrowbodies, which were built in 2000 or later, and the leases must start in September.

ICBC Financial Leasing, China's biggest domestic aircraft lessor, aims to deliver more than 300 aircraft to customers by the end of 2016. The lessor currently owns and manages 384 airplanes, and has 64 A320 Family aircraft in backlog. **ICBC** signed a \$1.1 billion deal with **Embraer** to buy 20 E190-E2 jets in July. The lessor now has 17 domestic clients and 34 overseas clients. Chinese leasing firms, backed by state lenders, play an increasingly important role in China's growing aviation business. **ILFC** and **GECAS** dominate the market, but local lessors led by **ICBC** and **CDB Leasing** are taking a big chunk of new business in recent years. They now handle 80 percent of all new domestic leasing business, up from almost zero five years ago. By 2018, they are expected to corner 55 percent of the Chinese market overall, up from 38 percent last year.

Engines

Rolls-Royce reported that **International Airlines Group (IAG)** converted eight Trent XWB-powered **Airbus A350-900** options into firm orders. The engines will have long-term **TotalCare** service support. The A350-900s will go into service with **IAG's** Spanish airline **Iberia**, which will become a new operator of the Trent XWB. In April 2013, **IAG** ordered 18 A350-1000s with **TotalCare** support that will be operated by **British Airways**. The A350-1000 are powered exclusively by the higher-thrust Trent XWB-97 engine.

Willis Lease Finance Corporation (WLFC), an independent jet engine lessor, and **China Aviation Supplies Import & Export Corporation Limited (CASC)**, a Chinese leader in aviation supplies trade, distribution and logistics, announced the launch of **CASC Willis Engine Lease Company Limited (CASC Willis)**, a new 50/50 joint venture. The new company will be dedicated to supplying Chinese airlines with the best engine support solutions and creating an engine resource sharing platform, **Willis** said. **CASC Willis** will be based in Shanghai and will concentrate on meeting the fast growing demand for leased commercial aircraft engines and aviation assets in the People's Republic of China.

Airline News

Singapore's Budget Airlines, Tiger Airways and Scoot, will extend their partnership in order to help both carriers boost traffic. The airlines applied for anti-trust immunity, and will be able to collaborate on pricing, sales, scheduling and other matters. In a joint statement the airlines said, "The alliance will also enable **Scoot** and **Tigerair** to collaborate closely on connecting traffic via Changi airport, supporting the Singapore aviation hub and broader economy." **Singapore Airlines (SIA)** owns nearly 40 percent of the low-cost, short-haul operator **Tiger** and 100 percent of medium-to-long haul budget airline **Scoot**. The close alliance should make it easier for **SIA** to restructure both companies.

Etihad Airways signed a \$1.758 billion (\$2.4 billion) deal to purchase 49 percent of **Alitalia**, giving the Gulf carrier access to Europe's fourth largest travel market and providing a lifeline to the Italian flag-carrier. **Etihad** will quickly invest \$560 million in **Alitalia**. Another \$300 million in new capital will come from existing large investors, **Intesa San Paolo** (\$88 million), **Poste Italiane** (\$75 million), **UniCredit** (\$63.5 million), **Atlantia** (\$51 million), **IMMSI** (\$10 million), **Pirelli** (\$10 million) and **Gavio** (\$2.5 million). Italian financial institutions will extend \$300 million in new loans and restructure approximately \$598 million of short- and medium-term debt. **Etihad** is paying \$387.5 million for the equity stake, \$112.5 million for 75 percent of the **Alitalia Loyalty Spa's MilleMiglia** frequent-flyer program, and \$60 million for five pairs of scarce take-off and landing slots at **London Heathrow Airport**. The slots will be leased back to **Alitalia** on an arm's length basis. The transaction is due to close on December 31, 2014. **Alitalia** intends to become profitable by 2017, said **Etihad** CEO **James Hogan**. He warned that this was not a quick fix. **Alitalia** intends to launch new long-haul routes from Rome and Milan, revitalize the brand, and focus on Italian tourism and trade promotion. Italian travelers will benefit from a wider choice of destinations while new global connections will boost inbound tourism. "With the right level of capitalization and a strong, strategic business plan, we have confidence the airline can be turned around and repositioned as a premium global airline once again," Mr. **Hogan** said. This is the largest equity purchase by **Etihad**, which bills itself as a white knight that is a "rescue investor" for ailing airlines. Mr. **Hogan** is snapping up minority holdings around the world, to build a global network to help feed traffic through **Etihad's** hub in Abu Dhabi. **Etihad** does not have outright control of its airlines, but it has

Malaysia Airline System (MAS) will be delisted after **Khazanah Nasional Bhd**, Indonesia's sovereign wealth fund, offered to buy out minority shareholders in a restructuring plan on August 8. **Khazanah Nasional** is the majority shareholder with 69.4 percent and a Malaysian state-run investment arm announced a 1.38 billion ringgit (\$431 million) buyback of the 30.6 percent of the shares it does not own from minority shareholders, at a 12.5 percent premium over the August 7 closing price. The airline will need "substantial funding requirements" for the next few years to sustain operations, it said. The carrier is struggling to stem losses and repair its image after losing two 777s this year. **MAS** is buffeted by increased competition and higher costs because low-cost rivals flooded the region with capacity and drove down fares. Privatizing the airline will make the restructuring easier because a public-listed company has a lot more regulatory requirements. **Khazanah** said, "The proposed restructuring will critically require all parties to work closely together to undertake what will be a complete overhaul of the national carrier on all relevant aspects. Nothing less will be required in order to revive our national airline to be profitable as a commercial entity." The carrier will probably lose more than 1 billion ringgit (\$312.5 million) in 2014, and the carrier has funds to last about a year.

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considerable influence to improve management and strategy. **Etiha**d now has eight equity partnerships and a network of 400 destinations.

Lufthansa to Launch Low-Cost, Long-Haul Operations. The German flag announced a new strategy to expand low-cost services on European and intercontinental flights to better compete with Middle Eastern and budget airlines. It plans to acquire up to seven **Airbus** A330s or **Boeing** 767s that are readily available on the market, rather than transfer its own airplanes to the new airline. **Lufthansa** CEO **Carsten Spohr** said, "If it works we'll be rolling it over into A350s or 787s and we probably won't stop at seven planes." He has not decided whether to team up with a low-cost partner or go it alone.

Aeroflot's Low-Cost Subsidiary, Dobrolet, launched its operations with a flight from Moscow to Simferopol, Crimea, in July, possibly at the behest of the Kremlin. It was quickly swatted from the skies by the European Union. **Aeroflot** halted **Dobrolet's** operations on August 4, after European Union sanctions caused European companies to annul leasing, servicing and insurance contracts with the airline. Sanctions by the U.S., Europe and other countries have targeted different aspects of Russia's economy over the Ukraine conflict. This included **Dobrolet**, which had two leased **Boeing** 737-800s and had contracted to lease 10 more in 2014 and 2015. **Dobrolet** responded to the cancellation of its leases by ordering 16 737-800s which could be delivered in 2017 or 2018. On August 4, the airline paid a deposit toward to the \$1.5 billion order. A **Boeing** spokesman said **Dobrolet** intends to take the planes while declining to say when or if the deal was booked as a firm order. Moscow is considering banning flights over Russia by European Union airlines to express its displeasure with E.U. sanctions. Fourteen E.U. carriers operate approximately 800 flights per week over Russia to Japan, China and Korea. **Air France-KLM** and **Lufthansa** would suffer the most from a ban, because they operate a combined 470 flights. A ban would affect state-owned **Aeroflot** as well, because it receives 18 percent of its full-year earnings from royalties from foreign carriers for Siberian overflights. In 2013, that reached about \$170 million. Retaliation to the sanctions is being discussed by Russian Prime Minister **Dmitry Medvedev** and **Aeroflot** Deputy Chief Executive Officer **Vadim Zingman** and Transport Minister **Maxim Sokolov**. Their statement did not specify what the steps the government might take.

WestJet Airlines is acquiring four used widebody aircraft in the winter season beginning in late 2015 for its Alberta to Hawaii routes. It currently leases two 757-200s from **Thomas Cook Airlines** for the service. Two of the widebodies may be deployed on trans-Atlantic routes in the summer season of 2016. The airline's pilot association and its board of directors have approved the plan. Canada's second-largest airline began flying to Europe in July when it launched seasonal service to Dublin from St John's, Newfoundland, using its narrowbody 737NGs. **Bob Cummings**, Executive VP of Sales and Marketing, said, **WestJet** may add more widebodies to its fleet if the Dublin route proves successful. The airline would expand service to Europe and challenge **Air Canada** in another market. The exact timing of the move hasn't been determined. Adding used planes "is a prudent step for us," he said. "I'm looking forward to getting in the widebody market for a full calendar year, seeing what this looks like, and then evolve from there." **WestJet** is becoming a hybrid low-cost carrier that is moving away from the simplified operations that made it successful over the past decade. It now operates a fleet of 107 **Boeing** 737-600s, -700s and -800s, and is adding **Bombardier** Dash 8 turboprops for its **WestJet Encore** regional subsidiary.

The Tata Group and Singapore Airlines joint venture named its new airline **Vistara**, and announced it will launch operations by October. The first **Airbus A320** will be delivered in September, and five will be in service by year end. The Delhi-based airline contracted to lease 13 A320s and seven A320 neo aircraft. The last will be handed over in 2019. The airline is close to finalizing its route network, which will serve cities showing a clear demand for a full-service airline. It plans to begin services in five cities and will expand to 11 destinations within a year, including Delhi, Mumbai, Bangalore, Hyderabad, Ahmedabad, Jammu, Srinagar, Goa, Patna, and Chandigarh.

Technical

Boeing is Testing a New Way of Building 777 Fuselages as part of its ongoing technology investment plan. The new method is called the **Fuselage Automated Upright Build (FAUB)**, and **Boeing** touts this Advanced Manufacturing technology as improving workplace safety and increasing product quality. The manufacturer has been developing **FAUB** since 2012. Fuselage sections will now be built using automated, guided robots that will fasten the fuselage panels together, and will drill and fill the more than 60,000 fasteners that are currently installed by hand. **Boeing** said "FAUB offers numerous benefits including an improvement in employee safety. More than half of all injuries on the 777 program have occurred during the [drilling] phase of production that is being automated. In addition, the automated system is expected to reduce build times and improve first-time quality of the build process." **Boeing** began testing 777 **FAUB** at a facility in Anacortes, Washington. The system will be installed at the Everett plant in the new portion of the main factory that is under construction. The technology will be implemented in the next few years. The robotic system is the latest in a series of strategic Advanced Manufacturing moves on the 777 program, which have already

Help Wanted. **Boeing** is forecasting strong demand for commercial aviation pilots and maintenance technicians as the global airline fleet expands over the next 20 years. **Boeing's 2014 Pilot and Technician Outlook** was released at **EAA AirVenture Oshkosh**, and it projects that between 2014 and 2033, the world's aviation system will require 533,000 new commercial airline pilots and 584,000 new commercial airline maintenance technicians. **Sherry Carbary**, VP of **Boeing Flight Services**, said, "The challenge of meeting the global demand for airline professionals cannot be solved by one company or in one region of the world. This is a global issue that can only be solved by all of the parties involved, airlines, aircraft and training equipment manufacturers, training delivery organizations, regulatory agencies and educational institutions around the world." Pilot demand is up approximately seven percent compared to 2013, and maintenance training increased just over five percent. Pilot demand in the Asia Pacific region now comprises 41 percent of the world's need, and the Middle East region saw significant growth since last year's outlook due to increased airline capacity and orders for widebody models which require more crew members, **Boeing** said. Global demand is driven by steadily increasing airplane deliveries, particularly widebodies, and represents a global requirement for about 27,000 new pilots and 29,000 new technicians annually. **Boeing** projected demand for new pilots and technicians by global region:

- Asia Pacific ï 216,000 pilots & 224,000 technicians
- Europe ï 94,000 pilots & 102,000 technicians
- North America ï 88,000 pilots & 109,000 technicians
- Latin America ï 45,000 pilots & 44,000 technicians
- Middle East ï 55,000 pilots & 62,000 technicians
- Africa ï 17,000 pilots & 19,000 technicians
- Russia and CIS ï 18,000 pilots & 24,000 technicians

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included new systems for painting wings and other drilling operations. **Boeing** did not say how many machinist jobs would be replaced by robots. **Elizabeth Lund**, VP and General Manager of the 777 program said, "This is the first time such technology will be used by **Boeing** to manufacture widebody commercial airplanes and the 777 program is leading the way. We're excited to continue improving the production process here and we're positioning ourselves to begin building 777X airplanes in the future."

Cargo Pallet

Cargo Aircraft Management (CAM), a subsidiary of **Air Transport Services Group (ATSG)**, will purchase two **Boeing** 767-300ER freighters that **ATSG's** airline subsidiary, **ABX Air**, leases from **Guggenheim Aviation Partners**. The two freighters are valued at \$49.9 million and the transaction is expected to close at the end of the third quarter. **ABX Air** operates the 767Fs under two multi-year operating leases from **Guggenheim** that end during 2015 and 2017, respectively. Both planes are operated for **ABX Air** customers. **ATSG** also optioned to buy another 767-300 freighter from **Guggenheim** in 2015.

Precision Aircraft Solutions has received approval from **EASA** to convert winglet-fitted 757-200 passenger aircraft into freighter and combi configurations. European customers can now benefit from the fuel savings and enhanced payload capacity derived from **Precision's** winglet conversions. **Precision** provides comprehensive aircraft modification services and support as well as its aircraft conversion program. **Precision Aircraft Solutions** started its ninth **SF Airlines** 757-200 passenger-to-freighter conversion. It will be delivered by year's end. This marks **Precision's** 45th conversion to date. The project is being completed at **Air China Technic** in Chengdu, China.

PEMCO World Air Services (PEMCO) redelivered its first 737-300 freighter (SN 28567) to **Plane Business Leasing**. The conversion was completed at **COOPESA's** facility in San Jose, Costa Rica. The U.K.-based **Plane Business Leasing** has purchased classic and new generation aircraft to provide affordable leasing options for growing airlines.

Military Market

The Australian Government is considering acquiring additional **Airbus Defence & Space**

Kelowna Flightcraft is developing a passenger and cargo combi modification for the **Boeing** 737-300. The first customer is **Canadian North**. The airline wants to replace their 737-200 combi fleet with the same kind of capability, said **Kelowna Flightcraft** President **Tracy Medve**. "They chose the 737-300 because of the size, and because the operating economics are good for northern carriers," he said. **Kelowna Flightcraft's** 737-300 combi modification will have four configurations: all-cargo, with an 18,220kg (40,000lb) capacity; 30 or 86 seats and the balance cargo; or all-passenger, with 132 seats. The door conversion will be executed by **PEMCO World Air Services** in Florida. The combi work will be performed by **Kelowna Flightcraft**, which will ensure compliance with regulations requiring containment of a potential fire in the cargo area. However, the new 737-300 modification will not be approved for operation on gravel runways. Mr. **Medve** is hoping to "have all of the approvals in place to launch the airplane later this year." **Boeing** currently manufactures the similarly sized 737-700C, which can be converted from an all-cargo configuration to an all-passenger one. Only 20 -700C aircraft have been ordered and 13 of them are operated by the U.S. Navy.

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A330 Multi Role Tanker Transports (MRTTs) and **Boeing** C-17A strategic transports. Defence Minister **David Johnston** said the A330 MRTT allows us to go anywhere in our region and far and away beyond that. [Which] prompts you to say, why don't you get some more? The **Royal Australian Air Force (RAAF)** has five A330 tankers in service. It recently used its A330s and three C-17s in support of the **Malaysian Airlines** Flight MH17 recovery mission in Ukraine. Mr. **Johnston** said the possibility of acquiring additional C-17s was a no brainer. The **RAAF** operates six of the type and is tempted to buy two of the 12 unsold white tail C-17s that **Boeing** will complete by early 2015. The service's C-130Js are mostly used in a tactical role.

The **Royal Air Force** will receive its first two of 22 **Airbus** A400M Atlas tactical transports in September. The lead aircraft (SN 015) made its first flight from **Airbus Defence & Space's** San Pablo final assembly plant near Seville, Spain. The airlifter was originally built for France, but the two countries agreed to swap two delivery slots. **Airbus** recently detailed a plan to deliver the **RAF's** first four aircraft this year. The service expects to receive six by the end of 2015, a further six in 2016 and the remaining six by mid-2018. The **French Air Force** will accept one ex-**RAF** allocated A400M in 2018 and another in 2021. The 22 Atlases are worth £2.8 billion (\$4.8 billion, \$218.2 million each). **Airbus** expects to deliver another nine A400Ms to France, Germany, Turkey and the U.K. by year-end. The airframer is on track to hand over 23 of the aircraft in 2015. **Airbus Defence** has delivered three production aircraft so far, two to France in 2013, and one to Turkey this year. The next French transport (SN 010) was flown to Orleans on July 25, and it will be followed by two more in the second half. The second Turkish A400M (SN 013) should be accepted in August or September. Germany should receive its first Atlas in November. **Airbus** officials said they received requests for information and requests for proposals from eight or nine nations, and performed demonstrations for Kazakhstan and Mexico this year, as well as for the air forces of Saudi Arabia and the United Arab Emirates late last year.

The **Japanese Government** plans to acquire two **Boeing** 777-300ERs to replace a pair of 747-400 VIP transports. It is not clear whether the **Government** will order new-build aircraft from **Boeing** or refit two used 777s. **Boeing** reported two 777-300ER orders from an unnamed customer in May and another in August. Japan's VIP 747s will be retired in fiscal year 2018, which ends on March 31, 2019. All **Nippon Airways (ANA)** will provide maintenance for the aircraft. The 747-400s are maintained by **Japan Airlines**, which also put in a bid for the 777 maintenance contract. The 777s will be operated by the **Japan Air Self Defence Force**, and will replace a pair of 1991 model 747-400s now used in the VIP mission. They are powered by **General Electric** CF6 engines and have 141 seats.

The **U.S. Air Force** indicates that it wants to replace the VC-25 (747-200B) fleet with four-engined widebodies, apparently because the government believes a four-engined plane is safer than a twin. Only the A380 and 747-8I qualify. It is assumed that the government will chose the domestic airliner. It may be better to buy the current 777-300ER and the latest-generation 777X instead. They will be much easier to maintain than of the soon to be obsolete 747-8I. The 777s will be able to land at smaller airports. The 747 is heavier and is as long as the 777-9X, while the 777-9X has a wider wingspan, but it could be able to fold its wings while on the apron.

Lockheed Martin delivered its first of three KC-130J tanker/transports to the **Kuwait Air Force**, providing the service with a new air-to-air refuelling capability. The short-fuselage aircraft was

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registered as KAF 326 and will be followed by another two by the end of this year. **Kuwait** ordered the planes in 2010. The country has options on a further five **Rolls-Royce** AE2100D3-powered KC-130Js. It will use the type for tasks including supporting operations with its **Boeing** F/A-18C combat aircraft.

AIRCRAFT DELIVERIES & SALES

Airbus

Airbus A319. Three A319s were delivered in July, including one **Airbus Tianjin Final Assembly Line (FAL)**-built -132W (SN 6052) to **China Eastern Airlines**. **Avianca** received two -115/Ws (SN 6167 & 6174).

Airbus A320. **Airbus** delivered 23 A320s in July, including three -214/W (SN 6177, 6188 & 6192) to **easyJet** on July 9. **AirAsia** received two -216/Ws (SN 6170 & 6178) on July 9 and leased them to **Thai AirAsia**. The Malaysian airline accepted -216/W (SN 6158) for its own operation. Two -214/Ws (SN 6166 & 6176) were delivered to **Air Arabia**. **Tianjin Final Assembly Line (FAL)** delivered one -232 (SN 6019) to **Shenzhen Airlines**, one -232/W (SN 6030) to **Sichuan Airlines**, and -214/W (SN 6041) to **Hong Kong Airlines**, which leased it to **Beijing Capital Airlines**. **SMBC Aviation Capital** leased -214/W (SN 6171) to **S7 Airlines**. **Citilink** leased new -214/W (SN 6207) from **Garuda**. In India, **Indigo** acquired -232/W (SN 6208), and **Go Air** bought -214/W (SN 6184), only to sell it to **Wells Fargo Bank Northwest**, trustee. It was leased to **Frontier Airlines**. Another U.S. carrier, **Spirit Airlines** accepted -232/W (SN 6193). It was also leased from **Wells Fargo Bank Northwest**, trustee. Elsewhere in the Americas, **LATAM Airlines Group** received -214/W (SN 6183), and sold it to **SMBC Aviation Capital** for lease to **LAN Airlines**. **Avianca** accepted -214/W (SN 6153). In Europe, **Wizz Air Hungary** acquired another -232/W (SN 6195), **Iberia** leased -232 (SN 6155) to **British Airways**, and **Lufthansa** accepted its 70th -214/W (SN 6202). In the southern hemi-sphere, **South African Airways** received -232/W (SN 6189), and **Air New Zealand** acquired -232/W (SN 6182). **SMBC Aviation Capital** leased one new -214/W (SN 6216) to **Spring Airlines** in August. The A320 was part of the **SMBC** order book.

AWAS leased the second of two planned A320-232s to its long-time customer **Viva Aerobus**. The Mexican ultra-low cost airline intends to transition to an all-A320 family fleet and retire its 22 737-

The Lockheed Martin C-130 Hercules reached another major milestone on August 23 in the 60th anniversary of the Hercules's first flight at Burbank, California, in 1954. The C-130 has the longest, continuous military aircraft production run in history and is one of three longest, continuous aircraft production lines of any type. The other two are the **Antonov An-2** (1947-present) and the **Cessna 172** (1956-present). To date, more than 2,500 C-130s have been ordered and/or delivered to 63 nations. The C-130 operates out of 70 countries and has been produced in more than 70 variants. All of the C-130's production models were built at the **Lockheed Martin Aeronautics Marietta** facility in Georgia, the manufacturer said.

Lion Group's, Indonesia, first **Airbus** aircraft (A320-214/W SN 6164) was rolled out of the paint shop hangar in Toulouse, France, in early June. It was painted in the **Batik Air's** colorful livery, and will be delivered in the third quarter of 2014. **Batik Air** is **Lion Group's** full service unit and operates a growing domestic and regional network. The A320ceo is from **Lion Group's** major order placed in March 2013, for 60 A320ceo, 109 A320neo, and 65 A321neo aircraft.

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300s. The airline has 52 new A320s on order and five leased -232s in its fleet.

CSA-Czech Airlines is selling its six **Airbus A320-214s** as part of its cost-cutting program. The carrier's A320s were built between 2006 and 2007 and **CSA** has seven more on order, from a contract dating back to 2004.

Airbus A321. **Airbus** delivered 13 A321s in July, including two -231s (SN 6175 & 6181) to **US Airways**, two -231/Ws (SN 6199 & 6203) to **China Eastern Airlines**, and two -231s (SN 6205 & 6211) to **China Southern Airlines**. **China Southern** also leased -231/W (SN 6186) from **Air Lease Corporation**. **EVA Airways** leased its sixth -211/W (SN 6179) from **GECAS**. **GECAS** also leased -211/W (SN 6221) to **Juneyao Airlines**. **Air China** received -213 (SN 6196), and **Philippine Airlines** accepted -231/W (SN 6201). **TACA International** leased -231/W (SN 6190) from **Wells Fargo Bank Northwest**, trustee. **JetBlue Airways** accepted its eighth -231/W (SN 6185). **Avolon** leased the second of four A321-231/Ws (SN 6222) to **American Airlines** in August.

AWAS long-term leased the second of two new -343Es (SN 1549) to **AirAsia X** in August. These aircraft were ordered directly from **Airbus** and were part of a purchase and leaseback transaction with **AWAS**. The lessor purchased **AirAsia X's** first A330-343 in 2007 and leased it back. The new aircraft will be used on long/medium haul regional routes in the Asia/Pacific region including destinations in China, Australia and Japan. **AWAS** leased one A330-200 aircraft to **BH Air**, a charter operator based in Sofia, Bulgaria. This wide-body aircraft was from **AWAS'** existing portfolio and delivered on July 31. It was the first widebody aircraft for **BH Air**.

Airbus A330. **Airbus** delivered one -200 and six -300s in July. **China Eastern Airlines** took delivery of -243 (SN 1547), and **Air China** acquired -343E (SN 1541). **Cathay Pacific** purchased its 44th new -343E (SN 1545), and **Hong Kong Airlines** leased -343E (SN 1532) to **Hainan Airlines**. **Airbus** delivered the 19th -343 (SN 1546) to **Philippine Airlines**. It was sold to **GECAS** and leased back. **Singapore Airlines** leased the third of six -343Es (SN 1544) from **Meridian Aviation Partners**. **Singapore** sold six production slots to **Meridian** before delivery and is leasing the airplanes back. The airline now operates 28 -343Es and two more are to be leased from **Inception Aviation Holdings** and one from **AerCap** as well as the three from **Meridian**. **Intrepid Aviation** delivered the third of five -343Es (SN 1542) to **Skymark Airlines**, Japan. The airline will lease two more -343Es (SN 1554 & 1574) from **Intrepid** later this year.

Airbus A380. **Airbus** delivered three A380s in July. **Emirates** added its 50th -861 (SN 154) to its fleet. The carrier borrowed \$425 million from **Abu Dhabi Islamic Bank (ADIB)**, **Commercial Bank of Dubai** and **Dubai Islamic Bank**, to fund the acquisition of two A380s, including SN 154. **Korean Air** bought its last -861 (SN 156), filling its original order for 10. **Asiana** received its second -841 (SN 155).

Boeing

Boeing 737 NG. **Boeing** delivered 39 737s in July. **Southwest Airlines** took delivery of four more -8H4/Ws (SN 36911, 60084, 60085 & 60086) for a fleet total of 65. **Flydubai** received three -8KN/Ws (SN 40264, 40265 & 40266) and five Chinese airlines acquired two 737s each. **Boeing** delivered two -89P/Ws (SN 39736 & 41473) to **China Eastern Airlines**, two -84P/Ws (SN 39213 & 41376) to **Hainan Airlines**, and two -85C/Ws (SN 39902 & 39903) to **Xiamen Airlines**. **Air China** accepted two

-89L/Ws (SN 40041 & 41096), and it sold the latter to **Shandong Airlines**. **Shandong** took delivery of two -85N/Ws (SN 41615 & 41616) as well. In the U.S., **Delta Air Lines** received two -932ER/Ws (SN 31934 & 31935), and the **United States Navy** took delivery of its 28th -8FV (P-8A, SN 42256), and its 13th -7AFC/W (C-40A, SN 43827). The **Navy** has two more C-40A Clippers on order. **Alaska Airlines** accepted its 21st -990ER/W (SN 40735), and **American Airlines** took delivery of its 238th -823/W (SN 31197). The aircraft was sold to a lessor and leased back. **COPA Airlines** accepted one -8V3/W (SN 41446). **Air Lease Corporation** leased one -89L/W (SN 41321) to **Air China**. **GECAS** leased two new -86N/Ws (SN 41251 & 41268) to **China Southern Airlines**. **SMBC Aviation Capital** leased -852/W (SN 39945) to **Aeromexico**, and **Aviation Capital Group** leased -8HX/W (SN 40548) to **Aerolineas Argentinas**.

Air Berlin received -86J/W (SN 37794) and sold it to **Avolon** for lease to **Nok Air**. **Norwegian Air Shuttle** accepted -8JP/W (SN 41127), **UTair** acquired -8LP/W (SN 41709), and **EL AL Israel Airlines** received -958ER/W (SN 41554). **Boeing** delivered the 70th of 74 -838/Ws (SN 44573) to **Qantas**, and the 27th -881/W (SN 44556) to **All Nippon Airways**. **Jet Airways** bought -85R/W (SN 42799), and **Lion Air** took delivery of -8GP/W (SN 39819) and sold it to **Transportation Partners Pte**. It was stored at Victorville, California. The other -700 that was delivered in July, -76D/W (SN 39310), went to **Shanghai Airlines**, and **Shenzhen Airlines** received one -87L/W (SN 37623). **SMBC Aviation Capital** leased a sixth -823W (SN 31200) to **American Airlines** in August. It was part of an eight aircraft sale and leaseback transaction.

In August, AWAS purchased a second 737-8GP/W from **PT Lion Mentari Airlines (Lion Air)** as part of a sale and leaseback deal for three 737-800s and one **Airbus A320**. The airline purchased the planes directly from their manufacturers before the sale. **AWAS** is providing a financing solution for all four aircraft and then placing them on long-term leases with **Lion**, the lessor said. This 737-800 will be operated by **Lion's** Indonesian full-service subsidiary **Batik Air**.

AWAS placed one used 737-800 on lease with **Air Italy**, a scheduled service airline, and integral part of the **Meridiana** group based in Sardinia. This aircraft comes from **AWAS'** existing portfolio and was handed over in July.

Boeing 747. **Boeing** also handed over the 10th 747-8F (SN 38078) to **Cargolux**, one of its three biggest -8F freighter customers. **Cargolux**, **Cathay Pacific** and **Nippon Cargo** have ordered 14 747-8Fs each. **Atlas Air** leased two -87UF freighters (SN 37568 & 37569) to **Polar Air Cargo**.

Boeing 777. **Boeing** delivered 10 777s in July. **Turkish Airlines** accepted its 13th and 14th -3F2ERs (SN 44116 & 44117). **Air Lease Corporation (ALC)** took delivery of its second of 15 -300ERs, -336ER (SN 42124), and long-term leased it to **British Airways**. **American Airlines** accepted its 14th of 20 -323ERs (SN 31554), and **Emirates** purchased its 66th of 120 -31HERs (SN 41365). **Cathay Pacific Airways** received its 37th of 49 -367ERs (SN 41757), and **Kenya Airways** bought its first -3U8ER (SN 42097). The airline leases two -36NERS from **GECAS** and operates four -2U8ERs. **China Southern Airlines** received its second of 10 -31BERs (SN 43220). **Qatar Airways** accepted its 26th -3DZER (SN 43215), and it has one more on order. **Thai Airways International** acquired its second of six -3D7ERs (SN 42111).

Boeing 787. **Boeing** delivered eight 787-8s in July, including the third 787-8 (SN 35259) to **Air Canada**. The airline has 34 more 787s on order for delivery to the end of 2019. **British Airways** received its seventh -8 (SN 38614), and **Kenya Airways** accepted its third of nine -8s (SN 36040). **Thai**

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Airways International leased its first -8 (SN 35315) from **Aercap/ILFC** in July. The airline contracted to lease another seven -8s and -9s from **ILFC**. **TUI Travel PLC** took delivery of its eighth -8 (SN 36428). It will be operated by **Thomson Airways**. **Qatar Airways** accepted its 14th -8 (SN 38332), and **Air India** acquired its 16th -8 (SN 36288).

Intrepid Aviation acquired one 777-328ER, equipped with two GE90-115B engines, and is on long-term lease to **Air France**. The leasing company is focusing on the most successful twin-engine wide-body aircraft. Management was delighted to acquire another 777-300ER and to be adding **Air France** to its customer base.

ANA—All Nippon Airways celebrated the delivery of its first 787-9 (SN 34522) on July 29, and it became the first airline to operate both the 787-8 and -9 variants. **ANA** now has 29 787s in its fleet, more than any other operator in the world. The airline has 43 more 787-9s on order. Sixty customers have ordered more than 1,000 787s, with more than 160 currently in operation.

Ethiopian Airlines added its ninth 787-8 Dreamliner (SN 34751) to its expanding fleet on August 3. This aircraft will operate its route to Hong Kong from Addis Ababa, and it was named "Great Wall of China".

Regional Jet

Bombardier delivered the fourth of 30 enhanced CRJ900 NextGen aircraft (SN 15318) to **American Airlines Group** in July. The aircraft will be operated by the group's wholly-owned subsidiary **PSA Airlines** under the **American Eagle** brand. **Delta Air Lines** accepted delivery of its 27th and 28th CRJ900 NextGens (SN 15319 & 15320). They were leased to **Endeavor Air**. **China Express Airlines** received CRJ900NG (SN 15321), and **Arik Air**, Nigeria, accepted its first CRJ1000NG (SN19037).

Embraer. **Skywest Airlines** took delivery of two more EMBRAER 170-200 LRs (E175) Enhanced (SN 17000410 & 17000411). **Republic Airways** accepted two more E175s (SN 17000413 & 17000415) for operation on behalf of **American Eagle**. **United Airlines** leased three new E175s (SN 17000406, 17000412 & 17000414) to **Mesa Airlines**. **CIT Leasing** leased one EMBRAER 190-100 LR (E190) (SN 19000672) to **Aerolitoral**, Mexico. In August, **SMBC Aviation Capital** leased one **Embraer ERJ 145** to **Denim Air**.

Turboprop Aircraft

ATR delivered ATR 42-600 (SN 1012) to **LIAT**, and ATR 42-600 (SN 1013) to **Air Tahiti** in July. **Nordic Aviation Capital (NAC)** leased the sixth of 20 ATR 72-600s (SN 1157) to **Garuda Indonesia**, and **Malindo Airways** leased one new -600 (SN 1161) from **Wings Abadi Airlines**. **FireFly**, Malaysia, took delivery of one -600 (SN 1158), and **Uni Air** received one -600 (SN 1163). **Aer Arann** accepted one -600 (SN 1159), and **Avianca** accepted another -600 (SN 1160). **Air Lease Corporation** leased the first -600 (SN 1164) to **Jet Time A/S**, which operates it for **SAS**. **Jet Time** leased its fifth -600 (SN 1165) from **Nordic Aviation Capital** in August. The airplane will operate regional services for **SAS**.

Nordic Aviation Capital (NAC) purchased one ex-**Kingfisher**-leased ATR 72-500 (SN 743) from **Veling Narain Limited**, a subsidiary of Mauritius-based lessor **Veling Ltd**. **NAC** delivered the third

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and fourth -500s (SN 664 & 668) to **Darwin Airline**, Switzerland, for operation for **Etihad Regional**. **Nordic** purchased two -500s (SN 879 & 908) from **UniCredit**. The aircraft were previously operated by **Belle Air**. **NAC** leased one ATR 42-300 (SN 080) to **Aeronova**.

Bombardier. **Falcon Air Service** received its first 8Q-402 NextGen (SN 4454) in July. **Sunstate Airlines** took delivery of 8Q-402NG (SN 4461) and is operating it for **QANTASlink**. **Airstream International Group** arranged the lease of DHC-8-Q300 (SN557) to **Island Aviation Services**, the Maldives, on behalf of a large U.S. based lessor. The airplane was previously owned by **Caribbean Airlines** before its purchase by the lessor in 2013. The Dash 8 is the third aircraft **Airstream** has placed with **Island Aviation**.

Nordic Aviation Capital is selling 22 turboprop aircraft to **Elix Aviation Capital**. The lessor also optioned the purchase of three more airplanes. The 22 aircraft portfolio includes a mix of ATR 42-300, ATR 42-500, **Bombardier** DHC-8-100 and DHC-8-300 aircraft on lease to a number of regional airlines around the world. The transaction is valued at over \$100 million, **Nordic** said. **Elix Aviation Capital** was set up in September 2013, and is funded by **Oaktree Capital Management**, an investment firm with an established track record of aircraft leasing investments. **Nordic** is the largest turboprop lessor in the world.

Saab. **Nordic Aviation Capital** sold two Saab 2000s (SN 004 & 018) to **Rockton Aviation AB**.

Viking. The manufacturer delivered two DHC-6 Series 400 Twin Otters (SN 898 & 899) to the **Air Seychelles** in July. **Viking** handed over the fifth Series 400 (SN 882) to **UAE Air Force**. **Global Aerospace Logistics (GAL)**, Abu Dhabi, United Arab Emirates, handled the transaction. **GAL** was a launch customer for the Series 400 Twin Otter, and ordered nine aircraft in 2009. It provided specially equipped Twin Otters to the **UAE Government** under a multi-year service contract. The aircraft are configured with paratroop provisions and intermediate flotation gear to enable the **Government's** operations on the loose sand in the Arabian Gulf region. At **Farnborough**, **Viking** announced it delivered **Viking's** 50th production Series 400 Twin Otter to **MASwings**. The subsidiary of **Malaysia Airlines** is the largest commercial operator of the Series 400, having taken delivery of five of a six aircraft order. **Vityaz Avia**, Moscow, Russia, has received four of their 11 aircraft purchase agreement. They were delivered in a variety of configurations including landplane, amphibious floats, and wheel/skis, in order to increase the versatility of the fleet. The **Peruvian Air Force** has taken delivery of two aircraft since January 2014, bringing their Twin Otter Series 400 fleet to seven. The **Air Force** ordered a total of 12 19-passenger aircraft, on both wheels and floats. The **Vietnam Navy** ordered six aircraft and has taken delivery of three. They were configured for amphibious float operations with convertible interiors for standard passenger, VIP, and utility seating. Three of the **Navy's** Twin Otter aircraft are being delivered as **Guardian 400** military variants, to be used for maritime surveillance, search and rescue, transport, resupply, and other specialized government operations. **Viking's** production backlog stretches into late 2016.

Antiques and Other Junque

Delta Air Lines will retire four of their 16 **Boeing** 747-451s by the end of 2014, as it continues to restructure its Pacific operations around its gateway at **Seattle Tacoma International Airport**. The carrier will retire the aircraft earlier than planned, following a decision to reduce capacity growth. **Delta**

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refurbished its 747 fleet in 2012 and installed new lie-flat business class seats and global wi-fi. The airline is adjusting its Pacific schedule, and will discontinue both the Hong Kong-Tokyo Narita and Manila-Nagoya routes on October 26. It will replace the 376-seat 747-400s with 291-seat 777-200s on the Atlanta-Tokyo Narita and Los Angeles-Tokyo Narita routes in October. The 747s will be replaced with 293-seat A330-300s on the Detroit-Nagoya route as well. **Delta** was able to shuffle some twin jets from its trans-Atlantic fleet because it is reducing planned capacity growth in that market as well. The airline will take delivery of 10 new A330-300s from 2015 through 2017. **Delta's** oldest 747-451s were delivered to **Northwest** 25 years ago. **Delta** has the oldest average fleet age of the big four U.S. carriers, at 16.8 years. **United** is next with 13.6 years, **American's** average is 12.8 years and **Southwest** is youngest with 11.4 years.

VAS Aero Services, a global aviation logistics and aftermarket service, received a 747-400 with PW 4056 engines from **Boeing** for teardown. The 747 is the 32nd teardown **VAS** has managed for **Boeing** since 1992 in a contract that extends through 2020.

Accidents and Safety

From Aviation Safety Foundation

Sepahan Airlines HESA IrAn-140 (EP-GPA, SN 9005) crashed shortly after takeoff from **Tehran-Mehrabad Airport**, Iran, on August 10. Nine of the 40 passengers and eight crew members survived. The airplane took off and banked right and lost altitude, instead of performing the planned left hand turn after takeoff. It hit the ground, broke up and burst into flames. The IrAn-140 is an **Antonov An-140** turboprop aircraft that is built under license by **HESA** in Iran, and the airline operated six IrAn-140s.

Links Air BAe Jetstream 31 (G-GAVA, SN 785) sustained substantial damage in a landing accident at **Doncaster/Sheffield-Robin Hood Airport**, U.K., on August 15. The left hand main gear collapsed on landing. The two pilots and one passenger survived.

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

Fast 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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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
Wingspan	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 / cu ft

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

Optional Equipment: KLN 900 GPS/W, FMS, Area Navigation (RNAV), Microwave Landing System, VLF/OMG Long Range Navigation System, Dual Honeywell AZ-800 Digital Air Data Computers, PA System, HF Radio, Collins Avionics in place of King Avionics, CAT II.

Avionics: EDZ 820 Electronic Flight Instrument System (EFIS) - 4 CRT's for dual 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	\$908 \$833
Cost per Available Seat Mile - \$	12.33 8.65
Cost per Airplane Mile - \$	\$5.67 \$4.44
Cost per Seat Block Hour	\$18.67 \$15.1

Note: Data from DOT Airline Reports.

ATR 42-300

PAYLOAD VS. RANGE

Range (nm)

Distance (nm)

Distance (nm)

ATR 42

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

The baseline aircraft is the ATR 42-300/320 powered respectively by PW120/121 engines. The latest version is the ATR 42-500 powered by PW127x engines and Hamilton six-bladed propellers. 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 storage, in an externally accessed forward and aft baggage compartment, and in a closet.

US \$ 350.00

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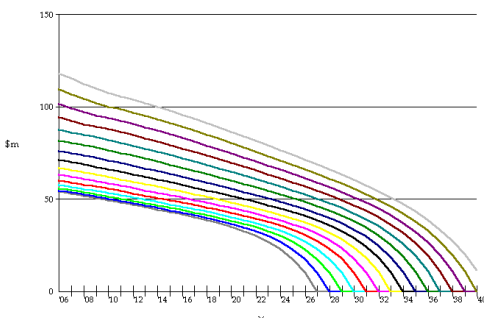
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TRANSPORT AIRCRAFT VALUES (TAV)

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

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	58,844,526	58,774,210
VARIABLE EXPENSES							
Fuel	6,918,975	6,917,340	6,915,670	6,913,977	6,912,265	6,910,533	6,908,781
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

Profit & Loss Report

Aircraft Type	Period	1	2	3	4	5	6
FIXED EXPENSES							
Station Overhead	346,597	346,597	346,597	346,597	346,597	346,597	346,597
Maintenance Burden	176,295	176,295	176,295	176,295	176,295	176,295	176,295
Other Overhead	0	0	0	0	0	0	0
TOTAL FIXED COST	522,892	522,892	522,892	522,892	522,892	522,892	522,892
TOTAL OPERATING COST	31,464,497	31,464,497	31,464,497	31,464,497	31,464,497	31,464,497	31,464,497
General & Admin. Allocation	1,573,225	1,573,225	1,573,225	1,573,225	1,573,225	1,573,225	1,573,225
TOTAL COST	33,037,722	33,037,722	33,037,722	33,037,722	33,037,722	33,037,722	33,037,722
OPERATING PROFIT OR LOSS	26,156,782	26,156,782	26,156,782	26,156,782	26,156,782	26,156,782	26,156,782
D-CHECK ADJUSTMENT							
Cumulative Hours	4,830	9,650	14,459	19,257	24,045	28,833	33,621
Cumulative Dollars	315,000	0	0	0	0	0	0
ADJUSTED CASH FLOW	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782
AIRCRAFT LIFE ADJ. CASH FLOW	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782	25,841,782

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

Add Modify Delete OK

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
2007	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
2008	52.85	53.49	54.70	56.56	58.99	62.01	65.63	69.95	74.86	80.37	85.52	92.18	99.12	106.73	115.25
2009	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
2010	50.49	51.19	52.46	54.29	56.70	59.67	63.24	67.50	72.44	77.95	83.52	89.34	95.81	103.44	111.60
2011	49.28	49.99	51.27	53.10	55.50	58.46	62.01	66.25	71.17	76.66	82.32	88.24	94.91	102.84	111.00
2012	48.05	48.77	50.05	51.88	54.28	57.23	60.77	64.99	69.89	75.46	81.20	87.21	93.98	102.20	110.40
2013	46.80	47.52	48.80	50.63	53.03	55.98	59.51	63.71	68.60	74.15	80.00	86.14	93.18	101.60	110.00
2014	45.53	46.25	47.53	49.36	51.76	54.71	58.23	62.42	67.30	72.84	78.86	85.29	92.64	101.20	110.00
2015	44.25	44.97	46.25	48.08	50.48	53.43	56.95	61.14	66.01	71.54	77.56	84.21	91.96	100.80	110.00
2016	42.96	43.68	44.96	46.79	49.19	52.14	55.66	59.84	64.71	70.23	76.25	83.00	91.04	100.00	110.00
2017	41.67	42.39	43.67	45.50	47.90	50.85	54.37	58.54	63.41	68.92	74.94	81.79	89.92	100.00	110.00
2018	40.38	41.10	42.38	44.21	46.61	49.56	53.07	57.24	62.11	67.62	73.64	80.49	88.82	100.00	110.00
2019	39.09	39.81	41.09	42.92	45.32	48.27	51.78	55.94	60.81	66.32	72.34	79.19	87.62	100.00	110.00
2020	37.80	38.52	39.80	41.63	44.03	46.98	50.49	54.65	59.51	65.02	71.04	77.89	86.42	100.00	110.00
2021	36.51	37.23	38.51	40.34	42.74	45.69	49.20	53.36	58.22	63.73	69.75	76.60	85.23	100.00	110.00
2022	35.22	35.94	37.22	39.05	41.45	44.40	47.91	52.07	56.93	62.44	68.46	75.31	84.04	100.00	110.00
2023	33.93	34.65	35.93	37.76	40.16	43.11	46.62	50.78	55.64	61.15	67.17	74.02	82.85	100.00	110.00
2024	32.64	33.36	34.64	36.47	38.87	41.82	45.33	49.49	54.35	59.86	65.88	72.73	81.56	100.00	110.00
2025	31.35	32.07	33.35	35.18	37.58	40.53	44.04	48.20	53.06	58.57	64.59	71.44	80.27	100.00	110.00
2026	30.06	30.78	32.06	33.89	36.29	39.24	42.75	46.91	51.76	57.27	63.29	70.14	78.97	100.00	110.00
2027	28.77	29.49	30.77	32.60	34.90	37.85	41.36	45.52	50.37	55.88	61.90	68.75	77.58	100.00	110.00
2028	27.48	28.20	29.48	31.31	33.61	36.56	40.07	44.23	49.08	54.59	60.61	67.46	76.29	100.00	110.00
2029	26.19	26.91	28.19	30.02	32.32	35.27	38.78	42.93	47.78	53.29	59.31	66.16	74.99	100.00	110.00
2030	24.90	25.62	26.90	28.73	31.03	33.98	37.49	41.64	46.49	51.90	57.92	64.77	73.60	100.00	110.00
2031	23.61	24.33	25.61	27.44	29.74	32.69	36.20	40.35	45.10	50.51	56.53	63.38	72.01	100.00	110.00
2032	22.32	23.04	24.32	26.15	28.45	31.40	34.91	39.06	43.81	49.22	55.24	62.00	70.42	100.00	110.00
2033	21.03	21.75	23.03	24.86	27.16	30.11	33.62	37.77	42.52	47.93	53.95	60.71	69.03	100.00	110.00
2034	19.74	20.46	21.74	23.57	25.87	28.92	32.43	36.58	41.33	46.74	52.76	59.42	67.64	100.00	110.00
2035	18.45	19.17	20.45	22.28	24.58	27.63	31.14	35.29	40.04	45.45	51.47	58.13	66.15	100.00	110.00
2036	17.16	17.88	19.16	20.99	23.29	26.34	30.45	34.60	39.35	44.76	50.78	57.44	65.06	100.00	110.00
2037	15.87	16.59	17.87	19.70	21.90	24.95	29.06	33.36	38.06	43.47	49.49	56.15	63.97	100.00	110.00
2038	14.58	15.30	16.58	18.41	20.71	23.76	27.87	32.17	36.87	42.18	48.20	55.06	62.88	100.00	110.00
2039	13.29	14.01	15.29	17.12	19.52	22.57	26.68	31.08	35.78	40.89	46.91	53.97	61.79	100.00	110.00
2040	12.00	12.72	14.00	15.83	18.23	21.28	25.39	29.79	34.49	39.50	45.52	52.00	60.70	100.00	110.00
2041	10.71	11.43	12.71	14.54	16.94	19.99	24.10	28.50	33.20	38.11	43.73	50.01	59.61	100.00	110.00
2042	9.42	10.14	11.42	13.25	15.65	18.70	22.81	27.21	31.81	36.42	41.64	47.92	57.52	100.00	110.00
2043	8.13	8.85	10.13	11.96	14.36	17.41	21.52	25.92	30.52	35.13	40.35	46.63	56.43	100.00	110.00
2044	6.84	7.56	8.84	10.67	13.07	16.12	20.23	24.63	29.23	33.84	39.06	45.54	55.34	100.00	110.00
2045	5.55	6.27	7.55	9.38	11.78	14.83	18.94	23.34	27.94	32.55	37.65	44.45	54.25	100.00	110.00
2046	4.26	4.98	6.26	8.09	10.49	13.54	17.65	22.05	26.65	31.26	36.36	43.36	53.16	100.00	110.00
2047	2.97	3.69	4.97	6.80	9.20	12.25	16.36	20.76	25.36	30.07	35.07	42.27	52.07	100.00	110.00
2048	1.68	2.40	3.68	5.51	7.91	10.96	15.07	19.47	24.07	28.78	33.78	40.98	50.98	100.00	110.00
2049	0.39	1.11	2.39	4.22	6.62	9.67	13.78	18.18	22.88	27.48	32.18	39.88	49.88	100.00	110.00
2050	-0.90	-0.18	1.10	3.01	5.41	8.46	12.49	16.89	21.59	26.19	30.79	37.79	48.79	100.00	110.00

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