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ISTAT President Michael Platt

am happy to report that ISTAT is in great shape as we march toward our 25th Anniversary U.S. Conference in March 2008 in Orlando, Florida. Three-eighty-three of us just returned from a great European Conference in Vienna where we got to line up our year-end deals and learn about how our industry is impacted by environmental considerations.

Mark Pearman-Wright and Tony Diaz, our Conference co-chairs, put together a diverse and interesting group of speakers who covered topics ranging from bio-fuels and the development of new engine technology to carbon emission trading, ATC's impact on the environment and how these issue affect aircraft values.



We heard from a diverse group of air-

lines including Virgin Atlantic, Ryanair, EasyJet, MaxJet, and Icelandair and learned about JetBird's goal of bringing air taxi service to the masses. Our lessors' panel and appraisers' panel also provided insight into the impact of environmental issues on our industry. Without the participation of our members, our guest speakers and our sponsors, we could not bring you these wonderful conferences. As I said in one of my prior letters, ISTAT must strive to provide timely and relevant information to our membership on important topics and I think we certainly accomplished that goal in Vienna.

I couldn't help but notice the large number of members who had new business cards in Vienna. It is a sign of a strong industry when there is mobility, mergers and acquisitions and competition for good people. ISTAT is the perfect forum for keeping up with everyone's whereabouts, for seeking business opportunities, and for taking a pulse on others' views of the state of our industry.

As I write this letter, we are preparing for our October 26th Board meeting in New York where your volunteer officers and directors will discuss the results of our recent conferences and receptions, finalize plans for the Dubai Air Show reception, appoint chairs for the next European Conference to be held in Prague, further develop plans for our Silver anniversary U.S. Conference, approve the 2007 audit (I know, it is October!), plan for the Farnborough Airshow reception, discuss our globalization initiative and discuss new initiatives.

In March 2008, there will be two board seats opening and we will elect two new Board members at the Annual Conference. Please think about running for one of these seats. If you talk to the dozens of people who have served on the ISTAT Board over the years, I don't think you will find any that have not found it to be a great experience. There will also be a number of seats opening up on the ISTAT Foundation Board and this is your chance to contribute your talent and energy to a very worthwhile cause.

I want to thank our wonderful Chicago-based staff for all of their hard work. Their professionalism and dedication is inspiring.

micheilt

right :: Closing night dinner at Palais Coburg the Viennese maidens were a hit

cover :: Hofburg Imperial Palace, Vienna

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A Jetrader is a bi-monthly publication of ISTAT, the International

Society of Transport Aircraft Trading. ISTAT was founded in 1983 to act as a forum and to promote improved communications among those involved in aviation and supporting industries, who operate, manufacture, maintain, sell, purchase, finance, lease, appraise, insure or otherwise engage in activities related to transport category aircraft.

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ISTAT Calendar

11 November 2007 **Dubai Air Show Reception** Dubai Creek Golf & Yacht Club

9 - 11 March 2008 25th Annual Conference Omni Orlando Resort at Championsgate

5 - 7 October 2008 ISTAT 15th European Conference Prague, Czech Republic

Open BOARD POSITIONS ISTAT Board of Directors

Two positions for the ISTAT Board of Directors will be opening in Spring 2008.

Consider taking an active role in the direction and growth of ISTAT.

Please contact any current Board member and/or the association office for further information. Applications will be available shortly.

ISTAT Foundation Internship Program

The Longbow Group is a perfect example of the benefits an intern can bring to your company. If your company is interested in taking on an intern, we encourage you to do so through the ISTAT Foundation Internship Program.

The ISTAT Foundation accepts applications from college students both in the US and internationally and acts as a mediator to match the best applicants to the most appropriate ISTAT member companies. If you are interest in participating in this program, please contact istat@istat.org or our Internship Committee Chair, Warren Willits at wwillits@jetstarpartners.com.

Internships

Internships we have an Intern! By Kerry S. Sterk The Longbow Group



n aircraft, you could say, needs two things to operate successfully: fuel and experience—lots of experience. That's why we, at The Longbow Group, have assembled a group of seasoned professionals who are experts in their respective fields, whether it's contract negotiations, asset management, or technical services. The thought of bringing a novice—not to mention an intern—into the fold had never occurred to us.

That changed when John Wensveen, President and CEO of Airline Visions and adjunct professor at several universities, suggested that we offer an internship to one of his students. We realized that experience has to start somewhere. What better way to give someone real-life lessons than inviting him to spend a few months in our office?

Enter Jake Reppert, a senior at Embry-Riddle Aeronautical University in Daytona, Florida. After a brief phone conversation, we had him come up to Memphis for an interview. Our meeting left no doubt that he was a serious aviation student and seriously interested in the internship. And so an intern was hired.

Jake arrived back in Memphis some 30 hours later (without getting a speeding ticket). After getting him settled in his apartment, we gave him a brief introduction to our business and operations, and then put him to work. Over the next four months, his presence in the office would turn out be an interesting and rewarding experience for everyone—a give-and-take of two worlds. Our team of seasoned professionals was being supercharged by the eagerness of a dynamic 22-year-old, while his unbridled enthusiasm would, more than once, be tempered by sober analysis and a collective aviation experience of 100 years.

The Longbow Group had never worked with an intern before, so it was time to think about the responsibility that would come along with having one in the company.

There was a whole laundry list of things to consider. We would have to find housing for Jake within easy reach of the office and give him a desk with a PC and network access. We would also have to determine a fair rate of pay. And then there were the "unknowns." We knew that Jake had several years of university classes in the aviation business. What we did not know was how that background would translate into the practical, everyday tasks of running a business? What duties would we give him? How much could he be privy to sensitive information? And how well would he fit in with the team?

As it turned out, Jake fit in very well and slowly but surely worked his way into the subject matter, transitioning from producing work for grades to producing work with real applications. Over the course of the internship, he conducted research, created aircraft re-marketing reports, and assisted the management team in a variety of other tasks.

What is more, the energy Jake brought to the office was infectious. Like everyone else in the aviation business, we work long hours on some very serious deals. Seeing his excitement over a project coming together after many brainstorming sessions infused an energy into the team that, I think, was rejuvenating—and nice to have in our everyday work.

Then there were the proverbial growing pains. Jake found out that people noticed when he was digging in on a project or was not being productive because he was stressing out and feeling overwhelmed. A few times when these things were pointed out to him, he did not quite know how to take it. In school, you get a grade and are done. In the work arena, you keep going until the product is right and the deadline is coming up—and that generally involves a long process, as people talk things over, bounce ideas off one another, and fine-tune the

Intern continued page 23 | Sterk

An Internship with The Longbow Group, LLC By Richard Jake Reppert

My introduction to The Longbow Group came through John Wensveen, a professor of mine at Embry-Riddle Aeronautical University, and President and CEO of Airline Visions. I had approached him to get some guidance in planning the first step of my career. As I told him, I was interested in pursuing a career similar to his—as a consultant performing a range of services for the aviation industry on a global scale—and I asked him whether he knew of an opportunity to gain experience working with an entrepreneurial company.

A day later John called me and asked me if I would be interested in an internship with The Longbow Group, a relatively young company based in Memphis, Tennessee, that was not your typical start-up. He assured me that it would be a great opportunity to learn from a group of highly experienced aviation professionals.

After visiting with Marco Sterk, the President of Longbow, and Kerry Sterk, VP of Business Administration, I knew that my internship with Longbow was going to be much different from the others I had done before. From the get-go, I would be handling higher level work than an intern normally handles, and while it was going to be a great learning opportunity, I was also expected to contribute to the growth of the company.

I had every tool I needed to be as productive as possible. By the end of the first day I had my own office, computer, printer, and filing cabinet. This was a big change from my previous internships. Not having to compete for a workstation with other interns, or even staff members, made me a lot more productive and allowed me to stay on task throughout the entire day.

What fueled that productivity was the exciting nature of the work I was given. Aside from the times when I was asked to perform simple data entry tasks, there were just as many projects that got my creative juices flowing such as creating financial models or working independently with outside organizations. By the end of the internship, I was playing a major role in a consulting project for one of the largest airlines in the world.

But the work I was doing was just the beginning of the learning experience. In the Longbow office, I was surrounded by people with a lot of aviation experience, and they all shared as much of that experience with me as they could. When I worked on specific tasks for any one of them, they also would make the time to talk with me about my work and answer any questions I had. Thus I learned a great deal about the criteria for selecting a freighter for a given airline, about engine selections, about technology platforms for integrated aircraft data management, and about designing a maintenance regime that will help keep an engine on-wing for over 5,000 hours.

Intern continued page 23 | Reppert

Sigthor Einarsson Chief Operating Officer Iceland Air Group



JT: Your presentation at the European Conference of the "Green" issues facing aviation was timely and insightful.

>SE: It was a different agenda from other ISTAT conferences and quite a successful one in my opinion. Tony Diaz and Mark Pearman-Wright came up with the topic and it worked.

JT: Iceland Air is celebrating its 70th Anniversary and is one of at least two major aviation companies in Iceland. How did this little island become so important in aviation?

>SE: A lot of it has to with the fact that Iceland is an island and that we rely on aviation. Ever since the appearance of the airplane, it has been the preferred

mode of travel. Locally this is a difficult terrain and flying for domestic travel is a good option. Iceland's location between the US and Europe has also been an important factor. We base our North Atlantic presence on the position of Iceland. If you have to stop over anywhere on a US /Europe route, Iceland is the best location to base a switch of airplanes. JT: Does Iceland's position benefit from London Heathrow's growing expansion limitations? How does this influence Iceland Air's growth strategy?

>SE: It is our growth strategy to connect bigger cities on one side of the pond with smaller cities on the other side of the pond, city pairs that would normally not have direct flights. We all know that traveling through the major hubs takes quite sometime, so we advertise that transferring through our hub takes less time and is less stressful to the average traveler. This is our strategic advantage in the North Atlantic. We deploy relatively small equipment such as the 757 and when we start a new gateway, such as Toronto, which we are opening this spring, we offer not just Iceland but 12 gateway European cities. So we don't have to fill the plane with travelers just going to Iceland.

JT: Iceland Air Group is a multi-layered aviation company that operates in an industry that seems to favor structural simplicity. Describe your strategic posture on Iceland Air's operating structure.

>SE: When you say that we are a multi-layered company, I would like to qualify that a bit. We are actually 12 independent companies, each with their own operations and their own management and their own strategies. We like to stress the independence of each of the companies that form the group. The selection of the specific companies is a decision we made and we felt that each one has a strategic fit in the group. We have come a long way in the last 10 years from the conglomerate airline company which was one company with one bottom line, including scheduled services, domestic services, hotel services without knowing which part was contributing to the bottom line. We have transformed Iceland Air to be closer to a true holding company. We find that most major airlines in the US are still not very far down this. Just recently the FL Group, our old owner, now a large shareholders of AMR Corporation, parent of American Airlines, suggested that AMR spin off the American Airlines Frequent Flyer Program (FFP), called AAdvantage, that would significantly increase shareholder value. The deciding factor was a lack of profitability in the mid '90s. We had a few good years when we replaced our old 727, DC-8 fleet with 757/737, which increased operating efficiencies. But we were not meeting our target profitability numbers. Management felt that



the best road to growth was breaking up the company and giving each managing director the responsibility for its growth and profitability. That has proven to be right. Starting in 2002, we have had a string of good results. But we were not alone in the aviation business as we also had Lufthansa and SAS who were going through the same process. And these companies seem pretty happy with the results today.

JT: As an ACMI operator, how does Iceland Air manage this function and how do you coordinate with the scheduled service?

>SE: Yes, we are one, but my philosophy is that ACMI companies need micro-managing. It has to be flexible and act as an accordion. Rather than centralize ACMI activities, we have them spread out in five companies. This takes coordination of course, but each company has the best knowledge about the operating characteristics of the 10 or 15 aircraft in their fleet. This is an essential group management task as the operations of an ACMI operator are so different from that of a scheduled airline. We use management already situated in the individual operating companies to oversee the ACMI activity of the group without taking over that individual management of the airline assets from the companies. It is a bit like line dancing of course, but we try to incentivize management of these companies to facilitate cooperation amongst themselves.

JT: Is there any game-changing issues facing aviation today?

>SE: Well, there are too many to mention as there always has been in this industry. We have been very good at using technology to adapt to changing circumstances. If you look at ticket prices to cross the Atlantic 30 years ago, people thought prices of \$399 were revolutionary, but you needed a month to earn that value. Today ticket prices are still at that level but you earn the ticket in a day or two. How we adapted to that is confounding, but we manage to do it every day.

JT: What are the growth prospects for the industry over the next 24-36 months?

>SE: We had concerns about the liquidity crisis of the last two months, but there does not seem to have lasting effects so far. Listening to the experts on the finance panel at the ISTAT Conference in Vienna, they said yes, it would make financing a bit more expensive but there is still a great deal of liquidity out there so that eased my worries. I really want to believe them, that's for sure. A theory expressed by Boeing is that it is not economic cycles that trigger downturns, but events that dictate recessions in the aviation industry. The last downturn was triggered by the war in Iraq and SARS.

JT: How do Iceland Tour Operations and Charters compete with LCCs as

⁴⁴ I see the aviation industry facing two major events — Fuel, which I assume will continue to rise, and even fiercer competition in the North Atlantic due to the implementation of the open skies agreement between the US and Europer

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they expand their penetration of the market and lower the cost of travel? >SE: We have only one tour operator focusing on travel to Iceland. We sold our outgoing tour operator. But, we are acquiring charter operators based in central Europe, which makes them cost effective. We believe that this is an effective tool to address the LCC market in the future. We have watched the development of the Charter market in the UK and Germany, which are mature charter markets. The successful LCCs there have been former charter operators that were wise enough to move from full to partial charter and have grown into the market. This is a future we can see as we expand our scheduled presence in these markets. There are not many examples of this in the US with the exception of Sun Country and a few Canadian operators. A successful story of course is Air Berlin, which used to be a charter airline as well as XL in the UK. It seems a pretty safe way to get into the market. The key is to get tour operators to accept that they will be taking 80% of the seats and that you reserve the right to the remaining 20%, which you might be selling cheaper.

JT: With Ryanair driving ticket prices lower and removing the smallest cost items from its airplanes, how does Iceland Air continue to price its services?

>SE: The traditional airline model is based on people paying for more services. It is interesting to watch Aer Lingus and BA move into the space between an LCC and a traditional airline. I think that a lot of low cost carriers are building on that model. I think the future will have a few true low cost budget airlines, but most others will distribute their seats not only through the Internet but also through cheap global distribution systems. The systems are in place, are depreciated and they would be silly not to take advantage of these distribution channels.

JT: My original question was how can airlines continue to grow in the era of \$80 oil, but I should have asked how they could grow in the era of \$89 oil? Is there a ceiling in sight?

>SE: Airlines seem to be handling the cost of oil very well. It's amazing really. I used to be a fuel buyer and we were buying oil at \$40 a barrel and worried about its impact. Today, we would really like to see \$40 oil. For the European airlines the Dollar/Euro has been a natural hedge and this may explain why US airlines have not done as well in the last few years as this is an enormous drag on their earnings. They don't have Euro revenue to offset the rise in oil. And I think it would be silly to forecast what is too high a price for oil, as airlines are proving very adept at adjusting.

JT: As a Boeing operator, are you looking at other manufacturers in the future?

>SE: Two answers. If you look at our group we have about 70 aircraft of which nine are Airbuses, five we operate in our charter operation, four in which we have an interest. So we are already looking at new avenues even though we favor our good relationship with Boeing which I hope won't change. We have also ordered two A330s and leased two A330s for our cargo division. The second part of the answer is that in our scheduled operation, which is truly a Boeing dominated fleet, we are facing the fact that there is really no successor for the 757, which has not been in production for over five years, with the range and passenger mix. It is the longest-range narrow body that exists. We are facing replacement in 7 to 9+ years. But right now the Boeing and Airbus narrow bodies are not giving us the options to the 757. We are very interested at what will replace the A320/737. We hope that the replacements will have more range than what is offered by the current narrow bodies. We have ordered the Dreamliner, four through Iceland Air and one through Travel Service in the Czech Republic and another four options as well. We are what Boeina refers to as a "middle market option," which is where the 757/767 was positioned. We miss that combination and want someone to grow into that market.

JT: Are you going to be growing the turbo prop fleet?

>SE: This is a specialty service right now and really serves Iceland, Greenland and the Faeroe Islands with six Fokker 50s, two Dash 8 100s and two Twin Otters. I was quite happy to read that the Twin Otter is being produced again and I may want to buy some. The Fokker 50 has a long history in Iceland. We introduced the Dash 8 100 to see how that fits here and we are rather excited about it. The problems of the Q 400 are a bit of a concern, but those problems do not relate to the other models.

JT: What role does leasing vs. owning play in your acquisition strategy? >SE: A perfect fleet composition for a scheduled airline is 50% owned, 40% leased and 10% wet leased because I think every airline should have a portion wet leased to help them adapt to changing situations. The question of where we are in the cycle and what equipment we are buying will influence how we finance it. For our scheduled service, we know we will have to grow out of the 757 in the next ten years. We have started to scale down our 757 asset exposure understanding that in the longer term we would like to own half of our fleet.

JT: What skills do you seek when dealing with leasing companies? >SE: Probably a sensitivity to the business-to-business scenario that really

comes down to personal relationships and the ability to adapt to new situations. All companies have unexpected developments and I like to deal with lessors who can adapt to new situations whether in a favorable or unfavorable business environment. It is that flexibility that I favor most.

JT: At \$1.40 to the Euro, Europe is almost unaffordable. When do you see the dollar/Euro rate reverse course or will it continue to strengthen?

>SE: The Icelandic Kroner is about 30% of both costs and revenue and we manage that exposure. Our problem is that we have to buy dollars as our Euro revenue is stronger. That is really not a problem by the way. We benefit from the strength. As a political pragmatist I would say that it will change on or about 4 November 2008 (US presidential Elections).

JT: How much impact will the increasing environmental sensibilities have on the aviation Industry?

>SE: It is a constant factor in all aspect of life not just in aviation. Aviation should not be ashamed of its role as it has made enormous achievements already and will continue to make the situation better.

JT: Does Iceland Air face a human resource challenge as the baby boomer generation continues to retire?

>SE: For our Icelandic operations we have challenges because the economy has grown well over the last 10 years. The company itself does not have difficulty attracting flight-related personnel. On the other hand brainpower is the real bottleneck in our industry. We are starting to think about how we attract the best brainpower as we go forward.

JT: What role does ISTAT play for Iceland Air and the airline industry? >SE: ISTAT plays a very important role by being an outstanding networking opportunity for all aspects of the aviation industry with a truly global reach. As globalization of trading grows, ISTAT provides a forum to manage that exposure.



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Tomorrow's Aviation Environment was the theme of this year's European Conference held in the beautiful city of Vienna. Two jam-packed days brought together many of the world's top aviation professionals to discuss topics including the impact of aviation on the environment, tomorrow's technology, tomorrow's engines, financing, appraisals and trends.

Nearly 400 participants attended sessions including several opportunities for seeing old friends and making new ones at coffee breaks, luncheons and cocktail receptions.

Tony Diaz, ISTAT Director, and EVP, CIT Aerospace and Mark Pearman-Wright, ISTAT Director, and Head of Leasing and Investor Marketing, Airbus, Co-Chaired this Conference that provided a fresh approach and a cohesiveness in which to present timely and important topics to the attendees.

See Michael Platt's review of the Conference in his letter on page 3.

And, plan to attend the ISTAT 15th European Conference in Prague, Czech Republic, 5 - 7 October 2008.



ISTAT 14TH EUROPEAN CONFE

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The State of ISTAT

>>Growing Membership Grown 5-6% in the past year Current Membership 1,575 40% International

> Exceeding Financial Projections 2006 Total ISTAT Assets \$1.6M 2006 Total ISTAT Foundation Assets \$1.76M

2007 Budgeted Revenue \$1.9M Current Revenue \$1.8M 2007 Budgeting Expense \$1.6M Current Expense \$1.12M



Lippman presented a brief report on the ISTAT Foundation

Going Green Getting Smart

ISTAT President Michael Platt presiding at the opening session

The State of the ISTAT Foundation >>2006

Roundtable Members - 18 Roundtable Donations - \$195,000 >>2007

> Roundtable **Members** - 30 Roundtable **Donations** - \$490,000

> \$1,000,000 - the amount contributed/ pledged to the ISTAT Foundation Endowment Fund

>Scholarships Awarded in 2006 - 16
>European universities participating in the Scholarship Program - 4

>Internships arranged in 2007 - 6

>Grants awarded in 2006 - 12

The Palais Colburg was the setting for the closing night dinner. The setting was underground in constructions which formed part of Vienna's defences. Now restored, these 16th century casemates were once stables for horses and storerooms for gunpowder.



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"It is hard to imagine a businessman who has had a more profound impact on his industry and his country. Tony leaves a fantastic legacy of a thriving and vibrant aircraft leasing and finance sector which he pioneered and he touched the lives of millions of people in Ireland and all over Europe by making air travel affordable and accessible through his vision and drive to build Ryanair."

Declan Hartnett GE Commercial Aviation Services

"What a privilege it was to have been part of Tony's Boot Camp of aircraft Leasing in the pioneering days of GPA! He led a generation of Irish people into the world of aircraft leasing and financing. His vision of making Ireland centre stage for this industry has been truly realized and that is his greatest and most enduring legacy."

Jane O'Callaghan Aircastle

"Tony inspired a whole generation of men and women alike to develop a love and understanding of aviation; many of us who started under his most watchful eye are still in the business over twenty years later, and maybe that says it all. In many ways, he saw the successful 'GPA diaspora' as his legacy to this current world of aviation."

Liz Barry Airbus Financial Services

"Tony was a friend, an innovator, a rival and a visionary, all wrapped into one. Tony's contributions to make aircraft leasing a major factor in the business will never be forgotten. His entrepreneurial spirit gave Ireland a great boost in its economic development in the 1980s and 1990s."

Steven F. Udvar-Hazy ILFC

"Thank you, Tony, for the opportunity to have worked with you. It was one of life's great and enjoyable experiences. May your vision and wisdom live on in the minds and hearts of many."

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Lufthansa Technik



appraisal

Boeing 737-900ER Appraisal . Fred Klein, Aviation Specialists Group tele: +1 703-736-9700 - email avspecgroup@aol.com



The aircraft values stated herein are work product of independent third parties sources, and ISTAT neither approves or endorses the information contained herein or the use thereof for any purpose whatsoever.

Values in U.S. \$ millions for a typical aircraft. Used aircraft are built in June, new aircraft in fourth auarter 2007 > >

> 2027 19.7

22.8

21.7

20.7

2024

2025

2026

appraisal

Embraer 170 Appraisal . Tom Burke, AVMARK Inc. tele +1 703-963-7028 – email TomEBurke@aol.com

Background :: Embraer made a production decision in 1999 to build a family of airplanes in 70-110 seat range. At the time, this was considered by many to be a high risk venture, due to the lack of an established market demand for this size and then existing scope clauses which restricted some pilots from flying aircraft of this size. Embraer reasoned that the growing need for economical operation by right sizing an aircraft to market demand, coupled with the stretch limits of then existing regional aircraft and inefficiencies of down sizing larger aircraft created a market opportunity in this niche. The family of aircraft consists of the Embraer 170, 175, 190 and 195, with seating capacity of 70 to 80, 78 to 88, 98 to 114, and 108 to 122 respectively. The first of the family, the Embraer 170, received certification in February 2004, and first deliveries came later that year.

Estimated Current and Future Values (Millions US dollars)

Typically equipped aircraft in mid-time, mid-life condition

Future values	s include 2.3	% annual	inflation
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			Year of Build		
Mid	-Year	2004	2005	2006	2007
200	7	21.50	21.92	22.75	24.00
200	8	20.88	21.27	22.07	23.37
200	19	20.33	20.66	21.42	22.66
201	0	19.85	20.13	20.82	22.00
201	1	19.32	19.69	20.29	21.39
201	2	18.73	19.18	19.84	20.84
201	3	18.10	18.62	19.35	20.38
201	4	17.44	18.01	18.79	19.86
201	5	16.76	17.37	18.17	19.29
201	6	16.05	16.70	17.54	18.67
201	7	15.33	16.02	16.89	18.01
201	8	14.59	15.31	16.20	17.33
201	9	13.84	14.60	15.49	16.63
202	0	13.08	13.86	14.78	15.89

Current and Future Market Outlook

According to the July 2007 AVMARK Newsletter, Embraer has delivered 133 Embraer 170, has a backlog of 22 firm orders, and an additional 120 options. The orders keep coming in. The performance of the 170, shown in the table below, is exceptionally good for an aircraft of this size and compares favorably with direct competitors, (CRJ 700, Avro RJ 70, DC-9-10,20). Embraer claims that the 170 will have 12% lower direct operating costs than its closest competitor, but with only 3 years experience thus far we will have to wait to see actual results.

Performance (AR version)

Maximum Operating Speed	M 0.82	M 0.82	
Time to Climb to FL 350, TOW for	500nm	16min	16min
Take Off Field Length, ISA, SL, M1	10W 5,394ft	1,644m	
Take Off Field Length, ISA, SL, TO	W for 500nm	3,763ft	1 <i>,</i> 147m
Landing Field Length, SL, MLW	4,177ft	1,273m	
Ranae 70 PAX @ 220lb (100ka), LRC	2.100nm	3.892Km

There are three varients of the 170 available, STD, LR and AR. The difference is the maximum take off weight: 79,300 lb, 82,000 lb, and 85, 000 lb, respectively. The values in the above table are for the STD and LR version; the AR version would add roughly \$500,000 to the values.

The values of the 170 should remain solid for the foreseeable future, as the demand for aircraft of this size continues to rise. There are currently about 2,500 aircraft of this size operating world wide and one estimate places a demand for 1,100 additional over the next 10 years. Also, while the 175 would seem to be a competitor, the 170 is a logical progression from the 50 seat aircraft. The single drawback to the value of the 170 is the relatively small operator base, however as new orders come in this should become less of a factor within the next few years.





n Christmas Day 2006, a devastating tornado hit the Daytona Beach campus of Embry-Riddle Aeronautical University causing tremendous damage, destroying more than 80 aircraft, a maintenance hangar and several classroom and administrative buildings.

During a campus visit in February, Foundation trustees David Sutton, Roland Moore and Vito LaForgia sat down with ERAU president John Johnson to determine what ISTAT could do to help with the school's considerable recovery effort. Following that meeting, it was decided that the ISTAT Foundation would raise funds to help with the reconstruction of the Student Newspaper and Radio Station both of which were totally destroyed in the storm.

Under Sutton's leadership the Foundation set out to raise funds from the ISTAT membership, an effort which produced \$30,000. The Foundation's board of trustees then voted to match this amount for a total of \$60,000.

`At a recent Embry-Riddle reception in Atlanta during NBAA, David Sutton and Roland Moore presented Dr. Johnson with the Foundation's \$60,000 check. Dr. Johnson, in turn, presented to the Foundation a very handsome plaque acknowledging ISTAT's substantial support of Embry-Riddle. The plaque, which will hang in a prominent location in ERAU's new Student Center...in close proximity to the Newspaper and Radio Station...reads as follows:

WITH SPECIAL APPRECIATION TO THE ISTAT FOUNDATION IN RECOCNITION OF THE SIGNIFICANT CONTRIBUTION BY THE INTERNATIONAL SOCIETY OF TRANSPORT AIRCRAFT TRADING, THROUGH THE ISTAT FOUNDATION, TO HELP REBUILD THE UNIVERSITY, IN PARTICULAR ITS STUDENT NEWSPA-PER AND RADIO STATION, AFTER THE DEVASTATING TORNADO OF 2006 AND FOR ITS CONTINUED COMMITMENT TO AVIATION EDUCATION. PRESENTED ON SEPTEMBER 25, 2007, BY EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

All ISTAT members can be proud of this substantial level of support for one of the country's top aeronautical education institutions. Thank you to all who contributed.

ISTAT FOUNDATION Stephen Rimmer, Chairman

www.ith much hard work from both ISTAT members and ISTAT staff, the ISTAT Foundation was able to present to Embry Riddle Aeronautical University of Daytona Beach, Florida a check in the amount of \$60,000 to fund the construction of a replacement radio station.



You may recall that we launched an appeal earlier this year following the devastating impact of the tornado that swept through the Embry Riddle campus at Christmas last year. We approached the membership with a specific appeal to raise funds for the rebuilding of the campus radio station and were delighted with the response which raised \$30,000 through direct member donorship as well as revenue from the silent auction at the annual meeting in Phoenix.

The Foundation Board agreed a matching donation hence we were able to fund the full \$60,000 required by Embry.

This support for Embry in its time of need extends the deep bonds between our organisations and we look forward to developing the relationship further over the coming months and years. Our thanks also to Roland and Dave for representing the Foundation and presenting the check.

We, along with ISTAT, are now turning our attention to the 25th Anniversary celebrations of next year and discussing special fundraising opportunities and ideas that we can take advantage of in conjunction with these celebrations.

If any of you have ideas, I would be pleased to hear them.



September 24-25 :: The **Boeing Capital Appraiser Forum** two-day briefing on the B787 and current models included factory tours, and presentations. An excellent lunch included an update on the B747-8 program and a presentation to each of us of a bottle of '04 Cabernet Sauvignon to get through airport security. There were 25 appraisers, two financial representatives and three leading editors in attendance. Joe Ozimek, Director, Asset Management, Boeing Capital and his team made it a first-class briefing. – Bill Bath

Some Helpful Rules of Thumb Tools For Making Intelligent Decisions By Douglas Castle

the height of the regional jet boom in the late1990s and early 2000s, many industry observers predicted that the era of the turboprop was over. And, for a few years, turboprop orders plummeted from a high of 501 in 1989 to 26 in 2002 as operators stocked up on jets.

Canada's Bombardier Aerospace, which manufactures both regional jets and turboprops, realized that the latter needed a new image. Too many people considered them noisy, uncomfortable and old technology. The first improvement was a Noise and Vibration Suppression (NVS) system. A similar system was developed originally by Ultra Electronics in Cambridge, England to make nuclear submarines run more quietly. Bombardier saw its potential for aircraft and worked with Ultra Electronics to adapt it for Bombardier's line of Dash 8 turboprops. In 1996, the Dash 8 was re-branded as the Q Series, the Q meaning Quiet.

The NVS system attacks noise at its source – airframe vibration caused by pressure pulses from the propellers beating against the fuselage. During flight, concealed microphones measure noise levels and propeller vibration and send this information to the onboard computer. This computer continually analyzes the information before sending it to devices called Active Tuned Vibration Absorbers, or ATVAs, which are mounted on the fuselage walls. The absorbers produce counter vibrations that all but cancel out the original vibrations. The result is a sharp reduction in both cabin vibration and noise, and a remarkable increase in cabin comfort, even next to the propellers. NVS worked so well that one Bombardier turboprop operator painted "The Sound of Silence" on the engine nacelles – surely a first for any propeller-driven aircraft.

NVS was the first step in the renaissance of the turboprop and sales of Bombardier's 37 to 39-seat Q200 and 50- to 56-seat Q300 began a slow climb. And in 2005, turboprops outsold regional jets.

The second step was development of the 68- to 78-seat Q400. Here was a twin-engine turboprop that cruised at 360 knots and with a cockpit at least as state-of-the-art as those found in Airbus and Boeing aircraft. It was the first regional airliner to be certified for a Head-up Guidance System (HGS); it was the first regional airliner to be certified for Cat. III weather minima on a single engine; and it was the first regional airliner to meet Required Navigation Performance (RNP) standards that require pinpoint navigation accuracy. The HGS, Cat. III and RNP were pioneered by Horizon Air of Seattle, Washington, which also operates a fleet of Bombardier CRJ700 regional jets.

(An article in the January 22, 2007 issue of Aviation Week and Space Technology described RNP as a form of area navigation that employs GPS positioning, inertial reference systems and (in some cases) DME-DME [distance measuring equipment] to contain an aircraft in a narrow corridor of airspace. It includes onboard navigation monitoring to alert the pilot if tight tolerances can no longer be met. With RNP, aircraft can navigate through mountain valleys safely, fly the same ground track with precise turns on each approach, and limit the impact of noise and emissions on communities because the flight paths are more customized.)

The third step in the renaissance was increasing fuel prices, which forced airlines to re-think the subject of jet versus turboprop. Turboprops typically have significant cost advantages over a small- to medium-size regional jet. Aircraft speed was not a factor when the Q400 was considered because on routes out to 400 miles, the block times between the 360-knot Q400 and regional jet are almost identical. Aircraft comfort was not a factor because NVS makes the passenger cabin as quiet and almost as vibration free as that of a jet. So it boiled down to operating economics and the Q400 has extremely low operating costs that in turn can lead to lower break even load factors. Assuming an average stage length of 350 nm and a fuel price of \$2.00 per USG, a 78-seat Q400 has a break even load factor of only 22 passengers (28 per cent) in North America and 31 passengers (40 per cent) in Europe.



As of January 31, 2007, 19 customers in 15 countries had placed firm orders for 200 Q400 aircraft, of which 143 had been delivered. Japan Air Lines in Japan, Jeju Air in Korea, QantasLink in Australia, SAS in Scandinavia, South African Express and Frontier Airlines and Pinnacle Airlines in the U.S. chose the Q400 over a jet.

Re-orders have come from All Nippon Airways, Austrian arrows, FlyBe, Horizon Air, Hydro Quebec, Japan Airlines, Scandinavian Airlines, and Wideroe and that speaks to the confidence they have in the aircraft.

"The Q400 is the mainstay of our fleet," said Jim French, Managing Director of FlyBe, which had ordered 45 Q400 aircraft as of January 31, 2007. "The Q400 is delivering very low operating costs which have allowed FlyBe to become one of the largest lowcost operators in Europe, competing successfully with narrow body jet operators in our chosen field of operation – Europe region to region service."

Frontier Airlines President and Chief Executive Officer Jeff Potter said when his airline's order for 10 Q400 aircraft was announced, "Only the Bombardier Q400 has the very low operating costs and operational characteristics that we require to develop new flying from our hub in Denver to points in Colorado and the surrounding states. The aircraft's high cruise speed and excellent passenger comfort complete an extremely attractive package. Judging from the experience of other Q400 operators, our passengers are going to enjoy flying in this aircraft."

Pinnacle Airlines, which operates a large fleet of Bombardier regional jets, ordered 15 Q400s that will be assigned to its wholly owned subsidiary Colgan Air, Inc. Colgan will operate under the Continental Connection banner primarily from the Continental Airlines hub at Newark, New Jersey.

"The addition of the Q400 brings a competitive advantage to Colgan Air and produces an operating environment which provides Continental's Customers with exceptional comfort and reliability and a low operating cost for Continental Airlines," said Philip H. Trenary, President & CEO of Pinnacle Airlines Corp. "Further, adding this versatile aircraft to the Pinnacle Airlines Corp. fleet allows us to provide our code-share partners with a range of aircraft categories suitable to any market."

An astounding 61 per cent of worldwide Q400 departures are either supplementing or replacing existing jet services. About 21 per cent are new Q400 only service and about 18 per cent offer existing turboprop route replacement or supplement.

The historical differentiation between turboprop and jet segments is fundamentally driven by economics and is characterized by stage length. Following 10 years of complementary turboprop and regional jet routes at five major airlines, 36 and 50-seat Q Series



The National Advisory Committee for Aeronautics (NACA) was created by President Woodrow Wilson to raise American aeronautical research with government financing, (\$5,000) to the level of that in Europe. Modeled on the British Advisory Committee for Aeronautics, it was only after a typical Washington turf war which involved Charles D. Walcottsecretary of the Smithsonian Institution, that Franklin D. Roosevelt, the Assistant Secretary of the Navy, enthusiastically endorsed Walcott's suggestion to attach the enabling legislation as a rider to the Naval Appropriations Bill, on March 3, 1915. The history of the NACA's early struggles and how it became preeminent in aeronautical research justifies its own future column to describe briefly a few of its notable achievements, in addition to wind tunnel developments.

Let us step back a few years to shortly after May 1870; it was then that Francis Wenham built the first wind tunnel to try and develop equations for designing lifting surfaces; he had already read a paper at a meeting of the Aeronautical Society of Great Britain in 1866 on how high aspect ratio wings improved their efficiency. The tunnel was a simple affair; a twelve foot long rectangular box with an 18 inch cross section and an airflow with a maximum velocity of 40 m.p.h. generated by a steam engine powered fan; there were no guide vanes to straighten the air flow and the crude spring balance did not measure accurately the aerodynamic force at angles of attack less than 15 degrees. However, the data did confirm that at low angles of attack the lift generated was greater than the accompanying drag. Wenham's experiments demonstrated approximately the findings of George Cayley and his whirling arm in measuring variations of lift and drag from -3 to 18 degrees angle of attack in 1809, (Jetrader July 2004).

There are no drawings of Wenham's tunnel; we know only that it was built to his specifications by another member of the society, an optician by the name of John Browning; however, there is one of a tunnel designed by Horatio Phillips, 27 years of age, who was not satisfied with the airflow in Wenham's tunnel; he overcame the poor quality of Wenham's tunnel by using an injection method of creating an airflow with a maximum speed of 41 m.p.h. This second wind tunnel used steam injected through holes in a circular iron ring located in a narrow venturi type throat downstream of the test model; look at the figure, the test article is located on the wood block "D" and the 70 psi steam pressure exhausting from the perforated ring on the right creates an area of low pressure to draw air in at the front from the left

This second recorded wind tunnel in history was used by Phillips to develop a series of airfoils with curved surfaces like he observed in bird wings. He realized that the greater curvature of the top surface caused the airflow to move at a higher velocity than the airflow over the under surface and therefore, the air pressure over the top surface was lower than that across the bottom thus generating lift. Phillips patented his airfoil shapes in 1884 before publishing his paper.

The unique induction method used to create a stabilized airflow was not employed on the dozens of wind tunnels that followed in the USA and Europe until 1928, when NACA tapped the exhaust air from its variable density tunnel to an 11-inch high speed design. The exhaust air was blasted from an angular ring down stream of the test model at a velocity in the transonic range and was the first NACA tunnel capable of testing models at near Mach one.

The Wright brothers built their ingenious wind tunnel to develop acceptable wing curvatures and propeller blades, as a result of initially using the Smeaton coefficient for air developed by the German scientist Otto Lilienthal which proved to be wrong; so the Wrights' tunnel balances were designed to avoid using the suspect coefficient in their equations. The wooden tunnel was located above the Dayton bicycle shop and was a rectangular wooden box six feet long and sixteen inches square with a glass viewing area in the top. The fan, with a honeycomb grid to straighten the airflow, was driven by a belt from the over-head line shaft used to drive their machine tools from a one-horsepower electric motor. The wind speed generated was thirty miles per hour.

A full description of how the Wright brothers used their mathematical skills to solve the problems in creating accurate charts of lift and drag coefficients for nearly two hundred different airfoils is given in Peter Jakab's Vision of a Flying Machine; suffice it is to say that converting their visualizations into simple yet sophisticated measuring balances constructed from bicycle spokes and a hacksaw blade, demonstrates the highest order of scientific thinking.

The tunnel itself is long gone; however, when they moved from the old bicycle shop, Orville had his older brother, Lorin, hand-carry the delicate balances to their new Dayton laboratory. Thirty years

Aviation **History** continued

later, Orville was cleaning out some junk in the attic and found the balances in an old typewriter case; a bit rusty having been though the devastating flood of 1913. Today they reside at the Philadelphia Franklin Institute. An accurate working replica of the wind tunnel is at the National Air and Space Museum; it has been used to recreate the experiments made by the Wright brothers.

Although a dozen wind tunnels had been built before that of the Wrights, it was after 1903 that the leading industrial nations in Europe launched major tunnel research programs, with a consequent increase in knowledge of aerodynamic phenomena. At the University of Gottingen in 1908, the aerodynamics research department headed by Ludwig Prandtl, built the first continuous-circuit return flow tunnel, which, besides reducing power requirements by partially recovering the kinetic energy of the air, maintained a faster and more uniform airflow. In the U.S. the first NACA tunnel came on stream in 1920 at the Langley Memorial Aeronautical Laboratory, Virginia; it had a five foot test section for models up to 3.5 feet wide. This design was based on a ten year old open circuit British tunnel but it was in 1923 that the NACA made a major leap forward with the variable density tunnel which made it the world leader. Simply put, increasing the atmospheric pressure in the tunnel by twenty times when the model is one twentieth the size of the fullsize aircraft, gave results similar to that of the latter flying in regular atmospheric conditions, thus overcoming scale effect errors, (divergent Reynolds numbers to you engineers).

By 1925 the NACA had a staff of 100 that was relatively free from political pressure; its scientists were encouraged to develop their own aerodynamic research projects provided they appeared productive, and conduct experiments in-house. However, there were strong differences of opinions between the theoreticians, exemplified by Theodore Theodorsen who strongly believed that his use of mathematical theory trumped that of the variable density tunnel experimentalists led by Eastman Jacobs.

In the late 1930s, with increasing confidence in the accuracy of results from wind tunnel tests, the demands for test time meant long reservation lead times; as a consequence, Lockheed built its own tunnel in 1940 and Boeing initiated design work on a similar model. Bob Cook relates in his autobiography, The Road to the B-707, how Von Karman from Cal Tech recommended to Eddie Allen, Boeing's head of flight test and aerodynamics, that unlike the Lockheed and Cal Tech tunnels, their tunnel should be designed to operate at speeds close to the velocity of sound, (Mach 0.9); given that the fastest Boeing airplane to date was the B-29, and the British development of the jet engine was still a closely guarded secret, the advice did not appear logical with its added expense. However, enthusiasm overcame the perceived lack of need for such an advanced design and Allen was given the go ahead with an estimated cost of one million dollars; four times the cost of the original low-speed design.

Bob Cook and his new assistant, H. W. Withington were recent graduates of M.I.T. and put in charge of design. Von Karman and Professor John Markam of M.I.T. were the consultants; the result was a simple tunnel with a rectangular cross section 12 feet wide and 8 feet high that operated at atmospheric pressure; it produced high-speed data that would be realistically close to that of a full scale airplane. The final cost was three guarters of a million dollars.

After extensive modifications in 2001-02 the tunnel went trans-sonic with a maximum speed of Mach 1.12.

References: William H. Cook; The Road to the 707; TYC Publishing Company, 1991.; John D. Anderson Jr., The Airplane, A History of its Technology, American Institute of Aeronautics and Astronautics, 2002; Abstract AIAA paper June 24-26, 2002, by A. J. Krynytzky and D. W. Hergert, The Boeing Company; http://history.nasa.gov/SP-4305





Brief CV **Birgitt Garitz**

Managing Director **Global Head** of Transportation

WestLB AG

birgitt garitz@ WestLB.de



Birgitt Garitz, as Managing Director and Global Head of Transportation WestLB, is based in their Düsseldorf headquarters, where she leads the client and product initiatives with respect to Transportation companies on a global basis.

Birgitt has been with WestLB for 25 years and was, amongst others, in charge of Structured Leasing, Tax Arbitrage and Leveraged Finance. She has held senior key positions in both the bank's Credit Risk Management division as well as Business Origination.

WestLB formed its dedicated Transportation Group, with an emphasis on Aviation, in 1996. Birgitt's previous experience with leasing came in to play when she was tasked with moulding and then leading the back and middle office activities as Head of Credit Risk Management for Transportation. In 2002 she was initially made Head of Aviation and Global Head of Transportation in 2006.

Birgitt has been a prominent participant at ISTAT's Annual European Conferences and Annual Meetings in the U.S. serving as Moderator on several panels, most recently the Finance Panel at the European Conference in Vienna.



Odgers Ray & Berndtson announced the appointment of Robert Bray as a senior consultant in the Aviation Practice. Prior to joining Odgers Ray & Berndtson, Robert spent 3 years in executive search as a Practice Head and he has considerable international experience, having lived and worked in North America, Europe and the Asia-Pacific regions. With a Masters from Trinity College Dublin, Robert will be based at the company's head office in London and will work directly with Susan Thompson, Partner & Head of the global Aviation Practice.

After four years of successfully developing Bureau Veritas' aviation asset management and consultancy activities on the international market, Owen Geach has accepted the position of Commercial Director at IBA Group. owen.geach@ibagroup.com

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Investment **Analysis** continued

turboprop stage length averages 196 sm while that of the regional jet is 480 sm. However, the average stage length of current Q400 flying is significantly greater than that of conventional turboprops at 300 sm.

It is the 360-knot cruise speed of the Q400, which is allowing operators to assign the aircraft to longer sectors. In Europe, FlyBe operates the Q400 between Birmingham and Belfast City Airport (238 sm), providing the convenience of arriving within minutes of the city centre. SAS offers Q400 service on routes such as Stockholm-Budapest (846 miles). In the U.S., Horizon Air is operating alongside mainline jets on routes such as Seattle-Boise (399 sm) and Seattle-Edmonton (558 sm). Horizon Air Q400 aircraft also compete directly with Southwest Airlines on at lease a half a dozen routes.

SAS replaced its Fokker F-28 jets with Q400 turboprops throughout Europe; Horizon has also assigned the Q400 to former F-28 routes. Austrian arrows have replaced Fokker 70 jets on lower yield sectors.

At FlyBe, a 78-seat Q400 replaced a 74-seat BAe 146 jet on the busy Birmingham-Edinburgh route. The Q400 burns about half the fuel as the jet and the flight takes only five minutes longer.

In Canada, Porter Airlines Q400 aircraft are based at Toronto City Centre Airport, just a few minutes from downtown. Porter flies Toronto-Ottawa (195 miles) in 56 minutes. The alternative is to travel to Pearson International Airport in the western suburbs, which can take an hour by road. The block time for a jet between Toronto and Ottawa is an hour. On Toronto-Montreal (312 sm) the block time for a jet and the Q400 is identical at 1:10.

Another advantage the Q400 has over other turboprops and jets is its extreme environmental friendliness, a must in today's climate-conscious world. Community noise levels are well below FAR 36 and ICAO Annex 13 Ch 3 requirements. That's because the two Pratt & Whitney Canada PW150A engines drive six-bladed propellers that turn at only 1,020 rpm at take-off, 900 rpm at maximum climb power and 850 rpm in cruise. Engine emissions are 40 per cent below the Part 34 requirement for smoke number, and 40 per cent below ICAO Annex 16 requirements for gaseous emissions.

While there is a heavy demand for Q400 aircraft, there aren't many available. Bombardier's Asset Management Group moved three in the last six months and only had one in the inventory in March 2007. The three that were moved were in the 5,000 -6,000-hour range. Lease rates for these aircraft run about \$160,000 a month on a five-year deal, while an outright sale would bring \$12,000,000 to \$12,500,000. A new Q400 lists for about \$25,000,000 in 2007 dollars.

Regional aircraft like the Q Series and the Bombardier CRJ regional jet are what have made regional airlines the power they have become today. In the U.S. in 1994, mainline carriers had 83 per cent of the traffic and regional airlines had 17 per cent; in 2005, the gap had narrowed to 63 per cent and 37 per cent respectively. Regional airlines carried 150.9 million passengers in 2005, up 100 per cent from 1995. The Regional Airline Association predicts that 241 million passengers will fly on regional airlines in 2017 and the regional aircraft fleet will grow from 2,757 aircraft in 2005 to 3,851 aircraft in the same time period.

Seating capacity of regional aircraft will continue to grow as airlines look for lower seat mile costs. The European Regions Airlines Association believes larger aircraft will result in a decrease of flights in the busy European airspace, while lightening the impact on the environment.

Bombardier recently launched its 100-seat CRJ1000 to meet this growing market, while a 90-seat derivative of the Q400 is under study.

Douglas Castle is Director of Strategic Planning and Programs for Mojave Jet Group. He may be reached at dcastle@mojavejet.com product so it meets customer expectations.

Jake learned a critical lesson about the dynamics of the workplace-that critical thought does not mean criticism, that questions are a good way to advance ideas, not a rejection of them. Above all, I think he realized that experienced people around you are more than willing to help you. They will try to see your point of view but may also challenge you to show you a different and better way to complete a task.

After all, that's what an internship should be all about. It is a time of taking your book learning and finding out how to put it into use in real situations. Even more, it is a time of growing your own skill set—learning about efficient processes, improving your time management, and practicing the art of dialogue. Jake passed with flying colors.

For The Longbow Group, the experience was as rewarding as it was for Jake. It allowed us to give back to the community, which is a key part of our business philosophy, and it exemplified a good way to ensure the ongoing vitality of our industry. Along the way, Jake's enthusiasm served as a nice reminder to everybody in the office of why we love the aviation business so much.

Jake Reppert interned with The Longbow Group from May through August of this year, and is now back at Embry-Riddle to finish out the fall semester and graduate in December. He became a dynamic and productive part of the Longbow Group and has a great future in the world of aviation ahead of him.

Would we do it again? In a heartbeat.

Richard Jake Reppert

Overall, the four months of the internship were a period of education and exponential growth for me—and in more than one way. Some lessons I had to learn the hard way. As a college student, I'm accustomed to a very structured world. In the classroom, professors hand out assignments with clear timelines and grade all work on a fixed scale on which 100% is reserved for the head of the class. Quality is absolute.

At Longbow, I quickly learned that outside of academia there are not always clear deadlines, there is no syllabus that clearly states what is expected, and that 100% is really just a good start. I came to realize that just getting my work done wasn't always enough.

In one of my classes at Embry-Riddle, for example, I once had to prepare an analysis on an aircraft. I did the work and handed it in at the very last moment possible, and since it conformed to the exact requirements the professor had asked for, I received the highest possible grade. However, to succeed outside of the classroom, you have to start looking at the demands being made of you as the absolute minimum and then make every attempt to exceed them. So at Longbow I started taking that extra step and was rewarded by subsequently getting more challenging tasks.

Another lesson I learned the hard way was how little my head-down, full-speed-ahead approach to completing tasks lends itself to the business world. Projects in the classroom are effectively static. Once the scope of work is communicated, it remains the same, and I would typically put my head down and not look up until I was done. It's like tunnel vision, which keeps you from seeing the larger picture and making necessary adjustments. My Longbow days quickly revealed the shortcomings of that approach because in that work environment the scope kept shifting, even on the smallest projects. So in order to get a task done the right way, I had to make it a habit to constantly reevaluate my work and produce an output that would address the entire scope of the project I happened to be working on.

When John Wensveen and I first talked, we agreed that I didn't necessarily need another summer of internship experience on my résumé. What I needed to help bridge the gap between academia and industry was to be put into an aviation consulting setting and have demands made of me that would be similar to those made of me when I graduate and start my career. It was the pressure that these demands put on me, coupled with the mentorship of everybody at Longbow that made this internship so unique and satisfying.

No Extra Charge For Impossible Situations.

You can't fly on automatic pilot when you're structuring aircraft financing, restructuring financial commitments, or managing aircraft on operating leases. That's why the financial and technical professionals at SkyWorks Capital and JetWorks Leasing approach each assignment with an open mind, creating a customized flight plan designed to avoid turbulence and maximize value for our clients. We have the experience, expertise and creativity to uncomplicate the complicated and make the impossible possible.



We Know No Boundaries.

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