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LEAPS AND BOUNDS

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Air Berlin



Enters New Turboprop Era

Innovative low-cost carrier Air Berlin has purchased a number of Bombardier Q400 turboprop aircraft, laying out an alternative strategy to combat higher fuel and other operating costs.

■ By Phil Johnson | *Ascend Staff*

For three decades, Air Berlin has established standards in low-cost airline service — not just in Europe, but in the many locations around the world in which the dynamic airline operates.

And today, the second-largest German-based airline (behind Lufthansa) continues its trendsetting ways. The LCC, which operates several different Airbus, Boeing and Fokker jet aircraft models, has placed firm orders and holds additional options for a number of Q400 turboprop aircraft from Canadian manufacturer Bombardier Aerospace.

During the first half of 2009, Air Berlin is scheduled to accept delivery of an initial 10 Bombardier Q400 turboprop aircraft, with options to purchase 10 more. The original 10-aircraft order is estimated to be worth approximately US\$267 million, but if the 10 options are exercised and add-on items are purchased, the value of the entire deal may eventually top US\$540 million.

In an era that's generally been dominated by jet aircraft orders from mega suppliers Boeing and Airbus as well as regional jet aircraft orders from Bombardier and Embraer, where does the newly minted turboprop popularity fit into the bigger picture? And why now, when it seemed that airlines were more or less shunning turboprops as recently as 10 to 15 years ago?

Complete answers to these questions may be somewhat more complex, but the larger sphere of reasoning really comes down to costs relating to a couple of different primary items.

First, the modern turboprop includes many features its predecessors did not, such as running quieter with less overall aircraft vibration and associated noise, resulting in greater comfort for passengers. Yet, even the immense improvements in turboprop features and capabilities have not caused turboprop price increases to inflate to the level of its jet aircraft rivals.

Furthermore, particularly in today's environment, an additional major cost factor relates directly to fuel, as in the earnest, expressed desire of every airline to save expenses whenever and wherever possible by burning less of it.

And especially due to the efficiencies that are now designed into turboprop aircraft of all shapes and sizes, the turboprop uses considerably less fuel per distance traveled than any comparably sized jet aircraft.

In fact, reliable industry estimates place today's most efficient turboprop fuel savings compared to similarly sized new, fuel-efficient jet aircraft at 30 percent.

That's the type of opportunity for significant savings that airlines such as Air Berlin desperately need to identify and, if possible, take advantage of to move for-

ward in a highly cost-conscious operational environment.

The newest turboprops accomplish this remarkable feat of fuel savings while cruising at what most industry observers view as a pretty decent speed — up to perhaps a little more than 400-nautical-miles an hour — which makes one of these modern turboprops quite viable to economically serve routes of approximately 400 to 500 nautical miles or less.

These are a few of many reasons for Air Berlin's highly strategic order of Bombardier turboprop aircraft. The Q400s are actually to be leased by Air Berlin to its partner LGW, which would then operate

the 76-seat aircraft on Air Berlin's shorter European routes and use them to replace Fokker 100 jets as they become retired.

"These quiet and comfortable turboprops will allow us to round off our fleet at the lower-capacity end," said Air Berlin Chief Executive Officer Joachim Hunold in a news release issued earlier this year. "We intend to use the Q400s mainly on short-haul flights where the passenger volume is not sufficient for us to operate jets. This should result not only in a noticeable reduction in costs, but will also allow us to make an active contribution in terms of protecting the environment, as the CO₂ emissions of the Q400 per seat are considerably lower

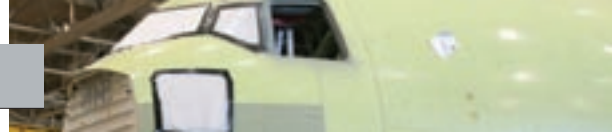


Photo courtesy of Air Berlin



Photo courtesy of Bombardier

German-based Air Berlin is scheduled to receive 10 Bombardier Q400 turboprop planes during the first half of next year with options to buy 10 more.



than those of the Fokker 100. In comparison with jets, the flying times on short-haul flights will only be very slightly longer. Since our cooperation partner LGW will be operating these aircraft for us, there will not be an increase in the complexity of our fleet, either."

Financial advantages in using the newer turboprop technology stem from efficiencies Bombardier promotes in its Q400 design. Bombardier marketing literature eagerly informs prospective airline customers that the "Q" stands for "quiet," and that the Q400 is known as "the Quiet One."

This "quietness" factor is not just due to greater efficiency in the aircraft's Pratt & Whitney state-of-the-art engines. The Q400's propellers themselves are of significantly advanced design, featuring six longer blades made of composite material, giving the plane superior lift and propulsion even while the propeller blades rotate at a slower speed than that which was commonly associated with the prop technology of earlier eras.

Bombardier has cleverly engineered the Q400 with propellers mounted farther out on the wings, thus somewhat dampening that particular noise source by the simple design of locating it farther away from passengers' ears.

Even more impressive is the manner in which Bombardier explains that it has gotten a better handle on aircraft vibration, which has been an age-old source of passenger complaints and epithets toward previous generations of turboprops — among choice, unloving passenger descriptions of the turboprop genre in general — as "eggbeaters."

No longer, says Bombardier — for the company's scientific thinkers, working closely with key suppliers, have developed a fascinating method designed to minimize vibration and its accompanying noise.

Over the years, the greatest vibration problem in turboprops, according to meticulous studies, has stemmed from the pressure pulses generated by the aircraft's spinning propellers. Those pulses would, in turn, beat a steady pattern through the air currents against the aircraft's fuselage, causing both noise and passenger discomfort from a constant hum of vibration.

On Bombardier's Q400, a uniquely designed noise-and-vibration-suppression system, or NVS, essentially cancels out the vibration and noise effects that would otherwise be felt and heard by passengers.

How? Through nuclear-age computer analysis, which takes vibration as well as propeller-speed readings in real time and converts them into signals to devices installed at strategic locations in the fuse-

lage. These devices are called active-tuned vibration absorbers, or ATVAs, and they're mounted directly on the fuselage frame.

The ATVAs essentially produce counter-vibrations of their own, which are, in this case, good vibrations. And the ATVAs' counter-vibrations effectively act to cancel out the "bad" or original vibrations, thus resulting in much less (if any) vibration and noise reaching each individual passenger, promoting overall passenger comfort.

Air Berlin joins airlines around the world including Horizon Air, Qantas Airways, Royal Jordanian Airlines, Croatia Airlines, Frontier Airlines and airBaltic in employing the latest mode of turboprops on many shorter routes on which regional jets simply cannot favorably compare in terms of operating costs.

The Q400 flies fast enough — configured, in this case, to carry 76 passengers (which represents a higher number of passengers than many of its regional-jet competitors) — and operates in a reasonable, relatively short-distance range while promising better return on investment due to significantly lower fuel usage and greater efficiencies in many other operational categories.

That seems like the kind of "sure bet" few airlines could resist making, although the appeal of comparable jet aircraft — regional or otherwise — will probably never completely go away. Study after study

during previous years and eras in the airline industry has shown that passengers simply prefer jets.

But if savings in operational costs are great enough to help minimize necessary fare increases, even the most skeptical turboprop passengers may eventually climb aboard the bandwagon that has ushered in a new generation of successful turboprops, featuring technology that rivals the latest and greatest jet aircraft engineering advances and saving significant measures of fuel as well as other operational expenditures.

"The selection of the Q400 aircraft by Air Berlin, a leading-edge and profitable LCC, is recognition of the significant cost benefit this aircraft brings to LCCs," said Steven Ridolfi, president of Bombardier Regional Aircraft. "The Q400 offers outstanding performance and economics."

Air Berlin aims to address a number of issues with its new turboprop aircraft.

"The Q400 aircraft offers the combination of passenger capacity and comfort, speed, economy of operation and environmental compatibility that we require," Hunold said. ■

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Photo courtesy of Bombardier

The addition of Bombardier Q400 turboprop aircraft into its fleet provides a blend of passenger comfort, speed, efficiency and environmental sustainability for Air Berlin.