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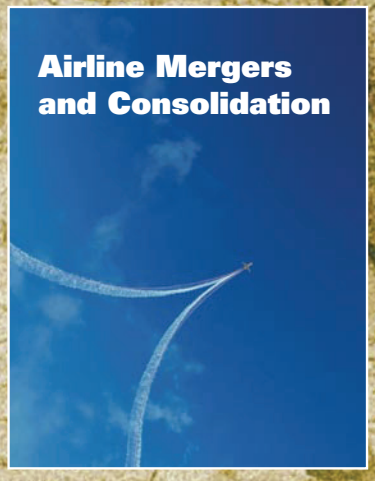
Special Section



INSIDE

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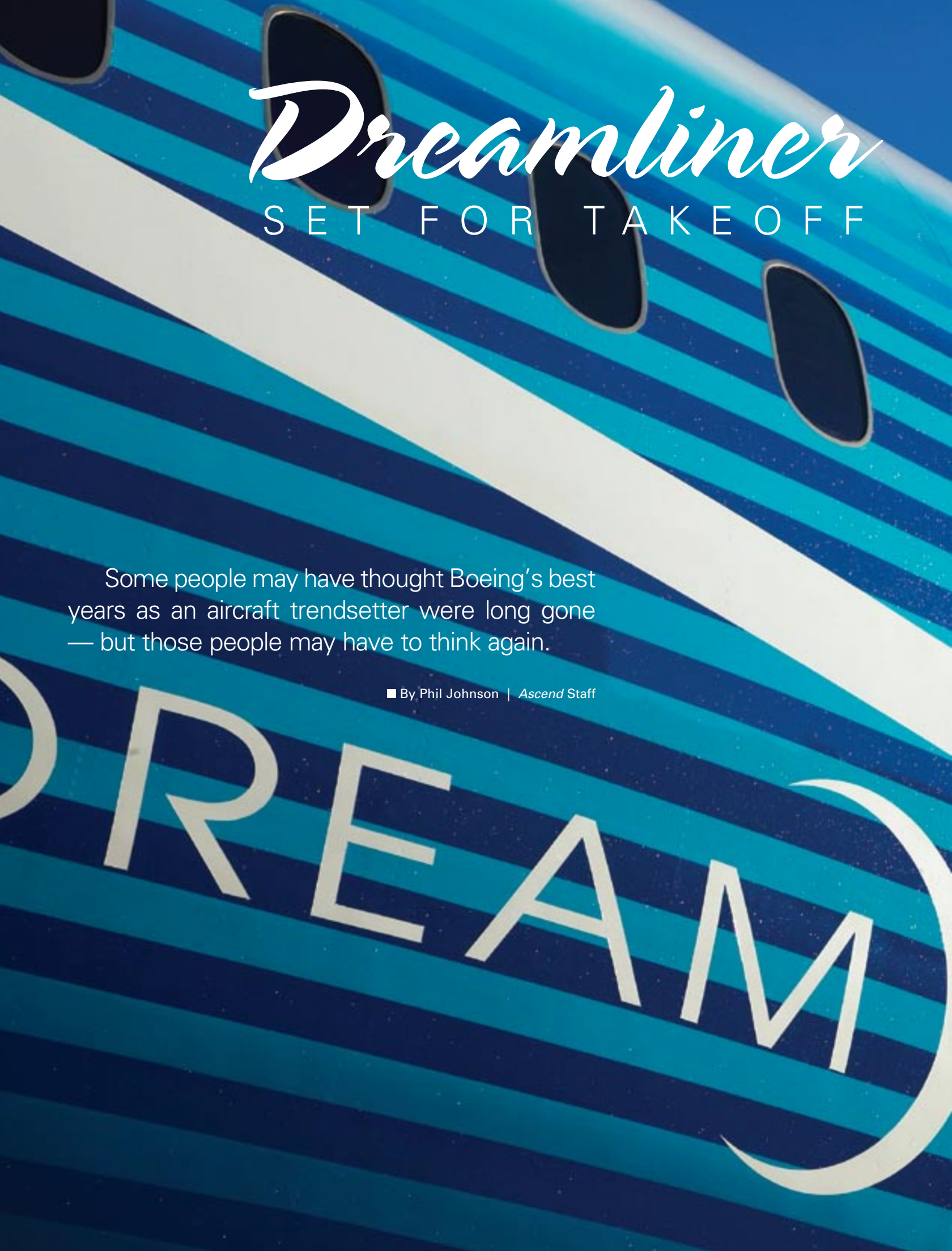
Dreamliner
SET FOR TAKEOFF

Some people may have thought Boeing's best years as an aircraft trendsetter were long gone — but those people may have to think again.

By Phil Johnson | *Ascend* Staff



All photos courtesy of Boeing

During the past several years, various aerospace analysts hinted that Boeing Co.'s most prolific era as an innovator and trailblazer in commercial aircraft may have been behind it — that the halcyon days of creativity and imagination that brought the world's airlines the Boeing 707, 747, 777 and other popular models were long past.

But if that were ever really the case, it's now time to make way for a throwback to the days of yore — because Boeing's latest and perhaps most innovative commercial aircraft creation is arriving in the form of the Boeing 787 Dreamliner. And even though Boeing won't make its first production 787 delivery until late 2008, it is taking orders for the new and unique aircraft at a pace that outdistances any sales achievements the venerable air-industry manufacturer has ever accrued (and that's saying a lot).

How did Boeing manage to gain this success when it had essentially appeared to lose most of the battles to its mega-European-consortium competitor Airbus in recent years? And is there really a collection of Boeing 787 features that are, at bottom line, all that special?

The answer to the second question is clearly yes.

And the answer to the first question might be appropriately summed up in a hypothesis revolving around the fact that Boeing refused to take its second-place status lying down — even amid a succession of sudden changes at the top as well as a corporate headquarters shift to Chicago, Illinois, from the company's long-time operational base in Seattle, Washington, where, incidentally, most of Boeing's manufacturing and many of its marketing operations remain.

What the 787 is in the process of doing for Boeing may be akin to the mythical phoenix rising from its charred remains — although it may be effectively argued that Boeing as a company never actually sank quite that far.

The Boeing 787 will be the first commercial airliner to comprise as much as 50 percent

composite materials, the significance of which may be starting to sink in for the world's airlines, including the many carriers that have already placed orders for the 787 in addition to many more airlines that are still seriously considering the aircraft.

One of the key things that composites achieve — as opposed to their primary antecedent, aluminum — is to save potentially gargantuan percentages of weight. The less an aircraft weighs, the farther it can fly on a given quantity of fuel, which affords the Boeing 787 another couple of advantages: much greater range and the promise of potentially huge savings on fuel costs.

And make no mistake: The unprecedented use of composites in the 787 does not come at the expense of strength, and meticulous engineering calculations along with direct measurements indicate to Boeing designers that the composite components are in many ways stronger than their metallic-component predecessors.

Furthermore, manufacturing operations in assembling the Boeing 787 will be much more "modular" in nature than for any previous commercial aircraft.

For example, the 787's final-assembly process that will occur in Everett, Washington, will primarily involve putting together modules (in other words, entire chunks of the aircraft) that themselves have been manufactured and assembled in a number of locations around the world, rather than building the plane piece by piece from the ground up.

Among the advantages Boeing will gain in this "modular" manufacturing approach will be the capability to build each 787 in just three days' worth of final assembly in contrast to the 10 to 14 days or more that are normally required for commercial aircraft of comparable size.

With the advent of the Boeing 787, passengers figure to be in for the air-travel ride of their lives. They will be treated to comforts and amenities they've never previously dreamed of (but that shouldn't come as a total surprise — after all, this is the "Dreamliner").

On July 8, nearly 15,000 Boeing employees, airline customers, supplier partners and government officials attended a one-hour ceremony in Everett, Washington, to celebrate the unveiling of the Boeing 787 Dreamliner.

From the largest overhead-storage bins ever designed — big enough to fit four roller-type carry-on bags in each bin — to the largest windows on a commercial aircraft, to "mood" lighting in the passenger cabin that will help ease the passage of time aboard flights to intercontinental destinations, the aircraft is set up to help each airline that flies the 787 utterly delight its passengers.

A window-seat passenger will be able to selectively dim or completely close the window by pressing a button located directly beneath the window to "feather" the amount of light the passenger desires to be streaming in from the outside.

Also, finely filtered interior air and pressurization at an altitude equivalent of 6,000 feet instead of the common 8,000 feet are intended to help passengers more easily cope with the flying experience.

Further in-flight passenger comfort is enhanced through installation of a sophisticated software/hardware-control system Boeing calls "vertical gust suppression" that will automatically adjust outside aircraft surfaces to better counteract the effects of any turbulence that may be encountered during a flight.

Environmentally speaking, the Boeing 787 is designed to be by far the quietest aircraft of its size (or even considerably smaller). From the quiet-operational efficiencies of its dual engines to its highly fuel-efficient aerodynamic and other design characteristics, the 787 is intended to be the most advanced commercial aircraft ever to take to the air.

Along with lower fuel usage, the 787 is designed specifically for lower carbon-dioxide and other potentially harmful emissions, with a lessened drag coefficient and lighter components featured throughout the aircraft.

Boeing states that crew-training procedures to achieve full competency in operating the 787 will encompass just five days beyond the normal training time for pilots and copilots to fully qualify to fly and navigate the Boeing 777.

And 787 maintenance — particularly due to the aircraft's larger composite parts, as opposed to many smaller metallic parts — promises to be simplified and streamlined and therefore less expensive.

Depending on its specific configuration, the Boeing 787 is designed to quietly and efficiently fly routes as long as 8,500 nautical miles — a distance that is expected to open up a number of new nonstop-flight possibilities among the world's most-desired destinations for mid-size commercial aircraft.

And that brings up another important quesion: Exactly where does the 787 fit among Boeing's current coterie of aircraft models?

The 787 will basically be a replacement for the comparably sized 767, which remains in production but is likely to fade from the Boeing manufacturing dossier once 787 assembly ramps up to full production.

In other words, the 787 is to be Boeing's new entry in the "mid-size," dual-aisle class of aircraft that carry about 210 to as many as 330 passengers, depending on precise aircraft configuration (the 787 will be offered in at least three and probably four or more distinctly different configurations).

Carrying a greater number of passengers than the 787 is the Boeing 747, which has achieved distinguished decades of service as the first globally successful "jumbo" jetliner, defined as capable of carrying 400-plus passengers.

Also larger than the 787 is the wide-body Boeing 777, which is designed to carry between about 300 and 370 passengers, particularly on long-haul routes.

And smaller than the 787 is Boeing's workhorse 737, the narrow-body, single-aisle

aircraft that is an old reliable fixture at a very large percentage of the world's airlines, and is variously configured to carry anywhere from about 100 to perhaps 160 or more passengers.

Among all of these aircraft models, the Boeing 787 is expected to stand out prominently as an environmentally efficient, passenger-pleasing, highly comfortable, mid-size long-haul aircraft that will connect numerous attractive worldwide destinations and become familiar to a multitude of people around the globe — perhaps more so than any previous commercial aircraft.

Airlines that have committed to orders for the Boeing 787 — and total orders have already reached more than 700 aircraft, even though first production delivery is still close to a year away — include All Nippon Airways, Qantas Airways, Virgin Atlantic, Singapore Airlines, Korean Air, Northwest Airlines, Continental Airlines, Air New Zealand and Air Canada, among a large and continually growing number of others.

Boeing, in short, expects the 787 to set a standard of excellence in all comparative aspects against which other aircraft models — its own as well as competitors' aircraft — will be measured for years to come.

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HIGHlight

With the advent of the Boeing 787, passengers figure to be in for the air-travel ride of their lives. They will be treated to comforts and amenities they've never previously dreamed of ...

Broadcast live via satellite worldwide and webcast, the event introducing the Boeing 787 Dreamliner potentially reached more than 100 million or more viewers.

The Boeing 787 is an all-new, technologically advanced and environmentally progressive airplane, scheduled to enter passenger service in 2008 with Japan's All Nippon Airways.