

# The jet that started a revolution

The first 707 leaves a rain-drenched Renton Airport on its initial flight.



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## How the Boeing 707 charted the course for commercial jet aviation

By MICHAEL LOMBARDI

It was a forbidding sky that loomed above the airport in Renton, Wash., on the afternoon of Dec. 20, 1957. The thick, dark clouds, cold wind and rain were symbolic of the adversity Boeing had to overcome as the company ushered in the era of commercial jet aviation with its brand-new 707.

Boeing's chief of flight test Tex Johnston, his co-pilot Jim Gannet and flight engineer Tom Layne sat on the drenched runway in the first production 707 checking weather reports and waiting for the chance to take the new airplane up for its first flight.

At 12:30 p.m., the decision was made

to go. But as the 707 climbed over Renton, the unpredictable weather immediately closed in around the airliner, forcing a landing at nearby Boeing Field after just seven minutes in the air. Johnston explained, "We never fly a plane under instrument conditions until it has at least 30 minutes in the air." Later that day the sky cleared enough for the crew to take the 707 up for a 71-minute flight. It was an historic day and the culmination of five years of hard work and gut-wrenching decisions.

The British had paved the way for commercial jets with the de Havilland Comet. Tragically, unforeseen structural problems led to catastrophic accidents, which grounded the Comet—and grounded any enthusiasm in the free world for the idea of the commercial jet.

With the 707, Boeing President William Allen and his leadership team had "bet the company" on a vision that the future of

commercial aviation was in jets. To counter the public nervousness about jet transports, the Boeing strategy was a combination of utilizing the pioneering Dash 80 jet transport prototype for press and customer flights, plus a well-crafted advertising campaign directed at the public—stressing the comfort and safety of jet air travel.

Boeing also was able to point to the early success of the Dash 80's first offspring—the Boeing model 717, best known as the U.S. Air Force's KC-135 Stratotanker (and not related to today's 717 jetliner). Although not a member of the 707 family, it was similar in design and performance to the 707-120.

The Boeing campaign included a film shown to airline customers titled "Operation Guillotine." The film was of a test conducted by Boeing that showed a conventional, fully pressurized airplane fuselage being pierced by two metal blades, resulting in a catastrophic failure and disinte-

gration of the structure. Next, the 707 fuselage was put to the same test; this time five blades pierced the pressurized fuselage, resulting in wisps of air escaping from the punctures—but no cracks and no structural failure.

The company's efforts successfully built up customer confidence and public expectation for the new plane and for jet travel. The world was anxiously awaiting the 707.

These expectations helped to make the terms “Boeing,” “707” and “stylish travel” synonymous. Requests poured in to Boeing for rights to use “707” for naming product lines—an example was Jantzen, which titled its 1957 swimwear line “the 707.”

The competition, however, was not sitting idle. Douglas Aircraft was the world's biggest name in commercial aviation and had a near monopoly on the business with its legendary family of “DC” prop liners. Leadership at Douglas saw the potential of the 707 and began work on its own commercial jet—the DC-8. Douglas widened the fuselage to accommodate six-abreast seating as opposed to the five-abreast of the early 707 design. Although the wing sweep of the 707 made it faster than the DC-8, Douglas countered that the DC-8 would be more stable and would have a longer range.

Customers that had been ready to buy the 707 were now ordering the DC-8. Pan Am, the launch customer for the 707, split its initial order, with 25 going to the DC-8 and only 20 to the 707; two weeks later, United Airlines ordered 30 DC-8s.

The orders were a shock to Boeing and caused a chilling sense of déjà vu because



The alpha and the omega of the 707 program: the 1954 vintage Dash 80 (left), prototype for the 707, and a 1991 vintage U.S. Navy E-6A Hermes—one of the last of 1,010 707s to be built.

of an earlier, disastrous confrontation with Douglas.

In the early 1930s Boeing had introduced the world's first modern airliner, the Model 247. The all-metal twin-engine monoplane cut travel times by nearly a third and changed commercial aviation overnight. TWA encouraged Douglas aircraft to build a competitor to the 247, and from this was born the DC-2, and ultimately, the DC-3. The DC-3 gave Douglas market dominance and practically forced Boeing out of the commercial airplane business for the next 20 years.

But Allen had started the jet race and was determined not to see it finish as a repeat of the DC-2 vs. Model 247 contest. A decision was made to widen the 707 fuselage 4 inches, 1 inch wider than the DC-8. Boeing also introduced a new version of the 707, the 707-320 Intercontinental, which had a larger wing as well as a longer fuselage and increased range. The changes were what the airline customers needed, and orders began pouring in for the 707.

Because of the design changes and need to make new tooling, the 707 would never be a big moneymaker for Boeing. But the risks taken and the decisions made set the company on the path to become the world leader in the design and production of commercial jets.

When the first 707 took to the air, those who could travel by air flew in slow, piston-powered transports, while just as many traveled by train, and most crossed the Atlantic by ship. In just two years, the 707 would help change how the world traveled—as travel by air eclipsed travel by rail and sea.

Although the future seemed uncertain at the time, looking back at the decades of outstanding success of commercial jet transportation, William Allen and the people of Boeing who ushered in the jet age with the 707 stand as visionaries. The innovative technology of jet travel has benefited our world by making safe, rapid, economical and comfortable air travel available to everyone. It's clear today that beyond those dark, threatening clouds on that December day, there was sunshine ahead. ■

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A new era approaches as the first 707, now in Pan Am livery (below), meets up with one of the legendary prop liners it would soon replace—a Boeing 377 Stratocruiser.