



Expanding into a New Generation of Jumbo Jets

With double-digit inflation, high unemployment, an oil embargo and energy crisis, the early years of the 1970s dealt a wicked blow to Boeing and the aerospace industry. Orders for jumbo jets dwindled and Boeing witnessed its workforce plummet from 100,800 employees in 1967 to nearly 38,700 in 1971.

It was perseverance and ingenuity through those turbulent economic times, however, that enabled Boeing to soar into the 1980s. As airlines looked for more fuel efficient jets, Boeing responded in the mid-1970s by designing two new jets, the 757 and twin-aisle 767.

While the 757 would be assembled in its Renton, Washington plant, Boeing chose its Everett 747 factory to be the home of the innovative 767. Although the Everett, Washington facility boasted the largest usable space building in the world — at more than 205,600,000 cubic square



feet — it needed to grow to support the 767's assembly.

Boeing's 747s had been rolling out of the plant since 1968, but the era was beckoning a new wide-body commercial airliner that featured the advantages of fuel efficiency and digital avionics. United was the first airline to purchase the 767 — with a \$1 billion order for 30 jets in mid-July, 1978.

The Austin Company — Boeing's longtime design and construction partner — was selected to expand the Everett factory — a 43-acre site that it had built over a two-year period in the late 1960s. With its process of single-responsibility design and construction, Austin set out in 1979 to increase the facility's footprint by 45% — to more than 63 acres. The factory volume would increase to more than 298,000,000 cubic feet.

Austin's engineers and architects understood the complexity of assembling

jumbo jets; just 10 years earlier they had established two assembly lines that stretched over 43 acres and utilized overhead cranes to build Boeing's 747. More than six million components were required to manufacture a 747, while the 767 would need three million parts supplied by 1,300 vendors.

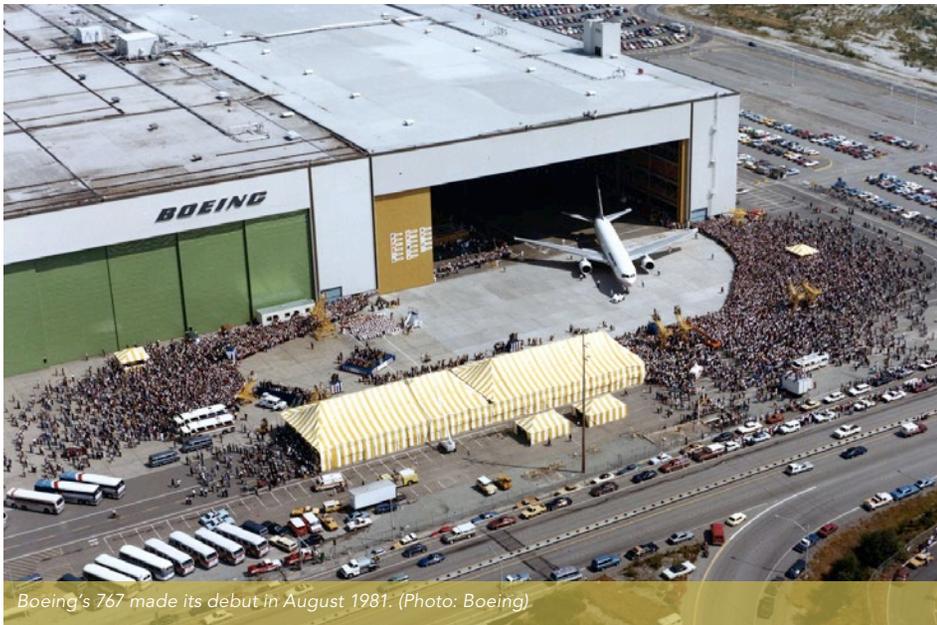
Jim Peterson was Austin's Construction Manager for the 767 expansion project. "Boeing had a firm date to deliver the first 767, so we set a schedule to meet that deadline," he explains. Peterson said there were about 500 employees assigned to the project.

"It was a 2-1/2-year project, which is a very fast timeframe for that square footage," he adds. "We were working on one extension that was 1,000 feet long, and then another extension that was 600 feet."

Using Austin's long-successful method of combining design, engineering

The 767 series includes passenger planes, freighter, and military aerial tanker.





Boeing's 767 made its debut in August 1981. (Photo: Boeing)

and construction, the expansion began with the building that housed the Gemcor machine. Peterson explains that with the tight deadline to get the first 767 produced, it was essential to erect that building first.

"The Gemcor machine is an automatic riveting machine and Boeing uses it to apply the rivets to the plane's wings," he says. "The riveting process is really long, so it was important to complete that building right away."

For this expansion project, not only would Austin need to build a third assembly line, but Boeing also needed state-of-the-art technology to allow for accurate parts distribution. Computerized systems were installed to track components and move them quickly and

efficiently throughout the plant — from the point where they were unloaded to their final destination along the assembly line. A network of mammoth cranes is used throughout the facility, moving plane sections along the gigantic production areas.

Seven workstations were used in the assembly process, and every four days, partially-completed 767s were moved from one workstation to the next using the overhead cranes.

"Boeing can move plane parts and sections throughout the facility without any of the parts touching the floor," Peterson explains.

Austin president Mike Pierce says, "Designing and constructing aerospace facilities is in our DNA. We've been

building factories for the aviation industry since 1916." The Company has a proud 100-year history in the aerospace industry and Pierce says Austin architects, engineers and constructors bring deep knowledge and experience to every assignment.

Completed in 1978, Boeing's 767 plant began producing the new jumbo jet, rolling out its first plane in August, 1981. By that time, Boeing had received 173 orders from 17 customers, including airlines like United and Delta.

Quick Facts: Boeing 767

- Large-size, long-range wide body twin-engine jet liner
- Can carry 218 passengers
- Range is 6,890 miles
- Production began in 1979 and continues today in these variants:
 - 767-300F (Freighter)
 - Boeing 767-300ER (Extended Range)
 - KC-46 Pegasus (military aerial refueling and strategic military transport jet)



More than 3 million components are needed to build a 767. State of the art technology was used to track and distribute the components throughout Boeing's Everett facility. (photo: Airwaysnews.com)

Rocking the Aerospace Industry

While the popularity of jumbo jets in the 1970s was music to the ears of those in the aerospace industry, the planes also helped some musicians soar to the top of the charts. Lyrics focused on the jets became hits for rock, pop and folk artists including The Beatles, Peter, Paul & Mary, Elton John, Steve Miller and Paul McCartney. Here are a few highlights of that era:

Back in the U.S.S.R

The Beatles (1968)

The song opens and closes with the sounds of a jet landing — and refers to a British Overseas Airways Corp. flight from Miami Beach to the U.S.S.R.

Leaving on a Jet Plane

Peter, Paul & Mary (1969)

The hit was written by John Denver and was originally titled *Oh Babe I Hate to Go*. A producer encouraged Denver to change to the title to *Leaving on a Jet Plane* and the song has been used in numerous TV and movie scores.

Jet Airliner

Steve Miller Band (1977)

The hit climbed to #8 on the U.S. Billboard chart and became a rock classic.

Bennie & The Jets

Elton John (1973)

The song hit the airwaves in late 1973 and went to be certified Gold in April 1974.

Jet

Paul McCartney & Wings (1973)

The ex-Beatle wrote the song about a favorite black Lab, named "Jet".

Midnight Train to Georgia

Gladys Knight & The Pips (1973)

The song was originally titled *Midnight Flight to Houston*, but was rewritten to have an R&B appeal for Gladys Knight and the Pips.

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