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We need to harness, apply power of CQI

You can't read the newspaper or watch the evening news these days without learning that yet another company has suffered financial losses. It seems every industry is suffering through the pain of cutting operations, closing plants and the laying off of employees.

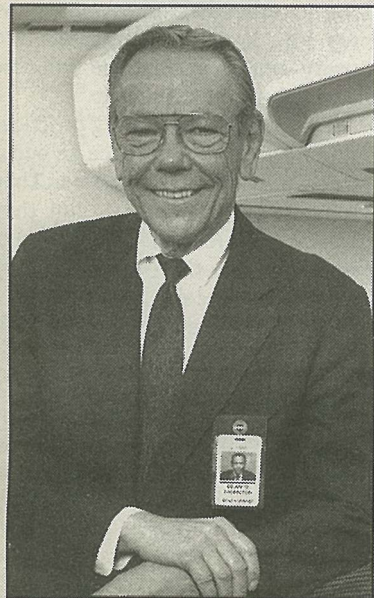
The airline industry is in the midst of its worst economic downturn ever, losing more than \$7 billion during the last several years. This is more than U.S. airlines have made since the beginning of commercial aviation. Delta Air Lines, one of the industry's strongest carriers, has lost nearly \$800 million since 1990. American Airlines has just announced more heavy losses. And Alaska Airlines is facing its first loss in 20 years. They are not alone.

Airlines everywhere are cutting costs just to survive. Some airlines are merging operations with other carriers to strengthen their market position. Others are retrenching to provide more focused service. Some are in bankruptcy; still others have gone out of business. The painful result has been the elimination of some 300,000 airline industry jobs during the past couple of years.

How do the airlines' financial troubles affect us? It's simple: when airlines make money they buy airplanes. When they lose money they not only don't order new airplanes, they reconsider spending the money they committed for planes when times were good. United Airlines, American, Delta, Alaska and others, all have cut their capital spending plans. Like others, they have less money to spend on new airplanes. Instead, they are keeping old airplanes longer or seeking alternative financing arrangements to buy planes at less financial exposure to themselves. The recent lease of 50 A320s by United from Airbus is an example of this. And it probably won't be the last.

Earlier this year we announced a cutback on 737 production to 14 planes a month from a planned rate of 21 a month. Last week

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DEAN THORNTON

Space station tests show joining system can handle the job

Boeing Defense & Space Group engineers have successfully completed a series of Space Station Freedom hardware tests showing how space station components will be joined in space.

Boeing is NASA's prime contractor for the core of the space station — its living, laboratory and logistics modules, connecting nodes and selected on-board systems.

Structural tests on the pressurized module and node articles began in March of this year at NASA's Marshall Space Flight Center. In the tests, forces applied to the module simulated docking and other on-orbit activities to demonstrate that the berthing system design could withstand the rigors of space.

With the testing complete, now more critical testing of the space station hardware has begun. As Conrad Ball, Boeing test conductor put it, "Now we are going into the core of the test program, simulated

berthing."

In the berthing tests, the 13,000-pound module will be suspended in a unique system that simulates microgravity. While it is floating in simulated space, the berthing mechanism will reach out and capture the module. Boeing tests on the capture latches also have recently been completed, verifying they work as designed.

"We plan to demonstrate the ability of the berthing system to capture the module within the design range," Ball said. "We also will verify how well the pressure seal forms at the joint."

During the tests, engineers also will investigate how extreme temperatures, like those the space station will experience, will affect the system.

Following the simulated berthing tests, further structural tests will be conducted on the separated components. The testing will be completed in early December. ■

Boeing-built Chinook helps free fragile fossil

by Doug Webb

Boeing Defense & Space Group
Helicopters Division

Pilot Ron Noga, Chief Warrant Officer 4, maneuvered the Boeing CH-47D helicopter into a hovering position 125 feet above a 12-foot excavation pit in southern Colorado. On the ground, Sgt. Jeff Floyd stood atop the plaster-encased cargo and grabbed the dangling 100-foot sling. Quickly he secured a harness around the precious payload — a 140-million-year-old stegosaurus skeleton.

Moments later, the 6 1/2-ton dinosaur was lifted from its rocky, prehistoric grave and transported over a high ridge, across a meadow, then lowered safely on a flatbed truck a mile away.

"We had only one shot at it," said Warrant Officer and mission coordinator Robert Wilson. "We had to be extremely careful coming out of the excavation pit. The tail of the dinosaur was against the east wall and a wrong turn might have destroyed both sections of the fossil. We had to move slowly, this was the most fragile thing we've ever lifted."

The 25-foot stegosaurus skeleton was uncovered in June by Bryan Small, a paleontologist for the Denver Museum of Natural History. Since it was 80-percent intact with the skull still attached, it was considered by experts to be a major find. This is only the second stegosaurus skull ever discovered.

"Generally, we'd be happy to find an isolated limb bone or a tail, but to find a complete stegosaurus is very rare," Small told members of the Colorado media.

Normally, a road would have been constructed to the site and a giant crane used to remove the remains; however, an unseasonably wet sum-

mer dampened any plans for a traditional recovery. Muddy conditions prevented trucks from getting near the site. One truck attempted but failed and remained axle-deep in mire for days.

For six weeks, scientists and volunteers battled the rainy weather as they struggled to remove the fossil.

Fighting the pouring rain, quarrymen used jackhammers to tunnel under the fossil, then timbers and steel were wedged under the skeleton from a pallet. Water collected continuously in the pit and posed a danger of destroying the

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This Boeing-built CH-47D helicopter successfully hauled a 140-million-year-old stegosaurus skeleton from its grave site in southern Colorado.



Commuting with Lee Iacocca

Learning Centers use celebrity tapes to teach

by Rosanne Makinen
Boeing Support Services

Hobnobbing with celebrities is becoming popular with Boeing employees.

Lee Iacocca, Tom Peters and Ted Koppel are among the celebrities who have been commuting to work with Boeing employees and visiting with them at home.

The arrangements are made possible through Boeing Learning Centers. The centers, located at 30 sites

companywide, have a combined inventory of more than 3,000 courses on media such as audiocassette or videotape for employees to study at their convenience.

Subjects range from job-related skills to personal growth and self-help. Computer skills, ergonomics, electronics, quality improvement and managing personal growth are some of the many topics available at Boeing Learning Centers.

Football coach Lou Holtz teaches how to manage people, Bill Cosby explains the nature of prejudice, and Teddy Roosevelt's speeches dem-

onstrate how to make a powerful oral presentation.

Dennis Harlan, a NASA laboratory support technician with Boeing Defense & Space Group in Huntsville, studied the "How To Deal With Difficult People" video "because I heard it was about hard-to-get-along-with people like me. It really opened up my eyes. I feel I've changed for the better in the past six to eight months because of what I learned in the video."

April McGuire, Vienna Learning

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Thai Airways executives tour 777 interior mockup

Executives from Thai Airways International visited the 777 Division recently for a review of the airplane's interior mockup, at Renton, Wash. Seated from left are Thai executives Chatrachai Bunya-Ananta, executive vice president of business and commercial, and Capt. Jothin Pamon-Montri, senior vice president of support services. The two Thai officials were hosted by, standing from left, Phil Condit, then Boeing Commercial Airplane Group execu-

tive vice president and 777 Division general manager, and now Boeing president; Larry Dickenson, vice president International Sales - Asia/Pacific; and, right, Dean Thornton, president of Boeing Commercial Airplane Group. Thai Airways has ordered eight Boeing 777s and placed options on six more. The first Thai 777 is to be delivered in early 1996.

— photo by Greg Thon

'Their gain is our loss'

THORNTON

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we announced that we'll be building fewer 757's beginning this time next year. These actions are brutal reminders of just how linked we are to the business health of our customers.

The harsh reality in the economic world ahead is that companies must deliver higher quality products and services at lower cost if they are to win business. This is true whether you are an airline selling seats to the traveling public, a parts supplier trying to qualify for an approved supplier list, or a manufacturer trying to sell airplanes to extremely cost-conscious airlines. Customers are simply demanding greater value for each dollar they spend. They can't afford anything less.

The cold facts for Boeing are evident in what our customers are telling us. Airlines say:

- They can't afford to buy new airplanes at the prices we're asking.
- They want higher quality but simpler airplanes with lower operating and capital costs.
- They want airplanes that are service-ready at delivery and work every time.
- They want better service.

This may seem like a tall order. But it's the minimum requirement for manufacturers to win business in the future.

Our challenge is to hear what our customers are saying and translate their expectations into actions that produce airplanes that work every time at prices they can afford. Because if we don't, Airbus will. And every airplane that Airbus delivers is one plane we won't build. Their gain is our loss. Period.

OBJECTIVE:

Continuous improvement in quality of products and processes.

Our long-term strategy for maintaining market leadership rests on us delivering greater value to the airlines than our competitors deliver. This means we must offer the right combination of product performance, quality, service, schedule and cost that meets our customers' needs. In the past, we've been very successful at doing that; our backlog reflects this. But what's most important is that we continue doing it. Better than ever, and better than anyone else.

What we do today sets the stage for our future. The airplanes we're building now are from orders won three, four or five years ago. The orders we win today will determine how full our production lines are in the years ahead. And to win orders today, we must offer our customers superior value.

As I think about what each of us can do, one fact is clear: the combined effect of improving our daily work makes the difference. Each of us adds value to our products by improving our processes for doing work. Continuous quality improvement is doing our jobs better today than yesterday, and even better tomorrow. It adds up to building and selling higher quality airplanes at a price that represents value for our customers.

We've made a substantial investment in CQI education and training during the last several years. Employees throughout the company have learned about the CQI improvement tools and how to use them to improve our processes. If we can harness the power of everyone applying CQI to their daily work we will substantially strengthen our competitive position in an environment where our customers want more value at less cost.

All of us, you and me, are responsible for adding value to the airplanes and services our customers buy from us. CQI — the method by which we run our business — will result in us building and selling higher quality airplanes at a price that represents value for our customers.

We must not lose sight of the fact that airlines have a choice between Boeing airplanes and those built by our competitors. The value decision they make is affected by what we do every day.

Dinosaur effort 'takes the cake'

DINOSAUR

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exposed fossil. Bailing water became a routine occurrence.

When Army officials at nearby Fort Carson heard of the dilemma, they offered the assistance of the A Company, 2/158 Aviation Regiment's CH-47D Chinook.

"Our presence is well-known in the community," Wilson said. "We're involved in a number of activities such as search and rescue missions, and spotting and fighting forest fires. It's not uncommon for us to be included in various projects throughout this vicinity."

Preplanning was a key element and, according to Wilson, cooperation between the Army, the Denver Museum of Natural History, the Garden Park Paleontology Society, the Bureau of Land Management

and the Colorado Quarry Co. was essential.

"A Chinook is probably the only aircraft that could have accomplished this mission," Wilson said. "Higher altitudes and temperatures directly impact the performance of an aircraft. So, under these conditions a tandem-rotor aircraft was necessary."

Recalling past missions, Noga said that during the Persian Gulf war this Chinook crew had ferried ammunition and fuel, on another occasion it had rescued a disabled fuel tanker, and recently it had recovered a drug smuggler's plane from a beach in El Salvador.

"This is by far the most unusual assignment we've ever had," Noga said. "We've hauled a lot of stuff, but this takes the cake."

A plant-eating reptile, the stegosaurus had a small head, a row of plates along its back and four spikes at the end of its tail. It walked on

four legs and stood about 6 to 8 feet in height at the hip.

Paleontologists believe the stegosaurus collapsed in a pond about 140 to 150 million years ago. Before it could be consumed by predators, the stream overflowed and the stegosaurus was covered with mud. The dinosaur remained intact throughout massive land shifts and the creation of the Rocky Mountains.

The dinosaur's final resting place eventually will be in a \$23 million visitors center planned for construction in Garden Park, Colo. The stegosaurus will be displayed as it was found, lying on its side with its head twisted.

"The mission was treated as a high priority," Wilson said. "We all knew the value of this find, and we were committed to a successful completion. We're here for the community and proud that we were a part of this effort." ■

First-built and last-delivered: two 707s meet on the tarmac

The U.S. Navy has just received the last of 16 E-6A communications aircraft, far right, under a production contract with Boeing Defense & Space Group. On Wednesday, the Navy flew the aircraft to Patuxent River Naval Air Station in Maryland. The E-6 airplanes serve as the air-borne communications system for the Navy's ballistic missile submarine force in the Pacific and Atlantic. This aircraft is the last 707 aircraft to be delivered by The Boeing Company. When the 707 production line closed in 1991, Boeing had sold more than 1,000 707s of all types — commercial and military models. Next to the E-6 airplane is the first 707 — the Boeing 707 prototype known as the "Dash 80." First flown in 1954, the Dash 80 was a flying test laboratory until 1972, when it was turned over to the Smithsonian Air and Space Museum. In 1990, the Dash 80 returned to Boeing Field in Seattle for full restoration.

