

“WE HAVE GLASS WALLS AND CAN WATCH OUR CHINOOKS FLY!”

— BRETT MACKRELL, FINAL ASSEMBLY SUPERVISOR AND 26-YEAR VETERAN OF CH-47 PRODUCTION

ROTARY CLUB

Boeing’s historic Chinook plant gets a makeover as production ramps up to meet growing demand

BY TOM MARINUCCI AND PHOTOS BY BOB FERGUSON AND FRED TROILO

In another time, when railroads rather than airplanes carried most people across the country, steam locomotives were built here. Today, the historic but now modern factory near Philadelphia is home to production of the latest models of Boeing’s workhorse CH-47 Chinook military helicopter.

New glass walls let natural light flood in and allow employees on the assembly line to look out toward the flight ramp and the Delaware River in the distance. From that flight ramp, Chinooks are tested before being delivered around the world to customers—and to U.S. warfighters.

“We look for every opportunity to build it better,” said employee involvement team leader and aircraft technician Douglas Hittle, who has been on the Chinook line for three years.

Indeed. Hittle and his Boeing teammates, who number more than 600 on three shifts, are building the twin-rotor, 60-foot-long (18-meter-long) Chinook better than ever at the Boeing plant in Ridley Township, a few miles west of the Philadelphia

International Airport. And building more of them, too.

Production rates are going up to meet increased domestic and international demand for the heavy-lift Chinook. Factory processes, streamlined through Lean+ activities, have helped make the Chinook assembly line so efficient that teams from other Boeing business units have come calling to see what’s happening. Employees have come up with innovative ways to save time—and money. And Boeing is investing more than \$130 million on factory and other site improvements. This includes refurbishing the flight ramp, according to Leanne Caret, vice president, H-47 Programs.

The Chinook is Boeing’s longest-running aircraft program in continuous production, and it has outlasted every commercial jetliner model and even the B-52 bomber.

A new line to produce the CH-47F model for the U.S. Army became operational in late May. It has room for up to 11 assembly positions rather than eight on the old line. An alternate line for



PHOTOS: (Top) New glass walls allow natural light into the renovated Chinook factory as Jason Willmot works inside the cockpit of a CH-47. (Employee insets, from left) The Chinook manufacturing team includes Hugo Deshagette and Jerry Cook.

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production of Chinooks for international customers is expected to be ready by the end of the year.

“In addition to the excitement over the new line and improved conditions, there is a real sense of pride for the work we do,” said Paul Bruno, a final assembly supervisor on second-shift positions where the Chinook is fitted with wiring and hydraulic lines.

That message is not lost on the military customer.

“The Chinook provides a lifeline to our soldiers,” Lt. Gen. William Phillips, principal deputy to the assistant secretary of the Army for Acquisitions, Logistics and Technology, told employees during the delivery ceremony a year ago for the 100th CH-47F.

“There are soldiers who are alive today because of the dedication of this team,” he said.

Boeing teams have been building Chinooks at the plant since 1966 after the land was purchased by Boeing-Vertol. The factory dated back to 1929, when it was built for General Steel Casting Corp., which made its reputation building steam locomotives

for the Pennsylvania Railroad and many others in the United States and overseas.

At peak production during the Vietnam War, Boeing produced one Chinook and one smaller CH-46 Sea Knight twin-rotor helicopter per day at the plant. The facility has been in continuous production of Chinooks since Boeing took it over.

Through the 1970s, earlier models were upgraded and international aircraft were produced. With 50 deliveries scheduled this year, the production rate is the highest in more than 20 years.

In addition to Chinooks, Boeing employees at the Ridley Township site produce fuselage assemblies for the Bell-Boeing V-22 Osprey tilt-rotor aircraft, though that work is in a different building.

Tooling and production processes were continuously improved over the years, but the Chinook building was largely



PHOTOS: (Top) A CH-47 Chinook moving down the newly opened production line. **(Employee insets, from left)** Chinook team members include Walter Brown and Douglas Hittle.

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unchanged from when it was used to build locomotives. Railroad tracks were still embedded in the floor.

The aim of the renovation project is a state-of-the-art facility that fully supports the increasing demand for Chinooks. The improvements have already increased production rate from three to five aircraft per month, and when complete, the factory production rate will climb to six aircraft each month. Major improvements will be completed by the end of this year. All phases of the project are scheduled to be finished by 2014, added Caret.

The Chinook facility will have a modern climate-control system and will be Boeing's first factory certified Leadership in Energy and Environmental Design, or LEED, an internationally recognized environmental building certification system.

Factory workers praise the renovation results so far, especially the views through the wall of windows.

“For a view, we used to walk out to the end of the factory

to what we called the ‘concrete beach,’” said Brett Mackrell, final assembly supervisor and 26-year veteran of CH-47 production. “Not anymore. We have glass walls and can watch our Chinooks fly!”

Almost 20 countries operate a worldwide fleet of more than 470 Chinooks. The first international version of the CH-47F for the Netherlands is in flight testing. The first of 15 Chinooks for Canada will enter production this summer, followed by Chinooks for Italy. The program is midway through the first multiyear contract award for nearly 200 Chinooks for the U.S. Army.

“This awesome team delivered critical aircraft ahead of schedule to the U.S. Army during this major renovation,” Caret said.

Employee teams continue to find innovative ways to save time and further speed production. Working with the parts warehouse, for example, teams revised the way aircraft wiring harnesses were delivered to the factory floor. Assemblers would



PHOTOS: (Top) Doris Zappacosta performs tasks inside the fuselage of a Chinook. **(Employee insets, from left)** Alex Valentino; Frank Gallucci, left, and Eugene Brockbrough; Don Martin; and John Lent, left, and Anthony Notte.



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typically search through a pallet of boxes for each harness. Now, each harness is delivered in open part trays in sequence for installation, which has greatly simplified the process.

“We knew how to improve,” said Frank Stricker, a final assembly lead with 26 years on the Chinook line. He noted the significant improvements in workflow achieved by increasing the readiness of parts. An automated schedule means parts arrive in a timely manner and keep pace with the team’s rate.

Hittle, the aircraft technician, leads the employee involvement team for the tube shop, which produces the hydraulic lines and fuel lines where the fuel cells are assembled. His team created a tracking system so workers can now account for caps removed from tubing during installation and eliminate the possibility of pieces being left behind as foreign object debris, or FOD. In addition, employees went one step further and added recycle bins for the used caps.

Tim Barrett, a six-year Chinook veteran, works the first

shift. His team has been recognized twice as Foreign Object Debris Prevention Team of the Month. By implementing an audit system for tools, and accounting for every tool in every tray, the team’s efforts resulted in a 70 percent reduction in FOD over the past year.

“All of us have the unique privilege of touching every Chinook that flies off the flight ramp and into the hands of our Army customer,” Barrett said. “That in itself inspires everyone to build it better every day.” ■

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PHOTOS: (Top) Expansive new factory windows silhouette a CH-47 Chinook under construction inside the Ridley Township factory near Philadelphia. **(Employee insets, from left)** Janko Padron-Cueto, Ralph Highley Jr., Rich Fetterolf and Rich Burns.