

People helping people

Employees' ergonomic ideas boost efficiency and safety—and win awards

By DAN IVANIS

Sure, it's nice to receive recognition in a national competition. But two employee teams in Everett, Wash., are even more excited to be able to be making a difference in safety and efficiency for their team members and co-workers.

Earlier this year at the internationally recognized Ergo Cup competition, sponsored by the Ergonomics Center for North Carolina and presented by the Institute of Industrial Engineers, a team from the Interiors Responsibility Center (IRC) won the innovation excellence award for its improvements to the stow-bin-assembly moving line. In addition, a team from 767 final assembly won the cost-savings-excellence award for its monitor lift stand.

HEIGHT OF INNOVATION

The award to the IRC team recognized a “continuous improvement” modification to the moving line, which had already increased efficiency significantly and reduced safety concerns and floor-space requirements.

“The moving line had taken care of a lot of equipment-lifting issues we had with the

old process,” said Sherrill Tooley, a Technical Fellow in Ergonomics assigned to the IRC. “But, there is a 13-inch (33-centimeter) gap between our shortest and tallest mechanics, so some had to bend way over to do their work, and others had to reach over their heads to do theirs.”

K.C. White, a machinist who has since moved into management, and Geno DeBortole, an IRC tool fabricator, took on the problem. Pooling their experience and knowledge, they designed a bin carriage that easily adjusts to the height of the mechanic, eliminating a majority of reaching and bending.

“Because it was a moving production line, we couldn't use pneumatics, and we couldn't use electricity” for power, White said. “We had to make it completely manual and simple.”

After fabricating a couple of prototypes, they conferred with other machinists to finalize details and gain their input and approval. The final product not only adjusts vertically but also shifts slightly horizontally at the same time for easier access.

“We built the bin carriages in the shop here at the IRC and had the whole thing integrated in about a week,” DeBortole said. “We made these for the 787 line, but we were careful to design them so other lines can be retrofitted” without making major changes.

Ken Redfield, a 767 final assembly interiors mechanic, installs an overhead monitor while using an award-winning, ergonomically friendly cart developed by Boeing employees.

WILL WANTZ PHOTO

More importantly, the modifications allow IRC teammates to work more safely and efficiently. The height adjustment reduced the risk rating from high to low for bending (for tall employees) and reaching overhead and above shoulder (for shorter employees) in the Boeing Enterprise Ergonomics System, which identifies and mitigates ergonomics risk factors.

“When you are not pushing your body to the limit, you can work to a level that is comfortable and maintain that level through the day,” White said. “This will allow mechanics to do that. This project is the result of the ergonomic passion that we have here at the IRC.”

SPARING THAT SORE FEELING

The monitor lift idea was born of a similar situation. The old process forced mechanics to work in pairs while on ladders—one holding a 20-pound (9-kilogram) monitor in place against the ceiling of an airplane while the other mechanic completed wiring and bolting. The 30-pound (14-kilogram) ladders restricted access in the airplane and had to be carried from station to station, which increased the risk of damage to seats and walls.



Despite their height difference, Interiors Responsibility Center machinists Michelle Hawkins (left) and Bob Sampson both can work comfortably, thanks to an ergonomic innovation by Boeing employees.

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– K.C. White, Boeing employee

“I knew I’d be sore for a few days after installing monitors,” said Ken Redfield, a 767 mechanic and one of the team members, about the old process.

The team’s solution is both practical and elegant. A metal stand includes a padded stair-step area for mechanics to kneel on while working, a platform to hold tools, and an articulating top shaft that holds the monitor in place so it can be adjusted with one hand. The stand was designed to move laterally across rows of airplane seats, which increases accessibility and allows mechanics to maneuver easily from one aisle to the other. The team added “hospital wheels” (encased in hard rubber) to minimize the potential for scrape damage to airplane interiors.

In addition, the stand also accomplished the team’s primary goal: relieving mechanics’

pain from overhead reaching, neck and shoulder extension and extended lifting of heavy monitors. The new process reduced the risk from high to none, according to the Boeing Enterprise Ergonomics System.

The monitor lift stand, which can be used on all models, has been an instant success. The Everett flight line has put in an order for 20.

“This is all about the power of teaming,” said DeeDee Kouthong, a team member and 767 program safety leader. “Getting the right people together to come up with a solution that will stick—that’s why this is so powerful. They are using it.”

In addition to their replication across Commercial Airplanes, effective solutions like these are being shared across the company to drive continued ergonomics improvements. ■

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