Proceedings of the 8th Annual World Conference
of the Society for Industrial and Systems Engineering,
Baltimore, MD, USA
October 17-18, 2019

Case Study of an Ergonomic Assessment for Aircraft Hull Assembly

I. McCandliss[1], L. McCullerses[1], A. Stets[1], and A. Subramanian[2]

[1]George Mason University,
Fairfax, VA, USA

[2]JFAssociates, Inc.,
Vienna, VA, USA

Corresponding author's Email: mccandlissian@gmail.com

Author Note: Mr. Ian McCandliss, Mr. Andrew Stets and Ms. Lanita Mcullerses have each obtained their Masters degree in Human Factors from George Mason University. Anand Subramanian is a Principal at JFAssociates with a Doctoral degree in Industrial Engineering from the University of Cincinnati.

Abstract: This was a case study performed as part of an effort to analyze potential physiological risks to workers operating on one stage of the aircraft hull assembly process. Video footage of two workers engaging in part of this task was utilized. An ergonomic assessment was conducted in line with a proprietary ergonomic assessment tool to establish the potential level of risk associated with the postures required to complete the task. Major findings from this assessment showed that shoulders, neck, upper arms, wrists, grip, and the back were at the highest risk for injury. Additionally, the lower hips, lower arm, and lower extremities were at moderate risk for pain and injury. In addition to the risk posed by the postures, the workplace layout simultaneously allowed the workers to perform the task while also resulting in unstable positions that presented a risk of fall. Based upon these findings several possible solutions were considered which may reduce the risk of incidence or injury.

Keywords: Ergonomic Evaluation, Case Study, Aviation Assembly