Evaluasi desain pesawat perintis dengan analisis ergonomi dalam virtual environment berdasarkan aktivitas egress darurat pilot Indonesia = Evaluation design of stol short takeoff and landing utility aircraft with ergonomic analysis in virtual environment based on activities egress emergency by Indonesian pilots

Anselma Basuki,author

Abstrak

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Penelitian ini mengkaji aspek ergonomis desain pesawat perintis berpenumpang 19 berdasarkan aktivitas egress darurat pilot untuk menghasilkan rekomendasi desain pesawat perintis ergonomis yang mendukung aktivitas egress darurat pilot. Dihasilkan usulan konfigurasi dari pintu darurat, handle di bagian kokpit, serta foot step di bagian kokpit dan di bawah pintu darurat yang akan dianalisis. Pendekatan metode yang digunakan adalah metode digital human modelling dengan sistem penilaian PEI yang mengintegrasikan tiga metode yaitu Low Back Analysis, Ovako Working Posture Analysis System, dan Rapid Upper Limb Assessment. Hasil penelitian ini yaitu usulan konfigurasi desain pintu darurat dengan tinggi 85.24 cm dan lebar 46.64 cm; konfigurasi foot step di bawah pintu darurat dengan ukuran panjang 26.6 cm, lebar 20 cm dan tinggi 10 cm; konfigurasi foot step di bagian luar badan kokpit berukuran panjang 10 cm dan lebar 22 cm; serta didapatkan juga hasil konfigurasi handle terbaik dari sisi ergonomi dengan ukuran tinggi 20 cm dan panjang 10 cm.
ABSTRACT
This research studies the ergonomics aspect 19-Passenger STOL (Short Takeoff and Landing) Utility Aircraft based on activities egress emergency pilot to get the recommendation of an ergonomic aircraft design that supports activities egress emergency pilot according to the Posture Evaluation Index (PEI) result. Researcher proposed configuration tools from emergency exit door, handle in the cockpit, foot step in the cockpit and below the emergency exit door to be analyzed, where the configuration of this tool is able to assist the pilot emergency egress. Posture Evaluation Index (PEI) was an approach that integrated the results of these three analysis methods Lowback Analysis, Ovako Working Posture Analysis System, and Rapid Upper Limb Assessment. This research has some results, they are a configuration of emergency exit door with a height of 85.24 cm and wide of 46.64 cm; a configuration of foot step under the emergency exit door with a length of 26.6 cm, a width of 20 cm and a height of 10 cm; a configuration of foot step outside the cockpit with a length of 10 cm and a width of 22 cm; and also obtained the best results for a configuration of an ergonomic handle is 20 cm in height and a length is 10 cm., This research studies the ergonomics aspect 19-Passenger STOL (Short Takeoff and Landing) Utility Aircraft based on activities egress emergency pilot to get the recommendation of an ergonomic aircraft design that supports activities egress emergency pilot according to the Posture Evaluation Index (PEI) result. Researcher proposed configuration tools from emergency exit door, handle in the cockpit, foot step in the cockpit and below the emergency exit door to be analyzed, where the configuration of this tool is able to assist the pilot emergency egress. Posture Evaluation Index (PEI) was an approach that integrated the results of these three analysis methods Lowback Analysis, Ovako Working Posture Analysis System, and Rapid Upper Limb Assessment. This research has some

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