

**KESEIMBANGAN LINI PERAKITAN KOMPONEN
FUSELAGE PESAWAT NC212 MENGGUNAKAN METODE
RANKED POSITIONAL WEIGHT, DAN *REGION APPROACH*
DI PT DIRGANTARA INDONESIA
(Studi Kasus: Komponen *Nose Fuselage*)**

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ABSTRAK

PT Dirgantara Indonesia merupakan perusahaan yang bergerak di industri penerbangan. Penelitian ini berfokus pada komponen *nose fuselage* pesawat NC212. Permasalahan yang dihadapi oleh perusahaan adalah ketidakseimbangan lini perakitan komponen *nose fuselage*. Ketidakseimbangan disebabkan oleh operator belum memiliki *skill* yang sesuai untuk proses perakitan pesawat NC212, dan ketersediaan *hand tools* belum proporsional dengan jumlah operator. Selain itu, permasalahan keterlambatan *supply parts* ke lini perakitan karena tidak tersedianya *raw material* di *Detail Part Manufacturing* sehingga lini perakitan mengalami *job stop* sampai *part* yang dibutuhkan dikirimkan dari *Detail Part Manufacturing*. Tujuan dari penelitian ini adalah mengidentifikasi tingkat keseimbangan lini perakitan *nose fuselage* pesawat NC212 pada kondisi aktual, dan memberikan usulan perbaikan untuk meningkatkan keseimbangan lini perakitan komponen *nose fuselage*. Metode penelitian ini adalah metode *Ranked Positional Weight*, dan metode *Region Approach*. Penelitian ini menggunakan *software* Arena untuk mensimulasikan kondisi aktual, dan usulan perbaikan. Berdasarkan hasil pengolahan data untuk kondisi aktual didapatkan *line efficiency* sebesar 16,12%, *balance delay* sebesar 83,88%, dan *smoothness index* sebesar 4937,70. Setelah dilakukan pengolahan data, dan analisis menggunakan metode *line balancing* didapatkan metode *Region Approach* sebagai metode *line balancing* terbaik dengan persentase *line efficiency* sebesar 28,33%, *balance delay* sebesar 71,67%, dan *smoothness index* sebesar 3558,74 dengan 20 stasiun kerja.

Kata Kunci: Lini Perakitan, *Line Balancing*, *Ranked Positional Weight*, *Region Approach*, Arena.

**LINE BALANCING OF NC212 AIRCRAFT FUSELAGE
COMPONENT USING RANKED POSITIONAL WEIGHT, AND
REGION APPROACH METHOD AT PT DIRGANTARA
INDONESIA
(Case Study: Nose Fuselage Component)**

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ABSTRACT

PT Dirgantara Indonesia is a company operating in the logging industry. This research focuses on the nose fuselage components of the NC212 aircraft. The problem faced by the company is an imbalance in the nose fuselage component assembly line. The imbalance is caused by operators not having the appropriate skills for the NC212 aircraft assembly process, and the availability of hand tools is not proportional to the number of operators. Apart from that, the problem of delays in parts supply to the assembly line is due to the unavailability of raw materials at Detail Part Manufacturing so that the assembly line experiences job stops until the required parts are sent from Detail Part Manufacturing. The aim of this research is to identify line balancing of the NC212 aircraft nose fuselage assembly line in actual conditions, and provide suggestions for improvements to increase line balancing of the nose fuselage component assembly line. This research method is Ranked Position Weight method and Region Approach method. This research uses Arena software to simulate actual conditions and proposed improvements. Based on the results of data processing for actual conditions, line efficiency was 16.12%, balance delay was 83.88%, and smoothness index was 4937.70. After data processing and analysis using the line balancing method, it was found that the Region Approach method was the best line balancing method with a line efficiency percentage of 28.33%, balance delay of 71.67%, and a smoothness index of 3558.74 with 20 work stations.

Keywords: *Assembly Line, Line Balancing, Ranked Positional Weight, Region Approach, Arena.*