

## ABSTRAK

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Judul Laporan Skripsi : Analisis Keandalan Wing Loop Sensor Menggunakan Metode Weibull Untuk Minimalisir Aircraft On Ground Pada Pesawat Airbus 330 Series Di PT. GMF AeroAsia Tbk.  
Pembimbing : Resa Taruna Suhada, S.Si, M.T

Pneumatik sistem pesawat merupakan sumber udara yang dihasilkan oleh mesin pesawat (*engine*) yang digunakan untuk air conditioning serta *anti-ice system*. Dalam proses penyaluran pneumatik tersebut terdapat pipa-pipa yang terhubung dari badan pesawat (*fuselage*) hingga sayap pesawat (*wing*). Untuk mendeteksi kebocoran pada pipa-pipa tersebut dipasang sensor berupa *wing loop*. Berdasarkan pilot report pada rentang waktu Juli 2022 – Maret 2023 terdapat 30 kegagalan *wing loop* sensor yang terjadi, sehingga hal ini sangat menyebabkan pesawat mengalami pembatalan penerbangan karena pesawat tersebut dinyatakan tidak layak terbang (*unsafe conditions*). Pada penelitian ini menggunakan metode Weibull dengan mencari MTTF (*Mean time to failure*) dan metode PDCA untuk menentukan rencana perbaikan untuk minimalisir AOG. Setelah penelitian dilakukan, diketahui MTTF komponen *wing loop* sensor yaitu 8562,012 *Flight Hours* (FH) serta penyebab kegagalan terbanyak yaitu korosi yang diakibatkan dari 5 faktor yaitu, *lack of knowledge, complacency*, penyimpanan komponen yang tidak sesuai, tidak ada proteksi pada komponen dan sifat korosif. Langkah perbaikan dilakukan dengan cara *sharing session* secara berkala, melaksanakan *coaching* kepada personil tentang pengisian *tagging* dan penyimpanan komponen sesuai prosedur, melaksanakan *jobcard cleaning* dan *detail visual inspection* untuk menjaga *reliability* komponen agar *wing loop* sensor tidak mengalami kerusakan dibawah nilai MTTF dan meminimalisir *aircraft on ground*.

**Kata Kunci:** pneumatik, *wing loop*, mttf, pdca, *aircraft on ground*

## ABSTRACT

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Study Program : Industrial Engineering  
Thesis Report Title : *Wing Loop Sensor Reliability Analysis Using Weibull Method to Minimize Aircraft On Ground on Airbus 330 Series Aircraft at PT. GMF AeroAsia Tbk.*  
Counsellor : Resa Taruna Suhada,S.Si, M.T

*Aircraft pneumatic system is a source of air generated by aircraft engines used for air conditioning and anti-ice systems. In the pneumatic distribution process, there are pipes connected from the fuselage to the wing. To detect leaks in these pipes, a sensor is installed in the form of a wing loop. Based on the pilot report in the period July 2022 - March 2023 there were 30 wing loop sensor failures that occurred, so this greatly caused the aircraft to experience flight cancellations because the aircraft was declared unfit to fly (unsafe conditions). This study using the Weibull method to find MTTF (Mean time to failure) and the PDCA method to determine an improvement planning to minimize AOG. After doing the research, it is known that the MTTF of the wing loop sensor component is 8562.012 Flight Hours (FH) and the cause of most failures is corrosion caused by 5 factors, which are lack of knowledge, complacency, improper storage of components, no protection of components and corrosive nature. Improvement steps are carried out by sharing season regularly, conducting coaching to personnel about filling tagging and storing components according to procedures, carrying out jobcard cleaning and detailed visual inspection to maintain component reliability so that the wing loop sensor doesn't get damaged below the MTTF value and minimize aircraft on ground.*

**Keywords:** *pneumatic, wing loop, mttf, pdca, aircraft on ground*