

**ANALISIS SIMULASI EFEKTIVITAS CLEANING SOLUTION PADA
COMPRESSOR WASH PESAWAT GROB G120TP-A DI SKATEK 043
LANUD ADISUTJIPTO DALAM MENCEGAH FOULING PEMICU
DETERIORISASI PERFORMA**

JULIA NOVIANTI

17050062

ABSTRAK

Dalam pelaksanaan kegiatan *maintenance* sebagai upaya mencapai kelaikan udara, terdapat berbagai bentuk modifikasi prosedur yang dilakukan dan perlu diteliti dampaknya, termasuk di dalamnya adalah bentuk modifikasi *cleaning solution* yang digunakan dalam prosedur *compressor wash* sebagai bagian dari tindakan *cleaning* dalam *maintenance*.

Berangkat dari latar belakang tersebut, dilakukan penelitian yang bertujuan mempelajari efektivitas *cleaning solution* dalam pelaksanaan *compressor wash* menurut ketentuan yang berlaku di objek lokasi, progres *fouling* kompresor, dan dampaknya pada performa pesawat. Penelitian dilakukan dengan mengolah data lapangan dengan tabulasi *excel*, perhitungan *ISF*, perhitungan *HLD-NAC*, dan permodelan operasi kondisi lapangan dengan *MATLAB-SIMULINK software*.

Hasil analisa tersebut menunjukkan hasil positif pada nilai *ISF* serta *output* simulasi *pressure ratio* dan *temperature difference* sebagai bukti efektivitas *cleaning solution* untuk pelaksanaan jangka pendek. Namun indikasi negatif juga ditemukan untuk *output* simulasi yang sama beserta nilai *ISF*, dan karakteristik mikroemulsi sebagai bukti kurangnya efektivitas jangka panjang. Dengan mempertimbangkan jumlah indikasi yang didapat, disimpulkan bahwa modifikasi prosedur *compressor wash* yang dilaksanakan kurang efektif dalam mencegah *fouling* pemicu deteriorisasi performa pesawat.

Kata Kunci: Simulasi, efektivitas cleaning solution, deteriorisasi performa

**SIMULATION ANALYSIS OF THE CLEANING SOLUTION
EFFECTIVENESS ON THE COMPRESSOR WASH OF GROB G120TP-A
AIRCRAFT AT SKATEK 043 LANUD ADISUTJIPTO TO PREVENT
FOULING AS A TRIGGER OF PERFORMANCE DETERIORIZATION**

JULIA NOVIANTI

17050062

ABSTRACT

In attempts to reach airworthiness by performing maintenance actions, some modifications have been made and observed for their effects, including a modified cleaning solution used as a tool in compressor wash meant for maintaining parts cleanliness.

Recognizing these facts, a study on the effectivity of the cleaning solution used in compressor wash according to standard practice performed on the object location, as well as the progressivity of compressor fouling and how it would affect aircraft performance, has been proposed. The entire study was carried out by tabulating field data in excel worksheets, data calculating using ISF along with performance simulation based on field conditions using MATLAB-SIMULINK software.

Positive results as an output of ISF, pressure ratio, and temperature difference simulation graphic-displays has been gained as a proof of cleaning solution effectivity over short period. However negative results of previously mentioned simulation outputs along with ISF and characteristic measurement of microemulsion found as a proof of ineffectivity over longer period of operation and applied procedure. By means of indications, it could be concluded that the applied modification of compressor wash (in terms of cleaning solution used) has lower effectivity in prevention of fouling as a trigger of aircraft performance deterioration.

Keywords: Simulation, cleaning solution effectivity, performance deterioration