

## TUGAS AKHIR

# KAJI EKSPERIMENTAL RESPON PERCEPATAN SISTEM *NOSE LANDING GEAR* PADA PESAWAT TANPA AWAK MENGGUNAKAN PEREDAM UDARA

Diajukan Sebagai Salah Satu Syarat Untuk Menyelesaikan  
Pendidikan Tahap Sarjana



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**PADANG, 2019**

## **ABSTRACT**

*Unmanned aerial vehicle will experience vibrations when landing. If the vibration level received is very high with a long time, the unmanned aerial vehicle and its electrical components can be damaged. A system capable of reducing vibration is needed as a concrete solution. In this study, a nose landing gear system was designed using an air damper to reduce vibrations that occur in unmanned aerial vehicle. The air damper functions to reduce the amplitude of the shock vibration at landing. Nose landing gear on unmanned aerial vehicle is usually U-shaped spring made of composite. In this study U-springs are used with the addition of air dampers. The goal to be achieved in this final project is to obtain the best nose landing gear design to reduce vibration.*

*The research that has been done is to analyze the variation of landing gear dimensions. The landing gear used is aluminum U springs with varying dimensions to reduce vibrations on the landing gear. In the research to be conducted, the damping price of the landing gear is regulated by varying the orifice diameter on the air damper. The diameter of the orifice used is 2 mm, 4 mm, 6 mm and 8 mm. Data is collected through a 'drop test' landing gear without air damper and using air damper.*

*The results obtained indicate that the installation of air dampers with 8 mm diameter can reduce the acceleration response by 68% and damping time by 50%. Nose landing gear using air dampers with 8 mm orifice diameter is best at damping vibrations compared to 2 mm, 4 mm and 6 mm orifice diameters.*

*Keywords: vibration, nose landing gear, air damper, natural frequency, damping ratio*

