

## ABSTRAK

*Ground spoiler* merupakan salah satu *secondary flight control* yang berfungsi untuk mengurangi *lift* dan memperlambat laju pesawat saat di landasan. *Ground spoiler* pada pesawat digerakan oleh tenaga hidrolik yang diubah menjadi tenaga mekanik oleh *actuator*. Performa *ground spoiler* akan menurun jika terjadi kebocoran pada sistem hidrolik. Sebuah kasus kebocoran *ground spoiler control valve* yaitu terjadi pada pesawat Boeing 737-500. Dampak dari kebocoran tersebut adalah pada saat *landing* pesawat seperti mengalami gerakan *touch and go landing* dan pesawat membutuhkan *runway* yang lebih panjang untuk mendarat yang berpotensi terjadinya *overshoot*.

Penelitian ini membahas penyebab kebocoran *ground spoiler control valve* dengan metode observasi dan *fault tree analysis (FTA)*. Menggunakan *fault tree analysis* ini untuk menemukan kemungkinan-kemungkinan kegagalan dan mempermudah ketika melakukan penanganan *trouble*.

Hasil penelitian menunjukkan kebocoran pada *ground spoiler control valve* disebabkan oleh *seal / O-ring* yang patah dikarenakan pemasangan *ground spoiler control valve* yang miring. Hasil penyebab kegagalan dari *fault tree analysis* berupa *disconnected mechanism drum*, *lack of cable tension* pada *mechanism drum*, *friction* pada *ratio changer*, *friction* pada *spoiler mixer*, *stuck rod*, *seal broken*, *seal rigid*, *pipe leakage*, *uncompressed right main gear shock strut*, *landing gear* tidak dapat *extend*, *lack of cable tension* pada *interlock valve cable*, *disconnected ground spoiler cable valve*.

**Kata Kunci:** *speed brake control*, *ground spoiler*, *ground spoiler control valve*

## **ABSTRACT**

*The ground spoiler is one of the secondary flight controls that serves to reduce lift and slow down the aircraft on the runway. The ground spoiler on the aircraft is driven by hydraulic power which is converted into mechanical power by the actuator. The performance of the ground spoiler will decrease if there is a leak in the hydraulic system. A case of leakage of the ground spoiler control valve occurred on a Boeing 737-500 aircraft. The impact of the leak is that during landing the aircraft like doing touch and go landing and the aircraft requires a longer runway to land which has the potential to overshoot.*

*This study discusses the cause of leakage of the ground spoiler control valve with the method of observation and fault tree analysis (FTA). Using this fault tree analysis to find possible failures and make it easier to handle trouble.*

*The results showed that the leak in the ground spoiler control valve was caused by a broken seal / O-ring due to the tilted installation of the ground spoiler control valve. The results of the causes of failure from fault tree analysis in the form of disconnected mechanism drum, lack of cable tension on mechanism drum, friction on ratio changer, friction on spoiler mixer, stuck rod, seal broken, seal rigid, pipe leakage, uncompressed right main gear shock strut, landing gear cannot extend, lack of cable tension on the interlock valve cable, disconnected ground spoiler cable valve.*

**Keywords:** *speed brake control, ground spoiler, ground spoiler control valve*

