

A Reliability Study on the Landing Gears of the Various Airbus Models of Philippine Airlines

Ma. Cecilia C. Carlos¹, Micaela A. Romano²

*School of Industrial Engineering and Engineering Management
Mapua Institute of Technology*

¹jamcarlos_68@yahoo.com, ²mics_romano@yahoo.com

Abstract

The reliability of the various Airbus models of Philippine Airlines (PAL) is affected by various reasons one of them being the failure rate of the landing gears. This is critical in their operation because landing gears failure can cause flight delays or might even cause flight accidents. Available literature indicate that the failure of the landing gear can be due to the runway surface, type of landing gear, how it is being used, weather type, etc. Only the runway surface was considered in this study due to the following reasons: 1) it is the only factor with values which can be used for computation. 2) The runway surface in each airport varies. 3) All the landing gear of PAL planes were made of aluminum alloy.

To solve this problem, it is important to determine the Mean Time To Fail (MTTF) of the landing gears to avoid flight delays. An industrially proven solution is to implement a Preventive Maintenance schedule on the landing gears of the various Airbuses. In preparing the PM schedule for the landing gear, determine first whether the type of landing gear and surface runway are significant factors in the MTTF of the landing gear of the various airbus models. The PM schedule is derived from knowing the relationship of the surface runway to the failure rate of the landing gear. The failure rates and the mean time to fail values are calculated using the 3-Month Rate Maintenance Reliability Program Alert Notice. As a conclusion, it is proposed that a specific preventive maintenance schedule for the landing gear should be implemented.