

The Licensed Aircraft Maintenance Engineer SMS

“Every enterprise has essential, common elements designed to: (a) process input resources into products or services, and (b) complete that process profitably. The product, service, and the type of profit or benefit can be anything. To produce any given outcome, one needs to understand that a state of tension exists between the way individuals adapt to complete their tasks and an organization ensuring a high degree of predictability regarding the end product. The use of effective rules and procedures is a means of improving the likelihood of predictability.” J Reason, D Parker & R Lawton.

‘Given that humans have evolved to become natural risk optimizers as well as efficient maximizers of resources, it is unrealistic to imagine that when people arrive at work they might store these natural and mostly beneficial qualities in their lockers and don the uniforms of robotic organisational conformity. It simply doesn’t happen and it is naive of managers to imagine that it might. To insist that employees stop assessing conditions and developing work-arounds to accommodate changing situations would be to doom organisations to premature obsolescence.’

Most people violate procedures because they are trying to get the job done or that procedures were inadequate in some manner or both. Some regulators and managers have unrealistic expectations regarding peoples’ motivations to adhere to procedures.

Knowledge and experience is the fortitude of the LAME/AME.

Safety to the LAME/AME is a given and the environment where they provide their talents must be free of burdens that may affect safety. A person applying his/her skills improves safety as they obtain knowledge and experience. There is a safety concern that the individual is now being diverted by administrative tasks that organisations are implementing to meet a regulatory requirement that may in itself have a negative effect on safety in the workplace. A recent article in the US AMT magazine clearly recognised that this an issue. ‘LAME/AME’ has been substituted for ‘aircraft maintenance technician’.

Excerpt from AMT by Sarah Macleod, Executive Director, ARSA.

“A [licenced] aviation aircraft maintenance engineer [LAME/AME] safety management system is constantly increasing knowledge of aviation design expectations so each step in a maintenance process can be evaluated appropriately.”

- What does SMS stand for in the mind of an individual LAME/AME?
- How does an individual LAME/AME manage safety?
- **If safety is a minimum requirement, what more is there to manage?**

These rhetorical questions are barriers to improving methods, practices, procedures and safety. When SMS is used to bludgeon a LAME/AME or add to that person’s burden, the system becomes a joke and something to avoid rather than a method for evaluating risk and making improvements. When an individual LAME/AME feels superfluous to improving practices dictated by the government and/or passed down by management, safety does not improve; it suffers. If safety is a given to a LAME/AME, managing separate aspects of the system becomes problematic.

“The LAME/AME must gain experience on the conditions created by differing operations of an aircraft, engine, propeller or component. Make sure those experiences add to knowledge and enhance aviation safety.”

Increase design knowledge

A LAME/AME safety management system is constantly increasing knowledge of aviation design expectations so each in a maintenance process can be evaluated appropriately. The study titled “*Strategies to Reduce Aviation Employees’ Procedurals Non-Compliance*” explores the reasons for intentional non-compliance with procedures. The study’s data validated Wilde’s Risk Homeostasis Theory “.... *that employees are not making informed assessments regarding the actual level of risks.*” In other words, if you don’t know the safety impact, you are more likely to purposely skip or reorganise steps or change methods. A LAME/AME’s work must return the component/aircraft to at least its original condition; it is essential the basic design rules before messing around with maintenance requirements.

Gain experience

Experience may be knowledge, but you can have one year of experience repeated 30 times or you can have 30 years of experience. No maintenance manual will contain everything you need to accomplish every task. Manuals may be written by persons who have never performed the particular actions or by persons too experienced with the tasks. No manual is going to anticipate all the problems or failure conditions of a component/aircraft. The aviation maintenance LAME/AME, however, must gain experience on the conditions created by differing operations of an aircraft, engine, propeller, or component. Make sure those experiences *add* to knowledge and *enhance* aviation safety.

Gather/analyse data

Gather engineering and operational data; obtain fellow maintenance provider thoughts; add those tid-bits to your knowledge of the product certification basis. Validate that data by testing the potential solution writing an objective report on the results. After validating the solution, it may take an [authorised] design engineer to approve the data. The approval will be based upon a showing of compliance with the design requirements – that is, did the maintenance action return the component/aircraft to the condition contemplated (required) by the airworthiness standard?

Experience is now knowledge and can be used to enhance maintenance procedures, develop training for fellow LAME/AME, and increase the level of safety for you, your employer or customer, and the entire industry.

Managing safety is important and an aviation maintenance LAME/AME is the most important link in the safety chain. No one can fly without your work and approval for return to service.

If you are a LAME/AME, what you do, or do not do, could cause physical and/or financial harm – managing those risks are essential to your livelihood, your life, and to safety.