

Electrical Load Analysis – Does Your Aircraft Need One?

As aircraft are increasingly reliant on electrically powered gadgets, the CAA is turning its focus to the importance of the aircraft having a robust and adequate electrical system.

Having an up-to-date and complete Electrical Load Analysis (ELA) for each aircraft in New Zealand has always been a necessity – albeit an often-ignored one.

So the CAA is now focusing on it, with a new Advisory Circular giving guidance on how to perform an ELA.

An Electrical Load Analysis report is a document providing evidence of two things. Firstly, that the aircraft's electrical system – generation, storage, and distribution – is capable of running all the electrically-powered equipment on the aircraft, under all flight conditions.

And secondly, it testifies to the fact the battery is grunty enough to keep the aircraft's emergency systems going, should the electrical system fail.

It requires the listing of each item of equipment or system in the aircraft, how much power they require, and the identification of when each is used during the different phases of flight.

"The number of applications is rising for approval to utilise modern navigation systems," says Andy Rooney, CAA's Team Leader of Avionics. "And features of modern aircraft are increasingly powered by electricity. So it's essential everyone knows how robust the electrical system is."

A complete and up-to-date ELA will be mandatory for aircraft coming into the country, for aircraft whose operators are seeking navigation approvals, and for those looking at modifying electrical and avionics systems.

"It will be another tick in the airworthiness box," says Andy Rooney.

He says any time an aircraft is modified, the electrical load may change.

"So really, the ELA is a living document and should be constantly updated to reflect the aircraft's configuration.

"Eventually we would like to see one in every Aircraft Logbook in New Zealand."

Andy Rooney says, despite the ELA having always been a fundamental airworthiness document, the CAA is not applying the necessity for one in retrospect – that is, to aircraft already in the country – unless they are being modified or seeking navigation approval.

"Happily, we are already seeing growing numbers of ELAs being submitted. So there are already good maintenance people out there doing a thorough job of installing a modification."

For more information, see *Advisory Circulars* on the CAA web site, www.caa.govt.nz. ■

Glass cockpits, like the one in this BK-117 helicopter, are increasing demand on aircraft electrical systems.