



WHY COUNTING CYCLES COUNTS

Another cautionary tale for you,
if you're the operator of an aircraft.

We've said it many times before in *Vector*, and here it is again. The airworthiness of an aircraft is the responsibility of the operator.

If that's you, you're responsible for, among many other things, accurately recording how long an aircraft component – that has a life limitation or is subject to overhaul – has been in service on, or in, your aircraft.

You may also need to take into consideration what your aircraft is being used for, because the life of some components may be subject to, or affected by, operational conditions.

An aircraft component remaining in service beyond a mandatory replacement interval represents a serious safety risk.

There have been incidents and accidents, mainly overseas in certain sectors of aviation – for instance, mustering and fish spotting – as a result of operators not wanting to adhere to life limitations.

It's clearly critical to the safety of your aircraft, and to that of everyone flying in it, that you manage this risk well.

As the name suggests, the *Instructions for continuing airworthiness* (ICA) of the aircraft and its components provide you with the details of the maintenance required to keep the aircraft airworthy.

These will normally be found in the aircraft or engine maintenance manual, usually in Chapter 4 and Chapter 5.

This maintenance, such as inspections, and replacement of components, carried out by the maintainer, are scheduled by you, the operator, based on information such as flight times and cycles, that you provide to the maintainer.

So it's vital that you record – in the tech log or an approved alternative – all the information the ICAs require – for example, engine starts, take-offs and landings.

The requirement for capturing this information extends beyond the aircraft and its components, to role equipment such as cargo hooks and winches. Each of these components has an ICA telling you which information is necessary to record.

Some components, such as turbine engines, will require you to calculate and record part cycles. How you identify those part cycles can vary from simply reading off the aircraft's automated recording system to a relatively complex calculation using flight details recorded by the pilot.

Whichever is the case, the method for calculating cycles, and the actions to be taken based on those cycles, will be detailed in the aircraft or component ICA.



If you don't have access to the aircraft ICA, or are unsure what information should be captured, ask for help from your maintainer or training provider.

It's too important to ignore.

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This is one reason why

Many years ago, CAA Aviation Safety Advisor, John Keyzer, was overseas carrying out a pre-purchase inspection of a Bell 206L for his employer.

As always, it involved a thorough condition inspection, as well as a full review of the documents relating to previous maintenance and component history. This included looking at all the component history cards.

John identified that the engine turbine assembly had previously been fitted to another aircraft. This in itself was not a problem, because the hours and start cycles had previously been correctly recorded on the loan turbine.

But when the loan turbine was removed some 500 hours later, those 500 hours had been added to the turbine's total time, but the total number of cycles had not changed.

John took this as a possible indication that the operator had not been recording start cycles, as there was now no accurate record of the total number of cycles on the turbine wheels – which is a life limitation.

If they couldn't be determined, there was a high probability the wheels would need to be changed out.

John's organisation didn't buy that particular Bell. ➡

Comments or queries?

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