# Recording of Maintenance

The highest priority for most engineers is the safety of the aircraft they work on. They're fastidious and want to do the right thing by their customers. But some – many actually – sabotage their bottom line by failing to keep accurate, up-to-date and tidy records.

The most obvious reason for keeping good records is their impact on aviation safety, including their capacity to 'follow the aircraft' as it moves around engineers.

A secondary benefit is the money that good records can save a company.

Work done, but not accompanied by proper documentation attesting to that work done, is pretty worthless. Worse, it can cost.

HNZ Global senior engineer Brian Dravitzki says if, for instance, the recordings of engine condition trend monitoring data and LCF cycle counting are inaccurate, the cost of the subsequent engine overhaul can be assessed by the OEM as a worst-case scenario. That could lead to hundreds of thousands of dollars in extra penalties.

Neil Morris of Kapiti-based Aviation Ltd also has a couple of horror stories.

"I've heard of a Cessna 'SIDs' inspection on the wing and strut attachments recorded incorrectly, and so they were done 6000 hours too early, costing thousands.

"A simple Challenger engine air filter is good for 2500 hours if it's maintained properly. But if it's not recorded correctly, it can be mistaken for a disposable filter and chucked at the next inspection, along with $300. That sort of stuff adds up."

But the cost of badly kept records can cost in more intangible ways.

If work directed by an AD or mandatory inspection requirement has not been documented adequately, the work may have to be repeated if the initial inspection requirement is revised.

The cost of time consumed in trying to make sense of inaccurate, or inappropriate, or largely non-existent records is even less obvious, but it's still a direct hit on the company's bottom line.

Brian Dravitzki says good records take the guesswork out of coming to grips with the maintenance status of an aircraft.

"You do the job once, and you record that maintenance appropriately. Otherwise, you'll have maintenance control asking for it to be redone, because they have no evidence of it ever being completed."

He says HNZ's philosophy is that the better the paperwork, the higher the audit rating, which only enhances reputation.

"That means a less frequent audit schedule, and all of that saves the company money."

Neil Morris operates under Part 43 and says, unlike Part 145 organisations, the LAME effectively takes on the additional roles of QA manager, and maintenance controller.

"We are constantly checking that we're complying with the rules under Part 43, and one way of doing that is accurate record-keeping. It gives us 'traceability' and the ability to cross check everything."

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Another not inconsiderable reason to keep good records is in the unlikely, but potentially ruinous, event of the aircraft being involved in an occurrence.

In the event of an incident or legal dispute, the devil is in what's *not* in the detail. Good records show clearly what has been done and what the intent was of the person doing the maintenance. A legal challenge is very difficult in those circumstances because it's clear the rules were complied with.

So, if an engineer or their company suspects their record-keeping is costing them, where to start?

Neil Morris advises, with the logbooks.

"If I come across an aircraft where the records have been migrated to the new format logbook (folder and loose-leaf entries) then I find the records are usually pretty tidy and things have been tracked properly.

"If they're still on the old logbooks where it can get very messy with ADs all over the place, and having to flick from one book to another, that's when I know I'm going to find some holes in the tracking."

Neil encourages other LAMEs to transfer aircraft records to the new format logbooks.

"I often do this at the Review of Airworthiness, if I haven't already done that. It takes a couple of hours, but it's money well spent because of the subsequent ease of paperwork. Just transferring the information to the new format starts to get things tidy.

"At the next 100-hr check, you're quicker to find stuff, you're more efficient and less likely to miss anything."

Neil says some companies invest in costly software but he uses a simple, but accurately kept, spreadsheet.

"It gives a complete snapshot of everything that's due. For example a Cessna 172 or a 152 has more than 100 lines of maintenance tasks you need to track.

"You have to have it laid out so you can audit it easily to the technical data it's generated from. Knowing where to locate the technical data for the required maintenance saves time and encourages compliance.

"It's simple stuff but it can make a big difference."

Brian Dravitzki says recording what's been done should be an integral part of the job, and allowing engineers adequate time to complete good paperwork is essential.

"Commercial pressure is a big thing in our industry – it's that 'get that aircraft done and out the door' approach.

"But if you believe that the recording of what has been done is part of the core maintenance activity, it'll have benefits in every direction. If you fill out the paperwork as you go there's less reliance, later, on memory which can be faulty.

"Paperwork, particularly if you let it fall behind, can become a burden. But if the engineers can deliver constant and accurate records of maintenance, in time it just becomes second nature."

Brian says investing in good maintenance software definitely helps.

"Handwritten records can become arduous, so we do most of our paperwork on computer. We've put a lot of emphasis in the last couple of years on staged worksheets for the more complex tasks. What that does is not so much rewrite the OEM's maintenance manual but highlight what particular point the engineer is up to.

"As they go, they initial each stage, and if another engineer has to pick up the work, it's very safe and easy for them to do that, at exactly where the last LAME left it."

Photo: iStock.com/EvgeniyShkolenko

"Engineers are always faced with the challenge of doing the paperwork efficiently, spending the time and being able to charge for it," says Neil Morris.

"Without efficient maintenance tracking systems, one of two things can happen – you either spend the time but you don't charge for it because it just seems exorbitant, or you cut corners.

"My approach is spend the time on it initially to get it right, charge for it, and it will then save time and money, and improve accuracy in the long run.

"It's the same as doing a complete refurbishment on, say, a Cessna 152: you reset the whole thing and guess what? Every 100 hours it just flies in and out with reduced maintenance costs."

Brian Dravitzki tells his engineers that not only should their records be complete and up to date, but they should 'tell the story' of that aircraft.

"When you're making a record, if you write it in such a way that a lay person could pick it up and read the story, then accurately repeat back to you what they believe has happened with maintenance, then you've done a good job." ■

# New ASA
# Neil Comyns

Aviation Safety Advisors (ASAs) play a key role in liaising between industry and the CAA. They are often a participant's first port of call for any issues they need to discuss.

In May 2018, Neil Comyns joined CAA's Communications and Safety Promotion team as the South Island's ASA (Maintenance), replacing Steve Backhurst.

Neil's aviation career began 28 years ago, when he began his mechanical engineering apprenticeship with Air New Zealand. After getting his licence, he worked for Ansett New Zealand before heading off on his OE, working for BAE Systems, British European, and Bombardier.

Since returning to New Zealand, Neil has worked in the airline and general aviation sectors, including for Origin Pacific, Emirates, Canterbury Aero Club, and Heli Maintenance. Immediately before joining the CAA, Neil worked for Air New Zealand's Christchurch Engine Centre.

When the ASA role came up, the chance to be a liaison between industry and the CAA instantly appealed to Neil, although this role is quite a change for him.

"From 28 years on the tools to having to wear tidy clothes!"

Neil says he has big shoes to fill following Bob Jelley and Steve Backhurst.

"I don't know the answers to everything, but I do know the people who can help. If I don't know the answers, I'll get you the answers."

For Neil, aviation is all about passion.

"I don't think you'll find anyone in the industry who switches off from aviation at the end of the working day. I think everyone would admit that – whether they're a pilot, engineer, or work for the CAA." ■

www For aircraft logbooks, go to **www.caa.govt.nz/forms**