

Someone Told Me I Could.

Here's what pilots can do to maintain their aircraft without crashing through the rules.

As they travel the country, an issue increasingly occupying the minds of CAA Aviation Safety Advisers, John Keyzer and Steve Backhurst, is pilot maintenance.

"Under some conditions, it's okay for pilots to do their own maintenance," says South Island-based Steve, "but too many are tinkering with their aircraft in a manner so loose, it clearly risks safety and breaches the rules."

Steve says he'll visit a small aerodrome on a Friday afternoon and see hangar doors open, and pilots happily pottering away in the innards of their aircraft.

"But I know many of them will be untrained, and their work unauthorized and undocumented. And there'll be no manufacturer's 'Instructions for Continued Airworthiness' (ICAs) available, or the required tooling to do the job.

"It's not so much that pilots are doing maintenance that they shouldn't be doing," says Steve. "The problem is more the way they do it. They simply don't know, or don't care, what's involved to meet the safety standards of Part 43.

"Or, they're just plain ignorant of their obligations under the Civil Aviation Rules, and try to justify their actions by saying, 'someone told me I could do it like this'.



“Just because they’re physically capable of carrying out a maintenance action doesn’t mean they *can* do it.

“As a LAME, you soon learn that carrying out a maintenance task is not just the physical action. It’s the physical action *and* the compliance associated with that physical action.”

Steve says aircraft are a bit like boats and race cars.

“It’s not the cost of purchasing the toy that’s going to make you poor, it’s keeping it going.

“Owning your own aircraft means maintaining it in an airworthy condition. And that means using the services of a LAME for most maintenance.”

For the record, Part 43 describes what maintenance a pilot can do, *if* they are authorized by the aircraft’s operator, *and* that’s in writing (‘authorized maintenance’); *and* the pilot has been trained by a qualified LAME rated on that aircraft, *and* keeps a written record of that training.

Or, a pilot can carry out maintenance, but only under the direct supervision of an appropriately rated (that means on type) LAME. ‘Direct supervision’ means the LAME has to be right there in the hangar with the pilot, and not on the end of a cellphone.

Instructions for Continued Airworthiness

“I remember visiting a helicopter pilot/operator,” says Steve, “who’d been carrying out repetitive torque event inspections on his Hughes 500. I could find no evidence he’d followed the manufacturer’s Service Bulletin, or used the proper tools or equipment. When I asked about his use of a 10x magnifying glass, which is a requirement for the job he’d been doing, he just looked blank.

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"Pilots must refer to the manufacturer's ICAs when they do a job. It must be the latest revision, whether that's an Airworthiness Directive, Service Bulletin, or other manufacturer's instructions. See rule 43.53(1) and (3)(i). The reference to the ICA needs to be recorded as per rule 43.69 and the aircraft released to service as per rules 43.103 and 43.105."

Anyone maintaining an aircraft must also use the correct tools, equipment, and test equipment set out by the manufacturer's Instructions for Continued Airworthiness. See rule 43.53(5).

Steve has another story. "A 19F aviation parts supplier told me about his customers who purchase spark plugs because Part 43 Appendix A.2 allows a pilot to replace those. More often than not, before the customer leaves, they will ask the parts supplier how tight to torque the plug to.

"Now, often manufacturers have a torque requirement and that would be found in the ICA, so clearly these pilots are doing the job without any reference to them.

"I can guarantee that if I was to ask those pilots about the job, there'd be nothing recorded within the maintenance documents, they wouldn't be able to show me a calibrated torque wrench, and they definitely wouldn't be able to show me the manufacturer's ICAs, nor a document signed by a LAME showing that the pilots had been trained to carry out the task."

North Island-based John Keyzer says even a trained pilot maintaining an aircraft they are authorized to maintain, can perform only the maintenance listed in Part 43, Appendices A.1 and A.2.

"For example, some pilots think they can remove a part, if they get a LAME to reinstall it. However, removing a part is still maintenance, and needs to be carried out in compliance with the rules.

"Some tasks may need special tools, equipment, and – most importantly of all – sometimes a subsequent inspection (an example being a duplicate inspection). See Part 43 A.1(6) (iv). Those maintenance tasks cannot therefore be carried out by a pilot under authorized maintenance 43.51(b) and to do so will require a Certificate of Maintenance Approval issued in accordance with Part 66 Subpart D.

"This is really important. If the job is so safety-critical that it needs that subsequent inspection, a pilot cannot do it as 'authorized maintenance'. It's a higher bar to help prevent accidents."

Records

As outlined above, any maintenance a pilot carries out must be fully documented and released to service.

Form CA006 *Technical Log* (or equivalent) must record details of the maintenance carried out, and a release to service (RTS) by the person certified to carry out that maintenance. Those details must also be summarised in the aircraft logbook.

The tech log is to be carried in the aircraft so the information contained in it is available to each pilot flying the aircraft, before they fly.

Using Form CAA400 *Maintenance Record Sheet* is not mandatory, but it's an extension of Section 3 of the tech log. It provides a record of maintenance and the required RTS. The top copy is removed, summarised in the aircraft logbook and kept with the maintenance records. The lower copy is stored in the aircraft, along with the technical log, and is reviewed by the pilot before each flight.

Read Advisory Circular AC91-6 *Aircraft technical log* for more guidance. To get free tech log forms and maintenance record sheets, email info@caa.govt.nz.

Why the Fuss?

"It's not repairing your car," says Steve Backhurst.

"If I change the oil filter and oil in my vehicle, I just go ahead and do it. I don't need to comply with everything associated with doing the same job in aviation.

"If I've installed the filter incorrectly or forgotten to tighten the sump plug, and the result is a major oil leak, I just pull to the side of the road.

"But if it's something safety-critical, like the vehicle's brakes that I'm repairing, you can be sure I'm going to get someone else, who knows what they're doing, to check what I've done, and that would also include testing before hitting the open road."

John Keyzer agrees that compliance with Part 43 is an important safety issue.

"For example, if a pilot installs role equipment incorrectly, it could ultimately affect the aircraft's airworthiness. An incorrectly installed set of dual controls could possibly lead to a loss of control of the aircraft or an engine hot start. Instances like this happen less often than they used to, as people become more aware of the importance of doing things right. But there are still too many instances of this sort of occurrence for anyone to be complacent."

Learn To Do It Properly

"There are obviously advantages to doing some maintenance on your own aircraft," says John Keyzer. "You learn more about it, you can maintain it at any time without waiting for a LAME, and of course, you save money.

"It's extremely satisfying," he says. "But it must be done according to safety standards, as described in the Civil Aviation Rules."

A good start is to book a place at a CAA Maintenance Controller Course.

You'll learn more about your responsibilities for the continued airworthiness of your aircraft, by refreshing your knowledge of the rules, and you'll receive practical advice regarding training, LAME supervision, ICAs, and recording of maintenance.

Go to www.caa.govt.nz, "Quick Links > Seminars and Courses".

For more information about obtaining a Certificate of Maintenance Approval, contact the CAA's licensing unit, licensing@caa.govt.nz, or the CAA Aviation Safety Advisers, steve.backhurst@caa.govt.nz, john.keyzer@caa.govt.nz. ■