

Being a licensed aircraft maintenance engineer

junior



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Glossary

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| Aerodynamics | The study of air flowing over a shape, like an aeroplane wing |
| Aeronautical | Everything to do with flying or building an aircraft |
| Aircraft maintenance engineer | A person who makes sure aircraft parts stay at a really safe standard, and repairs them if they need it |
| Aviation | Everything to do with aircraft |
| Avionics | Everything to do with electronics in an aircraft |
| NCEA | National Certificate of Educational Achievement: it's the main secondary school qualification in New Zealand |

Cover photo: istockphoto.com/MachineHeadz

Every effort is made to ensure the information in this booklet is accurate and up-to-date at the time of publishing. But numerous changes can occur with time, especially in regard to airspace and legislation. Readers are reminded to get appropriate up-to-date information.



See the CAA website for Civil Aviation Rules, advisory circulars, airworthiness directives, forms, and more safety publications. Visit aviation.govt.nz

Introduction

Do you like tinkering around with stuff, seeing how it works, getting it to work a bit better, maybe even managing to fix something that's broken? Are you good at computer technology, maths or science? If so, you might make a really good aircraft maintenance engineer.

Here are some things an aircraft maintenance engineer does:

- checks aircraft mechanical and electrical systems to make sure they work correctly and are safe
- reads diagrams
- repairs or replaces faulty, or old, parts or systems
- tests parts to make sure they work correctly
- keeps records of repairs.

An aircraft maintenance engineer works carefully to make sure the aircraft they work on are going to be safe to fly. While safety comes first, aircraft maintenance engineers also have to work quickly because the owners will always want their aircraft back as soon as possible.

It's very satisfying seeing your work result in a well-maintained, safe and efficient aircraft. It's an exciting, rewarding job with lots of variety. You can be carrying out a major rebuild of an aircraft in a workshop, then do an important check of the whole engine that, by law, has to be done every 100 hours of flying, then go out 'to the field' to change a rotor blade on a helicopter.

Aircraft engineering is not always about 'nuts and bolts' though. A fast-growing area is avionics – that is, designing, repairing and maintaining computers and electrical systems on aircraft, satellites, and even spacecraft.

You might decide to specialise in one area, like avionics. Or you might decide to become an engine specialist, and you would fine-

tune and repair engines, as well as work on propellers. An airframe specialist can do any work on the body of the aircraft and its systems, except instruments, powerplants, and propellers. Mechanical specialists work on every part of the aircraft, except instruments and radio systems.

Or you might build your skills across a whole range of tasks but specialise in either helicopter work, or on aeroplanes. Or work on both. It's up to you.

As you work and train, you'll learn about:

- aircraft electronic, mechanical and structural systems and equipment
- aerodynamics (that's how aircraft fly) and how different materials react during flight
- the different maintenance requirements of various aircraft
- repair techniques and procedures
- safe work practices
- aviation safety rules.



Engineer Alan Coubray describing to some teen pilots how a group of secondary school students are building a kitset aircraft in this Whitianga workshop.

// A fast-growing area is avionics – working on computers and electrical systems on aircraft, satellites and even spacecraft. //



Photo: istockphoto.com/nd3000

There's a shortage of aircraft engineers everywhere in the world, so if you qualify as one, you can probably find work anywhere.

Once you have a few years' experience, you can go on to jobs with more responsibility, like planning and scheduling the maintenance of different kinds of aircraft (rather than carrying out that maintenance) or you could become a manager.

Aircraft engineering is what's called a 'safety-critical' job. You need to keep your wits about you. Your work has to be carried out really carefully. Not a single step can be missed out or done sloppily. You also have to look after your own body and brain, so you're always working at your very best. There's more about this later.

But generally, good aircraft maintenance engineers are:

- skilled at solving problems
- good listeners and communicators
- practical, well-organised and sensible
- patient and accurate
- able to work well under pressure and make good decisions.



Getting started

Go to careers.govt.nz and search on 'aircraft maintenance engineers'. Contact a local aircraft maintenance company for their advice. If, after talking to them, you decide you do want to be an aircraft maintenance engineer, there are several ways to train.

Year 11 to 13 students can enrol in a secondary school STAR or Gateway programme. You get to go to a workplace you're interested in, and get experience and skills. You can get credits towards NCEA through the STAR and Gateway programmes.

You could contact an organisation that trains aircraft maintenance engineers. For a list of those organisations, go to www.aviation.govt.nz and search on 'maintenance engineers'.

You could join the New Zealand Defence Force and train with them.

Or, you could go straight from school to work at an aircraft maintenance engineering company, and train as you go.

If you enrol at a training organisation, you'll do a two-year course (which is NCEA level four) in a classroom, but you could get a chance to work with an aircraft maintenance engineering company during that course.

What may then happen is that, once your course has finished, you'll get a job with that company and keep training with them.



Becoming an AME

After passing some exams and getting some practical experience, you get to be an aircraft maintenance engineer, or AME (you say, ay-mee).

You'll be allowed to do some maintenance work on certain aircraft – someone will supervise you and okay your work before the aircraft is returned to the owner.

Becoming a LAME

If you want more money, and to be allowed to do more things on more aircraft and supervise other people's work, you can train to become a licensed aircraft maintenance engineer, or LAME (you say, lame-ee).

You'll get on-the-job training, going for your exams in subjects like aviation law and aircraft materials, while you work.



Photo: [istockphoto.com/gorodenkoff](https://www.istockphoto.com/gorodenkoff)



Caitlin

Caitlin is a powerplant maintenance engineer, working towards her licence.

The engine comes into the shop once it's cleaned, and gets stripped right down to all the bits and pieces. After that, everything from turbine blades to bolts get inspected carefully. We repair what needs fixing and remove everything that can't be fixed. Then we do it all in reverse, build it back up again and test it to make sure that it runs!

No matter what you're doing, you've always got to be careful and give it your best effort – if you're not careful, you could risk the safety of the engine and the aircraft it goes on to. So there's always pressure to do what's right and what needs to be done, even if it means throwing away a really expensive part.

I love my job at the engine centre. I work with an amazing group of really intelligent people. No matter whether I'm taking apart a turbine, inspecting a gearbox or getting the engine ready to test, I'm always having a great time. I wouldn't change a thing!





Photo courtesy of Air New Zealand Academy of Learning

Jemma

Jemma is an avionics trainee, working towards her licence.

Working in avionics in the hangar is exciting, and there are so many different types of jobs you could end up doing. From maintenance checks to troubleshooting to wiring modifications, there's so much variety. Avionics looks after the electrical side of things - it's not all bolts and rivets! There's communications, navigation systems, and plenty of wiring to keep us busy. One minute you'll be changing an antenna, the next you'll be testing the cockpit voice recorder or making sure the oxygen masks fall down when the plane's at a certain altitude. It's a great feeling when you can fix a system, and there's always something new to learn.

The light maintenance engineers have to fix the plane overnight. But even when the plane's in the hangar for a week or two there's always some pressure to diagnose problems quickly and fix the plane, which is really exciting.

I'll never forget the first time I got to work in the cockpit going through procedures similar to what the flight crew would do, and checking every system worked as it should.

Most exciting though is when you go on holiday and travel on a plane you've helped fix!

Looking after your own self

Aircraft maintenance engineering is so important to the safety of flying that the human being (you) doing the engineering must always be on top form. That means not being tired, stressed or distracted.

A study of flying incidents caused by an engineering error found many of them were caused by the engineer being tired and making a mistake.

When you're training to be a LAME, you'll learn what you can do to make sure you, yourself, are not a risk to aviation safety.

So you want to be a leader in aviation?

For every aircraft you see flying, there is a team of maintenance engineers back in the workshop who've made sure the aircraft is safe to fly. Without maintenance engineers, there would be no safe flying: that means no flying at all.

They are dedicated professionals whose judgement is relied on by passengers travelling anywhere in the world, as well as by pilots and crews, and by everyone on the ground.

Passionate, experienced and expert engineers become leaders in aviation, and their views on safety are listened to, trusted, and acted on.

If you want to know more about becoming a licensed aircraft maintenance engineer go to aviation.govt.nz > licensing & certification > maintenance engineer licensing.



Good Aviation Practice



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See the CAA website for Civil Aviation Rules,
advisory circulars, airworthiness directives,
forms, and more safety publications.

aviation.govt.nz

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