



Emergency Landings

We won't sugar-coat it – if you fly long enough, you will probably have to make an emergency landing one day – particularly if you fly single piston-engine aircraft on private operations. The more options you have, however, the better your chances of carrying out a successful emergency landing.

If you didn't make it to an AvKiwi Safety Seminar this year, here are a few things to remember. An emergency landing is one you weren't planning to make. You have no choice, you are landing whether you want to or not, and often somewhere that is not ideal. Engine problems, control problems, propulsion problems, fire, fuel, weather, people problems, lack of daylight, or poor decision-making, can all make a forced or precautionary landing necessary. Half of all engine failure occurrences are as a result of non-mechanical issues that were directly influenced by the pilot.

Be Prepared

Proper preflight planning and preparation can give you more options if something goes wrong in flight. Most problems leading to emergency landings occur in the cruise, so plan your route to fly over areas with suitable diversion or forced landing options. If there is no way to detour around inhospitable terrain or large bodies of water, think about what precautions you can take. Can you fly high enough to glide to a clear area, or to the coast if you're over water?

Think ahead, so you have a plan for the most common emergency situations. A takeoff brief is a good place to start. Carry one out on every takeoff. State the type of takeoff you are making, what the wind is doing, the density altitude conditions, and any other considerations such as runway surface condition, birds or traffic. Consider your intentions after takeoff (what altitude you will climb to, where you will track, and who you will

need to talk to on the radio). Finally, think about what actions you will take in the event of an engine failure or communications failure.

Have the right mindset: an engine failure could happen at any time, so continually look for options. Say to yourself as you fly along, "if it happened now, where would I go?"

If it does happen, accept it and get on with planning the best landing possible. If you experience a partial engine failure, never count on the power level you currently have to make it to a landing area. Choose a spot that you could reach if the engine stopped right then.

The survival of you and your passengers is the top priority, the state of the aircraft is secondary. It is okay to sacrifice the aircraft to save yourself.

The ABCs of Emergency Landings

This does not replace Aviate – Navigate – Communicate. It is a useful way of prioritising your actions, specifically in the event of a forced landing.

A is for Aviate – keep flying the aircraft, at all times, all the way to the ground.

B is for Best Speeds – Know the best glide speed for your aircraft's MAUW and 'standard' weight. Make sure you trim the aircraft to maintain this speed.

C is for Choose the best possible landing site – It doesn't need to be perfect.

When choosing a landing site, remember all the Ss. Size, shape, surface, slope, surrounds, sun, stock, sand/surf.

Pilots instinctively look for something rectangular to land on, but an irregular shaped area will give you options if you end up high or low. Remember that powerlines usually take the shortest line between houses and nearby settlements. To mitigate sun on finals, consider a crosswind landing.

If You Have Time

Many pilots who have experienced an engine failure say they only had time to make a decision and fly the aircraft to the ground. If they had attempted to do anything else, even for a second, they may not have made it.

Your most important task, and the only one that really matters in the end, is to fly the aircraft, all the way to the ground. If you have time you can troubleshoot the causes, make a MAYDAY call, switch your transponder to 7700, and activate your ELT and tracking system (if fitted). If in doubt, however, just fly the aircraft. It is a good idea to teach passengers who fly with you regularly to do things for you, such as spotting traffic and suggesting suitable forced landing options along the way.

Brief your passengers on the use of emergency equipment, and how to vacate the aircraft, etc, on the ground before takeoff. In all likelihood you will not have time to do this once an emergency situation develops. The same goes for securing the cabin – do it before you take off. You are still responsible for briefing your passengers in an emergency, but if you are limited by time, you can simply state what is happening and what you require of them.

Engine Failure After Takeoff

Pick somewhere ahead to land. Do not turn back unless you have received training in that aircraft type on turn-backs, you know the minimum height required to make the turn given the conditions on the day, and you have included this in your takeoff brief. Unless all these conditions are met, it is normally safer to pick somewhere ahead to land. At an unfamiliar aerodrome, assess the surroundings of the field on your flight in, with this in mind.

A sterile cockpit during takeoff and landing (meaning no chatter about anything unrelated to the operation of the aircraft) will ensure that you are ready to react and carryout your pre-briefed plan, should an emergency situation occur.

Practise Often

Your chances of pulling off a successful emergency landing without damaging yourself or the aircraft significantly increase if you are current. New Zealand pilots who had flown 10 or more hours

in the last 90 days carried out forced landings with no damage to the aircraft in 60 percent of cases. Those with less than 10 hours incurred substantial damage in 75 percent of emergency landings.

Practise forced and precautionary landings often, in an area where it is both safe and legal to do so. Under rule 91.311 (a) *Minimum heights for VFR flights*, you must not fly VFR less than 500 feet above any structures and persons. You must also maintain a horizontal radius distance of 150 metres. Think of this as a virtual cylinder or no-fly zone around each structure and person.

Survival

In order to survive after the aircraft comes to a stop, you need to be prepared. You may need to deal with ditching, a fire, the environment, and injuries sustained in the crash. A valuable source of information to help you prepare for these scenarios is the *Survival* GAP booklet – email info@caa.govt.nz for a copy.

Thank You

This year's AvKiwi series involved 29 seminars from Invercargill to Kerikeri. In total, 2051 aviators attended, which is a fantastic result given that we started our South Island seminars just 14 days after the February 22 earthquake in Christchurch. We would like to say a big thank you to all the training organisations, clubs and flying schools who support the seminars. Each year the feedback is more and more encouraging, and it seems you can't wait for us to come back again next year. ■