

# Straighten up and fly right.



*The nose is a bit high, just to emphasise the shot but unless you are really unlucky the model will be okay if you put it down slow.*

A few weeks ago I test flew my Dad's F-4 Phantom, the most complicated and expensive model I have ever flown. This thing has a small wing, weighs fourteen kilograms and is loaded with electronics and gadgets. It has about thirty metres of heat resistant wiring and carries five litres of fuel.

Before I fly something like that a bit of time conducting a "what if" is time well spent. That is what if the engine fails and depending where it fails what will do? It would have been easy to justify not doing a "what if" before taking the F-4 off because it was equipped with two engines so the

chance of a double engine failure would seem pretty remote.

People with little or no knowledge of how aeroplanes work think the plane will just crash if the engine stops. The wing is what makes it possible for an aeroplane to fly and it is the engine that makes sustained flight practical.

Now we have established that the plane won't come thundering down out of the sky just because the engine has stopped, how do you manage it from there. The plane is definitely going to come down so now it is simply a question of when and where it arrives back on the ground.

If the engine fails just after take off usually there is very little time to do much but I will come back to that later. At altitude you have a fair amount of time to make your mind up what to do. The outcome of deadstick (flameout for jets) depends primarily on the skill of the pilot and any decisions made with the location of the aircraft a secondary component. Fuel starvation (aka empty tanks) is the most likely cause in full sized aviation but in models a lean needle valve setting is usually the culprit.

These articles have been written with inexperienced pilots flying trainers and sports models in mind and if you are in this category I can suggest a simple emergency procedure. Whether it is glo or electric if the engine has stopped or has to be stopped ease the nose up a bit then pull in full up elevator trim. Return the elevator stick to neutral, letting the sticks go for a second or two is a good way to do this and the plane will settle into a glide, possibly after one or two little stalls. Provided it is not banked steeply into a sharp turn this will give you some time to think about what to do next. At one hundred metres altitude a

forty trainer will glide for about a minute and if the glide speed is sixty k.p.h, the plane will travel one kilometre. If there is no wind and provided the model is not a kilometre away there is a good chance of landing back on the runway.

The object of a dead stick landing is to get the aeroplane back down in one piece and the way to make sure of that is to land at a fairly slow speed and not hit anything. Making it back to the runway is imperative if flying over rocks or trees but most model flying sites have a large open or grassed areas around the runway. If there is any wind, landing into it reduces the ground speed so if the plane does clang into something, such as a fence, the amount of damage if any, can be reduced significantly.

The Golden Rule for beginners is to have the nose pointing into the wind by the time the aeroplane gets to the minimum altitude of 15 metres or fifty feet above the ground. I have seen very few damaged by outlanding with a straight and level attitude into a field, even a rough paddock but plenty have gone in attempting steep turns when near the ground. Over the years I have deadsticked many models (mostly other peoples) into fences, boulders, stakes that cannot be seen when landing a long way away, often not even breaking the prop.

You can be unlucky though, once a friend threw me the transmitter after the engine in his Stampe stopped and there was no way it would clear the fence so I wheeled it around into wind and headed for what appeared to be the safety of the large paddock next to the strip on his farm. With all the extra drag from another wing, struts and wires biplanes don't glide very well and just after I



*For the inexperienced pilot successfully performing a steep turn near the ground to make the runway is riskier than a slow outlanding in the rough.*



*Hold the nose up and don't let the elevator off until a few seconds after you think it is down. Most times you won't even break a prop.*

started easing the nose up a metre high it cartwheeled to the left. There was one small sapling in the middle of a ten acre padlock and I didn't see it but the left wing tip found it alright. Fortunately there was very little damage mainly because the plane was pretty slow when it hit.

The point of that suggested rule is that the outcome is almost universally better even if the aeroplane is landed in a controlled way off the strip rather than a risky manoeuvre in order to make the runway.

#### WHICH WAY DO I TURN?

Gentle turns are the go and that is rule number two, twenty to thirty degrees angle of bank. If the model is upwind after completing the turn take your eyes off the model and look to determine where it is in relation to the strip. Once you know that you can make the rough calculation about where to turn but in the meantime aim it roughly parallel to the runway allowing room for the turn back into wind.

If the turn has to be made when the aeroplane is halfway along the strip obviously it will overshoot the upwind end of the strip. If you start deliberating about breaking the Golden Rule remember the desired outcome. Make the turn and although the model will land upwind of the strip, this is much easier and less risky than performing a steep turn at low speed and altitude, assuming do it at the right time and you get that right.

If it cuts downwind either turn straight back towards the runway or if it is too close turn out seventy to ninety degrees while losing height then invoke the Golden Rule. If flying upwind overhead the strip there should be enough time to complete a three sixty degree turn to line up. Just to harp on it one more time, landing a basic trainer or sport model slowly into wind is far more important than landing on the runway. These models stall around forty kph, pretty slow really and the following the suggestions made, the aeroplane will end up somewhere near the runway. Being closer also offers better visibility for you to judge the flare.

At one metre high pull in a quarter up elevator and as it bleeds off speed and slowly keep pulling it back to halfway, more if you are confident. As long as the wings are somewhere near level really concentrate on the elevator and even after your

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gliding toward the runway I have found most beginners get a basic idea about what to do.

Once you get a feel for what to do then you may be able to correctly decide if it is worth breaking the Golden Rule and go for the runway. When flying higher performance aircraft this becomes more important because the combination of higher all up weight and landing speed increases the chance of damage when outlanding. A smooth but high speed downwind landing on the runway may be a better option than an outlanding and if it is really hot leaving the gear up would be worth thinking about if it is going to hit the long grass and rougher ground at the end of the strip.

After rolling out of the first turn after take off the Phantom was about eighty metres high and both engines stopped. At 14 kilograms plus three litres of fuel on board this thing would be down in fifteen seconds and the Golden Rule is to get it on the runway. Heading down wind and turning back at forty five degrees to the intersection of the N/S and E/W runways would have the Phantom about two metres high on short final leaving the option to turn

onto either strip.

There was a guy on the runway and I spent a few seconds dealing with where he was going to be and after turning it was apparent I had left it late and might not make the bitumen. Retracting the gear to clean up the model would improve the glide but that takes about seven seconds but I felt it was better to leave them down and take the chance the undercarriage mounts would take it.

A gutser off the field would probably rip the anhedral tailplanes right off and I put it down in the long grass as slow as I could dare fly which was still probably 70 kph. A sickening crunch echoed out but it turned out the undercarriage mounts stood up to the load and the weak link was the main oleo struts which were torn off.

The second part of "what if", a controlled landing at slow speed with the wings level plus a bit of luck in not hitting a pot hole worked. The first part of my "what if" didn't come off because I made a mistake and given I was flying a fast heavy aeroplane the end result of landing in the rough was pretty good.

Stephen Green ●

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