

Pre-flight checks – Part 1

“Atomic batteries to power. Turbines to speed.” Robin’s pre-flight checks were very brief, no doubt based on the assumption that Alfred kept the Batmobile in such good nick that extensive checks were not necessary. And of course the machine only had one driver. But if you don’t own your own aeroplane and you hire one, then unlike Batman, you don’t know what happened on the previous flight(s), and you also know the aeroplane has not been looked after daily by your own butler. So what should you look for in your pre-flight?

Mandatory checks

Schedule 5 of the CAR lists the checks that must be done in a daily inspection, meaning the inspection before the first flight of the day. Note there’s no rule saying you have to do all those checks if you’re the second or third person to fly the aeroplane that day. It’s just airmanship and survival instinct that make you do it before any flight.

Here are some tips relating to some of those checks. They may not all apply to every aeroplane, and it’s not an exhaustive list, but with any luck it’s a good start.

Inside the aeroplane

To do the external checks properly, you need:

- The fuel selector on so you can do a fuel drain from the strainer,
- Flaps down, and
- Control lock out.

To be safe before you wander around near the prop, also make sure the ignition is off, the mixture is lean and the throttle is at idle. Of course the last pilot shut the aeroplane down properly so those things will be right, but as with many of your checks, it’s not about doing things as much as making sure things have been done.

Walking around

It doesn’t matter where you start, as long as you’re consistent and you have a system in place to make sure you don’t miss anything. I start at the front and, other than a general lookout for anything obviously wrong such as missing bolts or rivets or cowlings not secure, my checks include:

- The propeller is free of cracks and nicks, and the spinner is in good condition. If it’s a constant-speed prop, check that you can’t twist it, and that there are no oil leaks from the hub.
 - Check the air filter is clear.
 - There’s typically not a lot you can check in the engine, but you can check there are no fuel or oil leaks, and the exhaust is secure and free of cracks.
 - Check the nosewheel assembly, including enough extension in the oleo, and that the torque link (the steering elbow) and the shimmy damper are secure. If it’s retractable, you can check the door, and depending on how easy it is to see, the locking mechanism.
 - Check the oil quantity, and remember if the engine is hot, the dipstick will probably overread. It may also be a bit hot to hold. Put the cap on finger-tight. If you’ve ever tried to undo an oil cap that feels like it’s been torque-wrenched in place, you’ll understand this tip.
 - Make sure the tyres are inflated enough and there is no canvas exposed, and roll the aeroplane forward or back to check for flat spots.
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- Wings
 - Check the lights are in good order.
 - Check the aileron hinges, linkage and mass balance (the little bits of lead that help to stop flutter). It's a bit harder in a low-wing aircraft than a high-wing one, but do your best. At this point some pilots like to check the controls are moving the right way when they move the ailerons. I do this check the other way round, once we're strapped in – stick left, left aileron up, right down – but neither way is right or wrong.
 - Check the flap linkages and ensure the flaps don't move too much and too readily.
- Struts – secure, with no obvious damage.
- Pitot tube and static vent(s) – make sure any pitot cover is off, never blow into the pitot tube, and check for anything that may have chosen the pitot tube for a nest. This may be quite hard, hence your check that the airspeed is alive on the takeoff roll.
- Fuel
 - Make sure the dipstick is the right one for that particular aeroplane. For instance, PGL holds 235 litres (62 US gallons), whereas a standard 172 holds 189 (50 USG), so PGL needs its own and not a standard 172 dipstick. And check you've put the tank caps back on properly.
 - Drain the tanks in at least one low point. If it's AVGAS LL you should see a light bluish tinge to the fuel, which is simply the dye added to help you identify it. Holding it up against a white surface helps with that. Any dirt or impurities should be obvious, and if the tanks are partly full and there's been condensation overnight, water will sit at the bottom. If there's water, simply keep draining until you get nothing but fuel.
- Elevator and rudder
 - Check whatever linkages are accessible – most likely just the cables and split pins, or control rods. Check the trim tabs and their linkages are secure.
 - Remember not to yank the rudder around because it's connected to the pedals, which are connected to the nosewheel, which is connected to the ground and is not going anywhere, so pushing and pulling the rudder will only put unnecessary stress on the linkages.
- Antennas – all secure.
- Ensure all the surfaces are free of frost, ice and snow. Okay, that last one is not a biggie at Northam, although snow is a consideration at Jandakot because apparently that's the reason the new(ish) taxiway side lighting there is a few inches above the ground. So much for global warming.
- Windscreen – check it's clean, and use a non-abrasive cloth and window cleaner if need be. If the previous flight was at dawn or dusk, and the previous pilot hasn't been nice enough to clean the bugs off for you, this is a very necessary check.
- Before you jump in, make sure the seats are secure and they aren't going to slide back and leave you out of reach of the controls on take-off.

As for the checks inside the aeroplane – that's a topic for another article. Stay tuned. Same bat-time, same bat-channel next month!

Kevin
