

Joining **Uncontrolled**

Sound planning, an understanding of local operations, and maintaining the big picture through your scan and radio are essential elements to joining at an uncontrolled aerodrome.

Have you ever found yourself 'flying behind the aircraft' during what should have been a fairly standard approach?

It's an easy trap to fall into when you fail to plan effectively before the flight.

The key to a successful circuit join is situational awareness. And this is built on the foundation of sound pre-flight planning. If you lose situational awareness, remove yourself from the circuit and give yourself time to re-build the picture.

Pre-joining

As always, before you depart, one of your first tasks is to get intimate with the aerodrome charts, namely *AIP New Zealand*, Vol 4, and while you're at it, see if you need approval from the aerodrome operator. The AIP is available, free, online at www.aip.net.nz.

After that, getting a handle on local knowledge is key, says Marc Brogan, CAA Aviation Examiner.

"When you're operating at an uncontrolled aerodrome, regardless of whether it's your home base or not, it's handy to know what takes place there. Sometimes there's a memorandum of understanding that outlines local procedures.

"Obviously, whether you plan on joining straight-in, or overhead, will depend on these factors. Generally, the standard overhead

join will provide more time to get a lay of the land, sight traffic, and work out the wind conditions."

Be aware that some aerodromes specifically recommend you don't join overhead due to parachute operations, or other activity at the strip.

Nathan Clarke is the CFI at Canterbury Aero Club and the International Aviation Academy. He is a 4000-hour fixed wing pilot and the Safety Officer at Rangiora Aerodrome. He hasn't had a close call during his 20 years operating out of the strip.

"During your preflight planning/chart briefing, always check the landing chart for additional radio requirements. For instance, Rangiora has an additional final call required.

"Many pilots think Rangiora is just a sleepy little aerodrome that doesn't have much going on, and subsequently, they don't brief properly before flying to the airfield. Whereas, at its busiest, you'll probably be number six lined up ready to go with a possible four or five in the circuit, and several joining.

"Regardless of the aerodrome, always weigh up the risk involved in different approaches.

"When you're joining overhead, you've got more time to build situational awareness, and generally, there's less risk involved.

"Remember that you don't have to come in 500 feet above the circuit if you're worried about what's below you. You can come in 800 feet above (airspace allowing) and then descend.

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"In my mind, the approach that entails the most risk is joining straight-in on a long final. I don't allow anyone I train to do that. If you choose to join on a long final when you can't see traffic in the circuit, you've already made a commitment to possibly cut someone off.

"Before joining, always have the chart out and do a final check – it's very easy to get the wrong circuit. People get into a mindset that they're going to go for a certain runway, but mistakenly transpose it 180 degrees. Seems hard to do? But we see it regularly – on takeoff too," says Nathan.

Circuit Positioning

Don't let a quiet field lull you into a false sense of security and assume it's safe to join straight-in – there may be NORDO aircraft operating.

"You really need to start thinking about your joining procedure at least 10 miles out from the circuit," says Andy McKay, helicopter pilot and CAA Aviation Examiner.

"If you can't see the runway, you need to be on frequency early to build the picture.

"Count how many different aircraft are in the circuit, and start looking at what is the best way of joining. Don't always expect other pilots to act in a predictable way, or assume those established in the circuit are necessarily going to be operating correctly. It's human nature to mess things up," says Andy.

Carlton Campbell, CAA Aviation Safety Adviser, says pilots need to think outside of the cockpit and visualise the impact of their action, or non-action, on others.

"My biggest tip is to be predictable. State your intentions, then act accordingly, while avoiding 'creative non-standard alternatives'.

"Pilots not operating to standard procedures can cause confusion for other joining aircraft, particularly NORDO aircraft, where the pilot is relying on predictable patterns to safely arrange sequencing.

"Some pilots find it hard enough to integrate with other aircraft of varying performance, especially if those aircraft are acting unpredictably," says Carlton.

The biggest safety risk is on mid-base leg when you're about to turn onto final, says Bill Penman, experienced microlight pilot and retired air traffic controller.

"You have to ensure that you are sequenced correctly, and what's more, that you communicate that sequencing.

"Have a really good look between the threshold, and three or four miles on final, to make sure you're not cutting someone else off. If you're unsure of the traffic sequence, speak up.

"There are a lot of airfields that have parallel operations. Just remember that simultaneous parallel operations are not allowed. So when you're sequencing, be predictable when you're on final. If you're not, it's sometimes quite difficult for the other pilot to determine if you're on approach for the seal or the grass runway."

Roger Ward, another experienced microlight pilot, and air traffic controller, says a standard circuit makes it easier for everyone to maintain visual reference.

"You don't need to be doing a massive two NM-wide downwind ending up on a five mile final. Keep it compact and slow the aircraft down. Just because your aircraft can do 140 knots doesn't mean you have to do it in the circuit. That makes the circuit a lot safer," says Roger.

Helicopters

"Generally speaking, helicopters come in lower and closer than the fixed wing circuit," says Andy McKay.

"The inherent risk for helicopter pilots, is they will generally be operating in the same zone as NORDO traffic.

"From a helicopter pilot's perspective, often we're going to be a lot slower in the approach, so most of the time the biggest threat would be someone else descending onto you," says Andy.

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Simon Spencer-Bower, CEO of Wanaka Helicopters and a 20,000-hour rotary pilot, encourages pilots to make the best use of their helicopters' versatility.

"It's really up to us to keep out of everyone else's way, and compensate for those who don't have the same degree of manoeuvrability or visibility – that's how I teach.

"The most important thing is for pilots to understand where their blind spots make them vulnerable. A fixed-wing pilot can't see down below the nose, and although a helicopter pilot has good visibility out front, they can't see behind.

"At Wanaka, helicopters do circuits at the same height as fixed-wing, whereas some airports have helicopters doing lower circuits. The risk with lower circuits is that you could place yourself in the blind spot of an aeroplane.

"So my tip for fixed-wing pilots is, when letting down on the traffic side of an airfield – which we require at Wanaka due to parachute operations – you shouldn't be letting down on top of the circuit; you should be letting down wide to give everyone a chance to see each other."

Re-circuiting

Changing runways is always a bit of a negotiation. You need to openly communicate your intentions, and get agreement from everyone. Sometimes it can be best to 'plain English it' to avoid confusion.

Roger Ward says that when the wind changes, pilots need to step up and take ownership of the situation.

"During the middle of winter, and at Rangiora in particular, you might start off with a 5 kt westerly because of katabatic drainage down the valley, and then as the day goes on, the wind slowly changes and it turns into an easterly. People just continue to use the original vector.

"After a period of time, someone really needs to step up and say 'hey guys, we've got a tailwind at the moment.' And that's probably the most dangerous time, when all these aeroplanes have to re-position for the other runway. It can get quite messy.

"In my view the best move is to get away from the circuit and re-join for the other runway, rather than doing orbits and 180s downwind. It's easier to spend another 10 minutes, go away and come back," says Roger.

It's always best to try to avoid unnecessary orbits for positioning's sake as they congest the circuit flow. The problem with orbits is that there's a period when the wings are dipped,



and you have a high bank angle. Regardless of whether you're high or low wing, you're going to lose visibility.

But sometimes circuit dimensions are restricted and orbits become necessary. For example, at West Melton on 04, you can't extend downwind due to the firing range.

Flying with the Student Pilot in Mind

Whenever you take any action, consider how a student on first solo would be affected.

"The main thing is to be considerate of others and try to avoid putting pressure on people," says Nathan Clarke.

"It's a bit like opening the door for someone – aviation is no different from being in another public space.

"People tend to assume other pilots have a similar level of experience.

"If there's a new student doing their first overhead join, they're probably going to make a meal of it. So just give them some breathing room, even if you are already established in the circuit and have priority.

"I had a student who was just finishing solo consolidation – four hours' time total – and a transiting helicopter cut below and in front of him while he was on final. Not an ideal situation.

"Speak logically, slowly, and deliberately so they understand your calls, and sequence yourself so you don't put any pressure on them."

Roger Ward says, "If you are doing something unusual in your aeroplane, like a glide approach, or are doing autorotations in your helicopter with a hellishly steep glide angle, you need to let people know. That way, other pilots can adjust their final approach scan accordingly.

"Just make sure you use language other pilots will understand – if a helicopter pilot just says '180 auto', a student pilot may be thinking 'what the hell is that?'"

Situational Awareness

"If you're looking and not seeing, a good instructor will pick that up in an instant," says Nathan Clarke.

"I believe some people fall into a 'happy space' with their lookout, where they are limiting their scan to the direction they are

If possible, always scan right back behind the wings to the tail.

going, just forward of the wings."When flying a high-wing aeroplane, you should probably have a sore neck and back by the end of the day. To do a really good scan, you have to hunch down in the seat and look right back behind the wings to the tail. The work cycle should include a scan right around to the tail on a regular basis.

"Here's a simple test: does your scan pattern change when your radio is turned off? There shouldn't be a difference.

"And while we're on the subject of the radio, always do a radio volume check before taking off.

"Tons of people turn the radio on, and don't check the volume or squelch. Checking these simple things can save a lot of embarrassment, at the very least." Nathan advocates the four Cs – clear, concise, consistent, and correct.

"Keep radio work to the point, and talk slowly. I'm still having trouble, even with instructors, who are talking too fast. The international pilots have a hard time understanding those calls," finishes Nathan.

Bill Penman believes situational awareness is the key.

"Especially if there's a lot of radio traffic. You need to listen to every transmission, and then consider if it's actually relevant.

"When making position reports, there are a lot of people who generally say they're over a particular point, but in reality they're two to three miles from it. So when a pilot starts looking, they look in that general direction, but actually, they need to be looking 30 or 40 degrees either side of it," says Bill.

"Don't get me wrong," says Roger Ward. "I think the radio is a very useful aid, but often there's an over reliance on it, and quite often there's far too much unnecessary chatter.

"And don't assume that all radio reports are accurate.

"I remember joining at Rangiora one day, and I was coming in from the northwest, when I heard an aircraft call and I got sucked in by overusing the information. He said he was five miles west rejoining, 1700 ft. I assumed he was to my right, so I'm looking... I'm looking... I'm looking... and I started to get a little concerned.

"The next minute, I looked down and there was a flash on the left-hand side.

He wasn't West, he was North!" says Roger.

Resources

See the CAA web site for resources to help your situational awareness and radio proficiency, www.caa.govt.nz/avkiwi. ■