**Tim:** Welcome, everyone to the AvSafety podcast series presented by the Civil Aviation Safety Authority podcast series. This series explores a whole variety of air safety related topics, with hints and tips helpful for our everyday flying. I'm Tim Penney and joining me is Lea Vesic as your host.

0:25 Lea: You will hear interesting stories from our industry, including pilots and aviation experts, aviators such as yourself involved in different areas of aviation who are willing to share their stories and experiences so we can all learn from each other.

0:38 **Tim:** And whether we fly three times a week or three times a year, it doesn't really matter. There's always something we can learn to ensure optimal safety. For more information on a wide range of safety issues, visit our website www.casa.gov.au/pilots.

The International Civil Aviation Organization and Air Services Australia consider runway safety to be one of the highest priority areas for improvement in aviation safety. So, why do so many runway incursions still occur? This episode explores the key things you should know when operating at controlled aerodromes, whether it's runway safety, situational awareness or communicating with air traffic control.

This important topic reinforces why your flight does not finish until the aircraft is at its parking spot and the engines are shut down.

**Bianca:** When I was four, I went on my first flight as a passenger by myself. My family dropped me off at an airport in the Gold Coast, Coolangatta and then my grandparents picked me up, I went to visit them in Gunnedah, a country town and it was just an amazing experience.

02:01 When I was 10, I went on my first jet with Qantas on an international trip to Disneyland and I was lucky back then before September 11th I got to go to the cockpit, and it was just such a beautiful memory, that it set something in my heart, but it never really became a career pathway until I got into my 20s and was really seeking a challenge and something more exciting and adventurous that I could grow personally and professionally.

02:28 **Tim:** This is Bianca Wise, Senior Flying Instructor with Flight Training Adelaide based at Parafield Airport. Bianca and I sat down for a conversation about some of the common mistakes student pilots make as well as what we can all do to improve situational awareness in order to avoid a runway incursion.

02:44 **Bianca:** Parafield Airport is a class Delta aerodrome, nestled very closely between class Charlie of Adelaide International Airport and Edinburgh restricted airspace, so we're very tight for training area.

We also have two sets of parallel runways, 0-3 and 2-1, as well as 0-8 and 2-6. There are a number of flying training organizations at Parafield, so very busy with lots of student learning, but there's also a lot of helicopter operations. There's flying with air tractors and bombing, water bombing during fire season. We have media, aero-medical, corporate charter, it's a very busy aerodrome for a number of different flying operations.

It's a wonderful place to train, especially, aside from today with the rain and fog, it's a wonderful location, we have many, many days in the year for good weather unlike many aerodromes around Australia, we're quite fortunate for suitable flying weather days for learning.

03:37 **Tim:** That certainly is true, Bianca. But like other capital city class D aerodromes around Australia, the runway layout at somewhere like Parafield can be quite complex, especially for student pilots and pilots that might not fly that often. What are some of the routine errors that pilots make especially early on in their pilot training when they're trying to negotiate a busy runway environment?

03:59 **Bianca:** The most common issue that we really have is assumption, that students when they're learning are absorbing so much information at one time and it's all new, that with the weather, they may tend to fly one particular runway for a period of time, maybe a week or two weeks while they're learning circuits possibly.

And suddenly the weather has changed, there might be a different runway in use which means the taxiways to get there have changed and it catches them off-guard because they're not expecting an undershoot, overshoot, a runway intersection for a crossing

and radio call and something more complex or unexpected could then lead to errors.

04:33 **Tim:** Yeah, and I suppose from the students' point of view and also from the instructors' point of view, you have to be always on your game. Although there might be one or two runways in use, we really as a default have to treat all runways as active all the time, because you never know what's going to happen.

04:53 **Bianca:** Yeah, that's absolutely true. While we always have usually something happening, whether it's, this week is line marking, we might have ground operations, there's something usually always occurring with air medical, with firefighting, with police operations. There's usually something that's happening on the ground, everywhere, all the time at Parafield, as well as in the air in fixed wing and rotary, so it gets to be a very busy aerodrome with lots to make sure we need to look out and listen out for.

05:17 **Tim:** And one of the things that we often emphasize when we talk about runway safety or operations on the ground is that pilots should never be reluctant to let ATC know if they need some taxi assistance.

05:29 **Bianca:** Oh, not at all. We do have some private operators that come through or some who are touring to visit Parafield, that you can definitely hear them say, "Unfamiliar." That term with the ATC is a wonderful term to use to get extra assistance, it also helps everybody else in the airspace at that time to be aware that somebody doesn't know where they are or what they're doing. And that we need to look out for them to make sure that they're not taxiing in a different direction to where they should be or where we expect them to be.

It's, especially for students, it can get nerve-racking to admit that they don't know something or that they haven't heard or they've misunderstood. But it's important to remember that the students are humans, ATC are humans, we all make mistakes and it's far better to ask and confirm the instruction or just a simple, "Say again..." than it is to make an error because you're too afraid to admit you're not sure.

06:12 I'd much prefer to know, the sooner you're accountable with your own knowledge and weak points, the sooner you can grow them into strong points and get better because of that knowledge.

06:24 **Tim:** So, Bianca, what are some of the things pilots can do to get a better handle on their situational awareness and help them stay ahead of the aircraft when they're operating in these complex taxiway and runway environments?

06:36 **Bianca:** We have so many wonderful resources now in terms of flight radar and Live ATC, you can be watching operations at Parafield while you're sitting in your room and studying for the night and getting a sense of what type of aircraft are operating, in which way are they operating, are they in the circuit, are they doing an IFR departure, are they returning from a NAV, which direction is most common for this particular day and this particular weather, is it an eastern departure or western departure? Could I expect them to join when I'm in the circuit?

So, just like we would go into a class Charlie aerodrome, you would look up the scheduled departures so you know what traffic you're going to arrive with. You can build situational awareness at home in your own time, both by listening to live ATC, practicing, preparing with some of those radio calls you might expect to hear and some of the readbacks you might expect to give.

Or even just simply the same pre-flight things we do every do everyday. Often pilots will listen to ATIS or check the weather, but do so just to write down a number, not necessarily put it into context. But the ATIS has got useful information, what is the direction and strength of the wind, what runway do we expect to use today? Not only the runway, but how is that going to affect my taxi to that runway?

07:40 What run-up bay do I expect to use, what traffic do I expect at that runway and at that run-up bay that might change my taxi on the way to that runway, which can be so useful just spending a little bit of time to consider before you get into the aircraft, when the workload increases.

Knowledge is confidence, the more you know and the more you feel ready for, the better you can make decisions when the unexpected does happen because you have a layer of foundation for expectation that allows you to make better decisions.

08:03 **Tim:** And even something like the good old ERSA, it's amazing how so many pilots only perhaps give a cursory glance at the ERSA, but a detailed study and familiarization with things like special procedures at airports like Parafield or Moorabbin or Archerfield, etc, can go a long way again to helping that situational awareness.

08:26 **Bianca:** Oh, I adore the ERSA, I think it's a wonderful resource. CASA and Air Services have some fantastic products of ERSA, the VFRG, there are so many resources that are very cheap and affordable as a student pilot that you can purchase and that you can use to build situational awareness.

It's simply, before we go to Adelaide, we give Adelaide tower a ring and say, "Hi, I'm gonna come and visit today, I've had a look at special procedures for arriving training aircraft, what's your expectation today, how busy you are, when is there a suitable time for me to arrive?" And we can use that to both help their workload, but also help ours.

08:59 **Tim:** It makes your flying predictable, and if your flying is predictable, you therefore seamlessly slot yourself into the flow of ATC. Basically, it's safer for everyone.

09:07 **Bianca:** Yeah, from what you've said, most class Delta have the same idea of how they operate, but I've flown at a few and every Delta is very different. So, having a read of those special procedures allows you to better be prepared for the aerodrome you're flying into, to make it a more comfortable, enjoyable experience for you, but also an easier experience for traffic control as well, and the users that are operating at that time.

09:28 **Tim:** We'll come back to Bianca in a moment to hear some of her closing thoughts and key lessons for you to take away. Now, let's meet someone for who dealing with runway incursion is all in a day's work.

09:48 **Raj:** One of the most concerning incidents or occurrences at Moorabbin was when pilots weren't aware of the frequency, the tower frequency to call on. They could be ready at one holding point, yet calling the tower on the other frequency. And by coincidence, there could be two Cesnas at the holding point of each runway and the aerodrome controller could just not pick it up and they would clear them for take off and get a shock of their life when the other controller says, "Who's that lining up for my runway?"

10:17 **Tim:** This is Raj Prakash. Raj is a tower controller at Brisbane Airport. He started his career as an air traffic controller with the Fiji Civil Aviation Authority and has also worked in ATC in New Zealand. Raj has been controlling here in Australia for the last 12 years, with previous experience in the busy environment of Moorabbin tower and is now located in Brisbane.

Needless to say, Raj has seen his fair share of runway incursions, and we're grateful that Raj has joined us, to let us know what to look out for and how to prevent ending up on the runway, in the wrong place and at the wrong time.

10:55 **Raj:** So, being aware, pre-planning prior to taxi, just knowing which side you're going to, if it's a parallel runway environment, knowing your taxi route. And knowing the frequency to call on is one of the major issues we faced in Moorabbin. Other issues that are normally quite vast in the tower is pilots not being ready at the holding point or when they say they are ready, but they're very, very slow to line up.

I mean, we don't expect someone to be lighting fast, but there is an expectation or expected amount of time that we need for runway occupancy purposes because there's always someone landing so we need to use the runway at the right time and yeah, there's an expectation that the pilots perform and keep their runway occupancy times at a minimum.

11:44 **Tim:** Sure, so when a pilot calls ready at the holding point, they really need to be ready because you've got a traffic sequence, another traffic on final approach when you have only a very small window really to get that aircraft away. There is an expectation on your behalf that the pilot will meet that expectation and start their takeoff roll.

12:01 **Raj:** Definitely.

**Tim:** What are some of the other common errors that you see pilots making at controlled aerodromes?

12:07 **Raj:** Mainly for itinerant pilots especially, unfamiliarity with the aerodrome. Landing, vacating the runway, using a high speed, just not being as quick on a high speed as well, sometimes very slow. High speeds are designed to be taken at a rate of knots and we see pilots land and really slow down in the runway if they're unfamiliar.

The one thing that we're faced with mainly is when pilots do or are unfamiliar, they don't actually ask. And you can see that from the tower. You see the slow movement or the stop and it's usually that we have to go back to the pilot and say, or ask them if they need any assistance, any more detailed instructions or even a "Follow Me" car.

12:53 **Tim:** So, it's no problem at all for a pilot to let you know if they are unfamiliar with the airport layout?

12:59 **Raj:** In fact, we encourage that, if you're unfamiliar, rather than making a mistake, just put your hand up and say, I'm not familiar, can I get more detailed guidance? And we will definitely help you out there.

13:09 **Tim:** CASA has a range of resources and events to support the pilot community. Register to attend our free AvSafety seminars, to hear about safety issues, talk with us and meet other people in the industry. Visit www.casa.gov.au/avsafety to register. And while you're there, subscribe to our mailing list to stay up to date on information relating to aviation safety resources for all pilots.

Situational awareness is obviously a big tool in the pilot's kit bag to know where they are in time and space. What information might you have for pilots when it comes to building their situational awareness or increasing and maintaining situational awareness around a busy aerodrome?

13:57 **Raj:** Pre-planning is one of the most important things. Knowing the aerodrome limitations, taxiway limitations or closures that may be at the aerodrome, that would be current or something that's happened temporarily. And the ATIS is probably one of the most important pieces of information.

It's something where the pilot's required to get pre-taxi. Knowing all that information would give you an idea as to what's happening at the aerodrome. Obviously, the ATIS will give you the runway that you're expected to go off. That way, you can plan your taxi route as well.

14:29 **Tim:** One of the key themes that has come from these conversations is the importance of situational awareness. Let's now hear some final words from Bianca and Raj about the importance of maintaining your situational awareness on the ground, after you've landed.

14:45 **Bianca:** People often say even the last landing is the most important because at that point, at the end of your navigation sortie, it might be a few hours, you're fatigued, you're happy to get home and land, ready to go to the bathroom and eat some lunch. So you know, it is a time that we naturally can tend to relax because you feel like the task is completed.

However, while you are still operating, it is safe and important to consider, but it's still a highly dangerous situation. There's a lot of moving parts, a lot of people doing complex operations, it's really important that when you've completed the sortie, you've landed on the ground, but you're ready to taxi back, that you still give the same attention to the ground operation as you do the flying component.

There are a number of chances whether it's crossing a runway, crossing an undershoot in our case that might occur... There may be various runways you have to cross with a challenging layout for both taxiway and runway to navigate and by switching on and allowing us to listen out and lookout for traffic that might change our taxi instructions means that we can still be safe until we tie down the aircraft.

15:48 **Tim:** And another thing the pilots can do, for example, like reducing distraction in the cockpit. For example, an instructor leaving their post-flight debrief until you're back in the flying school is probably a significant distraction element if an instructor starts debriefing a flight when they still have runways to cross and taxiways to negotiate.

We also want to encourage pilots to minimize the "head inside the cockpit time", especially around these types of airfields.

16:17 **Bianca:** Absolutely. Eyes outside is something we use all the. We have gravel taxiways as well, which can affect and chip our propellers. Being able to choose the correct power settings and give the correct level of attention to those operations to make sure we don't cause any issues on the ground can allow us to build situational awareness.

Our taxi route may change if there's traffic coming from a runway before us, so by looking out and listening out for that traffic, it helps us anticipate the radio call we have, but remembering that we need to really be a quiet space in the cockpit so that we can steer our cockpit, we say, that you can listen out and give your best attention to what could happen, not only what might be happening.

16:52 A lot of students have a tendency that they've completed their radio call and they're so grateful to have that nervous finger off the trigger moment completed, that they then want to talk about the experience or what's happening on the flight, but the moment they stop their radio call and give in their readback, we're still listening to other radio calls.

There's constant chatter that can build our situational awareness. So, by delaying our conversation to listen and build that knowledge helps us with our taxi and our takeoff for a more successful and safe flight.

17:20 **Tim:** And finally let's hear some closing thoughts from my conversation with Raj.

17:24 **Raj:** Maintaining two-way radio communications and listening to other's transmission is very, very important in maintaining situational awareness. If an instruction is issued to an aircraft to give way to a Cesna at Charlie-4, if you're the Cesna at Charlie-4, you can realize from the instruction that another aircraft is giving way to you and then you can taxi without hesitation which just makes good airmanship I suppose.

17:53 **Tim:** And it really makes your operating of the aircraft predictable and if you are predictable, it helps improve everyone else's situational awareness. And one other thing and it's something that I'd just like to ask you, if a pilot for example from an operational standpoint cannot comply with an instruction, just tell you.

18:09 **Raj:** Absolutely.

18:10 **Tim:** And then you're duty-bound therefore to offer a different solution or a different clearance or a different instruction. There may be some type of delay or something like that, but if you can't comply, it's really important, would you agree that the pilots let the ATC people know.

18:26 **Raj:** Absolutely. And one of the key examples would be when we ask pilots if they're ready for an immediate departure. If you're not ready for it, just say no and we won't put you in a gap when we need to.

18:39 **Tim:** If you want to learn more about how you can stay up-to-date on the topics we've discussed today, then check out the information and resources we have by going to the link in the description. Thank you to our guests for sharing their wisdom, stories and insights.

We look forward to having you join us for our next episode. My name is Tim and this is CASA's AvSafety podcast.